New York State Reliability Council

Reliability Rules & Compliance Manual

For Planning and Operating the
New York State Power System

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NEW YORK STATE
NYSRC
RELIABILITY COUNCIL

About the New York State Reliability Council

The New York State Reliability Council (NYSRC) is a not-for-profit corporation responsible for promoting and preserving the reliability of the New York State power system by developing, maintaining and, from time to time, updating the Reliability Rules which must be complied with by the New York Independent System Operator and all entities engaging in electric power transactions on the New York State power system. In addition, the NYSRC is responsible for monitoring compliance with the Reliability Rules and the establishing the annual statewide Installed Capacity Requirement for the New York Control Area.

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1. Introduction

Section 1.1: Background

1.1.1: NYSRC Mission and Reliability Rules & Compliance Manual Scope

The *New York State Reliability Council, L.L.C.*[1] (*NYSRC*) is a not-for profit organization whose mission is to promote and preserve the *reliability* of the *New York State Power System (NYS Power System)* in the *New York Control Area* (*NYCA*). The *NYSRC* carries out its mission in accordance with the *NYSRC* and *NYISO*/*NYSRC* Agreements. These *agreements* establish the responsibilities, duties, and the obligations of the *NYSRC*.

The *NYSRC* fulfills its mission through its focus on maintaining the *reliability* of the *New York State Bulk Power System* (*NYS Bulk Power System*) by developing Reliability Rules for planning and operating the *NYS Bulk Power System* and monitoring compliance with these Rules. The requirements of the *NYSRC* Reliability Rules apply to portions of the *NYS Power System* that constitutes the *NYS Bulk Power System*. Maintaining the *reliability* of the *NYS Bulk Power System* provides *protection* for the entire *NYCA* system from widespread and cascading outages. Therefore, the *reliability* of the *NYS Power System* is dependent on maintaining *NYS Bulk Power System reliability* through the Reliability Rules.

The *NYSRC Reliability Rules and Compliance Manual* (RR&C Manual) contains the *NYSRC* Reliability Rules and supporting *element*s applicable to the *NYS Bulk Power System*, as well as compliance factors for aiding in the administration of *NYSRC*'s compliance monitoring responsibilities. The *NYISO* is required to comply with all of the Reliability Rules. In addition, New York *Market Participants* are responsible for complying with many of these Reliability Rules. To the extent that *Market Participant* action is necessary to implement a Reliability Rule, a requirement for such action is included in *NYISO* procedures, which are binding on all *Market Participant*s. The *NYISO* is responsible for *Market Participant* compliance with the Reliability Rules through its tariffs, procedures and service agreements.

The *NYSRC* carries out its mission with no intent to advantage or disadvantage any *Market Participant's* commercial interest and in accordance with the *NYSRC* and *NYISO*/*NYSRC* Agreements. These agreements establish the responsibilities, duties, and the obligations of the *NYSRC.*

[1] Section 3.0 of the RR&C Manual provides definitions of terms used in the Reliability Rules. These glossary terms are italicized within the Reliability Rules and supporting documents. The Glossary also provides the source of each defined term.

The *NYSRC* Reliability Rules, the *NYSRC* Agreement, the *NYISO/NYSRC* Agreement, and other *NYSRC* documents may be downloaded from the *NYSRC* web site, http://www.nysrc.org.

1.1.2: NYSRC Governance

The *NYSRC* Executive Committee directs all *NYSRC* activities. The *NYSRC* Executive Committee is comprised of thirteen (13) members, currently consisting of one representative from each of the six *Transmission Owners,* one representative of the Wholesale Sellers, one representative of the Industrial and Large Commercial Consumers, one representative of the Municipal Electric Systems and Cooperatives, and four members with no affiliation with any *Market Participant*. Three subcommittees report to the *NYSRC* Executive Committee:

- The Reliability Rules Subcommittee (RRS) develops and updates the Reliability Rules;
- The Reliability Compliance Monitoring Subcommittee (RCMS) monitors *NYISO* compliance with the Reliability Rules;
- The Installed Capacity Subcommittee (ICS) oversees the development and analysis of studies related to the *NYSRC's* adoption of the annual statewide *installed capacity requirement* (ICR) for the *NYCA.*

Section 1.2: NYSRC Reliability Rules

1.2.1: Definition of a NYSRC Reliability Rule

A *NYSRC* Reliability Rule and its set of related *element*s provide for the reliable operation of the *NYS Bulk Power System*. One of these *element*s, Requirements, defines specific obligations of the *NYISO* and New York *Market Participant*s for meeting intended *reliability* outcomes specified by a Reliability Rule. These Requirements are material to *reliability* and measurable. Compliance with the Reliability Rules shall be determined solely in accordance with the Requirements and Compliance Elements of each Reliability Rule.

The Reliability Rules define the *reliability* requirements for planning and operating the *NYS Bulk Power System* using the following two terms:

- **Adequacy** – The ability of the electric systems to supply the aggregate electrical *demand* and energy requirements of their customers at all times, taking into account scheduled and reasonably expected unscheduled outages of system *element*s.

- **Security** – The ability of the electric systems to withstand sudden *disturbance*s such as electric short circuits or unanticipated loss of system *element*s.

1.22: Elements of a Reliability Rule

The elements or components of a Reliability Rule are designed to work collectively to identify obligations of designated entities to comply with *reliability* outcomes specified by the Reliability Rule. The term *"*Reliability Rule*"* as used in NYSRC documents refers to the collective body of a Reliability Rule and a set of related elements, unless stated otherwise.

As depicted in Table 1, Reliability Rules and their related elements are organized into four sections: A. Reliability Rule, B. Requirements, C. Compliance Elements, and D. Guidelines.

Table 1
Organization of a NYSRC Reliability Rule and Related Elements

Section	Element	Element Description
A Reliability Rule	Title	A brief descriptive phrase identifying the topic of the Reliability Rule.
	Reliability Rule	The *reliability* outcome that is to be achieved through compliance with the Requirements.
	Associated NERC and NPCC Standards and Criteria	A list of NERC and NPCC standards and criteria documents that correspond to the Reliability Rule.
	Applicable Entities	Entity or entities, i.e., the *NYISO* and/or *Market Participant*s, responsible for complying with the Reliability Rule.
B Requirements	Requirement	The actions that shall be performed or outcomes achieved in order to comply with the Reliability Rule. Identifies which entity – *NYISO* or *Market Participant* – is responsible for complying with the Requirement. Each Requirement is a statement for which compliance is required. There may be one or more Requirements associated with a Reliability Rule.
C Compliance Elements	1. Measure	The evidence needed to demonstrate compliance with one or more associated Requirements. There may be one or more Measures associated with a Reliability Rule.
	2. Levels of Non-Compliance	Levels of non-compliance assigned if responsible entity does not adequately demonstrate the compliance evidence as stated in a Measure.
	3. Compliance Monitoring Process	The compliance process used to monitor compliance (details in *NYSRC* Policy 4). Three compliance process components for each Measure are depicted: compliance monitoring responsibility, compliance documentation reporting frequency, and compliance reporting requirements.
D Guidelines	Guidelines	Guidelines that support the implementation of the Reliability Rule.

The *NYSRC* Reliability Rules for the *NYS Bulk Power System* is provided in Section 2. The Reliability Rules are organized into nine Rule Groups – each Rule Group includes one or more Reliability Rules.

1.2.3: Reliability Rule Development

It is critical that the *NYISO* and all *Market Participants* be advised of proposed changes to the Reliability Rules and that they be permitted to participate in the development

and/or initiation of new Reliability Rules and revisions to existing Rules. For this purpose, the *NYSRC* has established an open process through which comments on proposed new Reliability Rule or revisions from all *Market Participants* and the *NYISO* will be considered. This open process is described in *NYSRC* Policy No. 1, "Procedure for Reviewing, Developing, Modifying, and Disseminating *NYSRC* Reliability Rules." This procedure gives the *NYSRC* the authority to develop or modify Reliability Rules on an expedited basis when conditions require such action.

1.2.4: NYS Bulk Power System Definition

The definition of the *NYS Bulk Power System*, per the Glossary, is as follows:

The portion of the New York Transmission System identified as the NYS Bulk Power System (NYS BPS) pursuant to the NPCC Document A-10, *Classification of Bulk Power System Elements.*

NPCC Document A-10, Version 3, dated May 6, 2020, which is referenced in the above NYS BPS definition, provides the methodology to identify the bulk power system elements, or parts thereof, of the interconnected NPCC Region. As a result of the application of the NYS *Bulk Power System* definition, all NYCA *generation* and transmission facilities necessary for the reliable planning and operation of the *NYS Power System* are included as NYS *Bulk Power System* elements. The *NYISO* is required by the Reliability Rules to develop, maintain, and keep current a list of NYS *Bulk Power System* facilities.

1.2.5: Entities that Must Comply with the NYSRC Reliability Rules

The *NYS Bulk Power System* involves multiple participants. Since all electric systems in the *NYCA* network are electrically connected, whatever one entity does can affect the *reliability* of other aspects of the *NYCA.* Therefore, the Reliability Rules describe the actions and outcomes to be achieved that the *NYISO* and *Market Participant*s must take in order to maintain the *reliability* of the *NYS Bulk Power System*. The *NYISO* is responsible for complying with all Reliability Rules. To the extent actions by *Market Participants* are necessary to implement the Reliability Rules, these entities are responsible for complying with certain Reliability Rules. Such requirements are set forth *in NYISO* procedures; the *NYISO* is responsible for *Market Participant* compliance with the Reliability Rules through its tariffs, procedures, and service agreements.

When the *NYSRC* Executive Committee adopts a new or revised Reliability Rule, an Implementation Plan is developed which includes the following: (1) an effective date for which compliance with new or revised Requirements shall be required, and (2) any actions that need to be accomplished before entities are held responsible for compliance with new or revised Requirements. The *NYISO* and *Market Participants* are required to

comply with the Reliability Rule in accordance with an Implementation Plan. Section 5.0, *Reliability Revision Log*, provides the date on which each Reliability Rule and Requirement was adopted or modified by the *NYSRC* Executive Committee.

All *NYISO* policies, procedures, guidelines, and manuals must comply with the Reliability Rules. The *NYISO* must immediately notify the *NYSRC* if it finds that it is not in compliance with the Reliability Rules, regardless of whether the non-compliance is the result of the action or inaction of the *NYISO* or one or more *Market Participants*. The *NYSRC* monitors *NYISO* and *Market Participant* compliance with the Reliability Rules. This compliance function is described in Section 1.3.

In addition to the *NYSRC* Reliability Rules and in accordance with the *NYSRC* and *NYISO/NYSRC* Agreements, the *NYISO* and *Market Participant*s must comply with:

- North American Electric Reliability Corporation (NERC) Standards
- Northeast Power Coordinating Council (NPCC) Standards and Criteria

Generally, *NYSRC* Reliability Rules are more stringent or specific than the above standards and criteria recognizing NYCA system characteristics and special *reliability* needs. *NYSRC* Reliability Rules includes local area design and operating reliability rules that are more stringent than other *NYSRC* Reliability Rules. These rules specifically apply to the New York City and Long Island *zones* recognizing their unique characteristics or *reliability* needs.

1.2.6: Protected Information

The NYSRC Reliability Rules or the NYSRC Compliance Monitoring Program may, from time to time, require disclosure of certain information by the NYISO or Market Participants that is designated Critical Energy Infrastructure Information (CEII)[2] or business confidential information. Any such information made available to, or as required by, the NYSRC shall be handled in accordance with the appropriate information protection procedures of the party providing it.

1.2.7: Exceptions and Interpretations of the NYSRC Reliability Rules

Requests to obtain exceptions to the Reliability Rules can be submitted to the *NYSRC* for approval. The *NYISO* or any member of the Executive Committee may submit a request for an exception to the *NYSRC* Executive Committee in accordance with *NYSRC* Policy 1. An up-to-date list of exceptions to the Reliability Rules can be found on the *NYSRC* Web

[2] The FERC definition of CEII can be viewed at https://www.ferc.gov/legal/ceii-foia/ceii.aspx

site at: https://www.nysrc.org/wp-content/uploads/2023/06/Exceptions-to-Reliability-Rules-Rev-14-1.pdf

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http://www.nysrc.org/NYSRCReliabilityRulesComplianceMonitoring.html

The *NYISO*, *Market Participant*s and *NYSRC* committees may request an interpretation of a Reliability Rule or one of its elements. *NYSRC* Policy 1 sets forth a process for responding to an interpretation request.

1.2.8: Applications of the Reliability Rules

Applications of the Reliability Rules consist of *operating procedures* that apply to very specific system locations or conditions. The *Applications of the Reliability Rules* are included on the *NYISO* Web site at: https://www.nyiso.com/reliability-compliance.

