

170 FERC ¶ 61,033
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Neil Chatterjee, Chairman;
Richard Glick and Bernard L. McNamee.

New York Independent System Operator, Inc.

Docket Nos. ER19-2276-000
ER19-2276-001
ER19-2276-002

ORDER ACCEPTING TARIFF REVISIONS AND
DIRECTING COMPLIANCE FILING AND INFORMATIONAL REPORT

(Issued January 23, 2020)

1. On June 27, 2019, pursuant to section 205 of the Federal Power Act (FPA),¹ New York Independent System Operator, Inc. (NYISO) filed proposed revisions to its Open Access Transmission Tariff (OATT) and its Market Administration and Control Area Services Tariff (Services Tariff) (together, Tariffs) to establish a new participation model for aggregations of resources (Aggregations), including distributed energy resources (DERs), and related requirements that will allow such Aggregations to participate in the NYISO-administered energy and ancillary services markets and NYISO's installed capacity market (ICAP Market) (Aggregation Participation Model). In this order, we accept NYISO's proposed Aggregation Participation Model, to become effective as requested, and direct a compliance filing and informational filing, as discussed below.²

¹ 16 U.S.C. § 824d (2018).

² We note that NYISO filed several tariff records with a requested effective date of "12/31/9998." As discussed below, we require NYISO, in its compliance filing, to propose the effective dates that it intends to implement the tariff records, as described in its filing.

I. Background

2. NYISO explains that DERs presently have limited opportunities to participate in the NYISO-administered markets, in large part because many of these facilities are not individually able to meet the eligibility or performance requirements under an existing participation model to participate or to fully participate in its markets.³ NYISO notes that some DERs currently have the opportunity to participate in NYISO's reliability-based demand response programs, the Emergency Demand Response Program or the Special Case Resource (SCR) program, and others may participate in NYISO's economic demand response programs, the Day-Ahead Demand Response Program or the Demand Side Ancillary Services Program.⁴ Larger DERs, which can inject at least one MW into the grid, may also participate in the NYISO-administered markets as Behind-the-Meter Net Generation Resources.⁵ DERs that are not participating in the wholesale markets directly may be used by Load Serving Entities (LSEs) to modify or reduce an LSE's wholesale load.⁶

3. NYISO states that it initiated a process in May 2016 to evaluate ways in which it could more fully integrate DERs into its wholesale markets.⁷ NYISO explains that it identified numerous benefits that DERs are expected to bring, including improving system reliability, energy security, and fuel diversity; lowering consumer prices; improving market efficiency; and allowing consumers to take greater control of their electricity use and costs through the deployment of a variety of new technologies.⁸ NYISO adds that it collaborated with its stakeholders to develop a *Distributed Energy Resources Roadmap for New York's Wholesale Electricity Markets* (DER Roadmap), which was issued in February 2017. NYISO explains that the DER Roadmap sets forth high-level concepts to facilitate the development of a market design that more fully integrated DERs into the NYISO-administered markets.⁹

4. NYISO states that it subsequently developed and issued, in December 2017, its Distributed Energy Resources Market Design Concept Proposal (DER Market Design

³ NYISO Filing at 8.

⁴ *Id.*

⁵ *Id.* at 9.

⁶ *Id.*

⁷ *Id.* at 10.

⁸ *Id.*

⁹ *Id.*

Proposal), based on the DER Roadmap and discussions in numerous stakeholder meetings.¹⁰ NYISO adds that its DER Market Design Proposal built on the DER Roadmap and expanded the breadth and details of NYISO's proposal, with a particular focus on rules concerning: (1) aggregations and modeling; (2) measurement and verification, and monitoring and control; (3) performance obligations; and (4) dual participation in wholesale and retail markets.¹¹ NYISO describes its DER Market Design Proposal as the foundation for the instant filing.

II. NYISO's Filing

A. Aggregation Participation Model

5. NYISO proposes to establish a new Aggregation Participation Model and related market, operating, and planning requirements pursuant to which a Market Participant (Aggregator) may combine individual facilities, including DERs, located on the transmission or distribution system as a single Aggregation for purposes of participating in the NYISO-administered Energy and Ancillary Services markets and NYISO's ICAP Market. NYISO states that its proposed tariff revisions will remove barriers to entry and enhance opportunities for certain facilities that cannot currently participate or fully participate through existing participation models due to their size, physical or operational characteristics, or commitments to the local distribution system or host load.¹² NYISO asserts that its proposed tariff revisions establish reasonable and not unduly burdensome requirements that will enable these facilities' participation, while maintaining the effectiveness of the NYISO-administered markets and the reliability of the grid.¹³ NYISO states that its proposed revisions support the Commission's overall policy goal of removing barriers to DER participation in markets operated by Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs), as proposed in the Notice of Proposed Rulemaking issued in November 2016.¹⁴

¹⁰ *Id.*

¹¹ *Id.* (citing NYISO, *Distributed Energy Resources Market Design Concept Proposal* (Dec. 2017), <https://www.nyiso.com/documents/20142/1391862/Distributed-Energy-Resources-2017-Market-Design-Concept-Proposal.pdf/122a815f-b767-e67f-0a8f-323e5489c2b1>).

¹² *Id.* at 1.

¹³ *Id.* at 11.

¹⁴ *Id.* (citing *Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators*, Notice of Proposed Rulemaking, 157 FERC ¶ 61,121 (2016) (Storage NOPR)).

6. Specifically, NYISO proposes to establish an Aggregation Participation Model to enable multiple individual facilities to participate as a single unit—or Aggregation—in the NYISO-administered Energy and Ancillary Services markets and NYISO’s ICAP Market.¹⁵ NYISO proposes to define an Aggregation as “[a] Resource, comprised of two or more individual Generators, Demand Side Resources,¹⁶ or [DERs]; 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.”¹⁷ It states that an Aggregation will be composed of either a single resource type or multiple Resource types.¹⁸ NYISO proposes that Aggregations composed of only a single resource type, with the exception of Demand Side Resources, be subject to the existing rules for that particular resource type, along with the general rules applicable to all Aggregations.¹⁹ NYISO also proposes to designate Aggregations that include more than one resource type or include only Demand Side Resources as DER Aggregations.²⁰ NYISO defines DER Aggregation as “[a]n Aggregation consisting of one or more Demand Side Resources, or two or more different Resource types.”²¹ Finally, NYISO proposes that DER Aggregations be subject to the general rules for Aggregations as well as to certain DER Aggregation-specific rules.²² NYISO states that when an Aggregator proposes a single resource type Aggregation, it will review the specific resources within the Aggregation to determine: (1) the resource type under which the individual resources

¹⁵ NYISO Filing at 18 (citing NYISO, NYISO Tariffs, NYISO Proposed Market Administration and Control Area Services Tariff, § 4.1.10) (Proposed Services Tariff).

¹⁶ NYISO defines a Demand Side Resource as: “[a] resource located in the NYCA that: (i) is capable of controlling demand by either curtailing its Load or by operating a Local Generator to reduce Load from the [New York State] Transmission System and/or the distribution system at the direction of the ISO, in a responsive, measurable and verifiable manner within time limits, and (ii) is qualified to participate in competitive Energy, Capacity, Operating Reserves or Regulation Service markets, or in the Emergency Demand Response Program pursuant to this ISO Services Tariff and the ISO Procedures.” Services Tariff, § 2.4.

¹⁷ *Id.* (quoting Proposed Services Tariff, § 2.1).

¹⁸ *Id.* at 23 (citing Proposed Services Tariff, § 4.1.10.1).

¹⁹ *Id.*

²⁰ *Id.* at 24.

²¹ *Id.* (quoting Proposed Services Tariff, § 2.4).

²² *Id.*

qualify; and (2) where necessary, whether the individual resources share the same qualifying conditions or capabilities to participate as that resource type.²³

7. NYISO proposes that an Aggregator will be the market participant that interfaces with NYISO concerning the participation of the Aggregation in the NYISO markets, and therefore the Aggregator will be categorized as a “Supplier” under the NYISO Tariffs.²⁴ NYISO explains that an Aggregation will be offered in the NYISO markets as a single unit, and all bidding and offer obligations will apply to the Aggregator or Aggregation, and not to individual facilities that comprise the Aggregation.²⁵ Similarly, it proposes to require that Aggregations satisfy the minimum eligibility and performance requirements for wholesale market participation in the same manner as any other Resource, but not require individual facilities that make up an Aggregation to meet these minimum requirements except where specifically noted.²⁶

8. NYISO explains that most resource types currently eligible to participate in the NYISO markets will be eligible to participate as part of an Aggregation, with the exception of generators with Public Utility Regulatory Policies Act (PURPA) contracts, limited control run-of-river resources, Behind-the-Meter Net Generation resources, municipally-owned generation, system resources, and control area system resources.²⁷ In addition, NYISO states that certain facilities not currently eligible to participate in the NYISO markets will have the opportunity to do so by joining an Aggregation because the Aggregation Participation Model will: (1) permit multiple individual facilities to combine their capability to meet minimum eligibility requirements; (2) provide flexibility to Aggregators seeking to manage obligations among the wholesale market, local distribution system, and host facility; and (3) allow Aggregators to stack individual facility capability sequentially to meet minimum run-time requirements.²⁸

9. A DER that falls into one of three categories may participate under the proposed Aggregation Participation Model: (1) a facility composed of two or more Resource types behind a single point of interconnection with an Injection Limit of twenty MW or less; (2) a Demand Side Resource; or (3) a Generator with an Injection Limit of twenty MW or less, that is electrically located in the New York Control Area (NYCA).²⁹ NYISO

²³ NYISO First Deficiency Letter Response at 3.

²⁴ NYISO Filing at 18 (citing Proposed Services Tariff, § 2.19).

²⁵ *Id.* at 19 (citing Proposed Services Tariff, § 4.1.10).

²⁶ *Id.* at 18-19 (citing Proposed Services Tariff, § 4.1.10).

²⁷ *Id.* at 19, n.34.

²⁸ *Id.* at 19.

explains that, for the purposes of the definition of a DER, an “individual facility” will be a facility that is either: (1) a single facility at a distinct physical location (e.g., street address and utility account number); or (2) a single physical location with: (a) more than one facility with separate utility account numbers and/or points of interconnection with the distribution system; and (b) operated independently from other facilities at that physical location.³⁰

10. NYISO proposes to require that an Aggregation (and a DER Aggregation)³¹ be composed of at least two individual facilities with one exception: a single Demand Side Resource may enroll as a single-facility DER Aggregation if it meets all applicable eligibility requirements.³² NYISO states that this exception is consistent with its current approach of permitting individual Demand Side Resources to participate in the Day-Ahead Demand Response Program and Demand Side Ancillary Services Program, which NYISO proposes to replace with its Aggregation Participation Model.³³ NYISO does not propose to establish an upper limit either on the number of individual facilities that can participate in an Aggregation, or on the total capability (in MW) of an Aggregation.³⁴ Likewise, NYISO does not propose to establish an upper limit on the amount of demand reduction that a DER participating in an Aggregation may provide.³⁵ However, NYISO proposes to establish a maximum physical injection limit of twenty MW for each individual facility participating in an Aggregation, with the maximum physical injection capability measured as the facility’s nameplate capacity unless the facility demonstrates to NYISO that it has sufficient physical protections and/or control schemes in place to limit its injection capability to twenty MW or less.³⁶

11. NYISO proposes to require that each individual facility within an Aggregation be electrically located in the NYCA and electrically connected to the same NYISO-

²⁹ NYISO Filing at 19-21 (citing Proposed Services Tariff, § 2.4).

³⁰ *Id.* at 20.

³¹ NYISO defines DER Aggregations as “[a]n Aggregation consisting of one or more Demand Side Resources, or two or more different Resource types.” Proposed Services Tariff, § 2.4.

³² NYISO Filing at 22 (citing Proposed Services Tariff, § 4.1.10.1).

³³ *Id.* at 22, 33-35.

³⁴ *Id.* at 22.

³⁵ *Id.*

³⁶ *Id.* at 22-23 (citing Proposed Services Tariff, § 4.1.10.1).

identified transmission node.³⁷ NYISO states that it will identify transmission nodes throughout the NYCA, following consultation with the New York Transmission Owners (NYTOs),³⁸ and will reflect the collection of electrical facilities (e.g., distribution feeder lines) associated with the transmission node to which individual facilities may aggregate.³⁹ NYISO proposes to identify each transmission node in the ISO Procedures,⁴⁰ and review the set of transmission nodes on an annual basis to account for changing conditions on the New York State Transmission System and underlying distribution systems.⁴¹ NYISO states that requiring facilities within an Aggregation to be electrically connected to the same transmission node will enable NYISO to manage transmission constraints and reliability concerns thereby resulting in lower overall production cost. NYISO states that requiring Aggregations to locate at a single transmission node, with an associated nodal Locational Based Marginal Price, will also encourage location-specific development of DERs in areas where additional supply will enable it to more effectively manage transmission constraints and improve grid reliability while also lowering overall production costs.⁴² NYISO clarifies that its proposal does not limit the total number of Aggregations permitted at a single transmission node, and allows one or more Aggregators to enroll one or more Aggregations at a transmission node.⁴³ NYISO proposes to allow an individual facility to leave an Aggregation or change the Aggregation in which it participates, to be effective at the start of a calendar month, as long as the facility provides NYISO with at least thirty calendar days' notice of its intent to change Aggregations and receives approval from NYISO before participating in a new

³⁷ NYISO Filing at 25. NYISO proposes to define transmission node as: “[a] bus located inside the NYCA that is identified by the ISO to represent an electrical area to which individual Distributed Energy Resources may aggregate and at which [Locational Based Marginal Prices] are calculated.” Proposed Services Tariff § 2.20.

³⁸ The NYTOs include: Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., Niagara Mohawk Power Corporation d/b/a National Grid, New York Power Authority, New York State Electric & Gas Corporation, Orange and Rockland Utilities, Inc., Power Supply Long Island, and Rochester Gas and Electric Corporation.

³⁹ NYISO Filing at 25 (citing Proposed Services Tariff, § 4.1.10.2).

⁴⁰ Defined in the NYISO Services Tariff as “[t]he procedures adopted by the ISO in order to fulfill its responsibilities under the ISO OATT, the ISO Services Tariff and the ISO Related Agreements.” Services Tariff, § 2.9.

⁴¹ *Id.* at 26 (citing Proposed Services Tariff, § 4.1.10.2).

⁴² *Id.* at 25.

⁴³ *Id.* at 26.

Aggregation.⁴⁴ NYISO states that facilities seeking to change Aggregations that are participating in the ICAP Market must also satisfy additional requirements, as discussed in section IV.B.3 below.⁴⁵

12. Finally, NYISO proposes to require each Aggregator to register as a NYISO customer.⁴⁶ NYISO states that an Aggregator will be required to: (1) comply with the registration requirements set forth in the NYISO Tariff and ISO Procedures; (2) designate one or more contact persons to receive communications from NYISO; and (3) comply with the metering requirements set forth in section 13 of the Services Tariff and associated ISO Procedures.⁴⁷ NYISO states that the Aggregator also will be responsible for registering Aggregations with NYISO and enrolling individual facilities in each Aggregation in accordance with ISO Procedures.⁴⁸

B. Energy and Ancillary Services Market Participation

13. NYISO proposes several new requirements to facilitate the participation of Aggregations in NYISO's energy and ancillary service markets. NYISO explains that the vast majority of the bidding and scheduling constructs in its existing market rules will apply to Aggregations in the same manner as they currently apply to other generators.⁴⁹ Unlike for conventional generators, however, NYISO states that its Aggregation Participation Model will be dispatch-only, i.e., it will not consider commitment parameters, regardless of the Aggregation's composition of resources.⁵⁰ NYISO explains that it will not evaluate commitment parameters because it does not have the means to effectively, economically optimize the starts and stops of individual facilities within an Aggregation and individual facilities in an Aggregation may already be operating to perform a primary function outside of NYISO's markets.⁵¹

⁴⁴ *Id.* at 27 (citing Proposed Services Tariff, § 4.1.10.3).

