



March 29, 2018

By Electronic Delivery

Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First St., N.E.  
Washington, D.C. 20426

**Re: *New York Independent System Operator, Inc., Proposed Tariff Revisions  
Addressing Provision of Synchronized Reserves by Inverter-Based Energy  
Storage Resources; Docket No. ER18-\_\_\_\_-000***

Dear Ms. Bose:

Pursuant to Section 205 of the Federal Power Act,<sup>1</sup> the New York Independent System Operator, Inc. (“NYISO”) hereby submits proposed revisions to its Open Access Transmission Tariff (“OATT”) and its Market Administration and Control Area Services Tariff (“Services Tariff”) that address supplier eligibility to provide synchronized Operating Reserves.<sup>2</sup> The revisions proposed in this filing will, if accepted, permit resources using inverter-based technology (*i.e.*, batteries) to supply Spinning (10-Minute Synchronized) and 30-Minute Synchronized Reserves. These tariff enhancements were developed in response to the Northeast Power Coordinating Council’s (“NPCC”) clarification that inverter-based energy storage resources are eligible to provide Synchronized Reserves, and will permit two classes of inverter-based resources to provide Synchronized Reserves: (i) Generators,<sup>3</sup> and (ii) Demand Side Resources.<sup>4</sup>

The NYISO requests that the Federal Energy Regulatory Commission (“FERC” or “Commission”) accept these tariff amendments and permit the proposed revisions to become

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<sup>1</sup> 16 U.S.C. § 824d.

<sup>2</sup> Capitalized terms that are not defined in this filing letter have the meaning ascribed to them in Section 1 of the OATT and Section 2 of the Services Tariff.

<sup>3</sup> The term Generator is defined in OATT Section 1.7 and Services Tariff Section 2.7. Generators include Energy Limited Resources (“ELRs”) and Limited Energy Storage Resources (“LESRs”).

<sup>4</sup> The term Demand Side Resource is defined in OATT Section 1.4 and Services Tariff Section 2.4. Demand Side Resources include resources participating in the NYISO’s Emergency Demand Response Program, Day-Ahead Demand Response Program, Demand-Side Ancillary Services Program and/or Special Case Resource (“SCR”) program.

effective on Wednesday, May 30, 2018, which is the first business day following the last day of the sixty-day time period.<sup>5</sup>

## **I. List of Documents Submitted**

The NYISO respectfully submits the following documents with this filing letter:

1. A clean version of the proposed revisions to the NYISO's OATT ("Attachment I");
2. A clean version of the proposed revisions to the NYISO's Services Tariff ("Attachment II");
3. A blacklined version of the proposed revisions to the NYISO's OATT ("Attachment III"); and
4. A blacklined version of the proposed revisions to the NYISO's Services Tariff ("Attachment IV").

## **II. Overview**

In order to ensure adequate reserve capability to resolve a Balancing Contingency Event,<sup>6</sup> the NPCC requires the NYISO (as the Balancing Authority for the New York Control Area) to maintain Operating Reserves at least sufficient to recover within ten minutes from its first contingency loss.<sup>7</sup> Of the required 10-Minute Reserve capability, at least twenty-five percent (and up to one hundred percent) must be provided by synchronized resources.<sup>8</sup> Traditionally, this Synchronized Reserve service has been provided by Generators<sup>9</sup> that are online and committed at least to the unit's minimum generation level. NPCC defines Synchronized Reserve as "[t]he unused portion of generating capacity which is synchronized to the system and ready to pick up load to claimed capacity...."<sup>10</sup>

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<sup>5</sup> Due to the Memorial Day holiday, Tuesday, May 29 is the last day of the sixty-day time period. *See* 18 C.F.R. § 385.2007, 5 U.S.C § 6103.

<sup>6</sup> *N. Am. Elec. Reliability Corp.* Reliability Standard BAL-002-2(i) (Disturbance Control Standard - Contingency Reserve for recovery from a Balancing Contingency Event). BAL-002-2(i) ensures that "the Balancing Authority ... balances resources and demand and returns the Balancing Authority's ... Area Control Error to defined values (subject to applicable limits) following a Reportable Balancing Contingency Event."

<sup>7</sup> *Ne. Power Coordinating Council* Regional Reliability Reference Directory No. 5 - Reserve, § 5.1 (Dec. 2, 2010).

<sup>8</sup> *Id.* at § 5.5. The requirement for 10-Minute Synchronized Reserve is based on the Balancing Authority's demonstrated performance in returning its Area Control Error to pre-contingency values (or zero) within fifteen minutes following the loss of a resource.

<sup>9</sup> While the vast majority of Synchronized Reserve procured by the NYISO is provided by generation assets, Demand Side Resources in the NYISO's Demand-Side Ancillary Services Program may also provide such service.

<sup>10</sup> *Ne. Power Coordinating Council* Glossary of Terms, at 20.

The reliability rule does not address whether emerging inverter-based energy storage technologies - which have different operational characteristics than traditional thermal generation - are eligible to provide Synchronized Reserve. The NYISO, therefore, sought clarification from NPCC as to whether inverter-based energy storage technology is eligible to provide Synchronized Reserve.