Prior to the *NYISO* startup, the *Applications of the Reliability Rules* were implemented by the *Transmission Owner*s. The implementation of the *Applications of the Reliability Rules* requires close coordination between the *Transmission Owner*s and the *NYISO* in order to protect the *reliability* of the *NYS Power System*. For example, the *Transmission Owner*s must coordinate with the *NYISO* on the implementation of *Applications of the Reliability Rules* where the *NYISO* lacks monitoring capabilities. The *Transmission Owners* also must coordinate with the *NYISO* on the implementation of the Reliability Rules for those portions of the *NYS Transmission System* not included in the *NYISO secured transmission system*.

New Applications or modifications to existing Applications may be proposed by a *Transmission Owner* or the *NYISO*. Upon *NYISO* approval, the new or modified Application must be included on a list of Applications on the *NYISO* website. The *NYISO* also must advise the *NYSRC* of any new or modified Applications. The *NYSRC* Reliability Rules define actions by the *NYISO* for meeting these requirements.

1.2.9: NYS Bulk Power System Operating States

An objective of the Reliability Rules is to provide for the operation of the *NYS Bulk Power System* within the normal state. It is recognized, however, that certain system conditions may cause the system to depart from the normal state to four other *system operating states*: Warning, Alert, *Major Emergency*, and Restoration. These five *system operating states* are defined at: https://www.nysrc.org/wp-content/uploads/2023/03/SYSTEM-CONDITIONS-FOR-OPERATING-STATES-OF-THE-NYS-BULK-POWER-SYSTEM2744.pdf

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http://www.nysrc.org/NYSRCReliabilityRulesComplianceMonitoring.html

Examples of system conditions that could cause departure from the normal state are: *capacity* deficiencies, energy deficiencies, loss of *generation* or transmission facilities, transmission facility overloads and high or low voltages, abnormal power system frequency, and environmental episodes. When the system enters an operating state

other than the normal state, the primary objective of the *NYISO* shall be to return the system to the normal state as soon as possible by achieving the criteria set forth in the above referenced *NYS Bulk Power System* operating state document.

Section 1.3: Compliance

1.3.1: Compliance Monitoring Definition

Compliance monitoring is the process used by *NYSRC* to assess, evaluate, and audit in order to measure *NYISO* compliance with the *NYSRC* Reliability Rules. The *NYSRC* relies on the *NYISO* to monitor *Market Participant* compliance of those Reliability Rules for actions that they are have the responsibility to implement. The *NYSRC* Compliance Process is described in *NYSRC* Policy 4, "Procedure for Monitoring Compliance with the *NYSRC* Reliability Rules."

1.3.2: The Process for Evaluating Compliance

A Reliability Rule's "Compliance Elements," as shown in Section C of Table 1, assist the *NYSRC* and *NYISO* in their evaluations of *NYISO* and *Market Participant*s compliance with the Requirements associated with a *NYSRC* Reliability Rule. "Measures" provide the evidence needed to demonstrate compliance with one or more associated Requirements. One of four "Levels of Non-Compliance" is assigned if the responsible entity's actions are not adequate for demonstrating compliance. Entities found in non-compliance with the Reliability Rules are required to implement approved mitigation plans, if applicable.

The third Compliance Element in Table 1, "Compliance Process," is divided into three components: (1) Compliance Monitoring Responsibility, (2) Compliance Documentation Reporting Frequency, and (3) Compliance Reporting Requirements. The *NYSRC* may occasionally require the *NYISO* to supplement the latter reporting requirements with additional compliance documentation as described in *NYSRC* Policy 4.

*Market Participant*s (*Transmission Owners*, *Generation Owner*s, Installed Capacity Providers, *Black Start Providers*, Equipment Owners, *Developer*s, Load Serving Entities, etc.) are directly responsible for achieving compliance with certain Requirements. There is a dual *NYISO*/*NYSRC* compliance monitoring process for reviewing *Market Participant* compliance. First, the *NYISO* directly monitors *Market Participant* compliance with those Requirements having *Market Participant* compliance responsibility. The *NYISO* is encouraged to use the *NYSRC* Measures and Non-Compliance Levels (see Table 1) for this process. The *NYISO* then prepares a statement (Certification) in which it certifies that it has found a *Market Participant* either in Full Compliance or at a Non-Compliance Level

with its related Requirement(s). The Certification includes the *NYISO*'s compliance evaluation and applicable references. Second, RCMS reviews the *NYISO* Certification and any related documentation and determines *NYISO* compliance. This dual compliance review is designated under the "Compliance Monitoring Responsibility" element of each Reliability Rule as "*NYISO*/RCMS." A non-compliance finding is designated when the *NYISO* cannot certify that a *Market Participant* is in full compliance. (Note that the *NYISO* is responsible for achieving compliance with all Reliability Rules, including the Reliability Rules that require action by a *Market Participant* – see *NYSRC* Policy 4 for more details.)

1.3.3: Violations of NYSRC Compliance Requirements

Non-monetary sanctions for violations of requirements stated in the compliance templates are imposed in the form of letters to the *NYISO* officers and/or regulatory bodies. These letters are described in *NYSRC* Policy 4. Policy 4 also covers *NYSRC* procedures when compliance documentation from the NYISO is overdue.

2. Reliability Rules

A. RESOURCE ADEQUACY

Introduction

The *NYSRC* is responsible for establishing the annual statewide *Installed capacity requirement* (*ICR)* in order to ensure adequate *resource capacity*. "*Resources*" refer to the total contributions provided by supply-side and demand-side *resource*s.

Among the factors considered in the calculation of the *ICR* are *load* characteristics, *load* forecast uncertainty, outages and deratings of generating units and demand-side *resource*s, the effects of interconnections to other *control areas*, and *transfer capabilities* within the *NYCA*. The annual statewide *ICR* is established by implementing Resource Adequacy Reliability Rules for providing the corresponding statewide *installed reserve margin (IRM)* requirement. The *IRM* requirement relates to *ICR* through the following equation:

$$\text{ICR} = \left(1 + \frac{\text{IRM Requirement (\%)}}{100}\right) * \text{Forecasted NYCA Peak Load}$$

NYSRC Policy 5, *Procedure for Establishing the NYCA Installed Capacity Requirement* specifies the procedures and *NYSRC* Resource Adequacy Rules used for calculating the ICR.

The *NYISO* is required by the Reliability Rules to establish *installed capacity (ICAP)* requirements for the *Load Serving Entities (LSEs),* including *locational ICAP requirements*, recognizing internal and external transmission constraints necessary to implement the annual statewide *ICR* established by the *NYSRC*.

Resource Adequacy Reliability Rules

	Reliability Rule
A.1	Establishing NYCA Installed Reserve Margin Requirements
A.2	Establishing *Load Serving Entity* Installed Capacity Requirements
A.3	Review of Resource Adequacy

A.1: Establishing NYCA Installed Reserve Margin Requirements

A. Reliability Rule

An *Installed Reserve Margin* (*IRM*) requirement for the NYCA for each *Capability Year* shall be established.

1. **Associated NERC and NPCC Standards and Criteria:**
   NPCC: Directory 1
   NERC: None
2. **Applicable Entities:** *NYSRC* Installed Capacity Subcommittee & NYISO

B. Requirements

R1. All probabilistic resource capacity requirement analyzes conducted by the NYSRC and NYISO, including resource adequacy evaluations and the establishment of the NYCA Installed Reserve Margin (IRM) requirement, shall meet the NYSRC Resource Adequacy Criterion in R1.1.

R1.1 NYSRC Resource Adequacy Criterion

The loss of load expectation (LOLE) of disconnecting firm load due to resource deficiencies shall be, on average, no more than 0.1 loss of load *Event-Days* per year. LOLE evaluations 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.

R2. In addition to calculating the LOLE reliability metric in accordance with R.1, the NYSRC and NYISO shall include calculation and reporting of *Loss of Load Hours (LOLH)* and *Expected Unserved Energy (EUE)* reliability metrics in the probabilistic resource capacity assessments and studies required in A.1 R3 and A.3 R2.

Resource Adequacy, cont.

R3. The NYSRC shall annually perform and document an analysis to calculate the NYCA *Installed Reserve Margin* (IRM) requirement for the following Capability Year. The IRM analysis shall:

R3.1 Probabilistically establish the IRM requirement for the NYCA in accordance with the NYSRC Resource Adequacy Criterion in R1.1.

R3.2 Utilize the methodology and modeling parameters for establishing NYCA IRM requirements and a timeline for the study process, as described in NYSRC Policy 5, "Procedure for Establishing NYCA Installed Capacity Requirements."

R3.3 Probabilistically calculate LOLH and EUE metrics for the NYCA in accordance with R2.

R3.4 Prepare a technical report documenting the assumptions, models, methodology and results of the IRM Study in accordance with R3.1, R3.2 and R3.3.

C. Compliance

1. Measures

M1. The *NYSRC* Installed Capacity Subcommittee conducted the annual NYCA IRM study for the following *Capability Year*, in accordance with R1, R2, R3.1 and R3.2 and prepared a technical report in accordance with R3.4.

2. Levels of Non-Compliance

2.1 <u>For Measure 1</u>

Level 1: A NYSRC or NYISO resource capacity assessment or analysis did not report the LOLH and/or EUE metrics in accordance with R2 requirements.

Level 2: An IRM report was submitted that complied with R1, R3.1, R3.2 and R3.3 requirements, but was incomplete in one or more areas.

Level 3: Not applicable.

Level 4: An IRM report was not submitted.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- RCMS

3.2 Compliance Documentation Reporting Frequency

- In accordance with *NYSRC* Compliance Monitoring Program schedules.

3.3 Compliance Reporting Requirements

- *IRM* Report and other documentation requested by RCMS.

A.2: Establishing Load Serving Entity Installed Capacity Requirements

A. Reliability Rule

Load Serving Entity installed capacity **requirements, including Locational Capacity Requirements, for each** ***Capability Year*** **shall be established.**

1. **Associated NERC and NPCC Standards and Criteria:**
   NERC: None
   NPCC: None
2. **Applicable Entities:** *NYISO* and *LSE*s

B. Requirements

R1. The *NYISO* shall annually establish *Load Serving Entity* (LSE) *installed capacity* (ICAP) requirements, including *Locational Capacity Requirements* (LCRs), in accordance with *NYSRC* rules and *NYISO* tariffs. *NYISO* analyses for setting LCRs shall include the following requirements:

R1.1 The *NYISO* LCR analysis shall use the IRM established by the *NYSRC* as determined in accordance with Reliability Rule A.1.

R1.2 The *NYISO* LCR analysis shall maintain a LOLE of 0.1 days/year, as specified by the Requirement A.1: R1.1.

R1.3 The *NYISO* LCR analysis shall use the software, load and capacity data, and models consistent with that utilized by the NYSRC for its determination of the IRM, as described in Sections 3.2 and 3.5 of NYSRC Policy 5, "Procedure for Establishing NYCA Installed Capacity Requirements."

R1.4 The *NYISO* shall document the procedures used to calculate the LCRs.

R1.5 The *NYISO* shall prepare a report for the next *Capability Year* describing the analyses for establishing (1) *LSE ICAP* requirements, and (2) LCRs for applicable *NYCA zones*, prepared in accordance with R1.1 through R1.3.

The report shall include the procedures, factors and assumptions utilized by the *NYISO* to determine these *LSE ICAP* requirements and LCRs.

R2. *LSEs* shall procure sufficient *resource capacity* for the entire *NYISO* defined obligation procurement period so as to meet the ICAP requirements and LCRs as established by the *NYISO* in accordance with R1 requirements and NYISO tariffs so as to meet the statewide IRM requirement determined from Reliability Rule A.1.

R2.1 Each *LSE* shall certify and maintain its ICAP obligation for the next *Capability Period*, including any LCRs, in accordance with *LSE ICAP* requirements established by the *NYISO* tariffs and procedures.

R3. The *NYISO* shall notify those *LSEs* that are determined to be deficient in meeting their ICAP requirements, including LCRs, for the next *Capability Year*. This notification shall specify appropriate deficiency charges. The *NYSRC* shall be immediately notified of such *capacity* deficiencies, including any measures that may be planned to minimize *reliability* impacts.

C. Compliance

1. Measures

M1. The *NYISO* conducted an annual analysis to establish *LSE* and Locational Capacity Requirements for the next *Capability Year* in accordance with R1.1, R1.2, and R1.3 requirements. The procedures used to calculate LCRs were documented in accordance with R1.4 and a report prepared in accordance with R1.5.

M2. Each *LSE* demonstrated that it procured sufficient *capacity* from Installed Capacity Suppliers to meet its ICAP requirement, in accordance with R2.

M3. The *NYISO* immediately notified the *NYSRC* that an *LSE* failed to demonstrate that it meets its ICAP requirement for the next *Capability Year*, in addition to other requirements specified in R3.

2. Levels of Non-Compliance

2.1 <u>For Measure 1</u>

Level 1: Not applicable.

Level 2: The *NYISO* report required by R1.5 was incomplete in that it did not meet all requirements specified in the Requirement; or procedures for calculating LCRs were not documented as specified in R1.4.

Level 3: Analyses of *LSE* and *locational ICAP requirement*s violated one or more requirements specified in R1.1 through R1.3.

Level 4: The report required by R1.5 describing the analyses of *LSE* and *locational ICAP requirements* for the next *Capability Year* was not provided.