⁴⁵ *Id.*

⁴⁶ *Id.* (citing Proposed Services Tariff, § 4.1.10.5).

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ *Id.* at 28.

⁵⁰ *Id.* at 29.

⁵¹ *Id.*

14. Consistent with the lowest minimum offer requirement available to market participants, NYISO proposes to require that each energy, ancillary service, and capacity transaction on behalf of an Aggregation have a minimum offer of 100 kW.⁵² NYISO adds that if an Aggregation offers a combination of energy injections, withdrawals, and/or demand reductions, it must offer the minimum offer level of 100 kW for each.⁵³ NYISO asserts that this requirement is necessary because NYISO will process injections, withdrawals, and demand reductions in the settlements evaluation separately for the purposes of meeting the requirements of Order No. 745,⁵⁴ and subsequently will recombine the separate pieces to settle the Aggregation as a whole on a net basis.⁵⁵

15. NYISO proposes bid requirements to address a situation in which one or more withdrawal-eligible generators, e.g., an energy storage resource, in an Aggregation seeks to refill or recharge in an interval in which the Aggregation also seeks to provide supply. Specifically, NYISO proposes that an Aggregation's bid shall reflect the net offer, such that any expected energy withdrawals reduce the energy that the Aggregation is capable of supplying.⁵⁶ Similarly, NYISO proposes to determine compliance with NYISO base point signals for settlement purposes based on the net performance of the Aggregation as a whole.⁵⁷

16. Regarding ancillary services, NYISO proposes that an Aggregation may only qualify to offer the ancillary services that all individual facilities in the Aggregation are qualified to provide.⁵⁸ For Regulation Service, an Aggregation that is composed of one or more generating units is not eligible to provide Regulation Service unless each of the generating units in the Aggregation use inverter-based energy storage technology. NYISO explains that it proposes to establish this requirement because the provision of

⁵² *Id.* at 30.

⁵³ *Id.* at 30-31.

⁵⁴ *Demand Response Compensation in Organized Wholesale Energy Markets*, Order No. 745, 134 FERC ¶ 61,187, *order on reh'g and clarification*, Order No. 745-A, 137 FERC ¶ 61,215 (2011), *reh'g denied*, Order No. 745-B, 138 FERC ¶ 61,148 (2012), *vacated sub nom. Elec. Power Supply Ass'n v. FERC*, 753 F.3d 216 (D.C. Cir. 2014), *rev'd & remanded sub nom. FERC v. Elec. Power Supply Ass'n*, 136 S.Ct. 760 (2016).

⁵⁵ NYISO Filing at 31.

⁵⁶ *Id.*

⁵⁷ *Id.* at 32.

⁵⁸ *Id.* at 42.

Regulation Service requires a resource being synchronous to the grid and responsive to six-second dispatch signals.⁵⁹ Consistent with Rate Schedule 3-A of NYISO's Services Tariff, NYISO proposes that an Aggregation *not* providing Regulation Service may be subject to settlement charges if it deviates from its energy schedule.⁶⁰ Finally, NYISO proposes several new requirements for Aggregations that wish to provide reserves and voltage support services.⁶¹

C. Settlement Rules

17. NYISO proposes to revise the requirements for Bid Production Cost Guarantee (BPCG) payments to establish when Aggregations are eligible for day-ahead and/or real-time BPCG payments, consistent with its currently-effective BPCG eligibility criteria.⁶²

18. NYISO proposes to allow Aggregations to be eligible for a real-time BPCG payment in the same way as other generators.⁶³ NYISO explains that Aggregations will only be eligible for real-time BPCG if they are operating out-of-merit or as part of a supplemental resource evaluation to meet NYCA or local system reliability.⁶⁴ Additionally, NYISO proposes that an ISO-committed flexible Aggregation comprised entirely of energy storage resources that self-manages its energy level also will be eligible for real-time BPCG payments.⁶⁵ NYISO states that energy storage resources and Aggregations shall not be eligible to receive a real-time BCPG payment for a day if these resources' real-time market bids for any hour of that day do not permit the resource to receive a schedule of zero MW.⁶⁶

⁵⁹ *Id.* at 42-43.

⁶⁰ Specifically, NYISO proposes to subject Aggregations to persistent under-generation and persistent over-withdrawal charges consistent with how it treats other suppliers. *Id.* at 43-44.

⁶¹ *Id.* at 44.

⁶² *Id.* at 60-61; *see also* Proposed Services Tariff, § 18.2.1.

⁶³ NYISO Filing at 61; *see also* Proposed Services Tariff, § 18.4.1.

⁶⁴ NYISO Filing at 61; *see also* Proposed Services Tariff, §§ 18.4.1.2.4, 18.4.1.1.3.

⁶⁵ NYISO Filing at 61; *see also* Proposed Services Tariff, § 18.4.1.1.4.

⁶⁶ NYISO Filing at 61; *see also* Proposed Services Tariff, § 18.4.1.2.4.

19. NYISO also states that it proposes to eliminate, as a consequence of the proposed termination of the Day-Ahead Demand Response Program and Demand Side Ancillary Services Program in this filing, the tariff sections associated with BPCG payments for demand reduction in the Day-Ahead Market, Demand Side Resources providing Operating Reserves and/or Regulation Service in the Day-Ahead Market, and Demand Side Resources providing Operating Reserves and/or Regulation Service in the Real-Time Market.⁶⁷

20. NYISO addresses in its proposed rules for settlements how it will continue to comply with Order No. 745, which provides that when a demand response resource participating in the energy market can balance supply and demand as an alternative to generation, and when dispatch of the resource is cost-effective as determined by a net benefits test, the resource must be compensated for its demand reduction in the energy market at the locational marginal price.⁶⁸

D. Interconnection Requirements

21. NYISO states that it proposes revisions to its interconnection requirements applicable to DERs, including revisions to the requirements concerning Capacity Resource Interconnection Service (CRIS).⁶⁹ Overall, NYISO explains that its proposed tariff revisions establish: the interconnection-related data requirements applicable to each type of facility, the manner in which they will be evaluated in the interconnection process, the level of CRIS they may request, the manner in which their CRIS requests will be evaluated, and the manner in which proposed modifications and CRIS transfers will be processed.⁷⁰ NYISO requests that tariff revisions concerning interconnection requirements become effective on May 1, 2020.

22. NYISO clarifies that its interconnection requirements focus on the facility level, rather than either the more granular asset level or the broader Aggregation level.⁷¹ NYISO notes that its proposed revisions to Attachments S, X, and Z of the OATT distinguish between Resources with Energy Duration Limitations⁷² and facilities

⁶⁷ NYISO Filing at 60.

⁶⁸ *Id.* at 36 (citing Order No. 745, 134 FERC ¶ 61,187 at P 2).

⁶⁹ *Id.* at 95; *see also* Proposed OATT, Attachments S, X, Z.

⁷⁰ NYISO Filing at 96, 101-02.

⁷¹ *Id.* at 96.

⁷² NYISO defines an Energy Duration Limitation as: “for a Resource that is not capable of providing Energy for twenty-four hours each day, the number of consecutive

composed of multiple units of the same or different technology type because their differences necessitate separate tariff provisions.⁷³ NYISO's proposed revisions address the different information NYISO will require for an interconnection request based on the type of resource seeking to interconnect, whether the resource has Energy Duration Limitations, and whether it is a facility composed of multiple units. NYISO states that through the proposed revisions to Attachment Z of the OATT, a multi-unit facility (multiple units behind a single meter) may be included in one Interconnection Request and treated as a single facility with a single queue position in the interconnections study process. The proposed tariff revisions will allow this even if the assets behind the same facility meter are different technologies (e.g., energy storage and solar).⁷⁴ Attachment S provides the procedures for the Class Year⁷⁵ Study, which includes a deliverability analysis that evaluates project's requested MW of CRIS for facilities larger than two MW.

III. Notice of Filing and Responsive Pleadings

23. Notice of NYISO's June 27, 2019 filing was published in the *Federal Register*, 84 Fed. Reg. 32,159 (2019), with interventions and protests due on or before July 18, 2019.

24. The New York Public Service Commission (New York Commission) filed a notice of intervention. Timely motions to intervene were filed by Advanced Energy Economy; Advanced Energy Management Alliance; American Public Power Association; Astoria Generating Company, L.P., et. al.; Brookfield Energy Marketing, L.P. (Brookfield); Calpine Corporation; the City of New York; Consumer Power Advocates; Energy Spectrum, Inc.; Energy Storage Association; Exelon Corporation; Helix Ravenswood, LLC; Multiple Intervenors;⁷⁶ National Rural Electric Cooperative

hours per day that a Resource elects and is obligated, pursuant to Services Tariff Sections 5.12.1 and 5.12.7, to (i) schedule a Bilateral Transaction; (ii) Bid Energy in the Day-Ahead Market; or (iii) notify the ISO of any outages in the Day-Ahead Market as an Installed Capacity Supplier for the ICAP Equivalent of UCAP sold, as identified in Section 5.12.14 of the ISO Services Tariff." Proposed Services Tariff, § 2.5.

⁷³ *Id.*

⁷⁴ *Id.* at 98.

⁷⁵ NYISO defines Class Year as: "the group of generation projects and Class Year Transmission Projects included in any particular Class Year Interconnection Facilities Study (Annual Transmission Reliability Assessment and/or Class Year Deliverability Study), in accordance with the criteria specified in Attachment S and in Attachment Z for including such projects." NYISO, NYISO Tariffs, NYISO OATT, § 32.5 (OATT).

⁷⁶ Multiple Intervenors characterizes itself as an unincorporated association of

Association; New York Battery and Energy Storage Technology Consortium (NY-BEST); New York State Energy Research and Development Authority (NYSERDA); NYTOs; Natural Resources Defense Council (NRDC) and the Sustainable FERC Project; NRG Curtailment Solutions, Inc. (NRG Curtailment Solutions); NRG Power Marketing, LLC; and Public Citizen, Inc. Out-of-time motions to intervene were filed by Hudson Transmission Partners, L.L.C and the Independent Power Producers of New York, Inc. (IPPNY).

25. Joint Parties,⁷⁷ NRG Curtailment Solutions, and the NYTOs filed timely comments. Eastern Generation, LLC and Helix Ravenswood, LLC (together, the New York Suppliers) filed timely comments and a limited protest. Timely protests were filed by the New York Commission and NYSERDA (together, the New York State Entities) and by Brookfield.

26. On August 2, 2019, NYISO and Joint Parties filed separate Answers. On August 9, 2019, IPPNY filed an Answer. On August 13, 2019, Brookfield filed an Answer. On August 15, 2019, the New York Suppliers filed an Answer. On August 23, 2019, Joint Parties filed an Answer to IPPNY's Answer.

27. On August 23, 2019, Commission staff issued a letter informing NYISO that its filing was deficient and requesting additional information necessary to process the filing (First Deficiency Letter). On September 4, 2019, NYISO filed an informational comment regarding its filing. On September 18, 2019, NYISO submitted responses to the questions contained in the First Deficiency Letter.

28. Notice of NYISO's September 18, 2019 amended filing was published in the *Federal Register*, 84 Fed. Reg. 50,026 (2019), with interventions and protests due on or before October 9, 2019. None were filed.

29. On October 30, 2019, Commission staff issued a second letter informing NYISO that its filing remained deficient and requesting additional information necessary to process the filing (Second Deficiency Letter). On November 26, 2019, NYISO submitted responses to the questions contained in the Second Deficiency Letter.

30. Notice of NYISO's November 26, 2019 amended filing was published *Federal Register*, 84 Fed. Reg. 66,396 (2019), with interventions and protests due on or before December 17, 2019. None were filed.

approximately 60 large industrial, commercial and institutional energy consumers with manufacturing and other facilities located throughout New York State.

⁷⁷ Joint Parties include: Advanced Energy Management Alliance, Advanced Energy Economy, Consumer Power Advocates, Energy Spectrum, Inc., NRDC and the Sustainable FERC Project, and NY-BEST.

IV. Discussion

A. Procedural Matters

31. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2019), the notice of intervention and the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding.

32. Pursuant to Rule 214(d) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214(d) (2019), we grant IPPNY's late-filed motion to intervene, given the party's interest in the proceeding, the early stage of the proceeding, and the absence of undue prejudice or delay.

33. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2019), prohibits an answer to a protest or an answer unless otherwise ordered by the decisional authority. We accept the answers filed in this proceeding because they have provided information that assisted us in our decision-making process.

B. Substantive Matters

34. We find that NYISO's proposed Aggregation Participation Model provides a just and reasonable and not unduly discriminatory framework for Aggregations, including DERs, to participate in the NYISO-administered markets. Among other considerations, NYISO's filing facilitates the participation of DERs and other Aggregations of resources in its wholesale markets by enabling heterogeneous groups of technologies to aggregate and be compensated for services that they are collectively capable of providing. Accordingly, we accept NYISO's filing, to become effective as requested, subject to compliance, as discussed below.

35. We note that NYISO filed several tariff records with a requested effective date of "12/31/9998." We therefore direct NYISO, in a compliance filing to be made within thirty (30) days of the date of this order, to propose revised effective dates reflecting when it intends to implement the tariff records, as described in NYISO's filing.

36. In addition to the components of NYISO's filing described above,⁷⁸ NYISO's filing contains tariff revisions regarding dual participation, metering and telemetry, ICAP Market requirements, and buyer side mitigation. These portions of NYISO's proposal were contested and are discussed in more detail below.

⁷⁸ See *supra* PP 5-22.

1. Dual Participation

a. NYISO's Filing

37. NYISO proposes to amend its Services Tariff to allow generators, Demand Side Resources, and DERs to simultaneously participate in the NYISO-administered markets as well as to offer energy and other services to a local distribution utility or to a host load.⁷⁹ NYISO requests that tariff revisions concerning dual participation become effective May 1, 2020.

38. Specifically, NYISO proposes to allow all wholesale market participants, including DER Aggregations, to use its proposed dual participation rules.⁸⁰ Further, NYISO proposes to revise the definition of a Behind the Meter Net Generation resource to remove the prohibition on dual participation for these resources.⁸¹ NYISO explains that, under its proposal, any market participant engaged in dual participation would still be responsible for meeting all applicable rules and obligations set forth in NYISO's tariffs, and that failure to comply may result in financial penalties and/or termination from wholesale market participation.⁸²

39. NYISO states that market participants that operate to meet obligations outside of the NYISO-administered markets must bid in a manner that ensures they will be dispatched by NYISO for each market interval consistent with the manner in which the resource will operate to meet such obligations.⁸³ Similarly, NYISO explains that it will continue to employ its current practice of consulting with the NYTOs to coordinate scheduling and dispatch of market participants engaged in dual participation.⁸⁴ NYISO proposes to retain the authority to schedule and/or dispatch all wholesale market participants, even those that are engaging in dual participation and are providing services to the distribution system and/or a host facility.⁸⁵ However, NYISO notes that the NYTOs will continue to be able to utilize NYISO's supplemental resource evaluation procedures to address local reliability needs.⁸⁶ NYISO explains that the supplemental

⁷⁹ NYISO Filing at 49; *see also* Proposed Services Tariff, § 4.1.11.

