

**STATE OF NEW YORK  
PUBLIC SERVICE COMMISSION**

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Case 07-E-0088 - In the Matter of the Adoption     )  
Of an Installed Reserve Margin for the New York     )  
Control Area.     )

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**COMMENTS OF THE NEW YORK STATE RELIABILITY COUNCIL  
ON THE INSTALLED RESERVE MARGIN  
FOR THE 2018-2019 CAPABILITY YEAR**

Curt Dahl  
Chairman  
NYSRC Executive Committee  
New York State Reliability Council

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**COMMENTS OF THE New York STATE RELIABILITY COUNCIL**

New York State Reliability Council, LLC (“NYSRC”), through the Chairman of its Executive Committee, respectfully submits these Comments in Case 07-E-0088. On January 3, 2018 the New York State Public Service Commission (“Commission”) solicited comments on whether the Commission should adopt the NYSRC’s Installed Reserve Margin (“IRM”) of 18.2% for the New York Control Area (“NYCA”) for the Capability Year beginning on May 1, 2018 and ending on April 30, 2019. The NYSRC respectfully requests that the Commission consider these comments in support of the Commission’s adoption of NYSRC’s IRM determination for the 2018-2019 Capability Year.

**I. SUMMARY**

On December 8, 2017, the NYSRC Executive Committee adopted an IRM of 18.2% for the NYCA for the Capability Year beginning on May 1, 2018 and ending April 30, 2019. The Executive Committee’s decision was based on a technical study, the New York Control Area Installed Capacity Requirements for the Period May 2018 through April 2019, Technical Study Report (“2017 IRM Study” or “Study”) and other relevant factors. The 2017 IRM Study and Study Appendices are attached to these comments as Exhibits 1 and 2. The NYSRC requests that the 2018 IRM Study and Study Appendices be made part of the record in this proceeding. Since the 18.2% IRM for the 2018-2019 Capability Year adopted by the NYSRC represents a change from the 2017-2018 IRM of 18.0%, the NYSRC is required to

obtain Federal Energy Regulatory Commission (“FERC”) approval of the revised IRM, pursuant to Section 3.03 of the NYSRC Agreement.<sup>1</sup> The NYSRC submitted a filing with FERC on December 22, 2017.<sup>2</sup>

## **II. BACKGROUND**

### Formation and Responsibilities of the NYSRC

The NYSRC was approved by FERC in 1998 as part of the comprehensive restructuring of the wholesale electricity market in New York State.<sup>3</sup> Under the restructuring, the New York Power Pool (“NYPP”) was replaced by the New York System Independent System Operator (“NYISO”) as the entity with the primary responsibility for the reliable operation of the state’s bulk power system. The NYISO also assumed responsibility for administration of the newly established competitive wholesale electricity markets.

The NYSRC was established to promote and preserve the reliability of the New York State power system by developing, maintaining and, from time to time, updating the reliability rules (“Reliability Rules”)<sup>4</sup> that govern the NYISO’s operation of the state’s bulk power system. The NYSRC develops Reliability Rules in accordance with standards, criteria and regulations of North American Reliability Corporation (“NERC”), Northeast Power Coordinating Council (“NPCC”), FERC, the Commission, and the Nuclear Regulatory Commission.<sup>5</sup> The NYISO/NYSRC Agreement provides that the NYISO and all entities engaged in transactions on the New York State power system must comply with the Reliability

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<sup>1</sup> The NYSRC Agreement is available on the NYSRC website, [www.NYSRC.org](http://www.NYSRC.org), under Documents/Agreements.

<sup>2</sup> New York State Reliability Council, Docket No. ER 18-524-000 (December 22, 2017).

<sup>3</sup> Central Hudson Gas & Electric Corp., et al., 83 FERC ¶ 61,352 (1998).

<sup>4</sup> The NYSRC Reliability Rules are available on the NYSRC website, [www.NYSRC.org](http://www.NYSRC.org), under Documents/Reliability Rules Compliance Monitoring.

<sup>5</sup> NYISO/NYSRC Agreement, Section 4.1. The NYISO/NYSRC Agreement is available on the NYSRC website, [www.NYSRC.org](http://www.NYSRC.org), under Documents/Agreements.