2.2 <u>For Measure 2</u>

Level 1: Not applicable.

Level 2: Not applicable.

Level 3: Not applicable.

Level 4: One or more LSEs failed to comply with *NYISO* requirements to demonstrate that it procured sufficient *capacity* to meet its ICAP obligation, as required by R2.

2.3 <u>For Measure 3</u>

Level 1: Not applicable.

Level 2: Not applicable.

Level 3: Not applicable.

Level 4: The *NYISO* did not notify the *NYSRC* when an *LSE* failed to demonstrate that it meets its ICAP requirement for the next *Capability Period,* as required by R3.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- M1: RCMS
- M2: *NYISO/*RCMS
- M3: RCMS

3.2 Compliance Documentation Reporting Frequency

- M1: Annually
- M2: Annually
- M3: When required

3.3 Compliance Reporting Requirements

- M1: In accordance with Annual Compliance Monitoring Program requirements
- M2: *NYISO* Certification of *LSE* Compliance
- M3: As required

A.3: Review of Resource Adequacy

A. Reliability Rule

The adequacy of planned NYCA *resource*s shall be assessed to demonstrate conformance with *NYSRC resource* adequacy requirements.

1. **Associated NERC and NPCC Standards and Criteria:**
   NPCC: Directory 1
   NERC: None
2. **Applicability:** *NYISO*

B. Requirements

R1. The NYISO shall conduct a NYCA Resource Adequacy Assessment for the next Capability Year for demonstrating that proposed NYCA resources meet NYCA statewide IRM and locational capacity requirements in accordance with criteria in Reliability Rules A.1: R1.1 and A.2: R1. This assessment shall be documented in a report covering, at a minimum, the evaluations and information below:

R1.1 The Resource Adequacy Assessment shall evaluate a base case assuming proposed *resource*s and the most likely *load* forecast, as well as alternate scenarios approved by RCMS.

R1.2 The Resource Adequacy Assessment shall address any potential base case resource adequacy needs and possible corrective actions.

R1.3 The Resource Adequacy Assessment report shall include key findings, assumptions, and other major factors considered in the assessment.

R2. The NYISO shall prepare a biennial NYCA Long-Term Resource Adequacy Assessment covering a ten-year look-ahead period. This assessment shall include findings from the latest NYISO Reliability Needs Assessment (RNA) or other comparable NYISO-approved resource adequacy review. A summary report covering this assessment shall be provided to the NYSRC in accordance with the following requirements:

R2.1 The documentation for the NYCA Long-Term Resource Adequacy Assessment to be included in the summary report shall be consistent with the *NYSRC*

Guidelines for NYCA Long-Term Resource Adequacy Assessments. The NYSRC may request the NYISO to provide, as needed, supplemental information to be included in the summary report.

R2.2 If the NYCA Long-Term Resource Adequacy Assessment analysis shows that the NYCA system LOLE is not within the NYSRC Resource Adequacy Criterion in Reliability Rule A.1: R1.1 for any year during the 10-year study period, the NYISO shall identify the amount of compensatory MW capacity that would be needed to bring the NYCA LOLE to 0.1 days per year.

R2.3 The NYISO shall submit the NYCA Long-Term Resource Adequacy Assessment every two years in accordance with NYSRC schedules.

R3. The NYISO shall submit a report in the Intervening Year between NYCA Long-Term Adequacy Assessments to inform the NYSRC of any significant updates to assumptions and, if available, findings from the latest final NYISO Comprehensive Reliability Plan or other final NYISO reports which may include solutions to reliability needs identified in the Long-Term Resource Adequacy Assessment.

C. Compliance

1. Measures

M1. For R1: The NYISO submitted an NYCA Next Capability Year Resource Adequacy Assessment report covering the next Capability Period to the NYSRC in accordance with R1 requirements.

M2. For R2: The NYISO submitted a NYCA Long-Term Resource Adequacy Assessment report, covering the ten-year period covered by the latest RNA, to the NYSRC in accordance with the R2 requirements and NYSRC schedules.

M3. For R3: The NYISO submitted an Intervening Year report providing significant Long-Term Resource Adequacy updates to the NYSRC in accordance with R3 requirements.

2. Levels of Non-Compliance

2.1 <u>For Measure 1</u>

Level 1: Not applicable.

Level 2: A Next Capability Period Resource Adequacy Assessment report was submitted, but it was incomplete with regard to R1 requirements.

Level 3: Not applicable.

Level 4: A Next Year Capability Period Resource Adequacy Assessment report was not submitted.

For Measure 2

Level 1: Not applicable.

Level 2: A Long-Term Resource Adequacy Assessment report was submitted, but in was incomplete or not consistent with R2 requirements, including those reporting requirements included in the *NYSRC Guidelines for Resource Adequacy Assessments.*

Level 3: Not applicable.

Level 4: A Long-Term Resource Adequacy Assessment was not submitted.

For Measure 3

Level 1: Not applicable.

Level 2: Not applicable.

Level 3: Not applicable.

Level 4: An Intervening Year Resource Adequacy report was not submitted.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- M1, M2 and M3: RCMS

3.2 Compliance Documentation Reporting Frequency

- M1: Annually.
- M2: Every other year in accordance with RCMS schedules.
- M3: During the intervening year between R2 report submissions.

3.3 Compliance Reporting Requirements

- M1: Next Capability Period Resource Adequacy Assessment report.
- M2: Long-Term Resource Adequacy Assessment Report.
- M3: Intervening Year Resource Adequacy Assessment Update report.

B. TRANSMISSION PLANNING

Introduction

The *NYS Bulk Power System* must be planned with sufficient transmission capability to withstand the loss of specified, representative and reasonably foreseeable design criteria contingencies at projected customer *demand* and anticipated transfer levels. Application of the *NYSRC* Transmission Planning Reliability Rules provides for a *NYS Bulk Power System* level of *reliability* that avoids design criteria violations, instability, voltage collapse, widespread cascading outages, the loss of a major portion of the system, or unintentional separation of a major portion of the system in the event of any of the design criteria contingencies listed in Table B-2. Analysis of these contingencies include thermal, voltage, and *stability* assessments as defined by the Reliability Rules. Loss of small or radial portions of the system is acceptable provided the performance requirements are not violated for the remaining bulk power system.

Assessment of extreme contingencies recognizes that the *NYS Bulk Power System* may be subjected to events which exceed in severity the representative contingencies in Table B-2. These assessments measure the robustness of the transmission system, and should be evaluated for risks and consequences. One of the objectives of extreme *contingency* assessment is to determine, through planning studies, the effects of extreme contingencies on system performance. Extreme *contingency* assessments provide an indication of system strength, and determine the extent of a widespread system *disturbance*, even though extreme contingencies have low probabilities of occurrence. Extreme *contingency* assessments examine several specific contingencies which are listed in Table B-4. They are intended to serve as a means of identifying some of the particular situations that may result in a widespread *NYS Bulk Power System* shutdown.

Transmission Owners may take actions to reduce the frequency of occurrence of extreme contingencies, or to mitigate the consequences that are indicated as the result of testing for such contingencies. The ability of the *NYS Bulk Power System* to withstand representative and extreme contingencies must be determined by simulation testing of the system as prescribed by the Reliability Rules and all applicable *NYISO* policies, procedures and guidelines.

NYSRC transmission planning rules shall include an assessment of Extreme System Conditions.

The Reliability Rules also sets forth a Requirement that *fault* duty levels be within appropriate equipment *rating*s.

B. Transmission Planning, cont.

While transfer limits across the transmission *interfaces* defined by the *NYISO* are not, by themselves, measures of *reliability*, there is potential for adverse *reliability* impacts to occur if transfer limits are degraded from their existing levels as the result of the addition of a new generator or transmission facility. The *NYSRC* Reliability Rules do not require that transfer limits be maintained at specific levels. However, in its processes to review the impacts of any proposed transmission or *generation* project, the *NYISO* should give due consideration to the possible *reliability* impacts that may result if the proposed project results in diminished *transfer capability*, per NPCC criteria.

A *Special Protection System (SPS)* may be employed to provide *protection* for infrequent contingencies or for temporary conditions that may exist such as project delays, unusual combinations of system *demand* and equipment outages or unavailability, or specific equipment maintenance outages. An *SPS* may be applied to preserve system integrity in the event of severe facility outages and extreme contingencies. The decision to employ an *SPS* should take into account the complexity of the scheme and the consequence of correct or incorrect operation as well as benefits. An *SPS* should be used judiciously and when employed, should be installed consistent with good system design and operating policy. Although there are no specific *NYSRC* Reliability Rules that cover *SPS* requirements, NPCC maintains criteria providing *SPS* requirements that must be observed.

Reliability Rule B.2 requires that the NYISO conduct periodic reviews of the reliability of the planned NYS Bulk Power System. The purpose of such *NYCA Transmission Reviews* is to determine whether the planned NYCA transmission system is in conformance with the NYSRC transmission performance requirements set forth in Reliability Rule B.1. The procedure for implementing Reliability Rule B.2 is provided in Section 4, *NYSRC Procedure for NYCA Transmission Reviews*.

The time horizons for conducting NYCA transmission planning studies are generally more than one year. The time horizon for NYSRC Transmission Reviews covers the 4 to 6 year horizon.

This Reliability Rule section also specifies requirements for establishing and maintaining a list of *NYS Bulk Power System* facilities.

Reliability Rule B.5 requires that, "NYISO's *Interconnection Studies* for *Large IBR Generating Facilities* shall be based on IBR Plants compliant with the IEEE 2800-2022 Standard as amended for NYCA application, and their associated IBR models and data". The amendments are covered in, "NYSRC Procedure for Application of IEEE 2800-2022 Standard for Large IBR Generating Facilities for the New York Control Area" which is included as Section 6 of this Manual. Compliance with Reliability Rule B.5 and its associated procedures document is required.

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B. Transmission Planning, cont.

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Transmission Planning Reliability Rules

	Reliability Rule
B.1	Transmission System Planning Performance Requirements
B.2	Transmission System Planning Assessments
B.3	List of NYS *Bulk Power System* Facilities
B.4	Transmission System Interconnection Special Studies
B.5	Establishing Minimum Interconnection Standards for Large Inverter Based Resource (IBR) Generating Facilities

B.1: Transmission System Planning Performance Requirements

A. Reliability Rule

Transmission facilities in the *NYS Bulk Power System* shall be planned to operate reliably over a broad spectrum of system conditions and following a wide range of contingencies.

1. **Associated NERC and NPCC Standards and Criteria:**
   NPCC: Directory 1
   NERC: TPL-001

2. **Applicability:** *NYISO*

B. Requirements

R1. Transmission facilities in the *NYS Bulk Power System* shall be planned to meet the respective performance requirements in Table B-1 and supplemental performance requirements in Table B-2 for the *contingency* events as specified in Table B-1.

R1.1. Credible combinations of system conditions which stress the system shall be modeled, including load forecast, internal *NYCA* and inter-Area and transfers, transmission configuration, active and reactive *resources*, generation availability including limitations related to weather conditions (e.g., non-firm gas generation unavailability during winter peak), and other dispatch scenarios. All reclosing facilities shall be assumed in service unless it is known that such facilities will be rendered inoperative.

R2. The impact of the extreme *contingency* events listed in Table B-3 shall be assessed.

R3. Extreme System Conditions, events that have a low probability of occurrence, shall be assessed, one condition at a time, to determine the impact of these conditions on expected *steady-state* and dynamic system performance. These assessments shall provide an indication of system robustness or the extent of a widespread adverse system response. The conditions to be assessed are listed in the "Extreme System Conditions" category in Table B-3.

B. Transmission Planning, cont.

R4. *Fault duty* levels shall be planned to be within appropriate equipment *rating*s. *Fault duty* levels shall be determined with all generation and all transmission facilities in service.

R4.1 Determination of *fault duty* levels shall be with due regard to *fault* current limiting series reactor protocols.

C. Compliance

1. Measures

M1. The NYISO shall maintain procedures for implementing the transmission planning criteria in R1 to through R4.

2. Levels of Non-Compliance

2.1 <u>For Measure 1</u>

Level 1: Not applicable.

Level 2: Not applicable.

Level 3: Not applicable.

Level 4: The *NYISO* did not maintain procedures for implementing the transmission planning criteria in R1 through R4, in accordance with M1.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- M1: RCMS

3.2 Compliance Documentation Reporting Frequency

- M1: In accordance with *NYSRC* Compliance Monitoring Program schedules.

3.3 Compliance Reporting Requirements

- M1: *NYISO* Self-Certification

D. Guidelines

NYISO Voltage Limit Guideline – Refer to Attachment G, NYISO Transmission Planning Guideline #2-1, of the NYISO "Transmission Expansion and Interconnection Manual." This guideline should be used in transmission studies in accordance with R1.

NYISO Stability Limit Guideline Stability Limit Guideline – Refer to Attachment H, NYISO Transmission Planning Guideline #3-1, of the NYISO "Transmission Expansion and Interconnection Manual." This guideline should be used in planning studies in accordance with R1.