⁸⁰ NYISO Filing at 49.

⁸¹ *Id.* at n.132; *see also* Proposed Services Tariff, § 2.2.

⁸² NYISO Filing at 49-50.

⁸³ Proposed Services Tariff, § 4.1.11.

⁸⁴ *Id.*

⁸⁵ NYISO Filing at 50; *see also* Proposed Services Tariff, § 4.1.11.

resource evaluation enables the NYTOs to contact NYISO to request to schedule resource(s) that are needed to meet local reliability needs.⁸⁷ However, NYISO notes that its instant proposal will allow resources engaged in dual participation to be scheduled for economic reasons.⁸⁸ NYISO's proposal would allow a market participant to request a schedule (through its bids) as needed by the transmission owner for local reasons when the resource is not otherwise scheduled by NYISO.⁸⁹

40. In order for market participants to meet a local need, the resource must be scheduled with NYISO using either the self-scheduled fixed bidding mode, the self-scheduled flexible bidding mode, or submitting a bid as a price taker.⁹⁰ NYISO states that resources using these methods will be scheduled by NYISO consistent with the bids unless there is a bulk power system operational or reliability concern.⁹¹ NYISO notes that market participants must be mindful of any other wholesale market obligations that they may have when submitting bids to meet a transmission owner's local needs, such as, for example, a day-ahead schedule.⁹²

b. Comments and Protests

41. Joint Parties argue that NYISO's proposed tariff provisions include flaws that could make participation by behind-the-meter resources impractical.⁹³ Joint Parties state that the proposal would require market participants to represent all retail activity in the wholesale market, which in turn would create a barrier to entry and that, without proper accounting practices, would also result in incorrect financial transactions.

42. Specifically, Joint Parties assert that NYISO's proposed tariff states that "Generators and Demand Side Resources operating to meet an obligation outside of the ISO-administered wholesale markets must be dispatched by the ISO for the applicable market intervals."⁹⁴ Joint Parties argue that it is unclear how this provision would apply

⁸⁶ NYISO Filing at 50.

⁸⁷ *Id.*

⁸⁸ *Id.* at 50 n.135.

⁸⁹ *Id.* at 50.

⁹⁰ *Id.*; *see also* Proposed Services Tariff, § 4.1.11.

⁹¹ NYISO Filing at 50; *see also* Proposed Services Tariff, § 4.1.11.

⁹² NYISO Filing at 51.

⁹³ Joint Parties Comments at 25.

to Demand Side Resources and what constitutes an “obligation” in NYISO’s proposed tariff.⁹⁵ Joint Parties contend that NYISO’s proposal could require a Demand Side Resource to bid every fluctuation of its load into the NYISO markets.⁹⁶ Joint Parties further argue that the possibility that the entirety of a resource’s retail activity would be settled as wholesale transactions would prevent these resources from ever registering as wholesale resources.⁹⁷

43. Further, Joint Parties contend that NYISO’s bidding parameters would not allow for certain retail applications to be reflected in a resource’s wholesale market offers.⁹⁸ Joint Parties offer an example of a battery-based storage resource that can instantaneously discharge to meet a customer’s peak demand, but that could not be self-scheduled less than seventy-five minutes before a dispatch interval.⁹⁹ Joint Parties state that, in such a case, the customer’s future spike in demand may not be visible seventy-five minutes in advance, and thus the resource would be unable to offer the reduction in usage in the wholesale market.¹⁰⁰

44. Joint Parties also argue that it is unclear if resources are required to bid into the wholesale market as a result of retail activity that occurs outside of the wholesale market’s peak load windows.¹⁰¹ Joint Parties contend that there should not be a requirement to offer into the wholesale market during time periods that are outside of the designated peak load window, and that retail and wholesale services can be provided distinctly during different time periods.¹⁰² Joint Parties contend that, when a behind-the-

⁹⁴ *Id.* Joint Parties quote tariff language that differs from NYISO’s proposed tariff language. We note that Section 4.1.11 of the Proposed Services Tariff reads “Generators, Demand Side Resources, and Distributed Energy Resources operating to meet an obligation outside of the ISO-Administered Markets must Bid in a manner that ensures they will be dispatched by the ISO for the market intervals consistent with the manner in which the Resource operates to meet such obligation(s).”

⁹⁵ *Id.* at 25-26.

⁹⁶ *Id.* at 26.

⁹⁷ *Id.*

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

meter DER is solely serving its own customer's load, that entity is indistinguishable from any other retail customer, and that mechanisms for reflecting this activity in the wholesale market and for settling these transactions are well established.¹⁰³ Therefore, Joint Parties state that NYISO's proposal to require resources to bid and self-schedule this activity in the wholesale market is needlessly duplicative and could result in "inappropriate" transactions for both load and supply without proper metering and accounting practices.¹⁰⁴

45. Joint Parties request that the Commission direct NYISO to amend its proposal to only require wholesale bidding for a retail service if that retail service overlaps with a time window where the DER has a must-offer obligation into the wholesale market. Joint Parties also request that the Commission direct NYISO to amend its proposal to remove the requirement that DERs reflect in their wholesale bids certain retail services, including but not limited to demand charges.¹⁰⁵

c. NYISO's Deficiency Letter Response

46. In the Second Deficiency Letter, Commission staff requested that NYISO define what it will consider "an obligation outside the ISO-Administered Markets" for the purposes of the requirement proposed in Section 4.1.11 of the Services Tariff. In its response, NYISO clarifies that "an obligation outside the ISO-Administered Markets" is a direction from a NYCA Transmission Owner or distribution system operator to operate a facility in a particular manner to meet a distribution system need, and/or provision of a service for which a facility is compensated by the transmission owner or distribution system operator.¹⁰⁶ NYISO further states that obligations outside the NYISO markets can include providing products or services that roughly correspond to installed capacity obligations, directions to inject energy or reduce demand, or to provide ancillary services such as operating reserves or frequency response in the markets that NYISO administers.¹⁰⁷

47. Commission staff also asked NYISO how a Demand Side Resource that reduces a retail customer's load to avoid retail electric utility demand charges would be required to bid to ensure it will be dispatched accordingly by NYISO. NYISO states that in many

¹⁰² *Id.*

¹⁰³ *Id.* at 27.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ Second Deficiency Letter Response at 3.

¹⁰⁷ *Id.*

hours of the day such a resource would not be required to submit bids to NYISO when the load modulates as a result of normal day-to-day activity (e.g., load changes resulting from routine changes in electricity consumption due to the end of the work day or weekends), or when a Demand Side Resource reduces its load for its own business purposes.¹⁰⁸ NYISO further clarifies that, during the hours that such a Demand Side Resource is required to submit bids, it would be expected to either self-schedule its demand reductions via its bids, or submit price-taking bids to achieve the desired schedule.¹⁰⁹

48. Commission staff also asked how the installed capacity supplier should bid to ensure that it complies with the day-ahead market must-offer requirements when it provides a service outside the NYISO markets. NYISO states that an installed capacity supplier with an Energy Duration Limitation must satisfy the Day-Ahead Market bidding obligations identified in Services Tariff section 5.12, which NYISO states could be achieved by the resource either through self-scheduling in the Day-Ahead Market consistent with its retail obligations, or by submitting price-sensitive Bids that reflect the Resource's retail obligations.¹¹⁰ NYISO further clarifies that, in the case where a dual participating resource with an Energy Duration Limitation is directed by the applicable Transmission Owner or distribution system operator to provide a service during hours outside the Peak Load Window, this resource must bid in a manner such that it is dispatched in the NYISO's real-time market consistent with its operation to meet the direction of the applicable NYCA Transmission Owner or distribution system operator.¹¹¹

49. Finally, Commission staff requested that NYISO clarify whether a resource that is not an Installed Capacity Supplier would be required to bid in a manner that ensures it will be dispatched accordingly by NYISO during the market intervals for which it provides external service. NYISO states that all resources simultaneously participating in the ISO-administered wholesale markets and in programs or markets operated to meet the needs of distribution systems located in the NYISO will be required, when operating to meet the need of such a distribution system, to bid in a manner that ensures they will be dispatched by the ISO for the market intervals.¹¹² NYISO explains that the intent of this requirement is to enable system operators and the dispatch software (the real-time commitment, and real-time dispatch software) to account for the operation of dual participating facilities when determining the schedule and dispatch for other resources.¹¹³

¹⁰⁸ *Id.* at 4.

¹⁰⁹ *Id.*

¹¹⁰ *Id.*

¹¹¹ *Id.*

¹¹² *Id.* at 5.

50. In the Second Deficiency Letter, Commission staff requested that NYISO explain how NYISO's existing requirement that a resource self-schedule seventy-five minutes in advance of the market interval will allow market participants to reflect contractual commitments outside of its offer to NYISO's market. NYISO states that dual-participating resources will be subject to the same real-time scheduling window as all other resources and therefore these resources must submit bids reflecting a transmission owner or distribution system operator's direction seventy-five minutes prior to the start of the relevant dispatch hour.¹¹⁴ NYISO also notes that, after the real-time scheduling window has closed, resources may submit an out-of-merit request to NYISO's operators.¹¹⁵ NYISO further explains that the Aggregator of an Electric Storage Resource with highly variable host load may be unable to offer demand reductions from the facility because the Economic Customer Baseline Load Calculation (ECBL) is only accurate based on historical consumption profiles and in this case the ECBL will not be an accurate representation of the load of the facility.¹¹⁶ Therefore, NYISO explains that if it cannot represent the facility's load then it may be inappropriate for the facility to offer demand reductions into the wholesale energy and ancillary services markets.¹¹⁷ NYISO further states that an Electric Storage Resource with highly variable host load may instead qualify to participate as a stand-alone resource via the Energy Storage Resource participation model or in an Aggregation by installing metering facilities that separate Load from the Energy Storage Resource.¹¹⁸

d. Commission Determination

51. We find that NYISO's tariff revisions related to dual participation in wholesale and retail markets will contribute to NYISO's markets producing just and reasonable rates by enhancing competition, while also providing DERs with appropriate flexibility to meet various needs both within and outside the NYISO administered wholesale markets. We accept NYISO's tariff revisions concerning dual participation effective May 1, 2020, as requested by NYISO.

52. We disagree with Joint Parties' concern that NYISO's proposed Services Tariff section 4.1.11 requirement that market participants must "[b]id in a manner that ensures

¹¹³ *Id.*

¹¹⁴ *Id.* at 7.

¹¹⁵ *Id.*

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ *Id.*

they will be dispatched by the ISO for the market intervals consistent with the manner in which the Resource operates to meet such obligation(s)” creates a barrier to entry. As explained below, we find that NYISO’s proposal to require market participants to reflect in the bids they submit to NYISO obligations outside of NYISO’s markets is just and reasonable. We find that this proposed requirement appropriately balances any additional burden placed on market participants in determining their bids against the need for NYISO’s system operators and dispatch software to account accurately for the operation of dual participating facilities.

53. In response to Joint Parties’ contention that it is unclear what constitutes an “obligation” in NYISO’s proposed tariff, we find that, as discussed above, NYISO sufficiently clarifies what constitutes an obligation under its proposed tariff, which is “a direction from a [NYCA] Transmission Owner or distribution system operator to operate a facility in a particular manner to meet a distribution system need, and/or provision of a service for which a facility is compensated by the Transmission Owner or distribution system operator.”¹¹⁹ We also find unpersuasive challenges to NYISO’s proposal to require resources to “[b]id in a manner that ensures they will be dispatched by the ISO for the market intervals consistent with the manner in which the Resource operates to meet such obligation(s).”¹²⁰ Contrary to Joint Parties’ assertion that NYISO’s proposal could require a Demand Side Resource to bid every fluctuation of its load into NYISO’s markets, NYISO clarifies that, in many hours of the day, a Demand Side Resource would not be required to submit bids to NYISO when the load modulates as a result of normal day-to-day activity (e.g., load changes resulting from routine changes in electricity consumption due to the end of the work day or weekends), or when a Demand Side Resource reduces its load for its own business purposes.¹²¹ Further, we find NYISO’s rationale for including this requirement—to enable its system operators and its dispatch software to account for the operation of dual participating facilities when determining the schedules and dispatch for other resources—to be reasonable.¹²²

54. We disagree with Joint Parties’ contention that NYISO’s proposal is unclear with respect to how Energy Storage Resources with a change in load that may not be visible seventy-five minutes in advance would be able to offer the reduction in usage in the wholesale market. We find that NYISO’s proposal would allow resources with uncertain demand fluctuations to participate as stand-alone resources via the Energy Storage

¹¹⁹ Second Deficiency Letter Response at 3.

¹²⁰ Joint Parties Comments at 26 (citing NYISO’s Proposed Services Tariff, § 4.1.11).

¹²¹ Second Deficiency Letter Response at 4.

¹²² *Id.* at 5.

Resource participation model or in an Aggregation by installing metering facilities that separate the load from the Energy Storage Resource.

55. Further, we disagree with Joint Parties' argument that it is unclear whether resources are required to bid into the wholesale market as a result of retail activity that occurs outside of the wholesale market's peak load windows. We find that NYISO's proposal is clear on this issue: the resource must bid in a manner such that it is dispatched in the real-time market so that it will operate in a manner that meets the direction of the applicable NYCA transmission owner or distribution system operator. In addition, we disagree with Joint Parties' contention that there should not be a requirement to offer into the wholesale market during time periods that are outside of the designated peak load window. As discussed above, NYISO's system operators and dispatch software need this information in order to account for the operation of dual participating facilities when determining the schedule and dispatch for other resources.¹²³ Further, NYISO clarifies that Demand Side Resources would not be required to submit bids to NYISO in many hours of the day, or when a Demand Side Resource reduces its load for its own business purposes, which will lessen the burden of the requirement to bid for these resources.¹²⁴

56. In accepting NYISO's proposed tariff revisions here, we note that issues regarding whether NYISO's Tariffs comply with the requirements of Order No. 841 are before the Commission in Docket Nos. ER19-467-000, et al. The Commission will address any concerns regarding NYISO's Order No. 841 compliance in that proceeding.¹²⁵

2. Metering and Telemetry

a. NYISO's Filing

i. Metering Requirements

57. NYISO proposes revisions to section 13 of the Services Tariff to establish a new framework for metering requirements.¹²⁶ NYISO states that its existing Services Tariff and ISO Procedures require market participants participating in demand response

¹²³ *Id.*

¹²⁴ Second Deficiency Letter Response at 4.

¹²⁵ See *N.Y. Indep. Sys. Operator Inc.*, 169 FERC ¶ 61,225, at P 208 (2019) (deferring further action on the Order No. 841 compliance directive to allow participation in wholesale and retail markets until the Commission takes action on the merits of NYISO's proposal filed in Docket No. ER19-2276-000).