Rules adopted by the NYSRC.<sup>6</sup> Compliance with NYSRC Reliability Rules, which are incorporated into the NYISO's procedures, are made binding on market participants through the NYISO's tariff.<sup>7</sup> The NYISO/NYSRC Agreement also assigns to the NYSRC the responsibility to monitor the NYISO's compliance with the Reliability Rules and requires the NYISO to provide the NYSRC the data necessary for it to effectively perform its compliance monitoring responsibility.<sup>8</sup> Each member of the NYSRC Executive Committee is required to have substantial knowledge and/or expertise in the reliable operation of bulk power electric systems.<sup>9</sup>

At its inception, the NYSRC adopted the pre-existing NYPP reliability rules. These planning and operating rules had been developed by the NYPP and the Commission based on decades of experience in the operation of the New York bulk power system. Revisions to the Reliability Rules are developed by the NYSRC in an open process with direct participation by the NYISO and Department of Public Service staff. If the NYSRC and the NYISO should disagree with respect to a new or modified Reliability Rule, and cannot resolve their differences, the matter is referred to the Commission for resolution, unless the dispute affects not only reliability but also matters subject to FERC's jurisdiction that must be resolved directly by FERC.<sup>10</sup>

In addition to consistency with NERC and NPCC reliability criteria, the NYSRC Reliability Rules include criteria that are more specific or more stringent than NERC and NPCC criteria that are necessary to meet the special requirements of the NYCA. These special requirements include the specific electric system characteristics and demographics of New York

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<sup>6</sup> NYISO/NYSRC Agreement, Section 2.1, 3.1.

<sup>7</sup> NYISO Market Services Tariff, Sections 5.1, 5.6.

<sup>8</sup> NYISO/NYSRC Agreement, Section 3.6.

<sup>9</sup> NYSRC Agreement, Section 4.03.

<sup>10</sup> NYISO/NYSRC Agreement, Article 5.

State, the complexities related to the maintenance of reliable transmission in New York State given the configuration of the state's bulk power system, and the severe consequences that result from power interruptions in New York State and, in particular, New York City and Long Island.

PSC Support for NYSRC

As noted, the NYSRC was formed as an integral part of the restructuring of the electricity industry in New York State. It was formed, with the active support of the Commission, to ensure that the more stringent and mandatory reliability standards in New York State would be retained under the new competitive wholesale market structure. In its Supplemental Comments in the FERC proceeding in which the NYSRC Agreement and the NYISO/NYSRC Agreement were approved, the Commission stated:

PSCNY conditioned its support for the State Reliability Council upon amendments that would broaden the governance of the [NY]SRC to include more non-utility board members, and to narrow the responsibilities of the [NY]SRC. The Supplemental Filing appropriately circumscribes the authority of the SRC. As stated by the utilities, the [NY]SRC would be limited to establishing reliability rules that tailor the national North American Reliability Electric Reliability Council ("NERC") and regional Northeast Power Coordinating Council ("NPCC") standards to New York State. Consistent with NERC, NPCC, NYPP and NYPSRC standards, the [NY]SRC would establish a state-wide reserve margin to ensure that adequate generation is available to serve load during normal conditions and system emergencies.

\* \* \*

As proposed, the ISO would implement and enforce the reliability rules, not the [NY]SRC. Moreover, the ISO alone would apply the state-wide resource requirement to set the actual generation resource levels suppliers must meet on different parts of the state grid.<sup>11</sup>

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<sup>11</sup> Supplemental Comments, State of New York Department of Public Service, Docket Nos. ER 97-1523, et al, (filed May 23, 1997), at 2.

### NYSRC Establishment of Statewide IRM

One of the most important responsibilities assigned to the NYSRC is the establishment of the annual statewide installed capacity for the NYCA.<sup>12</sup> Section 3.03 of the NYSRC Agreement, Installed and Operating Capacity Requirements, states as follows:

The NYSRC shall establish the state-wide annual installed capacity requirements for New York State consistent with NERC and NPCC standards. The NYSRC will initially adopt the installed capacity requirement as set forth in the current NYPP Agreement and currently filed with FERC. Any changes to this requirement will require an appropriate filing and FERC approval. In establishing the state-wide annual installed capacity requirements, consideration will be given to the configuration of the system, generation outage rates, assistance from neighboring systems and Local Reliability Rules.