In response to the NYISO's request, NPCC stated that "energy-producing technologies which do not depend on the start of a steam, gas or hydraulic driven turbine," and instead "connects to the power system through an electrical inverter," do not experience "the failure modes that impact the ability of turbine-driven resources."<sup>11</sup> And, though not specifically addressed in the reliability rule, such resources "compl[y] with the original intent of the synchronized reserve requirement and therefore shall qualify toward a [Balancing Authority's] complement of synchronized reserve."<sup>12</sup> NPCC's clarification will help guide the NYISO as it develops its energy storage resource participation model to comply with Order No. 841,<sup>13</sup> and allow inverter-based energy storage resources currently participating in the NYISO's markets to provide a service they are technically capable of providing.

### **III. Description of Proposed Tariff Revisions**

Effectuating the proposed change to permit inverter-based energy storage resources to provide synchronized Operating Reserves requires minor modifications to the definition of "Operating Reserves" in the OATT and Services Tariff, and to the supplier eligibility criteria found in Services Tariff Section 15.4 (Rate Schedule 4). The NYISO also proposes two ministerial changes that are not related to the substantive revisions proposed in this filing to OATT Section 1.12, and Services Tariff Section 2.19.

The NYISO proposes to amend parts (1) and (3) of the definition of "Operating Reserves" in OATT Section 1.15 and in Services Tariff Section 2.15<sup>14</sup> to permit Generators and Demand Side Resources using inverter-based energy storage technology to provide Synchronized Reserves. The proposed changes to the OATT are set forth below.

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<sup>11</sup> *Ne. Power Coordinating Council* Task Force on Coordination of Operation, Response to NYISO Inquiry (2016).

<sup>12</sup> *Id.* NPCC clarified, however, that inverter-based resources must meet the sustainability requirements requiring at least one hour of capability from the time of activation.

<sup>13</sup> *Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators*, Order No. 841, 162 FERC ¶ 61,127 (Feb. 15, 2018); *Errata Notice* (Feb. 28, 2018).

<sup>14</sup> The definition of Operating Reserves in OATT Section 1.15 contains two minor differences from the Operating Reserves definition in Services Tariff Section 2.15. Existing language in OATT Section 1.15 contains a typographical error in which the definition of Operating Reserves referred to "Rate Schedule 4 of *this* ISO Services Tariff," (emphasis added). The NYISO proposes to correct OATT Section 1.15 to state "Rate Schedule 4 of *the* ISO Services Tariff" (emphasis added) in this filing. Similarly, the proposed revisions in OATT Section 1.15 state "that otherwise meet the eligibility criteria set forth in *the* ISO Services Tariff," (emphasis added) whereas the revisions in Services Tariff Section 2.15 state "*this* ISO Services Tariff" (emphasis added).

Operating Reserves:

- (1) Spinning Reserve: Operating Reserves provided by Generators and Demand Side Resources that meet the eligibility criteria set forth in Rate Schedule 4 of this the ISO Services Tariff, that are already synchronized to the NYS Power System, and can respond within ten (10) minutes. Generators utilizing inverter-based energy storage technology and that otherwise meet the eligibility criteria set forth in the ISO Services Tariff may provide Spinning Reserves. Spinning Reserves may not be provided by a Demand Side Resources that are facilitates demand reduction using a Local Generators, unless that Local Generator utilizes inverter-based energy storage technology, or by Behind-the-Meter Net Generation Resources that are comprised of more than one generating unit that are dispatched as a single aggregate unit.
- (3) 30-Minute Reserve: Synchronized Operating Reserves provided by Generators, except Behind-the-Meter Net Generation Resources that are comprised of more than one generating unit and dispatched as a single aggregate unit, and Demand Side Resources that are do not facilitate demand reduction using Local Generators, or that facilitate demand reduction using a Local Generator utilizing inverter-based energy storage technology; or non-synchronized Operating Reserves provided by Generators, Behind-the-Meter Net Generation Resources that are comprised of more than one generating unit and dispatched as a single aggregate unit, or Demand Side Resources that meet the eligibility criteria set forth in Rate Schedule 4 of this ISO Services Tariff and that can respond to instructions to change their output level within thirty (30) minutes, including starting and synchronizing to the NYS Power System.

The NYISO further proposes to revise Services Tariff Sections 15.4.1.2.1 and 15.4.1.2.3, which address Supplier eligibility criteria to provide Spinning and 30-Minute Reserve, respectively, as follows:

Section 15.4.1.2.1: Suppliers that are ISO Committed Flexible or Self-Committed Flexible, are operating within the dispatchable portion of their operating range, are capable of responding to ISO instructions to change their output level within ten minutes, and that meet the criteria set forth in the ISO Procedures shall be eligible to supply Spinning Reserve (except for Demand Side Resources that are Local Generators not utilizing inverter-based energy storage technology and Behind-the-Meter Net Generation Resources that are comprised of more than one generating unit and dispatched as a single aggregate unit). Suppliers utilizing inverter-based energy storage technology, and that meet the criteria set forth in the ISO Procedures, shall be eligible to supply Spinning Reserve.

