

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

New York Independent System Operator, Inc.     )

Docket No. ER21-2460-00\_

**REQUEST FOR CLARIFICATION OR, IN THE ALTERNATIVE, REHEARING  
OF THE NEW YORK INDEPENDENT SYSTEM OPERATOR, INC.**

In accordance with Section 313(a) of the Federal Power Act<sup>1</sup> and Rule 713 of the Federal Energy Regulatory Commission’s (“Commission”) Rules of Practice and Procedure,<sup>2</sup> the New York Independent System Operator, Inc. (“NYISO”) respectfully requests that the Commission grant clarification or, in the alternative, rehearing of the directive established by paragraphs 92 and 93 of its June 17, 2022 order<sup>3</sup> on the NYISO’s July 19, 2021 Order No. 2222 compliance filing, which address the provision of Operating Reserves by Distributed Energy Resources (“DER”) participating in heterogeneous DER Aggregations:

92. ...We understand protesters are concerned that NYISO’s proposal unreasonably limits the ancillary services (i.e., regulation service and operating reserves) that a heterogeneous Aggregation can provide in scenarios where one or more DERs within that Aggregation is not capable of providing that service.

93. ...We believe, however, that NYISO could address its reliability concerns by means other than requiring that all individual DERs within the Aggregation satisfy the relevant reliability requirements, such as the one-hour sustainability requirement. Therefore, **so long as some of the DERs in the Aggregation can satisfy the relevant requirements to provide certain ancillary services (e.g., the one-hour sustainability requirement), we find that those DERs should be able to provide those ancillary services through aggregation**, in accordance with the goal of Order No. 2222 to allow distributed energy resources to provide all services that they are technically capable of providing through aggregation.... [Footnote omitted.] Accordingly, we direct NYISO to file, within 60 days of the date of issuance of this order, a further compliance filing proposing an effective date **by which it will allow DERs in heterogeneous Aggregations to provide all**

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<sup>1</sup> 16 U.S.C. § 8251(a).

<sup>2</sup> 18 C.F.R. § 385.713.

<sup>3</sup> *N.Y. Indep. Sys. Operator, Inc.*, 179 FERC ¶ 61,198 (“June 17 Order”).

**of the ancillary services that they are technically capable of providing through aggregation.** [Emphasis added.]

The NYISO has already commenced an effort to develop market improvements that will enhance the ability of heterogeneous DER Aggregations to provide the Operating Reserves they are capable of providing in the NYISO's markets.<sup>4</sup> The NYISO explains the enhanced capabilities it proposes to make available to DER Aggregations below. The NYISO respectfully requests that the Commission clarify that the improvements and solutions described in this filing would satisfy PP 92 and 93 of the June 17 Order.

If the Commission is unable to provide the NYISO's requested clarification then, in the alternative, the NYISO respectfully requests rehearing. Read expansively, PP 92-93 of the June 17 Order arguably require the NYISO to incorporate the operation of individual DER into its real-time commitment and dispatch solution in a manner that is inconsistent with the NYISO's accepted DER market design. Adopting that interpretation could compromise reliability by requiring the NYISO's Real-Time Commitment ("RTC") and Real-Time Dispatch ("RTD"), which develop Real-Time Market solutions and issue commitment and dispatch instructions, to solve a host of new constraints in order to incorporate the operation of individual DER that participate in its markets as components of a larger Aggregation. Adding DER-specific constraints to RTC and RTD could delay the timely posting of real-time dispatch instructions.

Making the additional software and process improvements necessary to implement an expansive reading of the requirements stated in PP 92-93 would require the NYISO to dedicate

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<sup>4</sup> The NYISO is developing market enhancements as part of its effort to develop Hybrid Storage Resources that it also intends to apply to DER Aggregations. *See Hybrid Aggregated Storage (HSR) Model – Energy and Ancillary Services Market Design Proposal Update*, Market Issues Working Group (Jul. 15, 2022) <https://www.nyiso.com/documents/20142/32238824/HSR%20Energy%20and%20Ancillary%20Services%207-15%20Final.pdf>. (the "HSR Proposal").

significant additional resources and time to develop and implement new functionality to enhance the ability of DER that are not capable of synchronous operation (e.g., back-up fossil generators) to provide non-synchronous operating reserves. While it is clear that the added complexity, resources and time necessary to develop and implement such additional functionality would be significant, it is not clear if the investment in this added functionality would provide equivalent benefits to reliability or market efficiency.

In order to comply with an expansive interpretation of the requirements in PP 92-93 while meeting its obligation to protect system reliability, the NYISO would be forced to require Aggregators to provide, and to modify its RTC and RTD to receive and use, multiple additional streams of information that address the real-time operation of individual DER within each DER Aggregation. The DER-specific data would introduce additional constraints that RTC (which posts every 15 minutes) and RTD (which posts every 5 minutes) would have to incorporate into the solutions they develop. The time required for RTC and RTD to process a significant volume of information addressing the operation of individual DERs could impair their timely development and posting of market solutions, which would disrupt market participation by all Resources.

DER and Aggregators would also incur additional costs to comply with the Commission's requirements. As the Commission recognized in P 93 of its June 17 Order,<sup>5</sup> the NYISO will be forced to impose additional metering and telemetry requirements to obtain data addressing the availability and operation of individual DER. Aggregators would be required to

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<sup>5</sup> June 17 Order at P 93 ("To the extent that NYISO may need additional information from Aggregators regarding the individual DERs in an Aggregation in order to address NYISO's concern, we note that it should include such requirements among the information and data that an Aggregator must provide about the physical and operational characteristics of its Aggregation, including any necessary physical parameters to be submitted in registration, and any necessary information that must be submitted for the individual DERs, or additional bidding parameters.").

submit additional information with their offers, and would have additional responsibilities to provide and timely update information about individual DER.<sup>6</sup>

Attempting to implement an expansive interpretation of the requirements in PP 92-93 without making the described improvements to RTC and RTD (and related improvements the NYISO's Bid submission software, market validation software, market monitoring tools, market operations tools and settlement systems) to incorporate the operation of individual DER could cause the NYISO to violate Northeast Power Coordinating Council ("NPCC"), New York State Reliability Council ("NYSRC") or North American Electric Reliability Corporation ("NERC") reliability requirements.<sup>7</sup> Violations could occur because the NYISO would not know which DER are online or producing Energy, so it could assign a DER Aggregation an Operating Reserve schedule that the DER Aggregation's resources are not able to satisfy.