¹²⁶ NYISO Filing at 52.

programs to obtain metering and/or meter data services from either the local NYTO or a New York Commission certified meter service provider or meter data service provider.¹²⁷ NYISO states that, under the revised tariff, an Aggregator of a DER Aggregation, Curtailment Services Provider,¹²⁸ or Responsible Interface Party¹²⁹ participating in the NYISO-administered markets may obtain wholesale metering and/or meter data services from either: (1) the member system in the transmission district in which the entity is located; or (2) a new third-party entity—Meter Services Entity—that complies with certain eligibility requirements detailed below.¹³⁰ NYISO states that each Aggregator, Curtailment Services Provider, and Responsible Interface Party can select their provider, but that the Aggregator, Curtailment Services Provider, or Responsible Interface Party is responsible for compensating their provider and ensuring that they comply with NYISO's Tariffs and procedures, and will be responsible for any penalties concerning these services.¹³¹ In addition, NYISO states that each Aggregation must have adequate metering, including each individual facility in the Aggregation.¹³²

58. NYISO proposes to establish an application process that a Meter Services Entity must satisfy to be eligible to provide metering or meter data services. The proposed eligibility requirements include requirements regarding the applicant's general business

¹²⁷ On December 20, 2018, the Commission issued an order granting in part NRG Curtailment Solutions' complaint against NYISO, finding that NYISO's metering requirements in the Services Tariff are unjust, unreasonable, and unduly discriminatory, and as such, instituted paper hearing procedures, under FPA section 206, to determine the appropriate remedy. *NRG Curtailment Sols., Inc. v. N.Y. Indep. Sys. Operator, Inc.*, 165 FERC ¶ 61,247 (2018) (NYISO Metering Proceeding). NYISO states that the resolution of the metering issues pending in the NYISO Metering Proceeding can best be accomplished through Commission action in the instant proceeding. NYISO Filing at 57-58.

¹²⁸ NYISO defines Curtailment Services Provider as: “[a] qualified entity that can produce real-time, verified reductions in NYCA Load of at least 100 kW in a single Load Zone, pursuant to the Emergency Demand Response Program and related ISO procedures.” NYISO Services Tariff, § 2.3.

¹²⁹ NYISO defines Responsible Interface Party as: “[a] Customer that is authorized by the ISO to be the Installed Capacity Supplier for one or more Special Case Resources and that agrees to certain notification and other requirements as set forth in this Services Tariff and in the ISO Procedures.” *Id.*, § 2.18.

¹³⁰ NYISO Filing at 52-53.

¹³¹ *Id.* at 53.

¹³² *Id.*

competence, its ability to perform the specific metering and/or meter data service functions of a Meter Services Entity, and its ability to comply with the NYISO's Tariffs and procedures.¹³³ NYISO states that it will review applications from interested parties and, upon NYISO's determination that an applicant satisfies the eligibility requirements, the entity will be registered as a Meter Services Entity with NYISO, included on a list posted on NYISO's website, and be eligible to provide metering and/or meter data services to itself and/or to other Aggregators, Responsible Interface Parties, or Curtailment Services Providers.¹³⁴ NYISO states that its proposed application process establishes reasonable eligibility requirements that an interested entity must satisfy before being authorized to provide metering or meter data services.¹³⁵

59. NYISO states that a Meter Services Entity will have a continuing obligation to comply with NYISO's metering and meter data requirements, along with the information and plans that it submits as part of the application process.¹³⁶ NYISO states that the Meter Services Entity must inform NYISO of changes to the information that was included in its application and of its compliance with any changes to NYISO's metering requirements to ensure it remains qualified to provide metering and/or meter data services and it must ensure that all physical metering infrastructure and meter data communications infrastructure that it uses complies with requirements in NYISO's tariffs and procedures.¹³⁷ NYISO states that a market participant that serves as a Meter Services Entity and offers metering services to other market participants will be required to treat all customers, affiliated and non-affiliated, on a non-discriminatory basis.¹³⁸

60. NYISO states that it will have the authority to oversee and audit the metering and meter data services provided by Meter Services Entities to validate compliance with the responsibilities specified in NYISO's tariffs and procedures.¹³⁹ NYISO further states that, if it determines that a Meter Services Entity does not comply with the eligibility

¹³³ *Id.* at 53-54. NYISO proposes that a Meter Services Entity will be an "entity registered with [NYISO] and authorized to provide metering and meter data services, as applicable, to an Aggregator, Responsible Interface Party or Curtailment Services Provider." Proposed Services Tariff, § 2.13.

¹³⁴ NYISO Filing at 54.

¹³⁵ *Id.* at 54-55.

¹³⁶ *Id.* at 55.

¹³⁷ *Id.*

¹³⁸ *Id.*

¹³⁹ *Id.* at 56.

requirements or the metering or meter data requirements in NYISO's tariffs and procedures, NYISO may suspend or revoke the eligibility of the Meter Services Entity.¹⁴⁰

61. NYISO states that an Aggregator, Responsible Interface Party, or Curtailment Services Provider using a Meter Services Entity will be responsible for NYISO's audit costs of that Meter Services Entity.¹⁴¹ NYISO states that it will recover from each Responsible Interface Party, Curtailment Services Provider, and Aggregator using a Meter Services Entity the sum of NYISO's labor costs to complete each audit task conducted by NYISO concerning the applicable Meter Services Entity based on a combination of a NYISO employee hourly rate and a pro-rated cost of overhead.¹⁴² NYISO states that, if utilized, the cost of any third-party vendor utilized to complete audit tasks will be billed to the Responsible Interface Party, Curtailment Services Provider, or Aggregator using the Meter Services Entity for its services.¹⁴³ NYISO states that it will also have the authority to impose financial penalties on the Responsible Interface Party, Curtailment Services Provider, or Aggregator in connection with metering or meter data services that do not comply with NYISO's tariffs and procedures.¹⁴⁴

62. NYISO proposes that the tariff revisions on metering requirements become effective November 1, 2019 to coincide with the first day of the 2019-2020 winter capability period.¹⁴⁵

ii. Telemetry Requirements

63. NYISO states that it proposes to revise section 13.2 of its Services Tariff to provide that NYISO is responsible for establishing the real-time telemetry specifications

¹⁴⁰ *Id.*

¹⁴¹ *Id.* at 56-57.

¹⁴² *Id.*

¹⁴³ *Id.*

¹⁴⁴ *Id.*

¹⁴⁵ On September 4, 2019, NYISO filed a letter informing the Commission that it intended to proceed with an interim metering certification process while its proposed revisions in the instant proceeding await Commission action. NYISO September 4 Informational Comment at 3 n.9 (September 4 Supplement). Subsequently, along with its response to the First Deficiency Letter in this proceeding, NYISO submitted an amendment changing the proposed effective date of the tariff revisions from November 1, 2019 to May 1, 2020. *See* NYISO First Deficiency Letter Response at 1; *see also* NYISO, NYISO Tariffs, NYISO OATT, § 2.13 MST Definitions -M (22.0.0) (A).

and standards for all telemetry used by NYISO, which specifications and standards will be set forth in NYISO's procedures.¹⁴⁶ Further, NYISO states that this tariff section also will provide that NYISO customers shall maintain telemetry hardware and infrastructure at their own expense.¹⁴⁷ NYISO also proposes to specify that customers shall provide real-time telemetry for generators and Aggregations, nominally every six seconds, in accordance with the specifications set forth in NYISO's procedures and that real-time telemetry data errors and transmission disruptions shall be remedied in accordance with NYISO's procedures.¹⁴⁸

64. NYISO states that, in order to minimize administrative burdens, it will send real-time base point signals to, and receive real-time telemetry from, an Aggregation, not the individual facilities within the Aggregation, and that it will also collect revenue-quality meter data from the Aggregation rather than the individual facilities for settlement purposes.¹⁴⁹ NYISO states that Aggregations will be required to send telemetry signals for twenty-four hours a day, seven days a week and the Aggregator will be responsible for measuring the injection, withdrawal, and load reduction of all individual facilities in the Aggregation during dispatch.¹⁵⁰

65. According to NYISO, Aggregators will be required to provide NYISO with multiple streams of telemetry and revenue meter data for DER Aggregations and NYISO requires this information for measuring both performance and settlements.¹⁵¹ NYISO states that it requires the individual signals to pair with the different revenue-grade meter files that will be submitted one day after dispatch and the cumulative telemetry signal is used in real-time to evaluate response to dispatch in aggregate. NYISO states that Aggregations of like resource types will be subject to the existing metering and telemetry rules for that resource type.¹⁵²

66. NYISO states that the Aggregator will be responsible for ensuring that all measurements for metering and telemetry for the individual facilities it represents derive from either directly measured or calculated values, or a combination thereof, in

¹⁴⁶ NYISO Filing at 58; *see also* Proposed Services Tariff, § 13.2.

¹⁴⁷ NYISO Filing at 58-59; *see also* Proposed Services Tariff, § 13.2.

¹⁴⁸ NYISO Filing at 58-59.

¹⁴⁹ *Id.* at 59-60.

¹⁵⁰ *Id.*

¹⁵¹ *Id.*

¹⁵² *Id.* at 60.

accordance with the requirements set forth in NYISO's procedures.¹⁵³ According to NYISO, the real-time six-second status of an individual facility may be calculated through a NYISO-approved methodology for facilities that are 100 kW or smaller and the use of such an alternative telemetry solution must be communicated and approved by NYISO prior to its use and must only augment directly metered values that are measured at a periodicity of five-minutes or faster.¹⁵⁴

b. Comments and Protests

i. Metering Requirements

67. NRG Curtailment generally supports NYISO's proposed implementation of a DER participation model but raises concerns about the potential gap in transitioning from meter data service provider and meter service provider programs to NYISO's Meter Services Entity program.¹⁵⁵ NRG Curtailment explains that its intention in submitting comments is to ensure that NYISO will indeed implement its Meter Services Entity program and issue Meter Services Entity certifications in advance of November 1, 2019.¹⁵⁶ NRG Curtailment cautions that, if NYISO does not implement the necessary rules by October 31, 2019, there will be a disruption for customers because there will be a gap period in which no certifications for Responsible Interface Parties, Aggregators, or Curtailment Services Providers would be available.¹⁵⁷ NRG Curtailment requests that the Commission direct NYISO to implement any necessary rules by October 31, 2019, to ensure there is no gap between the termination of the meter data service provider and meter service provider programs and the issuance of a Meter Services Entity certification.¹⁵⁸ NRG Curtailment states that this relief would allow customers that have previously participated in the program the ability to continue their participation without disruption and would provide confidence to Responsible Interface Parties and Curtailment Services Providers that there would be no gap period in which they were not certified.¹⁵⁹ NRG Curtailment explains that its intention in submitting comments is to ensure that NYISO

¹⁵³ *Id.*

¹⁵⁴ *Id.*

¹⁵⁵ NRG Curtailment Comments at 1.

¹⁵⁶ *Id.* at 3.

¹⁵⁷ *Id.*

¹⁵⁸ *Id.*

¹⁵⁹ *Id.* at 3-4.

will indeed implement its Meter Services Entity program and issue Meter Services Entity certifications in advance of November 1, 2019.¹⁶⁰

68. Joint Parties state that, in NYISO's Order No. 841 compliance proceeding,¹⁶¹ Advanced Energy Economy (AEE) raised concerns with NYISO's treatment of energy storage resources co-located with load.¹⁶² More specifically, Joint Parties state that AEE protested NYISO's proposal to directly meter the battery, and treat it as a front-of-the-meter resource, as well as the lack of detail for ensuring storage owners were not paying twice for charging.¹⁶³ Joint Parties contend that a behind-the-meter battery with injection capabilities could be part of a DER Aggregation under NYISO's proposed tariff revisions, and NYISO has yet to address AEE's concerns in NYISO's Order No. 841 proceeding.¹⁶⁴ Joint Parties state that they seek the same relief from the Commission in this proceeding as was requested by AEE in NYISO's Order No. 841 compliance proceeding.¹⁶⁵ Therefore, Joint Parties request that the Commission direct NYISO to implement additional metering and/or accounting practices that better account for energy injections and withdrawals used for wholesale and retail purposes.¹⁶⁶ Joint Parties also request that the Commission direct NYISO to develop more precise accounting procedures that ensure that, for directly-metered behind-the-meter energy storage resources, the distribution utility only nets out charging energy that is later injected onto the wholesale grid (and is thus a wholesale sale), and that charging energy that is used to reduce on-site load is appropriately settled at retail.¹⁶⁷

¹⁶⁰ *Id.* at 3.

¹⁶¹ *Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators*, Order No. 841, 162 FERC ¶ 61,127 (2018), *order on reh'g*, Order No. 841-A, 167 FERC ¶ 61,154 (2019).

¹⁶² Joint Parties Comments at 24.

¹⁶³ *Id.* (citing Comments of Advanced Energy Economy on New York Independent System Operator, Inc., at 4-9, Docket No. ER19-467-000 (filed Feb. 7, 2019)).

¹⁶⁴ *Id.*

¹⁶⁵ *Id.* at 24-25.

¹⁶⁶ *Id.* at 25.

¹⁶⁷ *Id.*

ii. Telemetry Requirements

69. Regarding telemetry, Joint Parties argue that requiring six-second telemetry from smaller DERs: (1) will create a barrier to entry for these resources; (2) does not provide a meaningfully more accurate portrayal of resource performance than a one-minute requirement; and (3) does not meaningfully contribute to reliability compared to a one- or five-minute requirement.¹⁶⁸ Therefore, Joint Parties believe that it is unjust and unreasonable to require six-second telemetry from all DERs greater than 100 kW, including those that do not provide regulation.¹⁶⁹ Joint Parties assert that NYISO's requirement that DERs provide six-second telemetry will require existing metering and sub-metering to be replaced, including embedded systems for electric vehicle charging stations, energy management systems, and utility smart meters, which can support one-minute or five-minute telemetry.¹⁷⁰ Joint Parties argue that this total additional cost will compromise the economics of small sites, where there is a smaller revenue base to spread these fixed costs, especially in areas where capacity payments are already limited.¹⁷¹ Joint Parties conclude that this creates a barrier to entry for these smaller resources and runs contrary to the original intentions and aims of the Commission in encouraging energy storage and other DERs through aggregation.¹⁷² Joint Parties further conclude that requiring six-second telemetry adds costs without any demonstrated improvement in reliability or resource performance.¹⁷³ For example, Joint Parties state that six-second data will not provide a more accurate picture of resource performance than the type of one-minute data in place in ISO New England for resources providing 10-minute reserves.¹⁷⁴

70. Joint Parties cite to a statement made by the Commission in the Storage NOPR proceeding on barriers to entry to support their request that the Commission direct NYISO to modify its telemetry proposal.¹⁷⁵ Joint Parties request that the Commission

¹⁶⁸ *Id.* at 16.

¹⁶⁹ *Id.* at 13-14. Joint Parties state that they recognize that six-second telemetry is necessary for resources providing regulation service.

¹⁷⁰ *Id.* at 14.

¹⁷¹ *Id.*

¹⁷² *Id.*

¹⁷³ *Id.*

¹⁷⁴ *Id.* at 15.