NYPP Tie Line Ratings Task Force Report – Refer to the Planning Data and Reference Documents on the NYISO web site. This guideline should be used in accordance with planning studies in accordance with R1.

NYISO Bus Voltage Limits – Refer to Tables A.2 and A.3 of the NYISO document, "NYISO Emergency Operations Manual." These tables should be used in planning studies in accordance with R1.

NYISO Fault Current Assessment Guideline – Refer to Attachment I, NYISO Transmission Planning Guideline #4-1, of the NYISO "Transmission Expansion and Interconnection Manual." This guideline should be used in planning studies in accordance with R4.

The NYISO documents referenced above can be found on the NYISO web site, https://www.nyiso.com/

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Thermal and voltage *ratings* for facilities to be included in transmission planning assessments are to be determined by the *Transmission Owner*, or operator pursuant to contractual arrangement, consistent with applicable *NYISO* guidelines. These *ratings* and limits will be used for all studies conducted by the *NYISO* and *Transmission Owners* and in the operation of the *NYS Bulk Power System*.

B.2: Transmission System Planning Assessments

A. Reliability Rule

Transmission facilities in the *NYS Bulk Power System*, as planned, shall be assessed to ensure conformance with transmission system planning requirements as specified in *NYSRC* Reliability Rule B.1.

1. **Associated NERC and NPCC Standards and Criteria:**
   NPCC: Directory 1
   NERC: TPL-001

2. **Applicability:** *NYISO*

B. Requirements

R1. The *NYISO* shall conduct Transmission Reviews to demonstrate that the planned *NYCA* transmission system is in conformance with *NYSRC* transmission system planning requirements. Specifically, Transmission Reviews shall incorporate assessments for documenting *NYISO* compliance with Reliability Rule B.1, Requirements R1 through R4. Section 4, "NYSRC Procedure for NYCA Transmission Reviews" provides guidance for NYSRC Transmission Reviews.

R1.1. The *NYISO* shall submit a NYCA Transmission Review annually to the Reliability Compliance Monitoring Subcommittee. The type of annual Transmission Review and submission schedule shall be in accordance with NPCC specifications.

R1.2. The *NYISO* shall apply Local Area Operation Reliability Rules G.1 through G.3 requirements in all Transmission Review assessments.

R1.3. Transmission Reviews shall incorporate the following five assessments:

- Assessment 1: Thermal, voltage, and stability assessments in accordance with B.R1 (R1).
- Assessment 2: Extreme contingency assessments in accordance with B.1 (R2).
- Assessment 3: Extreme system condition assessments in accordance with B.1 (R3).

- Assessment 4: *Fault* current assessments in accordance with B.1 (R4).
- Assessment 5: Impacts of planned system expansion or configuration facilities on the NYCA System Restoration Plan (NYCA SRP). Any impacts identified shall be described in terms of how and where the *NYCA* SRP may need to be modified, and made available to the NYISO Operating Group and the planning function of the appropriate *Transmission Owners* for consideration in the annual review and update of *NYISO* and *Transmission Owner* restoration plans as required by Reliability Rule F.1 requirements.

R1.4 If the results of a Transmission Review indicate that the planned NYS Bulk Power System will not be in conformance with the Reliability Rule B.1 requirements, the Transmission Review shall incorporate a corrective action plan to achieve conformance.

C. Compliance

1. Measures

M1. The *NYISO* prepared an annual transmission review for demonstrating that transmission facilities in *NYS Bulk Power System* are in compliance with Requirements B.1(R1 to R4), as specified by Requirements B.2(R1.1 to R1.4).

2. Levels of Non-Compliance

2.1 <u>For Measure 1</u>

Level 1: Not applicable.

Level 2: A transmission review was submitted, but did not fully meet Reliability Rule B.2 requirements.

Level 3: Not applicable.

Level 4: A transmission review was not available.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- M1: RCMS

3.2 Compliance Documentation Reporting Frequency

- M1: Annually in accordance with NPCC schedules.

B. Transmission Planning, cont.

3.3 Compliance Reporting Requirements

- M1: Transmission Review in accordance with B.2(R1) and other documentation requested by RCMS.

B.3: List of NYS Bulk Power System Facilities

A. Reliability Rule

The *NYISO* shall maintain a list of *NYS Bulk Power System* facilities.

1. **Associated NERC and NPCC Standards and Criteria:**
   NPCC: Document A-10
   NERC: None

2. **Applicability:** NYISO

B. Requirements

R1. The *NYISO* shall establish and maintain a procedure for developing a list of *NYS Bulk Power System* facilities.

R2. The *NYISO* shall prepare and retain a current list of *NYS Bulk Power System* facilities.

R3. On request, the *NYISO* shall submit the list of *NYS Bulk Power System* facilities to the *NYSRC* for review.

C. Compliance

1. **Measures**

M1. The *NYISO* established and maintained a procedure for developing a list of *NYS Bulk Power System* facilities in accordance with R1 and submitted a list of *NYS Bulk Power System* facilities to the *NYSRC* when requested, in accordance with R3.

2. **Levels of Non-Compliance**

2.1 <u>For Measure 1</u>

Level 1: Not applicable.

Level 2: : Documentation of *NYISO* procedures for developing and maintaining a list of *NYS Bulk Power System* facilities was incomplete in one or more areas, or a list of *NYS Bulk Power System* facilities was not submitted to the *NYSRC* when requested.

B. Transmission Planning, cont.

Level 3: Not applicable

Level 4: Procedures for developing and maintaining a list of *NYS Bulk Power System* facilities was not provided.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- M1: RCMS

3.2 Compliance Documentation Reporting Frequency

- M1: Annually

3.3 Compliance Reporting Requirements

- M1: *NYISO* Self-Certification and list of NYS Bulk Power System facilities when requested.

B.4: Transmission System Interconnection Special Studies

A. Reliability Rule

NYISO Interconnection requirement studies shall include, as applicable, special studies to examine the impacts of dynamically active technologies.

1. Associated NERC and NPCC Standards and Criteria:

Any special studies will consider currently applicable NPCC and NERC Requirements and Guidelines. Other recognized industry guidance, such as IEEE specifications, shall also be considered.

2. Applicability: NYISO

B. Requirements

R1. The *NYISO* shall prepare and maintain procedures that stipulate that special studies shall be performed, on a case by case basis, during the NYISO interconnection studies process to determine the impacts of dynamically active technologies to the NYS Bulk Power System. The procedures shall be reviewed annually, and updated as appropriate.

(Dynamically active technologies include inverter-based resources (IBR), as well as applications of series and shunt compensation, and HVDC interconnections.)

C. Compliance

1. Measures

M1. The *NYISO* maintains procedures associated with the conduct of special studies during the transmission system interconnection studies process, in accordance with R1.

2. Levels of Non-Compliance

2.1 <u>For Measure 1:</u>

Level 1: Not applicable.

B. Transmission Planning, cont.

Level 2: The NYISO maintained special studies procedures, but did not review the procedures annually to consider current mandates and guidance, and update the procedures as appropriate.

Level 3: Not applicable.

Level 4: Procedures associated with the conduct of special studies during the transmission system interconnection studies process, in accordance with R1, were not provided.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- M1: RCMS

3.2 Compliance Documentation Reporting Frequency

- M1: In accordance with NYSRC compliance program schedules.

3.3 Compliance Reporting Requirements

- M1: Self-Certification plus, if requested, reference to documents that show the required special studies procedure in R1.

B.5: Establishing New York Control Area (NYCA) Interconnection Standards for Large Inverter Based Resource (IBR) Generating Facilities

A. Reliability Rule

NYISO's *Interconnection Studies* for *Large IBR Generating Facilities* shall be based on IBR Plants compliant with the IEEE 2800-2022 Standard as amended for NYCA application, and their associated IBR models and data.

1. Associated NERC and NPCC Standards and Criteria:

NPCC: Directory 1
NERC: All Standards under review for IBR application
IEEE: Standard 2800-2022 "IEEE Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems"

2. **Applicability:** NYISO's *Interconnection Studies* of *Large IBR Generating Facilities*

B. Requirements

R1. The NYISO shall prepare and maintain procedures for the NYISO's *Interconnection Studies* process requiring that *Large IBR Generating Facility Developers*:

R1.1. Attest that their IBR plant will be designed to be in compliance with the mandatory requirements of IEEE 2800-2022, as amended by "NYSRC Procedure for Application of IEEE 2800-2022 Standard for the New York Control Area[3]".

R1.2. Attest that the models and data provided for use in NYISO's *Interconnection Studies* accurately simulate the performance of their compliant IBR plant per R1.1.

R2. Each *Large IBR Generating Facility Developer* subject to the NYISO's *Interconnection Studies* process shall:

R2.1. Attest that their IBR plant will be designed to be in compliance with the mandatory requirements of IEEE 2800-2022, as amended by "NYSRC Procedure for

[3] NYSRC Procedure for Application of IEEE 2800-2022 Standard for Large IBR Generating Facilities for the New York Control Area

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Application of IEEE 2800-2022 Standard for Large IBR Generating Facilities for the New York Control Area[3]".

R2.2. Attest that the models and data provided for use in NYISO's *Interconnection Studies* accurately simulate the performance of their compliant IBR plant per R2.1.

C. Compliance

1. Measures

M1. The NYISO self-certified and provided evidence that it had procedures in place for implementing the Large IBR Generating Facility Developer's interconnection requirements in accordance with R1.1 and R1.2

M2. The NYISO certified that each Large IBR Generating Facility Developer attested to 1) the IEEE 2800-2022 compliance requirements in R2.1, and 2) the accuracy of the models and data provided as required by R2.2.

2. Levels of Non-Compliance

2.1 Measure 1:

Level 1: Not applicable.

Level 2: Not applicable.

Level 3: The NYISO had procedures covering requirement R1.1 but failed to have procedures for requirement R1.2.

Level 4: Not applicable.

2.2 Measure 2:

Level 1: Not applicable.

Level 2: Not applicable.

Level 3: The NYISO certified that the required attestation was not submitted to the NYISO in accordance with R.2.1 and R.2.2.

Level 4: Not applicable.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- M1: RCMS
- M2: NYISO/RCMS

3.2 Compliance Documentation Reporting Frequency

- M1: In accordance with NYSRC compliance program schedules.
- M1: In accordance with NYSRC compliance program schedules.

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B. Transmission Planning, cont.

3.3 Compliance Reporting Requirements

- M1: NYISO Self-Certification plus, if requested, reference to documents that show the required procedure in R1.M2: NYISO Certification that IBR Developers provided data, models and attestations as required in R2.

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Table B-1

NYSRC Planning Design Criteria: Contingency Events and Performance Requirements[4]

Contingency events, Fault type and Performance requirements to be applied to bulk power system elements

Category	Contingency events Simulate the removal of all elements that protection systems, including Special Protection Systems, are expected to automatically disconnect for each event that involves an AC fault.	Fault type (permanent) On the listed elements where applicable	Performance requirements
I **Single Event**	1. *Fault* on any of the following: a. transmission circuit b. transformer c. shunt device d. generator e. bus section	Three-phase *fault* with normal *fault clearing*	i to viii
	2. Opening of any circuit breaker or the loss of the following: a. transmission circuit b. transformer c. shunt devise d. generator e. bus section	No *fault*	
	3. Loss of single pole of a direct current facility	No *fault*	
	4. *Fault* on any of the following: a. transmission circuit b. transformer c. shunt device d. generator e. bus section	Phase to ground *fault* with failure of a circuit breaker to operate and correct operation of a breaker failure *protection system* and its associated breakers.	i to viii

[4] Table B-1 incorporates Table 1 of NPCC Directory 1, with the following modifications: (1) bolded NPCC glossary terms have been removed, (2) more stringent NYSRC contingency event criteria are shown in bold, and (3) NYSRC glossary terms are shown in italics. NPCC performance criteria at the bottom of Table B-1 is supplemented by more stringent and specific NYSRC performance criteria in Table B-2.

B. Transmission Planning, cont.

Category	Contingency events Simulate the removal of all elements that protection systems, including Special Protection Systems, are expected to automatically disconnect for each event that involves an AC fault.	Fault type (permanent) On the listed elements where applicable	Performance requirements
	5. *Fault* on a circuit breaker	Phase to ground *fault*, with normal *fault* clearing.	
	6. Simultaneous *fault* on two adjacent transmission circuits on a multiple circuit tower.	Phase to ground *faults* on different phases of each circuit, with normal *fault clearing*.	
	7. Simultaneous permanent loss of both poles of a direct current bipolar facility	Without an ac *fault*.	
	8. The failure of a circuit breaker to operate when initiated by an SPS after a *fault* on the following: a. transmission circuit b. transformer c. shunt device d. generator e. bus section	Phase to ground *fault*, with normal *fault clearing*.	
	9. The failure of a circuit breaker to operate when initiated by an SPS after opening of any circuit breaker or the loss of the following: a. transmission circuit b. transformer c. shunt devise d. generator e. bus section f. loss of any element	No *fault*	
	10. Sudden loss of gas fuel to a single plant for a common-mode failure of the fuel delivery system	No *fault*	

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B. Transmission Planning, cont.