The installed capacity requirement is described generally in terms of an installed reserve margin or IRM.<sup>13</sup> The NYISO was assigned the responsibility to determine the installed capacity obligations of load serving entities (“LSEs”) and to establish locational capacity requirements needed to ensure that the statewide IRM is met.<sup>14</sup> The responsibilities assigned by the NYSRC Agreement and the NYISO/NYSRC Agreement are implemented in the NYSRC’s Reliability Rules, the NYSRC’s Policy No. 5-12 and the NYISO’s Market Administration and Control Area Services Tariff (“Market Services Tariff”). The following is a brief description of the relevant portions of those documents.

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<sup>12</sup> NYSRC Agreement, § 3.03; NYISO/NYSRC Agreement, § 4.5.

<sup>13</sup> The annual statewide ICR is established by implementing Reliability Rules for providing the corresponding statewide installed reserve margin (“IRM”) requirements. The IRM requirements relates to ICR through the following equation:  $ICR = (1 + IRM \% / 100) \times \text{Forecasted NYCA Peak Load}$  (NYSRC Reliability Rules, A. Resource Adequacy, Introduction).

<sup>14</sup> NYISO/NYSRC Agreement, § 3.4; NYISO Market Services Tariff, §§ 5.10 and 5.11.4.

NYSRC Resource Adequacy Criteria

The Introduction to Section A of the NYSRC Reliability Rules, Resource Adequacy, provides that among the factors to be considered by the NYSRC in setting the annual statewide IRM are the characteristics of the loads, uncertainty in the load forecast, outages and deratings of generating units, the effects of interconnections to other control areas, and transfer capabilities within the NYCA.

Reliability Rule A.1, Establishing NYCA Installed Reserve Margin Requirements, provides as follows:

The NYSRC shall establish the IRM requirement for the NYCA such that the probability (or risk) of disconnecting any firm load due to resource deficiencies shall be, on average, not more than once in ten years. Compliance with this criterion shall be evaluated probabilistically, such that the loss of load expectation (LOLE) of disconnecting firm load due to resource deficiencies shall be on average, no more than 0.1 day per year. This evaluation shall make due allowance for demand uncertainty, scheduled outages and deratings, forced outages and deratings, assistance over interconnections with neighboring control areas, NYS Transmission System emergency transfer capability and capacity and/or load relief from available operating procedures.

Requirement R1 of Reliability Rule A.2, Establishing Load Serving Entity Installed Capacity Requirements and Deliverable Area Installed Capacity, provides that:

LSEs shall be required to procure sufficient resource capacity for the entire NYISO defined obligation procurement period so as to meet the statewide IRM requirement determined from A.1. Further, this LSE capacity obligation shall be distributed so as to meet locational ICAP requirements, considering the availability and capability of the NYS Transmission System to maintain A.1 reliability requirements.

NYSRC Policy No. 5-12 Procedure for Establishing New York Control Area Installed Capacity Requirements

The last paragraph of Section 1.0, Introduction, of NYSRC Policy No. 5-12 provides that:

The final NYCA IRM requirement, as approved by the NYSRC Executive Committee, is the basis for various installed capacity analyses conducted by the NYISO. These NYISO analyses include the determination of the capacity obligation of each Load Serving Entity (LSE) on a Transmission District basis, as well as Locational Installed Capacity Requirements, for the following capability year. These NYISO analyses are conducted in accordance with NYSRC Reliability Rules and Procedures.

Section 2.2 of NYSRC Policy No. 5-12 provides a timeline for establishing the statewide IRM. This timeline is based on the NYSRC's providing the NYISO with the following year's NYCA IRM requirement in December of each year, when the NYISO, under its installed capacity and procurement process, is required to begin its studies for determining the following summer's LSE capacity obligations.

Section 4.4 of NYSRC Policy No. 5-12 sets forth the process for approval of the annual statewide IRM by the NYSRC Executive Committee.