¹⁷⁵ *Id.* at 16 n.26 (citing Storage NOPR, 157 FERC ¶ 61,121 at P 2).

direct NYISO either to tailor telemetry to the market(s) the applicable resource aggregation is participating in, and therefore accept one-minute telemetry, and not require six-second telemetry unless a DER is providing regulation; or to only require six-second telemetry for individual DERs with greater than one MW of enrolled capacity and accept one-minute telemetry for smaller DERs, which would remove the barrier to entry for smaller customers.¹⁷⁶

c. Answers

i. Telemetry Requirements

71. In response to Joint Parties, NYISO restates that its proposed telemetry standards are consistent with standards applicable to other suppliers and are necessary both for NYISO to maintain situational awareness and for NYISO to meet mandatory reliability criteria.¹⁷⁷ According to NYISO, the New York State Reliability Council (NYSRC) standards require that, “when a transmission facility experiences a thermal overload at or above its Short Term Emergency rating, NYISO must take immediate corrective action, and must reduce the loading on the transmission facility below the Short Term Emergency Rating within five minutes.”¹⁷⁸ NYISO explains that six-second data allow NYISO’s operators and software to identify the optimal resource schedules to mitigate the thermal overload and communicate those schedules to the applicable resources. NYISO concludes that changing the telemetry scan rate from six-seconds to one-minute would materially hamper NYISO’s ability to respond to such emergencies.¹⁷⁹ NYISO also states that it is currently evaluating alternatives to its existing telemetry communications infrastructure in a pilot program, and that those alternatives may help reduce the costs of telemetry while still providing data at the six-second scan rate. NYISO states that it may make those alternatives available to DER and Aggregations if the alternatives meet NYISO’s operational needs.¹⁸⁰

¹⁷⁶ *Id.*

¹⁷⁷ NYISO Answer at 12.

¹⁷⁸ *Id.* at 14 n.33 (citing NYSRC, Reliability Rules & Compliance Manual, Part D. Emergency Operations R1.2 (vol. 44) (Apr. 11, 2019), <http://www.nysrc.org/pdf/Reliability%20Rules%20Manuals/RRC%20Manual%20V44.pdf>).

¹⁷⁹ *Id.* at 14.

¹⁸⁰ *Id.*

d. Commission Determination

i. Metering Requirements

72. NYISO's Meter Services Entity proposal includes a process for allowing third parties to read and report meter data to NYISO. NYISO has proposed eligibility criteria, an application and approval process, and oversight and validation procedures for Meter Services Entities. We find NYISO's proposal to be just and reasonable because it will ensure that Meter Services Entities provide accurate meter data to NYISO. Regarding the timing of implementation of NYISO's proposal, we note that NYISO has put in place an interim process for allowing existing third-party metering service providers to continue to provide this service for the period November 1, 2019 to April 30, 2020.¹⁸¹ We accept NYISO's proposal here with the effective date of May 1, 2020, as requested by NYISO.

73. Joint Parties incorporate by reference their comments submitted in the proceeding related to NYISO's compliance with the requirements of Order No. 841. In the instant proceeding, Joint Parties request that the Commission require NYISO to submit Tariff revisions that better account for wholesale energy injections and withdrawals. We note that, in the Commission's Order on NYISO's Order No. 841 compliance filing, the Commission directed NYISO to make a further compliance filing, including a requirement to file Tariff revisions that more precisely account for wholesale or retail energy transferred between the distribution utility and the wholesale grid. In that further compliance filing, NYISO is required to submit tariff revisions that will provide more detail regarding its metering and accounting practices.¹⁸²

ii. Telemetry Requirements

74. We also find NYISO's proposed telemetry requirements to be just and reasonable. NYISO explains that requiring six-second telemetry data allows it to optimize system operations and meet certain reliability standards. Further, NYISO explains that relaxing this requirement by, for example, changing the telemetry scan rate from six-seconds to one-minute, would materially hamper its ability to respond to system emergencies.

¹⁸¹ September 4 Supplement at 3 n.9.

¹⁸² *N.Y. Indep. Sys. Operator Inc.*, 169 FERC ¶ 61,225, at PP 200-201 (2019) ("We therefore, direct NYISO to file ... a further compliance filing revising its tariff to state that NYISO will not charge distribution-connected electric storage resources for charging energy if the distribution utility is unwilling or unable to net out any energy purchases associated with an electric storage resource's wholesale charging activities from the host customer's retail bill," and "we direct NYISO to file ... tariff revisions to include a basic description of NYISO's metering methodology and accounting practices for Energy Storage Resources, as well as references to the specific documents in the ISO Procedures that contain the implementation details").

NYISO also states that the six-second telemetry requirement and other proposed telemetry standards are consistent with standards applicable to other suppliers. We find this requirement is necessary to meet reliability standards and respond to emergencies, and also is consistent with NYISO's requirements for other resources.

3. ICAP Market Requirements

a. NYISO's Filing

75. NYISO states that its proposed revisions to sections 5 and 23 of the Services Tariff modify the requirements for existing installed capacity suppliers and add new rules that apply to DERs and Aggregations that seek to become installed capacity suppliers.¹⁸³ Specifically, NYISO proposes to modify the existing ICAP Market eligibility, qualification, participation, and payment rules.¹⁸⁴ NYISO explains that these revisions are designed to provide new and more expansive opportunities for DERs to participate in the ICAP Market. NYISO states that its proposed tariff changes also will create additional flexibility for facilities with size limitations and/or daily duration limitations on energy production, which may not individually qualify to participate in the ICAP Market, to participate as part of an Aggregation.¹⁸⁵ NYISO explains that its proposed tariff changes are intended to ensure that a megawatt of Unforced Capacity (UCAP) from any installed capacity supplier will be valued the same as a megawatt of UCAP provided from any other installed capacity supplier.¹⁸⁶ NYISO requests that tariff revisions concerning ICAP Market participation become effective March 1, 2021.

i. Capacity Value

76. NYISO proposes to revise its method for valuing capacity, which currently assigns the same capacity value to a resource with a daily duration limitation of four consecutive hours that it assigns to a resource with no duration limitation.¹⁸⁷ NYISO states that these revisions are necessary to expand the eligibility and qualification requirements that apply to installed capacity suppliers so that new facility types and technologies may participate

¹⁸³ NYISO Filing at 63 (citing Services Tariff, § 5; Attachment H, § 23). NYISO also notes that several additional provisions are being proposed with this filing to Attachments S, X, and Z of the OATT that govern whether and how resources seeking to participate in the ICAP Market obtain CRIS. *Id.* at 63 n.190.

¹⁸⁴ *Id.* at 63.

¹⁸⁵ *Id.*

¹⁸⁶ *Id.* at 68.

¹⁸⁷ *Id.* at 64.

in the ICAP Market.¹⁸⁸ NYISO's proposal to assign a lesser capacity value to resources with daily duration limitations considers resources' contributions to resource adequacy over an eight-hour peak load window. NYISO explains that these changes are intended to better align the contribution to reliability of the megawatts of installed capacity provided by an installed capacity supplier with the payments made for those same megawatts through the ICAP Market.¹⁸⁹

77. NYISO explains that it initiated a study with its consultant, General Electric Energy Consulting (GE Energy), to evaluate the reliability value of megawatts of installed capacity with daily Energy Duration Limitations in comparison to installed capacity with no Energy Duration Limitation (GE Energy Study).¹⁹⁰ NYISO explains that this study work was the predicate for extensive review, discussion, and input from stakeholders on the development of the market design concepts and framework found in NYISO's final proposal. In addition to the GE Energy Study performed on behalf of NYISO, two other studies on the contribution of duration-limited resources to resource adequacy were performed by Potomac Economics, as the NYISO's Independent Market Monitor, and Astrapé Consulting, on behalf of NY-BEST.¹⁹¹ NYISO explains that these latter studies took alternative approaches to determining the capacity value of duration-limited resources and includes several summary figures and tables in its filing that outline the conclusions of these alternative studies.¹⁹²

78. NYISO explains that the analysis conducted by GE Energy determined that NYISO's existing four-hour minimum runtime requirement needs to be lengthened due to fundamental changes in the supply mix as well as the system peak demand in order to ensure resource adequacy going forward.¹⁹³ NYISO explains that the GE Energy Study

¹⁸⁸ *Id.*

¹⁸⁹ *Id.* at 65.

¹⁹⁰ *Id.* at 66-67 (citing GE Energy Consulting, Market Issues Working Group, *Valuing Capacity for Resources with Energy Limitations*, at 24, 27-28 (Jan. 8, 2019), https://www.nyiso.com/documents/20142/4358080/01082019%20Capacity%20Value%20of%20Resources%20with%20Energy%20Limitations_v2.pdf).

¹⁹¹ *Id.* at 71 (citing Potomac Economics, Installed Capacity Working Group, *Alternate ELR Capacity Value Study: Methodology and Updated Results*, at 10, 37, 39 (Feb. 25, 2019), <https://www.nyiso.com/documents/20142/5174407/02%20MMU%20Capacity%20Value%20Analysis/> and Astrapé Consulting, Installed Capacity Working Group, *Valuing Capacity for Resources with Energy Limitations – Independent Assessment*, at 6, 26 (Feb. 15, 2019), <https://www.nyiso.com/documents/20142/5020603/Astrape%20presentation%20021519.pdf> (Astrapé Study)).

¹⁹² *Id.* at 71-77.

also demonstrated that the overwhelming majority of resource adequacy concerns fall within a daily consecutive eight-hour period. NYISO states that this finding formed the basis for NYISO's establishment of an eight-hour peak load window.¹⁹⁴ NYISO explains that this peak load window will vary seasonally between summer and winter capability periods, and will define the participation, availability, and performance requirements for new supply facilities that have daily energy limitations.¹⁹⁵

79. NYISO states that moving to a minimum eight-hour duration requirement would be a significant departure from the existing four-hour requirement for Energy Limited Resources¹⁹⁶ and SCRs, and may pose a hurdle for many of the new supply technologies that are anticipated to enter the market over the next several years.¹⁹⁷ However, NYISO asserts that its proposal seeks to significantly lower the eligibility requirement to correspond to a Resource's ability to provide energy for a prescribed consecutive hourly duration in order to qualify as an installed capacity supplier, notwithstanding the identification of an eight hour peak demand period each day.¹⁹⁸ NYISO states that the added flexibility in its proposal will apply to all types of resources, but that this flexibility should be particularly helpful for resources with shorter duration periods than the current four-hour requirement that applies to Energy Limited Resources and SCRs.

80. NYISO states that it is necessary to include in its filing two potential payment structures that are defined by a 1000 MW incremental penetration level threshold because the GE Energy Study concludes that the relative capacity contribution of duration-limited resources falls as the penetration of such resources increases.¹⁹⁹ NYISO explains that it determined this threshold based on: (1) review of the GE Energy Study, which looked at

¹⁹³ *Id.* at 64. NYISO suggests that the GE Energy analysis was both confirmed by NYISO's operational experience and largely consistent with modeling analysis conducted by Potomac Economics and Astrapé Consulting.

¹⁹⁴ *Id.*

¹⁹⁵ *Id.*

¹⁹⁶ NYISO defines Energy Limited Resources as "[c]apacity resources, not including [Behind the Meter Net Generation] Resources, that, due to environmental restrictions on operations, cyclical requirements, such as the need to recharge or refill, or other non-economic reasons, are unable to operate continuously on a daily basis, but are able to operate for at least four consecutive hours each day." Services Tariff, § 2.5.

¹⁹⁷ NYISO Filing at 65.

¹⁹⁸ *Id.*

¹⁹⁹ *Id.* at 81.

penetration levels of duration-limited resources as high as 4000 MW; (2) consideration of both the market drivers and public policy goals for DERs and energy storage resources in New York state; and (3) consideration of NYISO's proposed market design to re-study the capacity value of duration-limited resources beginning in 2022.²⁰⁰ NYISO explains that it proposes a new section 5.12.14.1 of the Services Tariff, which describes the calculation of this incremental value at a high level, as discussed in more detail in section IV.B.3.a.ii(b) below. NYISO states that it therefore proposes to allow only installed capacity suppliers (including Aggregations) with a runtime of at least six consecutive hours to receive full value for that capacity for incremental penetration levels below 1000 MW. NYISO explains that once penetration levels equal or exceed 1000 MW, only installed capacity suppliers with a runtime of at least eight consecutive hours will receive full compensation.²⁰¹

ii. Installed Capacity Supplier Payment Structure

(a) Duration Adjustment Factors

81. NYISO states that it proposes to add a new section 5.12.14 to the Services Tariff to align the payments for installed capacity suppliers with the appropriate value that each resource provides to maintain the resource adequacy of the system.²⁰² NYISO notes that the tariff revisions to effectuate this alignment largely rely on three new defined terms: "Energy Duration Limitation," "Duration Adjustment Factor,"²⁰³ and "adjusted installed capacity."²⁰⁴ NYISO states that the proposed new section 5.12.14 aligns these defined terms such that each Energy Duration Limitation has a corresponding Duration Adjustment Factor that was derived from the study work and stakeholder discussions.²⁰⁵ NYISO explains that this new tariff language creates a comparable payment structure that aligns the payment for five different tiers of installed capacity suppliers, as defined by their Energy Duration Limitation, or lack thereof, and the corresponding Duration Adjustment Factor.²⁰⁶

²⁰⁰ *Id.*

²⁰¹ *Id.*

²⁰² *Id.* at 78.

²⁰³ NYISO defines Duration Adjustment Factor as "[t]he value of Installed Capacity, expressed as a percentage, for a Resource as specified in Section 5.12.14 of the ISO Services Tariff." Proposed Services Tariff, § 2.5.

²⁰⁴ NYISO Filing at 78.

²⁰⁵ *Id.* at 79.

82. NYISO states that there is no change to the payment structure for resources that provide installed capacity with no daily Energy Duration Limitation. For resources with an eight-hour or greater daily Energy Duration Limitation, NYISO proposes a Duration Adjustment Factor of 100 percent for incremental penetrations level below and above 1000 MW.²⁰⁷ NYISO explains that these eight-hour Energy Duration Limitation resources therefore have their capacity valued equivalently to that provided by resources that have no Energy Duration Limitations.²⁰⁸

83. NYISO proposes that resources with a daily Energy Duration Limitation less than eight hours but greater than or equal to six hours will have a Duration Adjustment Factor of 100 percent for incremental penetrations level below 1000 MW. However, because these resources' contribution to resource adequacy decreases with increasing penetration levels, NYISO will assign a Duration Adjustment Factor and these resources will be valued in the market at 90 percent of the value of a twenty-four hour resource once the 1000 MW threshold for incremental penetration is reached.²⁰⁹ Similarly, resources with a daily Energy Duration Limitation of less than six hours but greater than or equal to four hours will have a Duration Adjustment Factor of 90 percent for incremental penetrations level below 1000 MW. These resources will be assigned a Duration Adjustment Factor of 75 percent once the 1000 MW threshold is reached.²¹⁰

84. Finally, NYISO proposes that resources with a daily Energy Duration Limitation less than four hours but greater than or equal to two hours are valued at half the value of a resource with a four-hour Energy Duration Limitation.²¹¹ NYISO explains that this valuation is based upon concerns about forecast uncertainty and the ability to effectively use these Resources when they would be most valuable, as well as the market signals that would incent the development of two-hour resources.²¹² Therefore, NYISO proposes to apply a 45 percent Duration Adjustment Factor at incremental penetrations below 1000 MW and a 37.5 percent Duration Adjustment Factor at incremental penetrations above 1000 MW.²¹³

²⁰⁶ *Id.*

²⁰⁷ *Id.*

²⁰⁸ *Id.*

²⁰⁹ *Id.* at 80.