Category	Contingency events Simulate the removal of all elements that protection systems, including Special Protection Systems, are expected to automatically disconnect for each event that involves an AC fault.	Fault type (permanent) On the listed elements where applicable	Performance requirements
II Event(s) after a first loss and after System Adjustment	1. Following the loss of any critical: a. transmission circuit, b. transformer, c. series or shunt compensating device or d. generator e. single pole of a direct current facility f. Sudden loss of gas fuel to a single plant for a common-mode failure of the fuel delivery system and after System Adjustment, Category I Contingencies shall also apply.	Any Category I event as described above.	Performance requirements i to viii apply. Allowable system adjustments that can be made within 30 minutes between outages include: generation and power flows by the use of ten (10) minute operating reserve and, where available, phase angle control and HVDC control.

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Performance Requirements for the contingencies defined in Table B-1:

i. Loss of a major portion of the system or unintentional separation of a major portion of the system shall not occur.

ii. Loss of small or radial portions of the system is acceptable provided the performance requirements are not violated for the remaining bulk power system.

iii. Voltages and loadings shall be within applicable limits for the pre-contingency conditions.

iv. Voltages and loadings shall be within applicable emergency limits for post-contingency conditions except for small or radial portions of the system as described in it.

v. The *stability* of the bulk power system shall be maintained during and following the most severe *contingencies***,** with due regard to successful and unsuccessful reclosing except for small or radial portions of the system as described in it.

vi. For each of the contingencies that involve *fault clearing*, *stabilit**y*** shall be maintained when the simulation is based on *fault clearing* initiated by the **"**system A" *protection group* and also shall be maintained when the simulation is based on *fault clearing* initiated by the **"**system B" *protection group*. When applying this requirement to contingency Event *no 6*, the failure of a *protection group* shall apply only to one circuit at a time. When evaluating contingency Event #4 breaker, failure *protection* is assumed to operate correctly, even if only a single breaker failure *protection* system exists.

vii. Regarding contingency *no **6***, if multiple circuit towers are used only for station entrance and exit purposes and if they do not exceed five towers at each station, then this condition is an acceptable risk and therefore can be excluded. Other similar situations can be excluded on the basis of acceptable risk, provided that the NYSRC Executive Committee specifically accepts each request for exclusion.

viii. Transient voltage response shall be within acceptable limits established by the Planning Coordinator and the Transmission Planner, except for small or radial portions of the system as described in it.

B. Transmission Planning, cont.

Table B-2
NYSRC Planning Design Criteria: Supplemental Performance Requirements

Type of Assessment	Performance Requirements for Thermal, Voltage and Stability Assessments
Thermal	**Pre-Contingency Assessment** 1. For normal transfers, no transmission facility shall be loaded beyond its normal *rating*. 2. For *emergency* transfers, no transmission facility shall be loaded beyond its *normal rating*. However, a facility may be loaded to the *long-term emergency (LTE) rating* pre-contingency, if the *short-term emergency (STE) rating* is reduced accordingly. **Post-Contingency Assessment** 1. For normal transfers, no facility shall be loaded beyond its *LTE rating* following the most severe of Contingency Events 1 through 9 specified in Table B-1. An underground cable circuit may be loaded to its *STE rating* as following: Loss of *Generation* - provided *ten (10) minute operating reserve* and/or phase angle regulation is available to reduce the loading to its *LTE rating* within fifteen (15) minutes and not cause any other facility to be loaded beyond its *LTE rating*. Loss of Transmission Facilities - provided phase angle regulation is available to reduce the loading to its *LTE rating* within fifteen (15) minutes and not cause any other facility to be loaded beyond its *LTE rating*. For Contingency Events 4, 5, 6, 7, 8, and 9 in Table B-1 that are not confined to the loss of a single *element*, *Transmission Owners* may request permission from the *NYISO* to design the system so that post-contingency flows up to the *STE ratings* on the remaining facilities can occur. This is permissible provided operating measures are available to reduce the loading to its *LTE rating* within fifteen (15) minutes and not cause any other facility to be loaded beyond its *LTE rating*. Design exceptions should be well documented, including *NYISO* comments, and must be approved by the *NYSRC*. 2. For *emergency* transfers, no facility shall be loaded beyond its *STE rating* following the more severe of Contingency Events 1, 2, or3 in Table B-1. The *STE rating* is based on an assumed pre-loading equal to the *normal rating*. Therefore, if the limiting facility is loaded above its *normal rating* pre-contingency, the *STE rating* must be reduced accordingly.
Voltage	*Reactive power* shall be maintained within the *NYS Bulk Power System* in order to maintain voltages within applicable pre-disturbance limits for both normal and *emergency* transfers, consistent with the Reliability Rules and all applicable guidelines and procedures. **Pre-Contingency Assessment** For both normal and *emergency* transfers, no bus voltage shall be below its pre-contingency low *voltage limit* nor be above its pre-contingency high *voltage limit*. **Post-Contingency Assessment**

B. Transmission Planning, cont.

Type of Assessment	Performance Requirements for Thermal, Voltage and Stability Assessments
	No bus voltage shall fall below its post-contingency low *voltage limit* nor rise above its post-contingency high *voltage limit*. For normal transfers, Contingency Events 1 through 9 specified in Table B-1 are applicable. For *emergency* transfers, Contingency Events 1 through 9 specified in Table B-1 are applicable.
Stability	*Stability* of the *NYS Bulk Power System* shall be maintained during and following the most severe of the design criteria contingencies 1 through 9 specified in Table B-1, with due regard to *reclosing*. For each of those design criteria contingencies that involves a *fault*, *stability* shall be maintained when the simulation is based on *fault clearing* initiated by the "system A" *protection group* and also shall be maintained when the simulation is based on *fault clearing* by the "system B" *protection group*. **System Stability** 1. For normal transfers, the *stability* of the *NYS Bulk Power System* shall be maintained during and after the most severe of Contingency Events 1 through 9 specified in Table B-1. The *NYS Bulk Power System* must be stable if the *fault*ed *element* is re-energized by *delayed reclosing* before any manual system adjustment, unless specific alternate procedures are documented. 1. For *emergency* transfers, the *stability* of the *NYS Bulk Power System* shall be maintained during and after the more severe of Contingency Events 1 through 9 specified in Table B-1. The *NYS Bulk Power System* must also be stable if the *fault*ed *element* is re-energized by *delayed reclosing* before any manual system adjustment. *Emergency* transfer levels may require *generation* adjustment before manually *reclosing fault*ed *element*s not equipped with automatic *reclosing* or whose automatic *reclosing* capability has been rendered inoperative. **Generator Unit Stability** With all transmission facilities in service, generator unit *stability* shall be maintained on all facilities not directly involved in clearing the *fault* for Contingency Events 1 through 9 specified in Table B-1.

Table B-3

Extreme Contingency and System Conditions, Fault type and Performance Assessments to be applied to Bulk Power System elements[3].

Category	Contingency events Simulate the removal of all elements that protection systems, including Special Protection Systems, are expected to automatically disconnect for each event that involves an AC fault.	Fault type (permanent) and/or condition applied On the listed elements where applicable	Performance to be assessed
Extreme Contingency	1. Loss of the entire capability of a generating station.	No *Fault*	i, ii, iii.
	2. Loss of all transmission circuits emanating from a generating station, switching station, substation or dc terminal.	No *Fault*	
	3. Loss of all transmission circuits on a common right-of-way.	No *Fault*	
	4. *Fault* on of any of the following: a. transmission circuit b. transformer c. shunt device d. generator e. bus section	Three-phase fault with failure of a circuit breaker to operate and correct operation of a breaker failure *protection system* and its associated breakers (with due regard to successful and unsuccessful *reclosing*).	
	5. *Fault* on a circuit breaker	Three-phase fault, with normal *fault clearing*	
	6. Sudden loss of a large load or major load center.	No *Fault*	
	7. The effect of severe power swings arising from disturbances outside the *NYS Bulk Power System.*	*Fault* applied as necessary.	
	8. Failure of a *Special Protection System*, to operate when required following the normal contingencies listed in Table B-1, Category I, Single Event.	As listed in Table B-1, Category I, Single Event.	
	9. The operation or partial operation of a *Special Protection System* for an event or condition for which it was not intended to operate.	No *Fault*	
	10. Sudden loss of fuel delivery system to multiple fossil plants, (e.g. gas pipeline contingencies).	No *Fault.*	

B. Transmission Planning, cont.

Extreme System Conditions	Contingency events listed in Table 1, Category I, Single Event	Peak load conditions resulting from extreme weather.	i (b, c), ii, iii.
		Generating unit(s) fuel shortage (e.g. unavailability of all NYCA gas generation or low hydro) under normal weather peak conditions.	i (c), ii, iii

Deleted: gas supply adequacy

Performance Assessment

i.. Model the following pre-contingency conditions:

a. **the testing shall be conducted at megawatt ("MW") transfers at a level which is expected at least 75% of the time on a *load* flow duration basis, but not to exceed the maximum operating limit for the *interface* being tested. This may be at or near the normal transfer limit for some *interfaces***.

b. load flows chosen for analysis should reflect reasonable power transfer conditions or highly probable dispatch patterns of generation.

c. appropriate load representation (e.g. active and reactive power as a function of voltage) for transient tests and post transient load flows.

ii.. Examine post *contingency* steady state conditions, as well as stability, overload, cascading outages and voltage collapse to obtain an indication of system robustness and determine the extent of any widespread system disturbance

iii. Where assessment concludes there are serious consequences, an evaluation of implementing a change to design or operating practices to address such *contingencies* shall be conducted.

C. TRANSMISSION OPERATION

Introduction

This Section sets forth Reliability Rules for establishing operating transmission capabilities, post contingency operation**,** outage coordination, and other aspects of transmission operation. *NYSRC* operating Reliability Rules provide the basis for application of the planning Reliability Rules to inter-*control area* and *NYS Bulk Power System* operation. They represent the minimum level of *security* that shall apply to the operation of the *NYS Bulk Power System*. Where *NYS Bulk Power System* or inter-*control area security* is affected, *operating limits* are established so that the contingencies stated in Table B-2 can be withstood without adversely affecting the *reliability* of the *NYS Bulk Power System* or neighboring systems.

When adequate facilities are available to supply *firm load*, pre-contingency voltages, line loadings, and equipment loadings shall be within applicable normal *voltage limits* and thermal *rating*s. Unless specific instructions describing alternate action are in effect, normal transfers shall be such that manual *reclosing* of a *fault*ed *element* can be carried out before any manual system adjustment, without affecting the *stability* of the *NYS Bulk Power System*.

When necessary to ensure that adequate facilities continue to be available to supply *firm load* in the *NYCA* or a portion of the *NYCA*, transfers may be increased to the point where pre-contingency voltages, line loadings, and equipment loadings are within applicable *emergency voltage limits* and thermal *ratings*. *Emergency* transfer levels may require *generation* adjustment before manually *reclosing fault*ed *element*s.

When adequate *NYS Bulk Power System* facilities are not available, *SPSs* may be employed to maintain system *security*. *SPS* requirements are defined by NPCC criteria in Directory 1.

Two categories of transmission *transfer capabilities*, normal and *emergency*, are applicable. Normal *transfer capabilities* are to be observed unless *emergency transfer criteria* are invoked by the *NYISO*.

This section of the Reliability Rules requires assessments to evaluate *fault* duty levels and to develop appropriate mitigation plans in the event equipment *rating*s are exceeded.

The *Transmission Owners* establish and implement procedures for meeting the *NYSRC* Reliability Rules that apply to specific conditions on portions of the *NYS Transmission System* not included in the *NYISO secured transmission system*. These procedures are known as *Applications of the Reliability Rules*. These *Applications* require close coordination between the

Transmission Owners and the *NYISO* in order to maintain the *reliability* of the *NYS Power System*. The *NYSRC* Reliability Rules provide the *NYISO* with the responsibility of maintaining the Applications, approving modifications or new Applications, and for securing the needed cooperation by the *Transmission Owners*.

The *NYISO* and *Market Participant*s may submit requests for exceptions to the *NYSRC* Reliability Rules. Reliability Rule C.7 sets forth requirements for submitting, granting, and modifying exceptions.

Local conditions requiring criteria which are more stringent than those set out herein shall be formulated as Local Area Operation Rules. These local area operation rules are provided in Reliability Rules Section G. Any constraints imposed by such *local reliability rules* shall be observed in daily operations.

Subsequent to the determination of the day-ahead commitment of generating units by the *NYISO*, *Transmission Owners* will have the opportunity to review the unit commitment. To the extent that operating circumstances may adversely impact short-term *reliability* of the *Transmission Owner's* local system and such operating circumstances have not been addressed in any Reliability Rules, inclusive of *local reliability rules*, the *Transmission Owner* will have the flexibility to request additional generating units to be committed for service. The final commitment decision will rest with the *NYISO* and will be posted on the *NYISO*'s Open Access Same-Time Information System ("OASIS").