Section 15.4.1.2.3: Generators, except Behind-the-Meter Net Generation Resources that are comprised of more than one generating unit and dispatched as a single aggregate unit, that are ISO-Committed Flexible or Self-Committed Flexible and operating within the dispatchable portion of their operating range and Demand Side Resources that do not facilitate demand reduction using, that are not Local Generators, or that facilitate demand reduction using a Local Generator utilizing inverter-based energy storage technology, that are capable of reducing their Energy usage within thirty (30) minutes shall be eligible to supply synchronized 30-Minute Reserves. Suppliers utilizing inverter-based energy storage technology, and that meet the criteria set forth in the ISO Procedures, shall be eligible to supply synchronized 30-Minute Reserves. (i) Off-line Generators that are capable of starting, synchronizing, and increasing their output level within thirty (30) minutes, (ii) Behind-the-Meter Net Generation Resources that are comprised of more than one generating unit and dispatched as a single aggregate unit that are capable of increasing their output level within thirty (30) minutes, and (iii) Demand Side Resources that are capable of reducing their Energy usage within thirty (30) minutes, that meet the criteria set forth in the ISO Procedures shall be eligible to supply non-synchronized 30-Minute Reserves.

These proposed revisions, if accepted, will benefit both bulk power system reliability and the wholesale markets administered by the NYISO. These revisions represent an incremental step forward in the NYISO's pursuit of full integration for energy storage resources, and will provide system operators another tool to effectively manage New York's bulk power system during a Balancing Contingency Event. The revisions will also provide an additional market participation opportunity for inverter-based energy storage resources seeking to obtain value for the services they can technically provide.

In addition to the proposed tariff enhancements for inverter-based energy storage resources, the NYISO proposes to make two ministerial changes to OATT Section 1.12 and to Services Tariff Section 2.19. The revision to OATT Section 1.12 adds a new defined term— Local Generator—that references the definition found in Services Tariff Section 2.12. The NYISO proposes to add this definition to the OATT because that term is used occasionally in the OATT, but is not defined therein. Adding the defined term will clarify that the term Local Generator has the same meaning in the OATT and in the Services Tariff.

The NYISO also proposes to remove certain outdated language from the definition of SCR in Services Tariff Section 2.19:

**Special Case Resource (“SCR”):** Demand Side Resources whose Load is capable of being interrupted upon demand at the direction of the ISO, and/or Demand Side Resources that have a Local Generator, which is not visible to

the ISO's Market Information System and is rated 100 kW or higher, that can be operated to reduce Load from the NYS Transmission System or the distribution system at the direction of the ISO. Special Case Resources are subject to special rules, set forth in Section 5.12.11.1 of this ISO Services Tariff and related ISO Procedures, in order to facilitate their participation in the Installed Capacity market as Installed Capacity Suppliers. SCRs that do not use Local Generators may be offered as synchronous Operating Reserves and Regulation Service and Energy in the Day-Ahead Market. SCRs, using Local Generators rated 100 kW or higher, that are not visible to the ISO's Market Information System may also be offered as non-synchronized Operating Reserves.

The NYISO proposes to remove the stricken language to avoid confusion related to the services SCRs provide. A SCR is a particular type of Demand Side Resource that supplies Installed Capacity. Demand Side Resources may also supply Ancillary Services by participating in the NYISO's Demand Side Ancillary Services Program ("DSASP"). While a single Demand Side Resource may simultaneously be a SCR and a DSASP resource, not all SCRs are DSASP resources. The NYISO proposes to remove the final two sentences of the SCR definition to avoid confusion as to the services SCRs provide.

#### **IV. Proposed Effective Date**

The NYISO respectfully requests that the Commission accept the proposed tariff revisions for filing with an effective date of May 30, 2018, the day following the close of the sixty-day period.

#### **V. Requisite Stakeholder Approval**

The proposed amendments were approved by the NYISO Management Committee on October 25, 2017 by a show of hands with no votes in opposition. The NYISO's Board of Directors approved the proposed revisions on February 13, 2018.

**VI. Communications and Correspondence**

All communications and service in this proceeding should be directed to:

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**VII. Service**

The NYISO will send an electronic link to this filing to the official representative of each of its customers, to each participant on its stakeholder committees, to the New York State Public Service Commission, and to the New Jersey Board of Public Utilities. In addition, the complete filing will be posted on the NYISO's website at [www.nyiso.com](http://www.nyiso.com).

**VIII. Conclusion**

For the foregoing reasons, the NYISO respectfully requests that the Commission accept for filing the proposed revisions to the Services Tariff and the OATT that are attached, with the changes becoming effective on the date specified in part IV of this filing letter.

Respectfully submitted,

/s/ Gregory J. Campbell

Gregory J. Campbell

Attorney

New York Independent System Operator, Inc.

cc:	Anna Cochrane	Larry Parkinson
	Jette Gebhart	J. Arnold Quinn
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