The NYISO's accepted DER market design does not require the NYISO to consider the operational status of each individual DER.<sup>8</sup> Instead, under the NYISO's market design, it is the Aggregator's responsibility to dispatch its set of DER consistent with the composite offer it submits for the Aggregation and the instructions the NYISO issues to the Aggregation.<sup>9</sup>

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<sup>6</sup> The NYISO has not explored whether the additional Operating Reserve revenues paid to DER Aggregations would be expected to exceed the additional costs that affected DER and Aggregators would incur.

<sup>7</sup> Relevant reliability standards include NPCC Directory 5, New York State Reliability Council Reliability Rules Section E (Operating Reserves) and NERC Disturbance Control Standard BAL-002-3.

<sup>8</sup> See *N.Y. Indep. Sys. Operator, Inc.*, Compliance Filing and Request for Flexible Effective Date, Docket No. ER21-2460-000 at 16 (July 19, 2021) (stating that "the NYISO does not have the means to effectively economically optimize the starts and stops of individual facilities within an Aggregation, and will not have operational visibility of the electric system (*i.e.*, the distribution system) to which many of these resources will be interconnected"). The June 17 Order accepted the NYISO's proposal to treat Aggregations as dispatch-only without comment. See June 17 Order at P 89.

<sup>9</sup> An Aggregation will be offered into the NYISO-administered markets as a single unit, and the bidding and offer obligations will apply to the Aggregator or Aggregation, not to the individual facilities within the Aggregation (except for a single Resource Aggregation, in which case the sole Resource and

## **I. REQUEST FOR CLARIFICATION**

### **A. Proposed Market Improvements to Implement the Commission's Instructions**

#### **1. Introduction**

In P 92 of the June 17 Order the Commission identified concerns with the NYISO's accepted market rules that address the provision of Operating Reserves by DER that participate in a heterogeneous DER Aggregation. In particular, P 92 indicates that the NYISO's requirement that suppliers only qualify as eligible to provide the Operating Reserve products that the least capable technologies within an Aggregation can support unreasonably limits the Operating Reserves that a heterogeneous Aggregation can provide in scenarios where one or more DER within that Aggregation are not capable of providing Operating Reserves.

In P 93 the Commission recognized that the NYISO had voiced valid reliability concerns that must also be considered and addressed, but indicated that it believes the NYISO could address its reliability concerns by means other than requiring that all individual DERs within the Aggregation satisfy the relevant reliability requirements, such as the one-hour sustainability requirement.<sup>10</sup>

The NYISO has been working diligently to develop a set of market rules that address the Commission's concerns, but that will not require the NYISO to implement a wholesale redesign of its Real-Time Market software (and corresponding revisions to its Bid submission software, market validation software, market monitoring tools, market operations tools and settlement systems). The NYISO requests that the Commission consider the proposed market design improvements described herein and clarify whether they would satisfy the requirements set forth

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Aggregation are functionally one and the same). *New York Indep. Sys. Operator, Inc.*, Compliance Filing and Request for Flexible Effective Date, Docket No. ER21-2460-000 at 28 (July 19, 2021).

<sup>10</sup> See NPCC Directory 5, Rule 6.

in PP 92 and 93 of the June 17 Order. In the alternative, the Commission should, at a minimum, clarify that the market design improvements could satisfy PP 92 and 93 after they are filed in final form and accepted by the Commission. Clarification that the NYISO's proposal adequately addresses the Commission's requirements would moot the NYISO's alternative rehearing request, and provide guidance that will permit the NYISO to move forward implementing DER Aggregations in its markets.

## **2. Explanation of the Capabilities and Limitations of the NYISO's Current Implementation of Operating Reserves in its Markets**

Today, the NYISO's security constrained unit commitment and economic dispatch software award Operating Reserves to Resources in the Real-Time Market using four pieces of information: (1) the state of the Resource (online/available for dispatch or offline/requires commitment [start-up]), (2) the Resource's upper operating limit ("UOL"), (3) the Resource's response (ramp) rate, and (4) the Resource's Energy offer.<sup>11</sup> The NYISO's DER Aggregation model is a dispatch-only model that assumes the state of all DER Aggregations is 'ON' and therefore the entire DER Aggregation is available for dispatch (no start-up required).<sup>12</sup> The Operating Reserve schedules for a Resource or DER Aggregation that is 'ON' will be then based on its Energy schedule, UOL, and response rate. To illustrate, take the following hypothetical example.

- A Resource has an energy schedule of 1MW, a UOL of 10MW, and a response rate of 0.5MW/min;

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<sup>11</sup> See NYISO Market Administration and Control Area Services Tariff Section 15.4.3.1.

<sup>12</sup> Again, the NYISO dispatches the DER Aggregation, not the individual DER.