²¹⁰ *Id.*

²¹¹ *Id.*

²¹² *Id.*

85. In addition, NYISO proposes new tariff language that will allow Aggregations to time-stack facilities with a daily runtime limitation of one hour or more to meet the minimum duration requirements to participate as an installed capacity supplier.²¹⁴ NYISO explains that these Tariff changes will provide added flexibility to facilities that have shorter duration periods than the four-hour requirement that currently applies to Energy Limited Resources and SCRs.²¹⁵ NYISO notes that time-stacking is only available to an Aggregation with an Energy Duration Limitation.²¹⁶

86. NYISO explains that Section 5.12.13.2 of the Services Tariff details the rules that will allow the sequential time-stacking of facilities participating in an Aggregation with an Energy Duration Limitation of two, four, or six-hours as well as facilities with the capability to produce energy consecutively for only one hour in order for the Aggregation to qualify to participate as an installed capacity supplier with a two, four, six, or eight-hour Energy Duration Limitation and the corresponding Duration Adjustment Factors.²¹⁷ NYISO notes that each eligible facility that is applying to be time-stacked shall be able to provide energy daily for a minimum consecutive period of one hour and such capability will be rounded down to the nearest whole-hour increment for the sequential time-stacking.²¹⁸ Further, NYISO states that Services Tariff section 5.12.13.2.3 provides that a time-stacked DER, Energy Storage Resource, or Energy Limited Resource Aggregation will qualify the amount of installed capacity it can sustain over the run-time requirement associated with the Energy Duration Limitation.²¹⁹ NYISO concludes that its ISO Procedures will contain the tests similar to a dependable maximum net capability test that such an Aggregation will have to perform each capability period.

(b) Calculating Incremental Penetration

87. NYISO states that its proposed new Services Tariff Section 5.12.14.1 describes the formula for determining the incremental penetration of duration-limited resources above the levels currently present on the NYISO system today.²²⁰ NYISO explains that the

²¹³ *Id.*

²¹⁴ *Id.* at 65.

²¹⁵ *Id.*

²¹⁶ *Id.* at 93.

²¹⁷ *Id.*

²¹⁸ *Id.*

²¹⁹ *Id.*

calculation of incremental penetration of resources is comprised broadly of four steps.²²¹ First, NYISO proposes to sum the nameplate capacities of new duration-limited generation resources, or capacity additions to existing duration-limited generation resources, which enter the NYISO markets after January 1, 2019. Second, NYISO explains that it will add to this value the nameplate capacity of Demand Side Resources that are participating in the NYISO-administered markets with a two, four, or six-hour Energy Duration Limitation as of July 1 of the current year. Third, NYISO states that it will calculate the number of duration-limited resources that participated with a two, four, or six-hour Energy Duration Limitation that have retired as of July 1 of the current year and subtract the amount of capacity (in MW) associated with these retirements from its calculation of incremental penetration levels. Finally, NYISO states that it will subtract 1309.1 MW of SCRs that were participating in the ICAP Market during the summer 2018 capability period.²²² NYISO states that its proposed Services Tariff Section 5.12.14.1 provides that once NYISO posts an incremental penetration level of 1000 MW or more, the appropriate, lower set of Duration Adjustment Factors will be applied to resources with Energy Duration Limitations unless and until the Duration Adjustment Factors are proposed to be modified pursuant to the periodic review of capacity values, as discussed below.²²³

(c) Periodic Review

88. NYISO stresses its recognition of stakeholder concerns that New York's electric grid is changing under pressure from dynamic, rapidly changing market forces and technical innovation, as well as due to the evolving developments in public policy goals and regulatory requirements, and that these changes will lead to changes in system needs and future market designs.²²⁴ NYISO reiterates that its proposal to revise the eligibility, qualification, participation requirements, and the payment structure for installed capacity suppliers was largely informed by the GE Energy work presented as the 2018 Capacity Value Study.²²⁵ NYISO states that this work helped define the reliability value, from a resource adequacy perspective, of duration-limited megawatts and how this reliability value is expected to decrease with the increased penetration of duration-limited resource

²²⁰ *Id.* at 79.

²²¹ *Id.* at 81.

²²² *Id.*

²²³ *Id.*

²²⁴ *Id.* at 82.

²²⁵ *Id.* at 77.

megawatts on the system.²²⁶ NYISO states that it expects that the capacity value of these duration-limited resources will change through time as the bulk electric system changes.

89. NYISO explains that it is therefore proposing in Services Tariff Section 5.12.14.3 to create a periodic review to reevaluate every four years, beginning in 2022, both the reliability value of the duration-limited megawatts participating in the ICAP Market and the installed capacity payment structure proposed herein.²²⁷ NYISO states that the review will be initiated in accordance with proposed Services Tariff Section 5.12.14.3, as well as sections following, by NYISO's presenting a proposed schedule for review by its stakeholders no later than September 1 of the second year prior to the demand curve reset filing year (e.g., 2024, 2028, 2032, etc.).²²⁸ NYISO further details in its filing several steps of this study process, including NYISO's developing a study request, retaining a consultant, facilitating stakeholder review and comment on all data, and providing an opportunity for Potomac Economics to review the results of the study before a final report is issued.

iii. Modifications to Resource Eligibility, Qualification, and Participation Requirements for Installed Capacity Suppliers

90. NYISO explains that its filing largely proposes new tariff provisions that apply specifically to DERs and/or Aggregations, but in some cases these sections clarify or otherwise modify existing eligibility, qualification, and participation requirements for all resources currently participating as installed capacity suppliers.²²⁹ NYISO asserts that these changes are necessary and are being proposed in order to ensure comparable treatment of all eligible resources.

91. NYISO proposes several conforming tariff changes to ensure that existing requirements apply to the set of installed capacity suppliers, expanded to include DERs and Aggregations, which participate in the NYISO markets. NYISO states that these changes fall into two categories: changes intended to make the current tariff requirements broadly and generally applicable to all installed capacity suppliers and changes to the operating data reporting requirements and UCAP calculation of installed capacity suppliers necessary to facilitate the participation of energy storage resources and DERs.²³⁰

²²⁶ *Id.*

²²⁷ *Id.* at 82.

²²⁸ *Id.*

²²⁹ *Id.* at 83.

²³⁰ *Id.* at 83-85.

NYISO explains that the detailed calculations contemplated by the latter changes, as is the case with other calculations, will be included as part of the ISO Procedures.²³¹ Finally, as necessary to implement the changes to capacity resource qualification requirements and payment structures explained previously, NYISO proposes both to implement revisions to Services Tariff sections 5.12.11.3 and 5.12.11.4 and to create a new section 5.12.11.5, which taken together will describe the requirements for the categories of resources with Energy Duration Limitations, including Aggregations.²³²

92. NYISO notes that it is proposing no substantive changes at this time for the eligibility, qualification, and participation requirements for Intermittent Power Resources²³³ or Limited Control Run-of-River Hydro Resources,²³⁴ but that it is proposing clarifying changes to reflect the opportunity for Intermittent Power Resources twenty MW and less to be eligible to participate in the ICAP Market as part of an Aggregation.²³⁵ NYISO also proposes to modify Services Tariff Sections 5.12.11.3 to 5.12.11.5 to require an Energy Limited Resource to participate as an installed capacity supplier with a daily Energy Duration Limitation.²³⁶ NYISO similarly notes that it is proposing no substantive changes that affect the eligibility, qualification, and participation requirements for the SCR program, but that these resources will now be valued and subject to the payment structure applicable to a resource with a four-hour Energy Duration Limitation.²³⁷ Finally, NYISO proposes several clarifying and clean-up revisions to section 5 of the Services Tariff.²³⁸

²³¹ *Id.* at 86.

²³² *Id.* at 88-89.

²³³ NYISO defines an Intermittent Power Resource as: “[a] device for the production of electricity that is characterized by an energy source that: (1) is renewable; (2) cannot be stored by the facility owner or operator; and (3) has variability that is beyond the control of the facility owner or operator.” Services Tariff, § 2.9.

²³⁴ NYISO defines a Limited Control Run-of-River Hydro Resource as: “[a] Generator above 1 MW in size that has demonstrated to the satisfaction of the ISO that its Energy production depends directly on river flows over which it has limited control and that such dependence precludes accurate prediction of the facility’s real-time output.” *Id.*, § 2.12.

²³⁵ NYISO Filing at 83.

²³⁶ *Id.* at 90.

²³⁷ *Id.* at 83.

²³⁸ *Id.*

93. In addition to expanding the opportunities for market participation of energy limited resources, NYISO outlines several modifications that it asserts will expand the eligibility of intermittent power resources to participate in the NYISO markets.²³⁹ NYISO states that its proposed revisions to Services Tariff Section 5.12.11.4 will allow these resources to participate in an Aggregation of similarly fueled Intermittent Power Resources.²⁴⁰ NYISO adds that an Aggregation comprised solely of wind facilities or an Aggregation comprised solely of solar facilities will also be subject to the applicable new qualification and participation provisions found in section 5.12.13.²⁴¹ NYISO concludes that these revisions are necessary because Intermittent Power Resources are by definition variable supply with performance-based derating factors, such that they are not eligible to participate as a resource with an Energy Duration Limitation.²⁴²

94. NYISO explains that external resources with Energy Duration Limitations will not be eligible to be installed capacity suppliers and will not be eligible to participate in an Aggregation under NYISO's proposal.²⁴³ NYISO explains that its currently-effective ICAP Market rules generally allow all resources in neighboring external control areas to qualify as installed capacity suppliers, with the exception of Intermittent Power Resources, Limited Control Run-of-River Hydro Resources, and SCRs. However, NYISO explains that its proposed tariff changes clarify and expand the existing installed capacity supplier preclusion of individual resources located in an external control area to include energy storage resources or any other resource that has an Energy Duration Limitation, in addition to those resource types already excluded.²⁴⁴ NYISO justifies this expanded exclusion by asserting that duration-limited resources in an external control area cannot be relied upon to provide installed capacity because NYISO will not have visibility and primary control of these resources in-day.²⁴⁵

95. Finally, NYISO reiterates that, under its proposal, an Aggregation consisting of a single resource type can participate as an installed capacity supplier and will largely be treated under section 5 of the Services Tariff as if it were an individual resource, except as provided in sections 5.12.13.1 and 5.12.13.2.²⁴⁶ NYISO explains that the participation

²³⁹ *Id.* at 89.

²⁴⁰ *Id.*

²⁴¹ *Id.*

²⁴² *Id.*

²⁴³ *Id.* at 90.

²⁴⁴ *Id.*

²⁴⁵ *Id.*

rules for a DER Aggregation apply to an Aggregation of one or more Demand Side Resources or any combination of different resource types, in contrast to its proposal to apply to single resource type Aggregations all performance requirements that apply to that resource type.²⁴⁷

b. Comments and Protests

96. The New York Suppliers filed comments that generally support NYISO's proposed adjustments to the eligibility, qualification, and participation rules for installed capacity suppliers. However, the New York Suppliers argue that the capacity values for duration-limited resources that NYISO proposes are too low and do not reflect the true contribution of these resources to resource adequacy during peak load periods. The New York Suppliers argue that NYISO's capacity values for duration-limited resources are directly dependent on the contributions to resource adequacy of other resources that do not have energy limitations and reflect overly optimistic assumptions about the timing of utilizing stored energy.²⁴⁸ The New York Suppliers point to a Comprehensive Reliability Plan Peaker Scenario study (CRP Peaker Study), conducted by NYISO, Consolidated Edison Company of New York and the Long Island Power Authority, which assessed the impact of these potential retirements and found that the duration of capacity needs in load sub-pockets ranged from six hours to as high as fifteen hours.²⁴⁹ New York Suppliers add that, in the time since NYISO submitted the instant filing, the staff of the New York State Department of Public Service has also issued a study (DPS Peaker Study) confirming that, due to their energy limitations, energy storage resources will only be able to replace a relatively small portion of the peaking units in these areas.²⁵⁰ Specifically, the New York Suppliers assert that the DPS Peaker Study found that less than 10 percent of the affected peaker capacity could be replaced by six-hour energy storage resources.²⁵¹

97. The New York Suppliers argue that energy storage resources cannot replace conventional generation resources on a one-to-one basis, and that, while NYISO's proposed tiered approach meets this need, the Commission should require NYISO to make adjustments to its proposed percentage levels for six-hour and four-hour resources.²⁵²

²⁴⁶ *Id.* at 92.

²⁴⁷ *Id.*

²⁴⁸ New York Suppliers Protest at 1.

²⁴⁹ *Id.* at 7.

²⁵⁰ *Id.*

²⁵¹ *Id.* at 10.

New York Suppliers request that the Commission direct NYISO to: (1) submit a compliance filing revising the percentage capacity values assigned to six-hour and four-hour resources to align with the findings of the GE Energy Study, CRP Peaker Study, and DPS Peaker Study; and (2) complete an annual assessment confirming the percentage levels that have been set for duration-limited resources are sending sufficient price signals to support the necessary investment for the long-term reliability of the system.²⁵³

98. Joint Parties state that NYISO's proposal to significantly de-rate the capacity value of resources with Energy Duration Limitations after 1000 MW of incremental penetration is unjust and unreasonable, and should be severed from the rest of NYISO's section 205 proposal and rejected.²⁵⁴ Joint Parties assert that such severance could be appropriate because a rejection of NYISO's proposed step-down in capacity value for duration-limited resources would not disturb the core structure of the NYISO's proposal for DER Aggregation.²⁵⁵ Joint Parties therefore request that the Commission direct NYISO to modify its proposal to eliminate the step-down in capacity value of duration-limited resources at 1000 MW of incremental duration-limited resources.²⁵⁶ Joint Parties also request that the Commission provide direction to NYISO to use "realistic" estimates of renewable penetration, consistent with state regulatory mandates and statutes, in any future re-study of capacity value.²⁵⁷

99. Joint Parties argue that NYISO's proposed de-rate would understate the value of duration-limited resources, force ratepayers to unnecessarily pay for additional capacity, and limit competition by undercompensating resource owners.²⁵⁸ Further, Joint Parties conclude that high renewable penetration will lead to narrower peaks and shorter reliability events than assumed in the GE Energy Study, which Joint Parties argue supports a conclusion that the capacity of four hour resources, for example, should not be de-rated to 75 percent, as NYISO proposes, but rather should be de-rated to a lesser extent, if at all.²⁵⁹ Joint Parties assert that the Astrapé Study demonstrates that the value

²⁵² *Id.* at 10-12.

²⁵³ *Id.* at 13.

²⁵⁴ Joint Parties Comments at 6.

²⁵⁵ *Id.* at 12.

²⁵⁶ *Id.* at 13.

²⁵⁷ *Id.*

²⁵⁸ *Id.* at 6.

²⁵⁹ *Id.* at 9-10.

of duration-limited resources depends heavily on the system penetration of wind and solar resources.²⁶⁰ Joint Parties argue that this is important because they expect that when 1000 MW of incremental, duration-limited resources seek to participate in the NYISO markets, the penetration from wind and solar energy will be significantly higher than the penetration assumed in the GE Energy Study.²⁶¹ Joint Parties note that the GE Energy Study is based on NYISO's 2019 resource mix, but reference the New York State Legislature's approval of requirements for 70 percent renewable energy by 2030 and 100 percent zero emissions electricity by 2040 as support for their claim.²⁶²

100. Joint Parties raise concerns with two additional components of the GE Energy Study that NYISO used to arrive at its 75 percent capacity value proposal.²⁶³ First, Joint Parties assert that the GE Energy Study assumes an unrealistic number of reliability events that last longer than four hours. Joint Parties argue that GE scaled up the load shapes used to derive the number of these long-duration events by 12 percent or more.²⁶⁴ Second, Joint Parties state that in modeling the system and determining the number and duration of reliability events, the GE approach moves generators from one zone to another in order to balance the reliability metric among zones.²⁶⁵ Joint Parties caution that removing a single generator in small zones can significantly increase the number and duration of reliability events, as fewer resources are available to prevent or end a reliability event. They source these criticisms from the Astrapé Study.²⁶⁶ Joint Parties conclude that these factors, combined, resulted in GE modeling a system that has significant differences to the system one would expect to find at 1000 MW of incremental duration-limited resources and that does not provide a sufficient basis for valuation at a future penetration level.²⁶⁷

101. Brookfield argues that NYISO's proposal to bar external resources with Energy Duration Limitations from participating in the ICAP Market is "patently discriminatory."²⁶⁸

²⁶⁰ *Id.* at 7.