The NYISO performs operational analyzes of expected system conditions for the next day's operation or as much as 12 months ahead.

Transmission Operation Reliability Rules

	Reliability Rule
C.1	Establishing Operating Transfer Capabilities
C.2	Post-Contingency Operation
C.3	Outage Coordination
C.4	Operation Prior to and during Extreme Weather Conditions and Solar Magnetic Disturbances
C.5	Fault Current Assessment
C.6	Applications of the *NYSRC* Reliability Rules
C.7	Exceptions to the *NYSRC* Reliability Rules
C.8	Real-Time Operations of the NYS *Bulk Power System*

C.1: Establishing Operating Transfer Capabilities

A. Reliability Rule

Normal and *emergency* operating transfer capabilities shall be established in order to operate the *NYS Bulk Power System* to a level of *reliability* that will not result in the loss or separation of a major portion of the system.

1. Associated NERC and NPCC Standards and Criteria:
NERC: FAC-011, FAC-013, FAC -014, MOD-001
NPCC: Directory 1, Directory 2

2. Applicability: *NYISO*

B. Requirements

R1. Normal and *emergency* operating transfer capabilities shall be established to meet the respective performance requirements in Table C-1 and supplemental performance requirements in Table C-2, for the *contingency* events specified in Table C-1.

R1.1. The *NYISO* shall consider Local Area Operation Requirements in Reliability Rules G.1, G.2 and G.3 in the establishment of operating limits, assessment of operating adequacy, and operation on the NYS Bulk Power System.

R2. The *NYISO* shall maintain procedures and systems that ensure that appropriate actions are taken when *thermal*, *voltage*, and/or *stability limits* are exceeded. These procedures shall identify system states that warrant the *NYISO* to invoke *emergency transfer criteria*. The *NYISO* must notify the *NYSRC* of any changes to these procedures and systems.

C. Compliance

1. Measures

M1. The *NYISO* maintained procedures and systems in accordance with R1 and R2 which identify appropriate actions to be taken whenever the bulk power transmission system's thermal, voltage, and *stability limit*s are exceeded. The procedures identified system states that warrant the *NYISO* to invoke *emergency transfer criteria.* Any revisions to these procedures or systems were reported to the *NYSRC*.

C. Transmission Operation, cont.

2. Levels of Non-Compliance

2.1 For M1:

Level 1: Revisions to existing procedures or systems were not reported to the *NYSRC*.

Level 2: Documentation of *NYISO* procedures and systems for exceedance of thermal, voltage, and *stability limit*s was incomplete in one or more areas.

Level 3: Not applicable.

Level 4: Documentation of *NYISO* procedures and systems for exceedance of thermal, voltage, and *stability limit*s was not provided.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

M1: RCMS

3.2 Compliance Documentation Reporting Frequency

M1: In accordance with *NYSRC* Compliance Monitoring Program schedules.

3.3 Compliance Reporting Requirements

M1: Self-Certification.

D. Guidelines

NYISO Transmission Operating Guideline for Voltage Analysis and Determination of Voltage-Based Transfer Limits. This guideline should be used in operating studies in accordance with R1.

NYISO Stability Limit Guideline – Refer to Attachment H, NYISO Transmission Planning Guideline #3-1, of the NYISO "Transmission Expansion and Interconnection Manual". This guideline should be used in operating studies in accordance with R1.

NYPP Tie Line Ratings Task Force Report – Refer to the Planning Data and Reference Documents on the NYISO web site. This guideline should be used in accordance with operating studies in accordance with R1.

NYISO Bus Voltage Limits – Refer to Tables A.2 and A.3 of the NYISO document, "NYISO Emergency Operations Manual. These tables should be used in operating studies in accordance with R1.

C. Transmission Operation, cont.

NYISO Fault Current Assessment Guideline – Refer to Attachment I, NYISO Transmission Planning Guideline #4-1, of the NYISO "Transmission Expansion and Interconnection Manual" This guideline should be used in operating studies in accordance with C-R5_R1.

The NYISO documents referenced above can be found on the NYISO web site, www.nyiso.com/services.

C.2: Post-Contingency Operation

A. Reliability Rule

Immediately after the occurrence of a *contingency*, the status of the *NYS Bulk Power System* shall be assessed and transfer levels shall be adjusted, if necessary, to prepare for the next *contingency*.

1. **Associated NERC and NPCC Standards and Criteria:**
   NERC: EOP-011
   NPCC: Directory 1

2. **Applicability:** *NYISO*

B. Requirements

R1. If the readjustment of *generation*, including the use of *operating reserve*, phase angle regulator control, and HVDC control is not adequate to restore the system to a secure state, then other measures such as *voltage reduction* and shedding of *firm load* may be required. System adjustments shall be completed as quickly as possible, but in all cases within thirty (30) minutes after the occurrence of the *contingency*.

R2. *Voltage reduction* need not be initiated and *firm load* need not be shed to observe a post-contingency loading requirement until the *contingency* occurs, provided that adequate response time for this action is available after the *contingency* occurs and other measures shall maintain post-contingency loadings within applicable *emergency ratings*. *Emergency* measures, including the pre-shedding of *firm load*, if necessary, must be affected to limit transfers to within the performance requirements specified in Table C-1.

C. Compliance

1. **Measures**

M1. The *NYISO* reported to the *NYSRC* the number of events resulting in facilities exceeded system *operating limit*s resulting in Alert States or *Major Emergencies*, including pre-contingency *thermal* and *voltage limits*, post-contingency *thermal* and *voltage limits*, and *stability limits*.

C. Transmission Operation, cont.

2. Levels of Non-Compliance

2.1 For M1:

Level 1: Not applicable.

Level 2: The *NYISO* failed to report to the *NYSRC* the number of events that resulted in facilities exceeded system *operating limit*s, resulting in Alert States or *Major Emergencies*.

Level 3: Not applicable.

Level 4: Not applicable.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

M1: RCMS

3.2 Compliance Documentation Reporting Frequency

M1: As required.

3.2 Compliance Reporting Requirements

M1: As part of the *NYISO* Monthly Operations Report to RCMS.

C.3: Outage Coordination

A. Reliability Rule

The *NYISO* shall schedule outages and notify adjacent *control area*s of scheduled and forced outages that may impact the *reliability* of the interconnected *Bulk Power System*.

1. **Associated NERC and NPCC Standards and Criteria:**
   NERC: IRO-014, IRO-017
   NPCC: Directory 1

2. **Applicability:** *NYISO*

B. Requirements

R1. Scheduled outages of facilities that affect the *reliability* of the *NYS Bulk Power System* shall be coordinated sufficiently in advance of the outage to permit the affected systems to maintain *reliability*.

R2. The adjacent systems shall be notified of scheduled or forced outages of any facility that may impact the neighboring *control areas' reliability* and of any other abnormal transmission configuration which may impact the *reliability* of the *NYS Bulk Power System*.

R3. A list of facilities that must be secured by the *NYISO* and require coordination shall be maintained including any other abnormal transmission configuration which may impact the *reliability* of the *NYS Bulk Power System*.

R4. Appropriate adjustments shall be made to *NYCA* operations to accommodate the impact of *protection group* outages.

R4.1. For typical periods of forced or maintenance outage of a *protection group*, it can be assumed, unless there are indications to the contrary, that the remaining *protection* will function as designed.

R4.2 If the *protection group* will be out of service for an extended period of time (as defined in NPCC criteria), additional adjustments to operations may be appropriate considering other system conditions and the consequences of possible failure of a remaining *protection group*.

C. Transmission Operation, cont.

R5. The *NYISO* shall maintain procedures and systems which ensure that outages of transmission facilities are coordinated in such a manner to ensure *reliability*. The procedures shall include a requirement that Transmission Owners expedite, to the extent practicable, maintenance of facilities which impact the reliability of the power system. The *NYISO* must notify the *NYSRC* of any changes to these procedures and systems.

R6. Each Transmission Owner shall establish and/or maintain procedures and systems which ensure that outages of transmission facilities are coordinated in such a manner to ensure *reliability*. The procedures shall include a requirement that Transmission Owners expedite, to the extent practicable, maintenance of facilities which impact the reliability of the power system. The Transmission Owner must notify the NYISO of any changes to these procedures.

C. Compliance

1. Measures

M1. The *NYISO* maintained transmission outage coordination procedures and systems in accordance with R1 to R6. Any revisions to these procedures and systems were reported to the *NYSRC*.

M2. The *NYISO* certified that each Transmission Owner maintained transmission outage coordination procedures and systems in accordance with R6. Any material revisions to these procedures and systems were reported to the *NYISO*.

2. Levels of Non-Compliance

2.1 For M1:

Level 1: Revisions to existing procedures or systems were not reported to the *NYSRC*.

Level 2: *NYISO* procedures and systems for coordination of transmission facility outages were incomplete in one or more areas.

Level 3: Not applicable

C. Transmission Operation, cont.

Level 4: *NYISO* procedures and systems for coordination of transmission facility outages were not provided.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

M1: RCMS

3.2 Compliance Documentation Reporting Frequency

M1: In accordance with *NYSRC* Compliance Monitoring Program schedules.

3.3 Compliance Reporting Requirements

M1: Self-Certification

C.4: Operation Prior to and During Extreme Weather Conditions and Solar Magnetic Disturbances

A. Reliability Rule

The *NYISO* shall maintain procedures and systems which allow for more stringent than normal operating restrictions prior to, and during severe weather conditions and solar magnetic *disturbance*s.

1. **Associated NERC and NPCC Standards and Criteria:**
   NERC: EOP-010
   NPCC: None

2. **Applicability:** *NYISO*

B. Requirements

R1. Operation during Impending Severe Weather

During periods when severe weather (such as, but not limited to, tornadoes or hurricanes) exists or is forecast to occur, it may be necessary to take steps in addition to those procedures normally followed, to maintain system *security*. The *NYISO* shall enter this mode of operation for those portions of the *NYS Bulk Power System* affected by actual or impending severe weather when requested to do so by the affected *Transmission Owners*, or at any other times when it deems necessary to preserve the *security* and *reliability* of the *NYS Bulk Power System.*

R1.1. When a situation exists in which the effects of impending severe weather could severely jeopardize the *security* of the *NYS Bulk Power System*, corrective actions, which would be necessary to protect for one transmission *contingency* greater than the normal criteria within the affected area, shall be implemented.

R1.2. *Generation* may be ordered to full operating *capacity* and transmission facilities out of service for maintenance may be ordered restored to service.

R2. Operation during a Severe Solar Magnetic *Disturbance*

During periods when a severe solar magnetic *disturbance* ("SMD") exists or is forecast to occur, it may be necessary for the *NYISO* and *Transmission Owners* to take steps in addition to those procedures normally followed to maintain system *security*. Such steps

may include, but are not limited to, restoration of transmission facilities that are out of service, cancellation of scheduled outages, and adjustment of *reactive power* dispatch.

The *NYISO* shall enter this mode of operation for those portions of the *NYS Bulk Power System* affected by an SMD when requested to do so by the affected *Transmission Owners*, or at any other times when it deems necessary to preserve the *security* and *reliability* of the *NYS Bulk Power System*.

R3. The *NYISO* shall maintain procedures and systems which allow for more stringent operating restrictions prior to, and during, severe weather conditions and solar magnetic *disturbance*s. The *NYISO* shall notify the *NYSRC* of any changes to these procedures and systems.

C. Compliance

1. Measures

M1. The *NYISO* maintained procedures and systems for operation during severe impending weather or solar magnetic *disturbance*s in accordance with R1 and R2. Any revisions to these procedures or systems were reported to the *NYSRC*.

2. Levels of Non-Compliance

2.1 For M1:

Level 1: Revisions to existing procedures or systems were not reported to the *NYSRC*.

Level 2: Documentation of *NYISO* procedures and systems for operation during severe impending weather or solar magnetic *disturbance*s was incomplete in one or more areas.

Level 3: Not applicable

Level 4: Documentation of *NYISO* procedures and systems for operation during severe impending weather or solar magnetic *disturbance*s was not provided.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

M1: RCMS

C. Transmission Operation, cont.

3.2 Compliance Documentation Reporting Frequency

M1: In accordance with *NYSRC* Compliance Monitoring Program schedules

3.3 Compliance Reporting Requirements

M1: Self-Certification

C.5: Fault Current Assessment

C. Reliability Rule

***Fault* duty levels shall be within appropriate equipment *rating*s.**

1. **Associated NERC and NPCC Standards and Criteria:**
   NERC: None
   NPCC: Directory 1

2. **Applicability:** *NYISO* & Equipment Owners

D. Requirements

R1. The *NYISO* shall perform pre-seasonal assessments, and additional re-evaluations if required by system changes, to evaluate *fault* duty at each *NYS Bulk Power System* station. The *NYISO* shall notify the applicable equipment owner and other potentially affected *Market Participants* of any location expected to exceed equipment *rating*s.