- Given the response rate of 0.5MW/min, the Resource can ramp 5MW in 10 minutes and 15MW in 30 minutes. However the UOL limits the total energy and operating reserve schedules to 10MW;
- Therefore, the Resource, if fully economic, would be awarded 1MW of Energy, 5MW of 10-minute synchronous Operating Reserves, and 4MW of 30-minute Operating Reserves.
  - Note: The NYISO does not have independent requirements for 30-minute synchronous and 30-minute non-synchronous Operating Reserves, it defines the 30-minute requirement as 30-minute total Operating Reserves. Therefore, the NYISO will pay the same 30-minute Operating Reserve clearing price to either 30-minute synchronous or non-synchronous providers.
  - The NYISO defines 10-minute synchronous Operating Reserves and 10-minute non-synchronous Operating Reserves as two separate products, and pays them two different prices. This is appropriate because the NYISO is required to maintain specific quantities of each product. The NYISO's posted Operating Reserve requirements are available at:  
  
<https://www.nyiso.com/documents/20142/3694424/Locational-Reserves-Requirements.pdf>

In addition to the “standard” implementation that is illustrated in the example above, the NYISO developed the capability to treat Operating Reserves provided by a dispatchable (online) resource as non-synchronous Operating Reserves to implement its Behind-the-Meter Net Generation (“BTM:NG”) Resource participation model. The NYISO only allows BTM:NG Resources to provide non-synchronous Operating Reserves because it does not have direct access to the state (online or offline) of the Generators that are co-mingled with load behind the same

meter. Using the capability it developed to implement BTM:NG Resources, the NYISO can allow a dispatchable resource to qualify to provide non-synchronous Operating Reserves instead of synchronous reserves in circumstances where the NYISO cannot determine whether the Resource is online or offline. The NYISO can leverage its BTM:NG Resource functionality to make it possible for DER that participate in a heterogeneous DER Aggregation to provide all of the Operating Reserves they are capable of providing. Details are provided below.

### **3. Proposed Enhancements to Market Rules Addressing the Provision of Operating Reserves by DER that Participate in a Heterogeneous DER Aggregation**

The NYISO proposes to permit the Aggregator for each heterogeneous DER Aggregation to choose during market registration whether the Aggregation will provide 10-minute synchronized Operating Reserves, or 10-minute non-synchronized Operating Reserves or 30-minute Operating Reserves.<sup>13</sup> The NYISO will then permit all of the DER that participate in the heterogeneous DER Aggregation that are capable of providing the selected Operating Reserve product, or that are capable of providing a higher quality Operating Reserve product to provide Operating Reserves.

For example, hypothetically assume an Aggregator registers a new DER Aggregation with the NYISO. The DER Aggregation includes the following DER:

- a. a 5 MW (20 MWh) battery that is capable of providing up to 5 MW of synchronous 10-minute Operating Reserves;
- b. a 10 MW wind turbine, an Intermittent Power Resource that is not eligible to provide Operating Reserves in the New York Control Area;

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<sup>13</sup> There must be at least one DER participating in the DER Aggregation that is capable of providing the selected Operating Reserves product.



- c. a 5 MW gas turbine that can start-up in 10 minutes or less, and that is capable of providing up to 5 MW of 10-minute non-synchronous Operating Reserves; and
- d. a 5 MW gas turbine that can start-up in 30 minutes or less, and that is capable of providing up to 5 MW of 30-minute Operating Reserves.

If the DER Aggregator elected to provide 10-minute synchronous Operating Reserves from its heterogeneous DER Aggregation, the above DER Aggregation would be eligible to provide 5 MW of Operating Reserves based on the capability of the battery. If the DER Aggregator instead elected to provide 10-minute non-synchronous Operating Reserves from its heterogeneous DER Aggregation, the above DER would be eligible to provide 10 MW of Operating Reserves based on the combined capability of the battery and the 10-minute gas turbine. Finally, if the DER Aggregator elected to provide 30-minute Operating Reserves from its heterogeneous DER Aggregation, then the above DER would be eligible to provide 15 MW of Operating Reserves based on the combined capability of the battery, the 10-minute gas turbine and the 30-minute gas turbine. The presence of a wind turbine in the DER Aggregation would not prevent the Aggregation from providing the Operating Reserves stated above.

An Aggregator that has a broader selection of resources available to it might choose to create several different DER Aggregations, each focusing on providing a different Operating Reserve product. It is up to the Aggregator to decide how to prudently structure its Aggregations.

In addition to the revised market rules proposed above, the NYISO is developing as part of its HSR Proposal a new Operating Reserves Limit capability that will enable the Aggregator to inform the NYISO of the quantity of Operating Reserves it has available. An example is the easiest way to illustrate how the Operating Reserves Limit will work in practice.

Hypothetically assume a DER Aggregation that includes the following DER is participating in the ISO Administered Markets:

- a. a 10 MW (40 MWh) battery that is capable of providing up to 5 MW of synchronous 10-minute Operating Reserves;
- b. a 10 MW wind turbine, an Intermittent Power Resource that is not eligible to provide Operating Reserves in the New York Control Area;
- c.-e. a set of three, 5 MW gas turbine that can each start-up in 10 minutes or less, and that are each capable of providing up to 5 MW of 10-minute non-synchronous Operating Reserves.

Further assume that the DER Aggregator elected to provide up to 25 MW of 10-minute non-synchronous Operating Reserves from its heterogeneous DER Aggregation (10 MW from the battery and 15 MW from the three GTs).

In real-time during an operating day the DER Aggregation is scheduled to provide 10 MW of Energy. 5 MW are being supplied by the wind turbine and one of the GTs is operating to provide the additional 5 MW of Energy. The battery and the two offline GTs have been scheduled to provide 20 MW of 10-minute non-synchronous Operating Reserves. The Aggregator's wind forecast indicates that the wind turbine's output will slowly ramp down over the next 30 minutes, after which an extended wind lull (zero output) is expected. The Aggregator expects its Energy schedule to continue based on its market offers, and decides to start-up one of its remaining GTs to replace the anticipated loss of the wind turbine's output.

In advance of starting the GT, the Aggregator submits an Operating Reserve Limit update to the NYISO, reducing the DER Aggregation's available Operating Reserves from 20 MW to 15 MW to reflect the conversion of the GT to producing Energy. Submitting the updated

Operating Reserve Limit prevents the NYISO from purchasing Operating Reserves from a DER that is no longer available to provide the reserves, and will help ensure that the NYISO carries sufficient Operating Reserves to comply with applicable reliability requirements.