- Review and approve preliminary and final base case assumptions and models for use in IRM Study.
- Review preliminary base case results.
- Approve sensitivity studies to be run and their results.
- Review and approve final IRM Study prepared by ICS [Installed Capacity Subcommittee].
- Establish and approve the final NYCA IRM requirement for the next capability year (See Section 5).
- To the extent practicable, ensure that the schedule for the above approvals allow that the timeline requirements in Section 2.2 are met.
- Notify the NYISO of the NYCA IRM requirements and meet with NYISO management as required to review IRM Study results.
- Make IRM requirement study results available to state and federal regulatory agencies and to the general public by posting the study on the NYSRC Web site.



NYISO Market Services Tariff

Relevant portions of Section 5.10 of the NYISO's Market Services Tariff, NYCA

Minimum Installed Capacity Requirement, read as follows:

The NYCA Minimum Installed Capacity Requirement is derived from the NYCA Installed Reserve Margin, which is established each year by the NYSRC. The NYCA Minimum Installed Capacity Requirement for the Capability Year beginning each May 1 will be established by multiplying the NYCA peak Load forecasted by the ISO by the quantity of one plus the NYCA Installed Reserve Margin. The ISO shall translate the NYCA Installed Reserve Margin, and thus the NYCA Minimum Installed Capacity Requirement, into a NYCA Minimum Unforced Capacity Requirement.

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The NYCA Minimum Unforced Capacity Requirement represents a minimum level of Unforced Capacity that must be secured by LSEs in NYCA for each Obligation Procurement Period. Under the provisions of this Services Tariff and the ISO Procedures, each LSE will be obligated to procure its LSE Unforced Capacity Obligation.

The first paragraph of Section 5.11.4 of the Market Services Tariff, LSE

Locational Minimum Installed Capacity Requirements, reads as follows:

The ISO will determine the Locational Minimum Installed Capacity Requirements, stated as a percentage of the Locality's forecasted Capability Year peak Load and expressed in Unforced Capacity terms that shall be uniformly applicable to each LSE serving Load within a Locality. In establishing Locational Minimum Installed Capacity Requirements, the ISO will take into account all relevant considerations, including the total NYCA Minimum Installed Capacity Requirement, the NYS Power System transmission Interface Transfer Capability, the election by the holder of rights to UDRs that can provide Capacity from an External Control Area with a capability year start date that is different from the corresponding ISO Capability Year start date ("dissimilar capability year"), the Reliability Rules and any other FERC-approved Locational Minimum Installed Capacity Requirements.

### **III. Adoption of the IRM For 2018-2019 Capability Year**

#### 2018 IRM Study

The 2018 IRM Study was conducted by the NYSRC to determine the statewide IRM necessary to meet NYSRC and NPCC criteria within the NYCA during the period from May 1, 2018 through April 30, 2019. Computer runs for the 2018 IRM Study were performed by NYISO staff at the request and under the guidance of the NYSRC. The 2018 IRM Study uses a state-of-the-art computer model called the General Electric Multi-Area Reliability Simulation Program (“GE-MARS”). The GE-MARS model includes a detailed load, generation and transmission representation of the 11 NYCA zones as well as the four external control areas (“Outside World Areas”) interconnected to the NYCA. The GE-MARS model calculates the probability of outages of generating units, coupled with a model of daily peak-hour loads, thus determining the number of days per year of expected capacity shortages. The resulting measure, termed the “loss-of-load expectation” (“LOLE”) index, provides a measure of system reliability. This technique is commonly used in the electric power industry for determining installed reserve requirements.

This 2018 IRM Study employs two study methodologies, the *Unified* and the *IRM Anchoring Methodologies*. These methodologies are discussed in the Study at pages 6 and 8 under the heading IRM Study Procedures. In addition to calculating NYCA IRM requirement, these methodologies identify corresponding locational capacity requirements (“LCRs”). In its role of setting the appropriate LCRs, the NYISO considers the LCR’s identified in the IRM Study. The 2018 IRM Study uses the NYISO’s preliminary peak load forecast for the following summer period based on the most recent actual summer load conditions. Use of this forecast allows the NYSRC IRM and NYISO LCR studies to use comparable data.