R2. After evaluating and considering the *NYISO* assessment in R1 concerning a location for which *fault* duty levels may exceed appropriate equipment *rating*s, the applicable equipment owner shall assess the condition and report its findings to the *NYISO* in accordance with *NYISO* requirements.

R3. After the equipment owner has reported its findings on the *NYISO's* assessment (as required by R2), the *NYISO*, in consultation with the equipment owner and the other potentially affected *Market Participants*, shall develop, if necessary, an appropriate mitigation plan.

E. Compliance

1. **Measures**

M1. The *NYISO* (a) performed *fault* duty assessments, and (b) developed mitigation plans, if necessary, in accordance with R1 and R3. Documentation of these assessments and mitigation plans were reported to the *NYSRC* as requested.

M2. The *NYISO* certified that all applicable equipment owners evaluated *NYISO* assessments concerning locations for which *fault* duty levels may exceed equipment

*rating*s and reported their findings to the *NYISO* in accordance with *NYISO* requirements and R2.

2. Levels of Non-Compliance

2.1 For M1:

Level 1: Not applicable

Level 2: Not applicable

Level 3: The required *fault* duty assessment was completed, but the *NYISO* failed to notify breaker owners of pending conditions whereby *fault* duty levels may exceed appropriate *rating*s in sufficient time to permit the condition from being prevented.

Level 4: The required *fault* duty assessment was not completed; or the *fault* duty assessment was completed, but the *NYISO* failed to develop the required mitigation plan.

2.2 For M2:

Level 1: Not applicable

Level 2: The *NYISO* certified that one or two applicable equipment owners did not evaluate *NYISO fault* duty assessments as required and report their findings to the *NYISO*.

Level 3: The *NYISO* certified that three or more applicable equipment owners did not evaluate *NYISO fault* duty assessments as required and report their findings to the *NYISO*.

Level 4: Not applicable

3. Compliance Process

3.1 Compliance Monitoring Responsibility

M1: RCMS

M2: *NYISO*/RCMS

3.2 Compliance Documentation Reporting Frequency

M1: Annually

M2: Annually

C. Transmission Operation, cont.

3.3 Compliance Reporting Requirements

M1: Pre-season *fault* duty assessment.

M2: Compliance Certification

C.6: Applications of the NYSRC Reliability Rules

A. Reliability Rule

Applications of the *NYSRC* Reliability Rules shall be established and maintained.

1. **Associated NERC and NPCC Standards and Criteria:**
   NERC: None
   NPCC: None

2. **Applicability:** *NYISO*

B. Requirements

R1. The *NYISO* shall establish and maintain Applications of the *NYSRC* Reliability Rules (Applications) consisting of *Transmission Owner* procedures for meeting the *NYSRC Reliability Rules* that apply to specific system locations or conditions.

R1.1. The list of Applications shall be posted on the *NYISO* web site.

R1.2. *Transmission Owners* shall prepare new or revised Applications as required. Applications proposed by *Transmission Owners* shall be referred to the *NYISO* for approval.

R1.3. The *NYISO* shall advise the *NYSRC* when Application changes occur.

R2. The *NYISO* shall prepare procedures addressing R1.

C. Compliance

1. **Measures**
   M1. The *NYISO* established and maintained Applications in accordance with the requirements addressed in R1 and R2.
2. **Levels of Non-Compliance**
   For M1:
   Level 1: The *NYISO* did not advise the *NYSRC* when Application changes occurred, or the Application List is not up-to-date.

   Level 2: The list of Applications was not posted on the *NYISO* Web site.

Level 3: The *NYISO* did not prepare an Applications procedure in accordance with R5 requirements

Level 4: A list of Applications was not established.

4. Compliance Process

4.1 Compliance Monitoring Responsibility

M1: RCMS

4.2 Compliance Documentation Reporting Frequency

M1: In accordance with *NYSRC* Compliance Monitoring Program schedules.

4.3 Compliance Reporting Requirements

M1: Self-Certification

C.7: Exceptions to the NYSRC Reliability Rules

A. Reliability Rule

A list of all exceptions to the *NYSRC* Reliability Rules shall be established and maintained.

1. **Associated NERC and NPCC Standards and Criteria:**
   NERC: None
   NPCC: Directory 1

2. **Applicability:** *NYISO*

B. Requirements

R1. The *NYISO* shall implement actions required for granting new exceptions or modifying or removing current exceptions, as described in *NYSRC* Policy 1, *Procedure for Reviewing, Developing, Modifying, and Disseminating NYSRC Reliability Rules*:

R1.1. Each *Transmission Owner* shall be requested, at least annually, to assess its exceptions and to determine whether it wishes to request the *NYSRC* to grant a new exception or modify or remove a current exception.

R1.2. The *NYISO* shall process requests from the *NYSRC* to review applications for a new exception or the renewal or modification of a current exception that:

- The *NYSRC* has received directly from a *Market Participant* or,
- The *NYSRC* has received from a *Transmission Owner* via the Annual Exception Review.

R1.3. Following its review pursuant to R1.2, the *NYISO* shall notify the *NYSRC* if it recommends that the *NYSRC* approve the granting of the new exception, or whether the current exception should be removed or modified as proposed. The *NYISO* shall document the reasons for its recommendation, including a finding that there would be no adverse impact to *reliability* upon issuance of the new exception or removal or modification of the current exception. If the *NYISO* recommends that the exception request should be rejected by the *NYSRC*, the *NYISO* shall document its reasons for such a recommendation.

F. Compliance

1. Measures

M1. The *NYISO* initiated required actions for implementing the *NYSRC* process of granting new exceptions or modifying or removing current exceptions ("exception changes"), in accordance with R1, as follows:

1. Requested each *Transmission Owner*, at least annually, to review its exceptions and determine whether it wishes to request the *NYSRC* to grant exception changes, per R1.1.

2. In accordance with *NYSRC* requests, the NYISO reviewed *Transmission Owner* proposals for exception changes, and notified the *NYSRC* of the results of its reviews and recommendations on a timely basis, per R1.2 and R1.3.

2. Levels of Non-Compliance

2.1 For M1:

Level 1: During a calendar year, the *NYISO* did not request *Transmission Owners* to review their exceptions to determine whether they wish to request exception changes.

Level 2: Not applicable

Level 3: Following a request by the *NYSRC*, the *NYISO* did not review and/or provide a recommendation on a proposed exception change and provide the *NYSRC* with the results of its review on a timely basis.

Level 4: Not applicable

3. Compliance Process

3.1 Compliance Monitoring Responsibility

M1: RCMS

3.2 Compliance Documentation Reporting Frequency

M1: In accordance with *NYSRC* Compliance Monitoring Program schedules.

3.3 Compliance Reporting Requirements

M1: Self-Certification

C.8: Real-Time Operations of the NYS Bulk Power System

A. Reliability Rule

Particular real-time operations data for the *NYS Bulk Power System* shall be reported to the *NYSRC* to demonstrate that the *NYISO* conforms to the *NYSRC* Reliability Rules.

1. **Associated NERC and NPCC Standards and Criteria:**
   NERC: TOP-003
   NPCC: None
2. **Applicability:** *NYISO*

B. Requirements

R1. The *NYISO* shall provide a monthly operations report to the *NYSRC* that provides data on the performance of the NYCA for the previous month, covering the following requirements:

- **R1.1.** Occurrences of major *emergency* and alert states.
- **R1.2.** Summary of the NERC/NPCC Control Performance**.**
- **R1.3.** A list of NPCC Reportable Events.
- **R1.4.** *Reserve* requirements and actual *reserve*s for the monthly peak *load* hour for all *reserve* categories (10 minute synchronized, 10 minute non-synchronized, and 30 minute *operating reserve*s). The report shall distinguish between supply and demand side *resource*s.
- **R1.5** The response of the system to activations of *reserve*, including: the number of occasions *reserve*s were activated in the month, reasons for the *reserve* activations, number of occasions within the month in which the *reserve* activation did not result in an area control error ("ACE") zero crossing, number of non-zero crossings associated with a unit loss, and number of non-zero crossings requiring another *reserve* activation.
- **R1.6.** A report of the number of more stringent events in which operating restrictions were imposed, resulting in an Alert or *Major Emergency* state due to severe weather conditions and/or severe solar magnetic *disturbance*s.
- **R1.7.** E*mergency* actions initiated, including: *emergency* assistance from neighboring *Control Areas*, manual (local) *voltage reductions*, quick response (remote control) *voltage reductions* (5 and 8%), voluntary *load* curtailment, public appeals, Special Case Resources, Emergency Demand Response Program, and *load shedding*. For each *emergency* action the report shall include: (a) the date of the *emergency*

action; (b) the *zone(s)* where the *emergency* action was implemented; (c) an estimate of the MW *capacity* addition or *load relief* achieved, by *zone*; and (d) the reason(s) why the *emergency* action was implemented.

R1.8. Other analyses and indices identified by the *NYSRC* Executive Committee for monitoring the *security* of the system.

C. Compliance

1. Measures

M1. The *NYISO* submitted a monthly operations report covering the previous month in accordance with requirements defined in R1.1 to R1.8.

2. Levels of Non-Compliance

2.1 For M1:

Level 1: The *NYISO* submitted a monthly operations report, but the report was incomplete relative to one of the Requirements defined in R1.1 to R1.8.

Level 2: The *NYISO* submitted a monthly operations report, but the report was incomplete relative to two of the Requirements defined in R1.1 to R1.8.

Level 3: The *NYISO* submitted a monthly operations report, but the report was incomplete relative to three or more of the Requirements defined in R1.1 to R1.8.

Level 4: The *NYISO* failed to submit a monthly operations report for the previous month.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

M1: RCMS

3.2 Compliance Documentation Reporting Frequency

M1: Monthly

3.3 Compliance Reporting Requirements

M1: Monthly operations report.

Table C-1

NYSRC Operating Transfer Capability Requirements[5]

Contingency events, Fault type and Performance requirements to be applied to bulk power system elements to establish transfer capabilities.

	Contingency events Simulate the removal of all elements that protection systems, including Special Protection Systems, are expected to automatically disconnect for each event that involves an AC fault.	**Fault type (permanent)** On the listed elements where applicable	**Performance requirements**	
			Normal Transfer Capability	Emergency Transfer Capability (only after an Emergency is identified)
	1. *Fault* on any of the following: a. transmission circuit b. transformer c. shunt device d. generator e. bus section	Three-phases *fault*, with normal fault clearing	i, .ii, iii, iv, v, vi, vii, viii, x	i, ii, iii, iv, v, vi, vii, ix, xi
	2. Opening of any circuit breaker or the loss of any of the following: a. transmission circuit b. transformer c. shunt devise d. generator e. bus section	No *fault*		
	3. Loss of single pole of a direct current facility	No *fault*		
	4. *Fault* on any of the following: a. transmission circuit b. transformer c. shunt device d. generator e. bus section	Phase to ground *fault* with failure of a circuit breaker to operate and correct operation of a breaker failure protection system and its associated breakers.	i,ii,iii,iv,v,vi,vii,ix,x	Contingency Events 4 through 8 do not apply after an emergency is identified.
	5. *Fault* on a circuit breaker	Phase to ground *fault*, with normal *fault* clearing		

[5] Table C-1 incorporates Table 3 of NPCC Directory 1, with the following modifications: (1) bolded NPCC glossary terms have been removed, (2) more stringent NYSRC contingency event criteria are shown in bold, and (3) NYSRC glossary terms are shown in italics. NPCC performance criteria at the bottom of Table C-1 is supplemented by more stringent NYSRC performance criteria in Table C-2.

C. Transmission Operation, cont.

	6. Simultaneous *fault* on two adjacent transmission circuits on a multiple circuit tower.	Phase to ground *faults* on different phases of each circuit, with normal *fault* clearing		
	7. Simultaneous permanent loss of both poles of a direct current bipolar facility	Without an ac *fault*		
	8. The failure of a circuit breaker to operate when initiated by a **SPS** after a fault on the following: a. transmission circuit b. transformer c. shunt device d. generator e. bus section f. **loss of any element (without a fault)**	Phase to ground *fault*, with normal *fault* clearing		
	9. The failure of a circuit breaker to operate when initiated by a SPS after opening of any circuit breaker or the loss of any of the following: a. transmission circuit b. transformer c. shunt device d. generator e. bus section	No *fault.*	i,ii,iii,iv,v,vi,vii,viii,ix,x	

Performance Requirements for the contingencies defined in Table C-1:

i. Loss of a major portion of the system or unintentional separation of a major portion of the system shall not occur.

ii. Loss of small or radial portions of the system is acceptable provided the performance requirements are not violated for the remaining *bulk power system.*

iii. The NYCA shall be operated in a manner such that contingencies and conditions applied can be withstood without causing significant adverse impact on other Control Areas.

iv. Voltages and loadings shall be within applicable limits for the pre-contingency conditions.

v. Voltages and loadings shall be within applicable limits for post-contingency conditions except for small or radial portions of the system as described in ii.

vi. The *stability* of the *bulk power system* shall be maintained, with due regard to successful and unsuccessful reclosing except for small or radial portions of the system as described in ii.

vii. For each of the contingencies that involve *fault* clearing, *stability* shall be maintained when the simulation is based on *fault* clearing initiated by the "system A" *protection group*, and also shall be maintained when the simulation is based on *fault clearing* initiated by the "system B" *protection group*. When applying this requirement to contingency Event ***no 6***, the failure of a *protection group* shall apply only to one circuit at a time. When evaluating contingency event #4 breaker failure *protection* is assumed to operate correctly even if only a single breaker failure *protection system* exists.

viii. Regarding contingency *no 6*, if multiple circuit towers are used only for station entrance and exit purposes, and if they do not exceed five towers at each station, then this condition is an acceptable risk and therefore can be excluded. Other similar situations can be excluded on the basis of acceptable risk, provided that the *NYSRC* Executive

Committee specifically accepts each request for exclusion.

ix. Appropriate adjustments shall be made to *NYCA* operation to accommodate the impact of *protection group* outages, including the outage of a *protection group* which is a part of a Type I *special protection system*. For typical periods of forced outage or maintenance of a *protection group*, it can be assumed, unless there are indications to the contrary, that the remaining *protection* will function as designed. If the *protection group* will be out of service for an extended period of time, additional adjustments to operations may be appropriate considering other system conditions and the consequences of possible failure of the remaining *protection group.*

x. Normal transfer levels shall not require system adjustments before attempting manual reclosing of elements unless specific instructions describing alternate actions are in effect to maintain *stability* of the *BPS.*

xi. Emergency transfer levels may require system adjustments before attempting manual reclosing of elements to maintain stability of the *bulk power system*.