Even after the NYISO's proposed enhancements are implemented, it will not be possible for the NYISO to permit a heterogeneous DER Aggregation to simultaneously make available two different Operating Reserves products, each with distinct quantity limits, or to switch back-and-forth between the Operating Reserve products it makes available to RTC and RTD. The capability to update Operating Reserve Limits will enable the Aggregator and the NYISO to do a better job of tracking a single Operating Reserve product. Implementation of Operating Reserve Limits will not enable the NYISO to determine which DER are operating (e.g., whether a gas turbine is online or offline), or which Operating Reserve products a DER Aggregation is currently able to provide. The Aggregator that registers a DER Aggregation that has mixed capabilities will need to choose the Operating Reserves product it wants to make available (recognizing that NYISO's co-optimization permits higher quality Operating Reserve products to also be used to address NYISO's need for lower quality Operating Reserves when that is the most efficient option available).

As the NYISO explains above, the limitations on providing Operating Reserves that the NYISO describes are not unique to DER Aggregations, they are inherent in the NYISO's market software and would apply equally to any other Resource that sought to simultaneously make available two different Operating Reserve products, each with distinct quantity limits, in the NYISO's markets today.

If the Commission grants the NYISO's requested clarification that the above improvements are sufficient to address the Operating Reserve requirements set forth in PP 92-93

of its Order, then the NYISO will include the above improvements in its ongoing efforts to implement DER in its markets.<sup>14</sup>

## **II. ALTERNATIVE REQUEST FOR REHEARING**

Paragraph 93 of the June 17 Order states that the NYISO is expected to “allow DERs in heterogeneous Aggregations to provide all of the ancillary services that they are technically capable of providing through aggregation.” If Paragraph 93 is not clarified as requested above then its directive is overly prescriptive, fundamentally inconsistent with the NYISO’s market design, practically impossible to implement in the near future, and could threaten reliability. It does not reflect reasoned decision-making and is not based on substantial evidence. Paragraph 93 failed to offer a reasoned explanation for disregarding record evidence demonstrating the impracticability of requiring the NYISO to permit DER Aggregations to simultaneously make available multiple Operating Reserve products, each with distinct quantity limits, even though evidence of other practical limitations that constrained the NYISO’s implementation of DER was accepted elsewhere in the June 17 Order. In addition, P 93’s requirement that the NYISO obtain operating and performance information about individual DER and use that information to manage their market participation contradicts Order No. 2222. In short, if Paragraph 93 is not clarified, its directive is arbitrary and capricious under the Administrative Procedure Act (“APA”) and must be modified on rehearing.

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<sup>14</sup> The NYISO will be submitting a motion for extension of time explaining why it will not be able to implement DER in its markets in 2022 and proposing a timeline for DER implementation. The market improvements described in the NYISO’s clarification request are capable of being implemented consistent with the implementation timeline that the NYISO will propose (they will be built-in to the schedule that the NYISO proposes). If the Commission requires additional changes to comply with PP 92-93 of the June 17 Order, those additional changes may affect the NYISO’s DER implementation schedule.

**A. Paragraph 93's Directive Is Arbitrary and Capricious Because it Is Practically Impossible to Implement and Could Threaten Reliability**

Resources that participate in the NYISO's markets today are only capable of making available a single Operating Reserve product (10-minute synchronous Operating Reserves or 10-minute non-synchronous Operating Reserves or 30-minute Operating Reserves). There are no resources that are eligible to simultaneously make available two different Operating Reserve products, each with distinct quantity limits, in the NYISO's markets today, so there is no software capability that NYISO could readily use or modify to enable heterogeneous DER Aggregations to simultaneously make available multiple Operating Reserve products, each with distinct quantity limits. The NYISO would need to build an entirely new suite of software capabilities, from bid to billing, to enable DER that participate in a heterogeneous DER Aggregation to simultaneously make available multiple Operating Reserve products, each with distinct quantity limits.

To illustrate the practical implementation problem it faces in permitting DER Aggregations to simultaneously make available several Operating Reserve products, each with distinct quantity limits, the NYISO offers the following simplified example of a heterogeneous DER Aggregation that includes the following DER:

- (a) a 10 MW (20 MWh) battery that, on its own, would be capable of providing 10 MW of Energy, or 10 MW of 10-minute synchronous Operating Reserves, or 10 MW of Regulation Service (or some combination of those services); and
- (b) a 10 MW Gas Turbine ("GT") that requires 30 minutes to Start-Up. On its own, the GT would be capable of providing 10 MW of Energy, or 10 MW of 30-minute Operating Reserves.

The DER Aggregation's Upper Operating Limit is 20 MW, its Lower Operating Limit is -10 MW, and its response rate is 2 MW/minute. The DER Aggregation has no schedules or awards.

Ideally, the DER Aggregation should be technically capable of providing 10 MW of 10-minute synchronous Operating Reserves or 20 MW of 30-minute Operating Reserves. However, without significant redesign of the NYISO's market software, RTC and RTD will not recognize that the battery is limited to providing 10 MW of 10-minute synchronous Operating Reserves. Instead, RTC and RTD would award the Aggregation up to 20 MW of 10-minute synchronous Operating Reserves based on the battery's ability to provide 10-minute synchronous Operating Reserves, the DER Aggregation's total Operating Reserve capability (10 MW battery + 10 MW GT = 20 MW) and the DER Aggregation's 2 MW/minute ramp rate.<sup>15</sup>

In order to allow a heterogeneous Aggregation of DER with different capabilities to provide Operating Reserves based on (and limited by) each independent DER's capabilities, the NYISO would need to update the security constrained unit commitment and the economic dispatch software used by its Day-Ahead Security Constrained Unit Commitment ("SCUC"), RTC, and RTD market applications to incorporate the ability to limit the available quantity of (each of) 10-minute synchronous, 10-minute non-synchronous and 30-minute Operating Reserves independently from the UOL. The NYISO would also potentially need to incorporate different response rates for each reserve type being provided.