The 2018 IRM Study also evaluated IRM requirement impacts caused by the updating of key study assumptions and various sensitivity cases.<sup>15</sup> The results of the comparison with the IRM for the 2017-2018 Capability Year are depicted in Table 6-1 at page 21 of the Study. The results of the sensitivity cases are depicted in Table 7-1 at page 23 of the Study, and Table B-1 at page 48, 49 and 50 of Appendix B of the Study. The base case results, the sensitivity cases, and other relevant factors provide the basis for the NYSRC Executive Committee's determination to adopt an 18.2% NYCA IRM requirement for the 2018-2019 Capability Year. Definitions of certain terms in the 2018 IRM Study can be found in the Glossary, Appendix D of the Study.

#### 2018 IRM Study Base Case Results

The base case for 2018 IRM Study calculated the NYCA IRM requirement for the period May 1, 2018 through April 30, 2019 to be 18.2%.<sup>16</sup> For the base case, the 2018 IRM Study also determined LCRs of 80.7% and 103.2% for New York City and Long Island, respectively.

The 2018 base case result is 0.1% higher than the 18.1% base case IRM requirement determined by the 2017 IRM Study. There are six parameter drivers that in combination increased the 2018 IRM from the 2017 base case. Each of the following parameters increase the IRM by 0.1%: (1) new NYCA generating units; (2) New York topology updates; (3) new wind generation; (4) EFORD on UDR lines; (5) updated load forecast uncertainty; and, (6) updated load forecast. One

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<sup>15</sup> The NYSRC Executive Committee approved the assumptions used in the 2018 IRM Study base case at its meeting on July 14, 2017. The sensitivity cases for the 2018 IRM Study were approved by the NYSRC Executive Committee at its meeting on November 9, 2017. The assumptions used in the Study are set forth in Table A.3 are set forth in Appendix A on page 14, , Table A.5 on page 16, Table A.7 on page 22, Table A.9 on page 36, and Table A.11 on page 37.

<sup>16</sup> There is a 95% probability that the base case result is within a range of 18.0% to 18.4% based on a standard error of 0.025 per unit at 2,500 simulated years. See Appendix A of the Study, A-1.1 Error Analysis, at page 12.

parameter driver, updated external control area models, decreased the IRM by 0.5%. Table 6-1 on page 21 of the Study, set forth below, shows the IRM impact of individual updated study parameters that result in this change from the 2017 base case IRM.

**Table 6-1: Parametric IRM Impact Comparison ±2017 IRM vs. 2018 IRM Study**

Parameter	Estimated IRM Change (%)	IRM (%)	Reasons for IRM Changes
<b>2017 IRM Study ± Final Base Case</b>		<b>18.1</b>	
<b>2018 IRM Study Parameters that increased the IRM</b>			
New NYCA Generating Units	+0.1		New generation has lower availability than zonal average.
NY Topology Updates	+0.1		Cumulative effect of topology changes.
New Wind Generation	+0.1		Wind generation has relatively low availability.
UDR elections and line EFORs	+0.1		Increased EFORs on cable interfaces.
Updated NYCA LFU Models	+0.1		Increased load uncertainty in downstate LFU model.
Updated Load Forecast	+0.1		Upstate/downstate load unbalance.
<b>Total IRM Increase</b>	<b>+0.6</b>		
<b>2018 IRM Study Parameters that decreased the IRM</b>			
Updated External Control Area Models	-0.5		Neighboring area interface availability improvements.
<b>Total IRM Decrease</b>	<b>-0.5</b>		
<b>2018 IRM Study Parameters that did not change the IRM</b>			
Updated DMNC Rates	0		
NYPA Sales	0		
Non-SCR/EDRP EOPs	0		
Updated SCRs & EDRPs	0		
Updated Maintenance	0		
Updated Run of River	0		
Updated Generating Unit GHQT f ø u	0		
Updated Cable Outage Rates	0		
New Wind Shapes	0		
Emergency Assistance Limit at 3500 MW	0		
<b>Net Change from 2017 Study</b>		<b>+0.1</b>	
<b>2018 IRM Study ± Preliminary Base Case</b>		<b>18.2</b>	