²⁶¹ *Id.*

²⁶² Joint Parties Comments at 7 (citing New York State *Climate Leadership and Community Protection Act*, <https://legislation.nysenate.gov/pdf/bills/2019/A8429>).

²⁶³ *Id.* at 10.

²⁶⁴ *Id.* at 11.

²⁶⁵ *Id.*

²⁶⁶ *Id.* (citing Astrapé Study at 10).

²⁶⁷ *Id.* at 12.

Brookfield alleges that NYISO justifies its proposed changes “with a single, unsupported sentence” and “offers no testimony, quantitative analyses, or studies to support its argument that it is necessary to bar an entire category of external resources from the NYISO markets.”²⁶⁹ Brookfield notes that its Bear Swamp pumped storage hydroelectric facility, a duration-limited resource outside the NYCA, has reliably participated in the ICAP Market since 2006.²⁷⁰ Brookfield asserts that NYISO’s proposal discriminates between both internal and external resources, and among external resources as well.²⁷¹ Brookfield argues that NYISO’s proposal discriminates between internal resources and external resources by allowing internal resources with Energy Duration Limitations to participate in NYISO’s ICAP Market, while completely prohibiting participation from identical external resources.²⁷² Brookfield also argues that NYISO’s proposal discriminates amongst external resources by treating external resources with Energy Duration Limitations differently than other external resources without Energy Duration Limitations.²⁷³

c. Answers

102. In response to Joint Parties’ protest that NYISO improperly relied on the GE Energy Study, NYISO asserts that it is appropriate to base its proposal on the GE Energy Study. NYISO explains that GE Energy conducted its study using the as-found system in New York and grounded its assumptions in the criteria established by the NYSRC to establish New York’s Installed Reserve Margin (IRM) as well as the minimum locational installed capacity requirements.²⁷⁴ NYISO further explains that the GE Energy Study also used the load shapes, load forecasts, load forecast uncertainty and load shifting assumptions that are used in the NYISO IRM study to maintain consistency.²⁷⁵

103. IPPNY and the New York Suppliers also comment in support of NYISO’s assertions that the GE Energy Study is consistent with the resource adequacy analysis

²⁶⁸ Brookfield Protest at 11-12.

²⁶⁹ *Id.* at 3, 8.

²⁷⁰ *Id.* at 4.

²⁷¹ *Id.* at 13.

²⁷² *Id.* at 5.

²⁷³ *Id.*

²⁷⁴ NYISO Answer at 11 (citing Ex. A, Hall Aff. ¶¶ 6, 12-16.).

²⁷⁵ *Id.*

performed by NYISO and NYSRC.²⁷⁶ In response to Joint Parties' protest, IPPNY and the New York Suppliers argue that the Astrapé Study does not accurately reflect New York system conditions. IPPNY further urges the Commission not to use the Astrapé Study as an alternative basis for the multi-tiered capacity values in NYISO's proposal, and submits an affidavit of Mark D. Younger, President of Hudson Energy Economics, LLC, which IPPNY claims demonstrates that the Astrapé Study's modeling methodology is inconsistent with the methodology that has been used by the NYISO and NYSRC for setting reliability criteria.²⁷⁷

104. In response to Brookfield, NYISO asserts that external capacity resources with Energy Duration Limitations are not similarly situated to either external capacity resources without Energy Duration Limitations or to NYCA installed capacity resources with Energy Duration Limitations.²⁷⁸ NYISO explains that, because external capacity resources with Energy Duration Limitations are energy-limited, any dispatch by the native control area necessarily affects the resources' ability to provide service to NYISO at a later time, which ordinarily is not the case for conventional external capacity resources.²⁷⁹ NYISO further states that it does not have access to a resource's native control area's energy and ancillary services schedules for external capacity resources, so NYISO will not be able to determine the external resource's ability to provide services to the NYCA.²⁸⁰

105. NYISO also disagrees with Brookfield's argument that NYISO's authority to assess financial sanctions on external capacity resources with Energy Duration Limitations mitigates the risk of those resources failing to deliver energy when called upon by NYISO, asserting that after-the-fact assessment of sanctions will not help NYISO operators address real-time emergency conditions.²⁸¹

106. In Joint Parties' Answer, they object to IPPNY's and the New York Suppliers' characterizations of their protest and the Astrapé Study. In response to the New York Suppliers, Joint Parties argue that the New York Suppliers place undue weight on the findings of the GE Energy Study, while giving no weight to the finding of the Astrapé

²⁷⁶ IPPNY Answer at 7-8; New York Suppliers Answer at 2-5.

²⁷⁷ IPPNY Answer at 3.

²⁷⁸ NYISO Answer at 5.

²⁷⁹ *Id.* at 6.

²⁸⁰ *Id.*

²⁸¹ *Id.* at 7.

Study, and that because none of the models was proven to be incorrect, the results yielded by the Potomac Economics and Astrapé studies cannot be dismissed.²⁸²

107. Joint Parties request that the Commission reject the New York Suppliers' request for NYISO to submit a compliance filing to justify the six-hour and four-hour resource compensation taking into account the CRP Peaker Study and the DPS Peaker Study, and commit to completing an annual assessment to study the capacity values.²⁸³ Joint Parties assert that those studies are based only in New York City and should not inform the Commission's decision on a state-wide capacity value proposal.²⁸⁴ Joint Parties also note that the utilities who helped author the CRP Peaker Study asserted their support for NYISO's filing.²⁸⁵ Joint Parties assert that the New York Suppliers mischaracterize the DPS Peaker Study as a capacity value study and request that the Commission disregard that study in making its determination.²⁸⁶ Regarding the re-study requirements for capacity value, Joint Parties explain that the re-study period included in NYISO's filing was selected during the NYISO stakeholder process in order to align with the demand curve reset process timeline, and argue that an annual study introduces undue uncertainty that will stifle development of DERs and will increase administrative burdens and costs for NYISO and its market participants without producing any demonstrable benefits for the market.²⁸⁷

108. Joint Parties object to IPPNY's characterization of the Joint Parties' Protest and state that the arguments IPPNY presents are not relevant to Joint Parties' central argument that any future step-down in capacity value must accurately reflect the level of renewables required by state law.²⁸⁸ Joint Parties also assert that the affidavit from Mark D. Younger erroneously conflates the Astrapé Study with an earlier study, conducted by the National Renewable Energy Laboratory (NREL),²⁸⁹ which Joint Parties

²⁸² Answer of Joint Parties to New York Suppliers at 6.

²⁸³ *Id.* at 3.

²⁸⁴ *Id.* at 4.

²⁸⁵ *Id.* at 5 (citing NYTOs Comments, Docket No. ER19-2276, at 1-2 (filed July 18, 2019)).

²⁸⁶ *Id.*

²⁸⁷ *Id.* at 6.

²⁸⁸ Answer of Joint Parties to IPPNY at 4.

²⁸⁹ Joint Parties Comments at 9 (citing National Renewable Energy Laboratory, *The Potential for Battery Energy Storage to Provide Peaking Capacity in the United*

had cited in its filing. Joint Parties explain that while both studies support their argument that renewable penetration impacts capacity values, Astrapé's reference to the NREL study was only intended to highlight that the penetrations for solar and wind resources assumed by the GE Energy Study are lower than those assumed by both Astrapé and NREL.²⁹⁰ Joint Parties also reference concerns that they attribute to Potomac Economics from an installed capacity working group meeting that the GE Energy Study does not produce accurate capacity values.²⁹¹ Joint Parties assert that the Commission should reject IPPNY's attempt to discredit Astrapé's adjustments to the GE approach to load shapes and zonal modeling. Joint Parties assert that they are not challenging the Commission-approved IRM, and Astrapé's adjustments develop a more robust range of possible load conditions than that used in the GE Multi Area Reliability Simulation (GE MARS)²⁹² simulations.²⁹³

109. In its Answer, Brookfield reiterates its protest to NYISO's proposal to bar external capacity resources from participating in the ICAP Market, and argues that NYISO should develop a solution to enable external resource participation.²⁹⁴ Brookfield states that NYISO could have developed a solution to address concerns with external resource visibility, but that NYISO stated that such solution was outside of the scope of its proposed Aggregation Participation Model.²⁹⁵ Brookfield reiterates its requests that the Commission reject NYISO's proposal to bar external resources with Energy Duration Limitations from the NYISO market.²⁹⁶ Brookfield explains that such a rejection would allow NYISO to work with other interested stakeholders to address its concerns with the visibility of external resources.

States, at 13 (June 2019), <https://www.nrel.gov/docs/fy19osti/74184.pdf>).

²⁹⁰ Answer of Joint Parties to IPPNY at 5, n.5.

²⁹¹ *Id.* at 6.

²⁹² GE Energy's Wesley Hall explains in his affidavit, included in the NYISO Answer, that GE MARS is the software platform used by GE Energy to conduct resource adequacy studies. *See* NYISO Answer at 21-22; *id.* Ex. A, Hall Aff. ¶¶ 3-8.

²⁹³ Answer of Joint Parties to IPPNY at 7.

²⁹⁴ Brookfield Answer at 5-6.

²⁹⁵ *Id.* at 1.

²⁹⁶ *Id.* at 2.

d. Deficiency Letter Response

110. In the Second Deficiency Letter, Commission staff requested that NYISO explain whether an installed capacity supplier with Energy Duration Limitations corresponding to a Duration Adjustment Factor would be required to bid energy during all hours of the day-ahead market or only during the applicable peak load window. In its response, NYISO clarifies that Services Tariff section 5.12.7 lays out the offer requirements for installed capacity suppliers and that NYISO's filing proposed to revise this tariff section to require an installed capacity supplier with an Energy Duration Limitation (except for Energy Storage Resources)²⁹⁷ to bid in the day-ahead market only during the applicable peak load window, for at least the number of consecutive hours corresponding to the resource's Energy Duration Limitation.²⁹⁸ In the Second Deficiency Letter, Commission staff also requested that NYISO clarify how an installed capacity supplier with an Energy Duration Limitation that provides a service outside of the NYISO markets should bid to ensure it complies with the day-ahead market must-offer requirements laid out in section 4.1.1. of the Services Tariff. In its response, NYISO explains that the resource could self-schedule in the day-ahead market consistent with its retail obligations, or it could submit price-sensitive bids that reflect the resource's retail obligations.²⁹⁹

e. Commission Determination

111. We find NYISO's proposed framework to allow Aggregations to qualify as installed capacity suppliers and participate in NYISO's ICAP Market to be just and reasonable and not unduly discriminatory or preferential. We accept NYISO's tariff revisions concerning ICAP Market participation effective March 1, 2021, as requested by NYISO.

112. Specifically, we find that NYISO's proposal to expand the definition of installed capacity suppliers to include Aggregations is just and reasonable because it will allow Aggregations to participate in the ICAP Market.³⁰⁰ We also find that NYISO's proposals to expand the eligibility and qualification requirements for installed capacity suppliers to

²⁹⁷ NYISO clarifies that Energy Storage Resources and Aggregations comprised entirely of Energy Storage Resources will be required to bid all capacity into the day-ahead market, to schedule a bilateral transaction or to notify NYISO of an outage for all hours of the applicable Peak Load Window, without regard to the Energy Storage Resource's or Aggregation's applicable Energy Duration Limitation. Second Deficiency Letter Response at 2.

²⁹⁸ *Id.*

²⁹⁹ *Id.* at 4.

³⁰⁰ See Proposed Services Tariff, § 2.9.

recognize the characteristics of DERs and Aggregations and to modify existing ICAP Market participation and payment rules to facilitate the participation of DERs and Aggregations are just and reasonable because they will ensure comparable treatment of all installed capacity suppliers, regardless of resource type.³⁰¹

113. We also find that NYISO's proposal to establish Duration Adjustment Factors and apply them to all duration-limited capacity resources to be just and reasonable. We agree with NYISO that the capacity value of duration-limited resources should be based on their expected contributions to resource adequacy represents a just and reasonable solution to managing duration-limited resources. We find that NYISO's proposal is an improvement over its currently-effective market design, particularly because of how the proposed rules better align the contribution to reliability of duration-limited resources with the payments that these resources will receive through the ICAP Market, as discussed in more detail below.

114. We disagree with arguments that NYISO must sever the step-down in capacity values that NYISO proposes to apply once an additional 1000 MW of duration-limited resources are added to the NYISO system. We find that NYISO's proposal to establish two potential payment structures that are defined by a 1000 MW incremental penetration level threshold is just and reasonable because it reflects the relatively lower capacity contribution of duration-limited resources when the penetration of such resources on the NYISO system is substantially greater than today's level. We note that NYISO has explained that it is basing its determination that a step-down in capacity values is appropriate on the conclusions of the GE Energy Study.

115. We also find unpersuasive arguments that NYISO should use different estimates of renewable penetration on the NYISO system in any future re-studies, including specifically for resources with Energy Duration Limitations between four and six hours. As discussed below, we find that NYISO has already proposed a process to guide its periodic re-study of the Duration Adjustment Factors applied to capacity resources with Energy Duration Limitations and that this process will appropriately allow for current conditions of the NYISO system to drive the determination of future capacity values.

116. We also disagree with the New York Suppliers that NYISO's proposed capacity values reflect unreasonably optimistic assumptions. We note that NYISO explains in its Answer that GE Energy conducted its study using the as-found system in New York and grounded its assumptions in the criteria established by the NYSRC to establish New York's IRM and minimum locational installed capacity requirements.³⁰² We similarly are not persuaded by arguments that NYISO should revise its proposed capacity

³⁰¹ See NYISO Filing at 83-84 (citing Proposed Services Tariff, §§ 5.1(d), 5.10, 5.14).

³⁰² NYISO Answer at 11 (citing Ex. A, Hall Aff. ¶ 6).

values for four- and six-hour resources, either to reflect the outcomes of the CRP Peaker Study or DPS Peaker Study or to substitute different load shapes, load forecasts, or load shifting assumptions, as requested by Joint Parties and the New York Suppliers. We agree with NYISO that it is appropriate for the GE Energy Study to use the load shapes, load forecasts, load forecast uncertainty and load shifting assumptions that are used in the NYISO IRM study.³⁰³

117. We disagree with the New York Suppliers that NYISO's proposed capacity values for duration-limited resources are too high because those resources' capacity contributions are supported by capacity resources without duration limitations. We find that it is appropriate for NYISO to base its duration adjustment factors on the results of the GE Energy Study, as modified by NYISO in order to reflect the expected load carrying capacity of each resource, especially given the grounding of the GE Energy Study in the same assumptions that underlie the currently-effective IRM in NYISO. We note that NYISO explains that the starting point for the GE Energy Study was the GE MARS database, which is also used to determine the NYCA IRM requirements based on a probabilistic analysis of certain reliability metrics, including loss of energy expectations and daily and hourly loss of load expectations.³⁰⁴ We find that NYISO's reliance on the capacity values determined in the GE Energy Study to establish its Duration Adjustment Factors therefore appropriately aligns the expected fractional capacity value of each duration-limited resource with the expected contributions of that resource to the overall reliability of the NYISO system.