These changes would introduce significant risk for the NYISO's market clearing software and would require additional software to be modified including but not limited to its bidding

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<sup>15</sup> The described software limitation is one of the primary reasons why the NYISO proposes to require each DER Aggregation to make available just one Operating Reserve product. See Section I.A.2 of this Clarification Request.

software that market participants use, market validation software, market monitoring tools, operational tools, and settlements software. These new limits and response rates would also impact the constraints employed by the security constrained unit commitment and economic dispatch software and could introduce additional binary decision variables in the economic dispatch software to ensure that the response rates are followed in the correct order when ramping up and ramping down the DER. The significant new requirements described here could result in failing to clear the Day-Ahead and/or Real-Time energy market or slow the clearing software such that the NYISO would not be able to comply with its Day-Ahead Market clearing obligation of 11 a.m. each day, would not be able to timely post RTC solutions (which determine interchange schedules with neighboring Balancing Authority Areas) every 15 minutes, or would not be able to post RTD dispatch instructions every 5 minutes. At this time, the NYISO is not in a position to commit to implementing such complexity in its market software and would need to spend time researching ways to mitigate the market clearing risks it describes.

The Commission's directive presents a reliability concern. Today, the NYISO's RTC and RTD cannot receive or incorporate DER operating status, or real-time telemetry from the individual DERs that participate in a heterogeneous DER Aggregation.<sup>16</sup> Instead, the Aggregator is expected to operate its DER consistent with the NYISO's dispatch instructions. Of crucial importance, the NYISO is not able to confirm whether a particular DER is operating or is offline at the time RTC or RTD awards a synchronous Operating Reserves schedule to the Aggregation. This presents a concern because the NYISO needs to know whether qualified resources are

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<sup>16</sup> Even if DER-specific information were to be made available, the NYISO's Energy Market System and Business Market System would not be able to support the receipt and use of this information if DER participation is robust. To the contrary, incorporating additional DER-specific constraints into RTC and RTD would be expected to hamper their ability to timely produce market solutions.

available to provide the Operating Reserves it schedules to comply with NPCC, NYSRC and NERC reliability standards.<sup>17</sup> Even if the NYISO were able to make the software changes that would be necessary to permit DER Aggregations to make multiple Operating Reserve products available, each with separate limits, implementing the necessary constraints would place at risk the timely posting of the NYISO's Day-Ahead and Real-Time Markets.

It is arbitrary and capricious for the Commission to insist that that the NYISO implement rules that are technically impracticable, particularly when attempting to implement the requirements that the Commission has instructed could threaten reliability.<sup>18</sup> The APA requires that the Commission must "examine the relevant data and articulate a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made.'"<sup>19</sup> "[T]he Commission's decisionmaking [must be] reasoned, principled, and based upon the record."<sup>20</sup> Findings of fact within an order must be based on substantial evidence.<sup>21</sup> Evidence must, at a minimum, "support[] the Commission's ultimate decision."<sup>22</sup>

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<sup>17</sup> Relevant reliability standards include NPCC Directory 5, New York State Reliability Council Reliability Rules Section E (Operating Reserves) and NERC Disturbance Control Standard BAL-002-3.

<sup>18</sup> See, e.g., *Motor Vehicle Mfrs. Ass'n of the United States, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983); *PSEG Energy Res. & Trade LLC v. FERC*, 665 F.3d 203 (D.C. Cir. 2011); *Canadian Ass'n of Petroleum Producers v. FERC*, 254 F.3d 289, 299 (D.C. Cir. 2001).

<sup>19</sup> *PPL Wallingford Energy LLC v. FERC*, 419 F.3d 1194, 1198 (D.C. Cir. 2005) (quoting *Motor Vehicle Mfrs. Ass'n of the United States, Inc.* 463 U.S. 29, 43 (1983)).

<sup>20</sup> *Am. Gas Ass'n v. FERC*, 593 F.3d 14, 19 (D.C. Cir. 2010) (citation omitted).

<sup>21</sup> See generally 16 U.S.C. §825l(b).

<sup>22</sup> *Fla. Gas Transmission Co. v. FERC*, 604 F.3d 636, 645 (D.C. Cir. 2010) (citing *Fla. Mun. Power Agency v. FERC*, 315 F.3d 362, 368 (D.C. Cir. 2003)).



**B. Paragraph 93 Failed to Offer a Reasoned Explanation for Disregarding Evidence Presented by the NYISO Regarding the Impracticability of Developing a Single DER Participation Model for New York that Would Allow Optimal Participation by All DER, Even Though it Accepted that Evidence Elsewhere in the June 17 Order**

In its responses to the Commission's questions on the NYISO's Order No. 2222 compliance filing, the NYISO explained that it is not possible to develop a single DER participation model that will optimally incorporate the diverse characteristics of all of the many different types of resources (DERs) that might participate in a DER Aggregation.<sup>23</sup> Rather than attempt this impossible task, the NYISO has developed several different homogeneous and heterogeneous participation models for Aggregators to choose from, and transparent market rules that explain how each type of heterogeneous or homogeneous Aggregation will be dispatched and settled.<sup>24</sup> The NYISO explained that its rules allow Aggregators significant flexibility in assembling their resources into one or several different Aggregations, and that this flexibility in assembling sets of resources into Aggregations will enable Aggregators to optimize the participation of their resources in the NYISO's markets.<sup>25</sup> The NYISO explained that it expects

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<sup>23</sup> NYISO November 19, 2021 *Response to October 1, 2021, Letter Requesting Additional Information in Docket No. ER21-2460-000, -001* ("NYISO Response") at 12-13 ("Order No. 2222 does not require each and every DER participation model an ISO or RTO proposes to optimally accommodate all possible DER resource configurations. That would be impossible and impractical because DERs cover a broad range of resource types with very different operating characteristics, and the mathematical models underlying the SCUC, RTC, and RTD software that supports day ahead and real-time energy markets cannot accommodate the potentially infinite combinations of resource characteristics.... The NYISO achieves the flexibility the Commission expects by permitting Aggregators to decide how many different Aggregations to create, and which resources to assign to each Aggregation.").

<sup>24</sup> NYISO Response at 13 ("The NYISO's currently effective market rules, accepted DER market rules, and proposed Order No. 2222 compliance Tariff revisions ... provide transparent market signals to inform developers and investors of the types of resources and combination of resources that can best meet the needs of New York's electric system. The market signals the NYISO provides inform the Aggregator's decision about when it should (and should not) choose to create a heterogeneous DER Aggregation.").

<sup>25</sup> *Id.* at 13-14 ("Because the Aggregator has flexibility in dividing its resources and structuring its Aggregations under the NYISO's accepted DER rules, it isn't necessary for every DER participation model to optimally accommodate all possible resource configurations.").

Aggregators to make prudent decisions about how to assemble their available resources into one or more Aggregations that take into account the differing dispatch and settlement rules that apply to the available types of homogeneous and heterogeneous Aggregations.<sup>26</sup>

Finally, on page 23 of the NYISO Response, the NYISO explained:

Under the DER and Aggregation participation model accepted by the Commission in the 2020 DER Order the NYISO will issues dispatch instructions at the Aggregation level. The NYISO is not expected to know the real-time operational status (online or offline) or capability of each DER in an Aggregation, nor will the NYISO schedule and dispatch the individual DER that participate in an Aggregation.<sup>44</sup> These elements of the market design limit the NYISO's ability to verify that the individual DER utilized by the Aggregator satisfy established Operating Reserve and Regulation Service reliability requirements.

<sup>44</sup> Obtaining online/offline status, State of Charge and similar information for each DER that participates in an Aggregation would require significantly more granular (and expensive) metering and telemetry. Incorporating the status (on/off) and State of Charge (where applicable) of each and every DER into the NYISO's dispatch would require the NYISO to devote significant additional computational resources to implement the DER and Aggregation participation model. The additional requirements could prevent NYISO from timely issuing dispatch instructions in real-time.

With "one exception,"<sup>27</sup> the Commission accepted the NYISO's explanation of how its mix of homogeneous and heterogeneous participation models together satisfy the requirements of Order No. 2222. Paragraphs 89 of the June 17 Order recognizes that

In Order No. 2222, the Commission afforded each RTO/ISO the flexibility to modify its existing participation models to facilitate the participation of distributed energy resource aggregations, as NYISO proposes here, and did not require that each RTO/ISO establish a single participation model that could accommodate every possible aggregation, so long as its proposal allows

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<sup>26</sup> *Id.* at 14 ("[T]he market rules the Commission accepted in its 2020 DER Order do not require Aggregators to assemble DER Aggregations that cannot meet their performance obligations in real-time. The Aggregator will be able to include some or all of its solar IPRs in a heterogeneous Aggregation that is not subject to performance penalties for being off-dispatch. The transparent financial incentives provided by the NYISO's accepted DER and Aggregation market design will encourage Aggregators to make prudent decisions about how best to configure their available resources consistent with the NYISO's Tariff rules.").

<sup>27</sup> June 17 Order at P 89.

distributed energy resources to provide all services that they are technically capable of providing through aggregation.<sup>28</sup>

In Paragraph 90 of the June 17 Order the Commission similarly found

...it reasonable and consistent with the flexibility that the Commission afforded to the RTOs/ISOs in Order No. 2222 for NYISO to require Aggregations to participate under market rules that best accommodate the characteristics of that Aggregation. In doing so, NYISO is not limiting certain types of resources from participating in Aggregations, as AEMA contends, but rather specifying which market rules apply to such Aggregations.

However, in one very specific case the June 17 Order appears to deny the NYISO the flexibility it otherwise recognized that Order No. 2222 grants the NYISO to develop different participation models to accommodate differing resource capabilities. The “one exception” that the Commission states in P 93 of its Order is

...so long as some of the DERs in the [heterogeneous DER] Aggregation can satisfy the relevant requirements to provide certain ancillary services (e.g., the one-hour sustainability requirement), we find that those DERs should be able to provide those ancillary services through aggregation, in accordance with the goal of Order No. 2222 to allow distributed energy resources to provide all services that they are technically capable of providing through aggregation.

Other than stating it believes NYISO can solve the problem,<sup>29</sup> the June 17 Order does not explain why NYISO is not permitted to utilize a combination of heterogeneous participation models and its homogeneous DER Aggregation model to achieve the goal of enabling DER to provide all of the Operating Reserves they are capable of providing. The NYISO should be given the flexibility to utilize a combination of homogeneous and heterogeneous DER participation models, and to require the use of more than just one heterogeneous DER Aggregation, to satisfy the Commission’s requirement.

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<sup>28</sup> Order No. 2222, 172 FERC ¶ 61,247 at P 130.

<sup>29</sup> June 17 Order at P 93 (“We believe, however, that NYISO could address its reliability concerns by means other than requiring that all individual DERs within the Aggregation satisfy the relevant reliability requirements, such as the one-hour sustainability requirement.”).