118. In response to Brookfield, we find that NYISO's proposal to prohibit external capacity resources with Energy Duration Limitations from participating in the ICAP Market at this time is just and reasonable, and not unduly discriminatory or preferential. In response to Brookfield's argument that NYISO's proposal limiting external capacity resource participation in the ICAP Market is unsupported, we note that NYISO's Answer provides additional information on how external capacity resources with Energy Duration Limitations differ from conventional external capacity resources. NYISO explains why it is necessary to limit these resources' ICAP Market participation at this time, based on NYISO's inability, given its current procedures and software, to determine the ability of an external resource with an Energy Duration Limitation to provide services to the NYCA.³⁰⁵ We are persuaded by NYISO's explanation that, because NYISO does not have access to external resources' native control areas' energy and ancillary services schedules, NYISO will not be able to determine an external resource's ability to provide services to the NYCA.³⁰⁶ Thus, we accept NYISO's judgment, based on operational

³⁰³ *Id.*

³⁰⁴ NYISO Filing at 66-67 n.197 (citing GE Energy Study at 24, 27-29).

³⁰⁵ NYISO Answer at 6.

experience, that after-the-fact assessments of financial sanctions may not be sufficient to ensure that NYISO operators may call on external capacity resources with Energy Duration Limitations to address real-time emergency conditions.

119. We find that NYISO's proposal to reevaluate its Duration Adjustment Factors quadrennially is just and reasonable because it will allow NYISO to ensure that the capacity values for duration-limited resources will be updated to reflect accurately the contributions to resource adequacy of each resource as the NYISO system changes in the future. NYISO's proposal will also align the re-study period for Duration Adjustment Factors with the demand curve reset process timeline. We find that NYISO's proposal to reevaluate its duration adjustment factors every four years, through a two-year process and in coordination with stakeholders, appropriately balances the benefits of ensuring Duration Adjustment Factors reflect the current system conditions against the administrative burdens and costs that NYISO and stakeholders will incur to conduct restudies. We therefore are not persuaded by the New York Suppliers' argument that NYISO should annually reassess its Duration Adjustment Factors and the associated ICAP Market payments that duration-limited resources may expect to receive.

120. We note that NYISO explains in its filing that its proposed Services Tariff section 5.12.14.3 would require NYISO to propose a schedule for the periodic review to its stakeholders no later than September 1, 2022. However, we find that the proposed tariff language does not establish a deadline by which NYISO would be required to propose, through a section 205 filing, any adjustments to its Duration Adjustment Factors. We therefore require NYISO to submit to the Commission an informational filing no later than September 30, 2022 that: (1) provides the proposed review schedule for the Duration Adjustment Factors, and (2) includes NYISO's preliminary assessment of the Duration Adjustment Factors applied to duration-limited resources for the 2021-2022 capability year.

4. Buyer Side Mitigation

a. NYISO's Filing

121. NYISO notes that Attachment H of its Services Tariff contains the ICAP Market mitigation measures administered by NYISO. NYISO explains that it does not propose to make any substantive changes to its ICAP Market mitigation measures found in section 23.4.5 of Attachment H of the Services Tariff. NYISO states that after reviewing the proposed DER market design and discussions with stakeholders, it has not identified a need for any additional market power mitigation measures that would apply only to DERs or are required for the expanded resource eligibility that is anticipated through the availability of the Aggregation Participation Model.³⁰⁷ NYISO explains that its proposal

³⁰⁶ *Id.*

does, however, include limited adjustments to both the supplier-side market power mitigation and buyer-side market power mitigation (BSM) provisions of Attachment H to reflect the characteristics of DERs and Aggregations.³⁰⁸ NYISO concludes that, as a general rule, DER injection-based facilities will be fully subject to both supplier-side market power mitigation and BSM.³⁰⁹

122. NYISO notes that it proposed tariff revisions to reinstate BSM measures applicable to Category III Examined Facilities³¹⁰ in its Order No. 841 compliance filing, and, as of the time of filing the instant filing, the Commission has not yet acted on that compliance filing.³¹¹ NYISO proposes no further changes to its BSM rules in this filing.

b. Comments and Protests

123. New York State Entities oppose application of the BSM rules to all Aggregations, including both individual DERs under two MW and Aggregations over twenty MW. New York State Entities claim that NYISO's proposal undermines state policy goals. In support of rejecting on these grounds, New York State Entities claim that the Commission has recognized that harmonizing state and federal policy objectives under the FPA's cooperative federalism framework can provide a sufficient basis to exempt certain resources from BSM rules.³¹² Specifically, New York State Entities point to cases in which the Commission allowed exemptions to BSM rules for SCRs and intermittent renewable resources.³¹³

³⁰⁷ *Id.* at 93-94.

³⁰⁸ *Id.* at 94.

³⁰⁹ *Id.*

³¹⁰ NYISO defines a Category III Examined Facility as "each proposed Generator that (a) is not subject to a deliverability requirement (and therefore, is not in a Class Year) and (b) provides specific written notification to the ISO, received by the Director of Market Mitigation and Analysis, no later than the Class Year Start Date (subject to the next proviso), that it plans to commence commercial operation and offer UCAP in a month that coincides with a Capability Period of the Mitigation Study Period," Services Tariff, § 23.4.5.7.3, NYISO Compliance Filing, Docket No. ER19-467-000, at 53-54 (filed Dec. 3, 2018).

³¹¹ NYISO Filing at n.218.

³¹² New York State Entities Protest at 7.

³¹³ *Id.* (citing *New York Pub. Serv. Comm'n v. N.Y. Indep. Sys. Operator, Inc.*, 158 FERC ¶ 61,137 (2017) (SCR Order); *New York Pub. Serv. Comm'n v. N.Y. Indep. Sys.*

124. New York State Entities claim that NYISO's proposal to apply its existing BSM rules to all DERs is unjust and unreasonable because it would create barriers to market entry by DER and DER Aggregations, thereby interfering with legitimate New York State policy objectives and potentially mitigating resources that lack the incentive and ability to exercise buyer-side market power.³¹⁴ Instead, New York State Entities suggest that the Commission consider a minimum threshold for market power, similar to what the Commission has approved for supplier-side mitigation.³¹⁵ New York State Entities also argue that NYISO's proposed BSM rules would delay the Class Year process and create an undue administrative burden.³¹⁶ According to New York State Entities, NYISO intends to examine every resource included in an Aggregation, which New York State Entities claim means that an individual resource as small as 0.1 MW will be unable to receive mitigation determinations and enter the market until after the iterative system impact studies are completed for new transmission lines and large generators through the multi-year Class Year process.³¹⁷

125. Joint Parties argue that applying BSM to (net) injecting DERs risks over-mitigation and would reduce competition in NYISO's ICAP Market.³¹⁸ Joint Parties specifically assert that NYISO's proposal to subject all DERs that have the capability to inject onto the grid to BSM review risks over-mitigation that could artificially stifle the development of cost-effective and price-competitive DERs.³¹⁹ Joint Parties add that the transaction costs associated with applying such analysis to small resources could be very large in relation to their anticipated revenue streams, raising the possibility that mitigation screening will act as a barrier to entry for otherwise economic resources.³²⁰ Joint Parties conclude that DERs could choose to become commercial without becoming an installed capacity supplier, which would negatively impact competition and reliability and ultimately require consumers to buy more capacity than they need.³²¹

Operator, Inc., 153 FERC ¶ 61,022 (2015) (RE Exemption Order)).

³¹⁴ *Id.* at 3.

³¹⁵ *Id.* at 9.

³¹⁶ *Id.*

³¹⁷ *Id.*

³¹⁸ Joint Parties Comments at 17.

³¹⁹ *Id.*

³²⁰ *Id.*

³²¹ *Id.*

126. Joint Parties further assert that NYISO must clarify how revenue appropriately factors into unit-specific offer floors for DERs, because their physical attributes are significantly different from those of traditional generators.³²² Overall, Joint Parties explain that DERs are built to serve several purposes, including avoiding retail demand charges, distribution-level peak shaving programs, non-wires solutions, strengthening on-site resilience, reducing carbon emissions, and improving transmission and distribution system efficiency.³²³ Joint Parties argue that revenue streams for providing these services should be treated competitively and reduce the offer floor for DERs and energy storage resources.³²⁴ Joint Parties state that NYISO's tariffs and business practice manuals provide little guidance surrounding what types of revenues are appropriately included and how the market monitor will screen such units, leaving significant regulatory uncertainty for market participants.³²⁵

127. Joint Parties request that if the Commission finds the mitigation of injecting DERs that are installed capacity suppliers to be just and reasonable, the Commission direct NYISO to: create a streamlined BSM process for DERs that minimizes both transaction costs and the risk of over-mitigation, calculate technology-appropriate default offer floors for DERs, and provide guidance to stakeholders that clearly states that a resource's provision of retail services will be allowed to reduce its offer floor.³²⁶

c. Answers

128. NYISO asserts that the New York State Entities and Joint Parties have not shown that NYISO's proposal to apply its existing BSM rules to DERs with the capability to inject energy into the grid is unjust, unreasonable, or unduly discriminatory.³²⁷ NYISO states that Commission precedent holds that the BSM rules should apply to new entrants except when a specific exemption is shown to be justified.³²⁸

129. NYISO also states that its proposal in the instant proceeding references, but does not modify, its Order No. 841 compliance proposal to reinstate BSM measures applicable

³²² *Id.* at 18.

³²³ *Id.*

³²⁴ *Id.*

³²⁵ *Id.* at 19.

³²⁶ *Id.* at 21.

³²⁷ NYISO Answer at 16.

³²⁸ *Id.* (citing RE Exemption Order, 153 FERC ¶ 61,022).

to Category III Examined Facilities that plan to participate in NYISO's ICAP Market.³²⁹ NYISO characterizes protests on this language as outside of the scope of the instant proceeding because NYISO explains that the instant filing does not propose to reinstate Category III Examined Facilities.³³⁰ In its Answer, NYISO reiterates that NYISO's proposal to reinstate the Category III provisions is not before the Commission in this docket. NYISO explains that the instant filing merely references its earlier Order No. 841 compliance filing and that NYISO's inclusion of the tariff language proposed there is consistent with the Commission's tariff filing requirements.³³¹

130. Nevertheless, NYISO responds to certain protests on the merits of this text. NYISO states that the New York State Entities mischaracterize its filing by claiming that it would apply the BSM Rules to "all DER, regardless of size and technology."³³² NYISO clarifies that DERs that participate through an Aggregation by providing load curtailment would not be subject to the BSM rules under the NYISO proposal.³³³ NYISO explains that this treatment is founded on the same rationale underlying the Commission's creation of a blanket exemption for SCRs.³³⁴

131. As an attachment to its answer in this proceeding, IPPNY included a copy of its comments from NYISO's Order No. 841 compliance filing supporting its proposed application of NYISO's BSM Rules to all DERs, Aggregations, and resources less than two MW.³³⁵ IPPNY argues that the Commission should accept NYISO's proposed BSM rules. IPPNY explains that an offer floor applies to installed capacity offers from all new generators unless exempt. According to IPPNY, NYISO must evaluate generators as examined facilities to determine whether they are eligible for one of the exemptions listed in the Services Tariff, and if not exempt, apply the offer floor.³³⁶

132. IPPNY argues that subsidized, uneconomic energy storage resources, no matter their size, can effectively artificially suppress capacity prices.³³⁷ IPPNY claims that

³²⁹ *Id.* at 15 (citing NYISO Filing at n.218).

³³⁰ *Id.* at 16.

³³¹ *Id.* at 15-16.

³³² *Id.* at 16 (citing New York State Entities Protest at 1).

³³³ *Id.*

³³⁴ *Id.* (citing NYISO Filing at 93-94 n.219).

³³⁵ IPPNY Answer at 4.

³³⁶ *Id.* at 39 (citing IPPNY February 7 Comments at 3).

small, subsidized electric storage resources can combine with many other small energy storage resources and materially and artificially suppress capacity prices.³³⁸ IPPNY points out that the New York Commission has directed investor owned utilities under its jurisdiction to achieve 3000 MW of energy storage by 2030 and that, as the investor owned utilities will control the scheduling and dispatch of electric storage resources, they will have the same ability to exercise buyer-side market power whether they contract with large or small electric storage resources to meet the New York Commission requirements.³³⁹ IPPNY further argues that the impact of uneconomic entry of these energy storage resources will be substantial and will reduce capacity clearing prices.³⁴⁰ IPPNY describes the impact on prices and details the amount of money that NYSERDA will spend to encourage deployment of electric storage resources. IPPNY notes that, where warranted, electric storage resources can receive an exemption from BSM measures by obtaining a competitive entry exemption, and that resources receiving out-of-market support should be subject to mitigation regardless of intent.³⁴¹ Furthermore, IPPNY states that New York State Entities' comparison to prior exemptions for intermittent resources does not apply to electric storage resources because those past Commission determinations focused on the nature of intermittent resources and their associated low capacity values, not low capacity factors.³⁴²

d. Commission Determination

133. NYISO does not propose any substantive changes to its market power mitigation provisions. In particular, we agree with NYISO that the instant filing does not propose to reinstate Category III Examined Facilities to its BSM rules.³⁴³ We therefore find the protests of New York State Entities and Joint Parties to be beyond the scope of the instant proceeding. However, we note that NYISO improperly filed its BSM rules as clean Tariff language, not in redline, and that the Commission rejected this language in its order on NYISO's Order No. 841 compliance filing.³⁴⁴ Therefore, we direct NYISO, in a

³³⁷ *Id.* at 54 (citing IPPNY February 27 Answer at 8).

³³⁸ *Id.* at 9.

³³⁹ *Id.* at 9-10.

³⁴⁰ *Id.* at 10-11.

³⁴¹ *Id.* at 13.

³⁴² *Id.* at 14-15.

³⁴³ *Id.* at 15 (citing NYISO Filing at n.218).

³⁴⁴ *See N.Y. Indep. Sys. Operator, Inc.*, 169 FERC ¶ 61,225, at P 73 (2019).

compliance filing to be made within 30 days of the date of this order, to revise its eTariff records accordingly.

5. Miscellaneous Issues

a. Comments and Protests

134. The NYTOs in their comments identify several instances in NYISO's proposal of minor, non-substantive edits to several sections of the proposed tariff revisions, noting that its suggestions are intended to address "minor syntax errors or where adoption of more precise terminology would perhaps be appropriate."³⁴⁵ The NYTOs include as an attachment to their comments an attachment outlining their recommended edits.

b. Answers

135. NYISO in its Answer states that it agrees that the edits recommended by the NYTOs would improve NYISO's proposed tariff revisions. NYISO states that, should the Commission agree, NYISO proposes to submit revised tariff sections reflecting the edits within thirty (30) days of a Commission order in this proceeding.

c. Commission Determination

136. We accept NYISO's proposed remedy to correct the minor syntax errors and terminology changes requested by the NYTOs.

The Commission orders:

(A) NYISO's filing is hereby accepted, effective as requested, as discussed in the body of this order.

(B) NYISO is hereby directed to submit a compliance filing within 30 days of the date of this order, as discussed in the body of this order.

(C) NYISO is directed to submit an informational filing, as discussed in the body of this order.

By the Commission.

(S E A L)

³⁴⁵ NYTOs Comments at 7, Attachment A.

Kimberly D. Bose,
Secretary.