For the reasons explained above, the Commission's instruction that NYISO must permit DER with different capabilities<sup>30</sup> to participate together in a heterogeneous DER Aggregation and allow each DER in that heterogeneous DER Aggregation to simultaneously provide all of the Operating Reserves it is capable of providing presents an intractably and unnecessarily difficult problem for the NYISO to solve. Instead of specifying a single participation model (heterogeneous DER Aggregation), the Commission should instead allow the NYISO to develop a combination of heterogeneous and homogeneous participation options to achieve Order No. 2222's goal, just as it did in other parts of the June 17 Order. The June 17 Order's failure to address the evidence presented by the NYISO on this point, to explain its rationale for rejecting the NYISO's position, or to provide any kind of reasoned explanation for the inconsistency between P 93 and its other rulings is arbitrary and capricious.<sup>31</sup>

**C. Requiring NYISO to Obtain Operating and Performance Information About Individual DER and Use that Information to Manage their Market Participation Contradicts Order No. 2222**

In P 143 of Order No. 2222, responding to concerns raised by ISO-New England and the Southwest Power Pool about the complexity of implementing heterogeneous DER Aggregations, the Commission stated:

...[C]oncerns about RTOs'/ISOs' ability to manage a diverse set of distributed energy resources are misplaced because the distributed energy resource aggregator, not an individual distributed energy resource in the aggregation, is the market participant with whom the RTO/ISO would be interacting. Moreover, the aggregator, not the RTO/ISO, would be responsible for ensuring that the distributed energy resource aggregation meets applicable RTO/ISO performance and registration requirements.

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<sup>30</sup> In particular, mixing resources that provide synchronous reserves with resources that can only provide non-synchronous reserves, and mixing resources that can provide 10-minute reserves with resources that can only provide 30-minute reserves significantly increase the complexity of the solution.

<sup>31</sup> See, e.g., *Am. Gas Ass'n v. FERC*, 593 F.3d 14, 19 (D.C. Cir. 2010); *PPL Wallingford Energy LLC v. FERC*, 419 F.3d 1194, 1198 (D.C. Cir. 2005).

Paragraph 93 of the June 17 Order (quoted below) is not consistent with the provision of Order No. 2222 quoted above. Paragraph 93 of the June 17 Order states:

93. We also recognize that NYISO has voiced a reliability concern related to its argument that it is required to ensure that all resources it relies upon to provide operating reserves can sustain operation for at least one hour following activation and that, because the Aggregator will dispatch the individual facilities in its Aggregation, NYISO will lack visibility into which resource is being used to provide the next increment of energy or ancillary services. We believe, however, that NYISO could address its reliability concerns by means other than requiring that all individual DERs within the Aggregation satisfy the relevant reliability requirements, such as the one-hour sustainability requirement. Therefore, so long as some of the DERs in the Aggregation can satisfy the relevant requirements to provide certain ancillary services (e.g., the one-hour sustainability requirement), we find that those DERs should be able to provide those ancillary services through aggregation, in accordance with the goal of Order No. 2222 to allow distributed energy resources to provide all services that they are technically capable of providing through aggregation. At the same time, we agree with NYISO that this change should not be made at the expense of ensuring compliance with reliability standards nor delay the timely implementation of its Aggregation model. Thus, we clarify that NYISO should implement its Aggregation model in the fourth quarter of 2022, as proposed, and further propose a reasonable effective date by which it will comply with the requirement to allow DERs to provide all the ancillary services they are technically capable of providing through aggregation while also addressing NYISO's reliability and visibility concerns. Accordingly, we direct NYISO to file, within 60 days of the date of issuance of this order, a further compliance filing proposing an effective date by which it will allow DERs in heterogeneous Aggregations to provide all of the ancillary services that they are technically capable of providing through aggregation. **To the extent that NYISO may need additional information from Aggregators regarding the individual DERs in an Aggregation in order to address NYISO's concern, we note that it should include such requirements among the information and data that an Aggregator must provide about the physical and operational characteristics of its Aggregation, including any necessary physical parameters to be submitted in registration, and any necessary information that must be submitted for the individual DERs, or additional bidding parameters.** [Emphasis added, footnotes omitted.]

The June 17 Order instructs the NYISO to gather additional information about the physical and operational characteristics of individual DER so that the NYISO can more closely manage their operation. The Commission indicates its instruction is necessary to allow DER that participate in a heterogeneous DER Aggregation to "provide all of the ancillary services that they

are technically capable of providing through aggregation,” (a goal of Order No. 2222) while also permitting the NYISO to comply with reliability requirements.

However, the instruction in the June 17 Order contradicts P 143 of Order No. 2222. Instead of relying on the Aggregator to handle the participation of individual DER, the NYISO is now being instructed to obtain additional information about individual DER in order to more closely manage their operation. The NYISO’s concerns about its ability to manage a diverse set of DER do not appear to be misplaced; it appears that is exactly what the Commission now expects the NYISO to do.

The NYISO is concerned that the Commission has failed to adequately consider the costs the NYISO, DER and Aggregators will incur to permit NYISO to more closely manage the participation of individual DER in heterogeneous DER Aggregations. The Commission has not weighted expected implementation costs against the additional Operating Reserves the New York Control Area will gain, or the additional revenues that DER will receive.

It was arbitrary and capricious for the June 17 Order, which addressed the NYISO’s Order No 2222 compliance filing, to issue a compliance directive that contradicts the requirements of Order No. 2222. The Commission has also not met its obligation to acknowledge and provide a reasoned explanation of this departure from its precedent.<sup>32</sup> In short, the Commission should eliminate P 93’s directive on rehearing.

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<sup>32</sup> See, e.g., *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009); *W. Deptford Energy, LLC v. FERC*, 766 F.3d 10, 20 (D.C. Cir. 2014) (“It is textbook administrative law that an agency must “provide[ ] a reasoned explanation for departing from precedent or treating similar situations differently,” (citing *ANR Pipeline Co. v. FERC*, 71 F.3d 897, 901 (D.C.Cir.1995)); see also *W. Deptford* at 24 (“In sum, because the Commission failed, at multiple steps, to provide any reasoned explanation of how its decision conformed to the Federal Power Act and prior precedent, we must remand for the Commission ‘to explain why its decision in this case is not inconsistent with [past precedent] or, alternatively, to justify its apparent departures.’” (citing *Brusco Tug & Barge Co. v. NLRB*, 247 F.3d 273, 278 (D.C.Cir.2001); see also *Northeast Energy Associates v. FERC*, 158 F.3d 150, 156 (D.C.Cir.1998).)

### III. SPECIFICATIONS OF ERROR AND STATEMENT OF ISSUES

Pursuant to Rule 713(c) of the Commission's Rules of Practice and Procedure, the

NYISO submits the following statement of issues and specifications of error:

1. The June 28 Order is arbitrary and capricious under the Administrative Procedure Act (APA) because the Commission failed to make reasoned decisions based on substantial evidence. *See* 5 U.S.C. § 706(2); *see, e.g., Motor Vehicle Mfrs. Ass'n of the United States, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).
2. The June 17 Order is arbitrary and capricious because requiring the NYISO to allow heterogeneous DERs to simultaneously make available multiple different Operating Reserves products, each with distinct quantity limits, would be impracticable to achieve as a technical matter, and attempting to implement such an instruction before significant modifications to the NYISO's DER participation rules, RTC, RTD, Bid submission software, market validation software, market monitoring tools, market operations tools, settlement and related systems are complete would threaten reliability. *See, e.g., Motor Vehicle Mfrs. Ass'n of the United States, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983); *PSEG Energy Res. & Trade LLC v. FERC*, 665 F.3d 203 (D.C. Cir. 2011); *PPL Wallingford Energy LLC v. FERC*, 419 F.3d 1194, 1198 (D.C. Cir. 2005); *Canadian Ass'n of Petroleum Producers v. FERC*, 254 F.3d 289, 299 (D.C. Cir. 2001).
3. The June 17 Order is arbitrary and capricious because it fails to provide a reasoned explanation for disregarding evidence presented by the NYISO regarding the impracticability of developing a DER participation model for New York that would enable heterogeneous DER Aggregations to simultaneously make available multiple different Operating Reserves products, each with distinct quantity limits, even though the Commission accepted similar evidence to support determinations elsewhere in the June 17 Order. *See PSEG Energy Res. & Trade LLC v. FERC*, 665 F.3d 203, 207-08, 209-210 (D.C. Cir. 2011); *PPL Wallingford Energy LLC v. FERC*, 419 F.3d 1194, 1198 (D.C. Cir. 2005); *Canadian Ass'n of Petroleum Producers v. FERC*, 254 F.3d 289, 299 (D.C. Cir. 2001).
4. The June 17 Order is arbitrary and capricious because P 93 contradicts P 143 of Order No. 2222 and the Commission has failed to offer any reasoned explanation of the inconsistency or of its departure from its own precedent. *See, e.g., FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009); *W. Deptford Energy, LLC v. FERC*, 766 F.3d 10, 20-24 (D.C. Cir. 2014).

#### **IV. COMMUNICATIONS**

Communications regarding this filing should be sent to:

Robert E. Fernandez, Executive Vice President &  
General Counsel

Karen Georgenson Gach, Deputy General Counsel

Raymond Stalter, Director, Regulatory Affairs

\* Alex M. Schnell, Assistant General Counsel/  
Registered Corporate Counsel

\* Gregory J. Campbell, Senior Attorney  
New York Independent System Operator, Inc.

10 Krey Boulevard

Rensselaer, NY 12144

Tel: (518) 356-6000

Fax: (518) 356-4702

[rfernandez@nyiso.com](mailto:rfernandez@nyiso.com)

[kgach@nyiso.com](mailto:kgach@nyiso.com)

[rstalter@nyiso.com](mailto:rstalter@nyiso.com)

[aschnell@nyiso.com](mailto:aschnell@nyiso.com)

[gcampbell@nyiso.com](mailto:gcampbell@nyiso.com)

Ted J. Murphy

Hunton Andrews Kurth LLP

2200 Pennsylvania Avenue, NW

Washington, D.C. 20037

Tel: (202) 955-1500

Fax: (202) 778-2201

[tmurphy@huntonak.com](mailto:tmurphy@huntonak.com)

\*Designated to receive service.

#### **V. CONCLUSION**

WHEREFORE, for the foregoing reasons, the New York Independent System Operator, Inc., respectfully requests that the Commission clarify that the improvements and solutions described in Section I of this filing would satisfy PP 92 and 93 of the June 17 Order. In the



alternative, if the Commission is not able to grant NYISO's requested clarification, the NYISO requests that the Commission grant rehearing of the requirements in PP 92-93 of the June 17 Order.

Respectfully submitted,

/s/ Alex M. Schnell

Alex M. Schnell  
New York Independent System Operator, Inc.  
10 Krey Boulevard  
Rensselaer, NY 12144  
*Counsel for the New York Independent System  
Operator, Inc.*

Ted J. Murphy  
Hunton Andrews Kurth LLP  
2200 Pennsylvania Avenue, NW  
Washington, D.C. 20037  
*Counsel for the New York Independent System  
Operator, Inc.*

July 18, 2022

cc: Janel Burdick  
Matthew Christiansen  
Robert Fares  
Jignasa Gadani  
Jette Gebhart  
Leanne Khammal  
Jaime Knepper  
Kurt Longo  
David Morenoff  
Douglas Roe  
Eric Vandenberg  
Gary Will  
Adria Woods

## **CERTIFICATE OF SERVICE**

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding in accordance with the requirements of Rule 2010 of the Rules of Practice and Procedure, 18 C.F.R. §385.2010.

Dated at Rensselaer, NY this 18<sup>th</sup> day of July 2022.

/s/ Mitchell W. Lucas

Mitchell W. Lucas  
New York Independent System Operator, Inc.  
10 Krey Blvd.  
Rensselaer, NY 12144  
(518) 356-6242