Operating to the *contingencies* listed above in Table C-1 is considered to provide an acceptable level of *bulk power system* security. However, under high risk conditions, such as severe weather, the expectation of the occurrence of *contingencies* not listed in Table C-1 and/or the associated consequences may be judged to be significantly greater. When these conditions exist, consideration should be given to operating in a more conservative manner.

Table C-2
Operating Transfer Capabilities – Supplemental Performance Requirements

Type of Assessment	Performance Requirements for Thermal, Voltage and Stability Assessments
Thermal	**a. Pre-Contingency Criteria** 1. For normal transfers, no transmission facility shall be loaded beyond its *normal rating*. 2. For *emergency* transfers, no transmission facility shall be loaded beyond its *normal rating*. However, a facility may be loaded up to the *LTE rating* pre-contingency if the *STE rating* is reduced accordingly. **b. Post-Contingency Criteria** 1. For normal transfers, no facility shall be loaded beyond its *LTE rating* following the most severe of contingencies 1 through 8 specified in Table C-1. An underground cable circuit may be loaded to its *STE rating* following: Loss of *Generation* - provided *ten (10) minute operating reserve* and/or phase angle regulation is available to reduce the loading to its *LTE rating* within fifteen (15) minutes and not cause any other facility to be loaded beyond its *LTE rating.* Loss of Transmission Facilities - provided ten (10) minute operating reserve and/or phase angle regulation is available to reduce the loading to its *LTE rating* within fifteen (15) minutes and not cause any other facility to be loaded beyond its *LTE rating*. For contingencies 4 through 8 in Table C-1 that are not confined to the loss of a single *element*, *Transmission Owners* may request the *NYISO* for an exception to allow the post-contingency flow on a facility up to its *STE rating*. This is permissible provided operating measures are available to reduce the flow below the *LTE rating* within fifteen (15) minutes and not cause any other facility to be loaded beyond its *LTE rating*. Operating exceptions shall be well documented, including *NYISO* comments, and must be approved by the *NYSRC*. 2. For *emergency* transfers, no facility shall be loaded beyond its *STE rating* following the more severe of contingencies 1, 2, or 3 listed in Table C-1. The *STE rating* is based on an assumed pre-loading equal to the *normal rating*. A limiting facility may be loaded up to the *LTE rating*, pre-contingency, if the *STE rating* is reduced accordingly.
Voltage	*Reactive power* shall be maintained within the *NYS Bulk Power System* in order to maintain voltages within applicable pre-disturbance and post-disturbance limits, for both normal and *emergency* transfers, as specified below: **a. Pre-Contingency Criteria** For both normal and *emergency* transfers, no bus voltage will be below its pre-contingency low *voltage limit* nor be above its pre-contingency high *voltage limit*. The pre-contingency voltage on a bus is permitted to operate below its pre-contingency low *voltage limit* or above its pre-contingency high *voltage limit* if all corrective actions short of *load shedding* have been taken

	and conditions are not indicative of system problems, or sufficient time and *resource*s exist to take corrective action to prevent voltage collapse should a *contingency* occur. **b. Post-Contingency Criteria** No bus voltage will fall below its post-contingency low *voltage limit* nor rise above its post-contingency high *voltage limit*. For normal transfers, contingencies 1 through 8 specified in Table C-1 are applicable. For *emergency* transfers, contingencies 1 through 8 specified in Table C-1 are applicable.
Stability	System *stability* transfer limits shall be consistent with the Reliability Rules and all applicable guidelines and procedures in the *NYISO* Transmission Planning Guideline #3-1, "Guideline for Stability Analysis and Determination of Stability-Based Transfer Limits". a. For normal transfers, *stability* of the *NYS Bulk Power System* shall be maintained during and after the most severe of contingencies 1 through 8 specified in Table C-1. The *NYS Bulk Power System* must also be stable if the *fault*ed *element* as described in Table C-1 is re-energized by *delayed reclosing* before any manual system adjustment, unless specific alternate procedures are documented. b. For *emergency* transfers, when *firm load* cannot be served, *stability* of the *NYS Bulk Power System* shall be maintained during and after contingencies 1 through 8 specified in Table C-1. The *NYS Bulk Power System* must also be stable if the *fault*ed *element* as described in Table C-1 is re-energized by *delayed reclosing* before any manual system adjustment**.**

D. EMERGENCY OPERATIONS

Introduction

These Reliability Rules require the *NYISO* to develop and maintain plans and procedures for mitigating *Major Emergencies*. This Section sets forth Reliability Rules to be complied with by the *NYISO* in the event of several types of *Major Emergencies.*

After declaration of a *Major Emergency*, any request made by the *NYISO* to a *Market Participant* dispatcher for remedial action including, but not limited to *load shedding,* shall be considered an order to effect such remedial action. Normally, those orders shall be made by the *NYISO* to *Transmission Owners* over the hot line maintained for *emergency* communications.

Operating During Emergencies Reliability Rule

	Reliability Rule
D.1	Mitigation of Major Emergencies

D.1: Mitigation of Major Emergencies

A. Reliability Rule

The *NYISO* shall develop, maintain, and implement plans to mitigate operating *emergencies*.

1. **Associated NERC and NPCC Standards and Criteria:**
   NERC: EOP-011
   NPCC: Directory 2
2. **Applicable Entities:** *NYISO*

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B. Requirements

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R1. Transmission Thermal Overloads

If a transmission facility, which constitutes a part of the *NYS Bulk Power System*, becomes overloaded, relief measures shall be applied immediately to bring the loading within established *ratings*.

R1.1 When a facility becomes loaded above its *LTE rating*, but below its *STE rating*, corrective action must be taken to return the loading on the facility to its *LTE rating* or lower within fifteen (15) minutes; provided, however, that after taking corrective action, loadings on the facility are not below its *LTE rating* within five (5) minutes, a *Major Emergency* shall be declared and corrective measures taken – which may include *voltage reduction* and/or *load relief* – to return the loading on the facility to its *LTE rating* or lower within fifteen (15) minutes from the initial overload. At the *NYISO*'S discretion, a *Major Emergency* may be declared at any time a facility becomes loaded above its *LTE rating*.

R1.2 When a facility becomes loaded at or above its *STE rating*, immediate corrective action which may include *voltage reduction* and/or *load shedding,* must be initiated to reduce the loading on the facility to below its *STE rating* within five (5) minutes and furthermore, to continue to reduce the loading on the facility to below its *LTE rating* within ten (10) minutes from the initial overload. If the loading is substantially above the *STE rating*, *load relief* should be considered as the initial action to be taken.

R1.3 After the loading on a facility has been reduced below its *LTE rating* additional corrective action, excluding further *voltage reduction* and/or *load shedding*, should be taken to reduce the loading on the facility to below its *normal rating* within thirty (30) minutes of the initial overload. In the event this cannot be accomplished, *emergency transfer criteria* shall be invoked.

R1.4 When a facility has been loaded for four (4) continuous hours (or such longer period as may be established by the *Rating Authority*) above its *normal rating*, but at or below its *LTE rating*, corrective action, which may include *voltage reduction* and/or *load shedding*, must be taken to return the facility to its *normal rating* within thirty (30) minutes.

D Emergency Operations, cont.

Procedures shall be developed by the *NYISO* consistent with the *NYISO* tariffs that resolve transmission overloads caused by both internal and external events to the *NYS Bulk Power System*.

R2. Post-Contingency STE Rating Violations

If a transmission facility which constitutes a part of the *NYS Bulk Power System* is being operated under *emergency transfer criteria* and becomes loaded to a level which would cause its post-contingency loading to exceed its *STE rating* and corrective action could not be taken rapidly enough to meet the requirements of this policy once the *contingency* occurs, immediate corrective action which may include *voltage reduction* and *load shedding*, must be taken to reduce the loading such that sufficient time will be available to apply corrective action following the *contingency*.

R3. High or Low Voltage

Voltage control of the *NYS Bulk Power System* shall be coordinated to provide adequate voltage at all times to maintain power *transfer capability*.

When in a *Major Emergency* due to voltage problems, all *Transmission Owners* shall be notified of the condition and direct the necessary corrective actions short of *load shedding*.

If, having taken the actions above, the actual voltage at any *NYS Bulk Power System* bus remains below its pre-contingency low limit for thirty (30) minutes or declines to a level below the midpoint between the pre- and post-contingency low limits and remains there for fifteen (15) minutes, the *NYISO* shall discuss the situation with the *Transmission Owner(s)* to determine if corrective action could be taken following a *contingency* to prevent a system voltage collapse. If it is anticipated that adequate time will not exist to prevent a voltage collapse following a *contingency*, the *Transmission Owners* shall be directed to take the necessary corrective action, including *load shedding*, to maintain a minimum voltage equal to the pre-contingency low limit. If the actual voltage at any *NYS Bulk Power System* bus declines below the post-contingency low limit and is indicative of a system voltage collapse, the *NYISO* shall immediately order *load shedding* in the amount and at the locations deemed necessary to maintain a minimum voltage equal to the pre-contingency low limit.

R4. Post-Contingency Voltage

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R4.1. Less than 5%

If the post-contingency loading of an internal New York transfer *interface* or the post-contingency flow towards New York on an inter-*control area interface* exceeds the limits associated with a voltage collapse by less than 5%, measures shall be applied immediately to bring the loading to established limits within fifteen (15) minutes. If, after taking corrective action, loadings are not below the limit within fifteen (15) minutes, a *Major Emergency* shall be declared and corrective measures, which may include *load relief*, shall be initiated to bring the loading to established limits within fifteen (15) minutes. If loadings are not below the limit within thirty (30) minutes from the initial overload, *load relief* measures must be instituted.

R4.2. More than 5%

If the post-contingency loading of an internal New York transfer *interface* or the post-contingency flow towards New York of an inter-*control area interface* exceeds the limits associated with a voltage collapse by 5% or more, an Alert State shall be declared immediately and corrective measures shall be applied to bring the loading to below 105% of the limit within ten (10) minutes.

If, after taking corrective action, loadings are not below 105% of the limit within ten (10) minutes, or are not below the established limit within fifteen (15) minutes, a major *emergency* shall be declared immediately and corrective measures, which may include *load relief*, shall be initiated to bring the loading to established limits. If loadings are not below 105% of the limit within fifteen (15) minutes from the initial overload, or below the limit within thirty (30) minutes from the initial overload, *load relief* measures must be instituted.

At the NYISO's discretion, a Major Emergency may be declared at any time an interface associated with voltage collapse becomes loaded by 5% or more over the established limit.

R5. *Operating Reserve* Deficiency

Emergency transfer criteria shall be invoked if necessary to provide transmission capability to deliver *operating reserve* to an area deficient in *operating reserve*. The *NYISO* shall notify all *Transmission Owners* that *emergency transfer criteria* have

been invoked and *Transmission Owners* in the deficient area shall be prepared to return facilities to appropriate *ratings* within the prescribed time should such *ratings* be exceeded. If, after the above action, a shortage of *ten (10) minute operating reserve* or *operating reserve* still exists, the *NYISO* shall declare a *Major Emergency* and shall direct that *load relief* procedures be implemented.

R6. *Stability Limit* Violation

R6.1. Less than 5%

If the loading of an internal New York transfer *interface* or the power flow towards New York on an inter-*control area interface* exceeds the system *stability limit* by less than 5%, measures shall be applied immediately to bring the loading to established limits within fifteen (15) minutes. If, after taking corrective action, loadings are not below the *stability limit* within fifteen (15) minutes, a *Major Emergency* shall be declared and corrective measures, which may include *load relief*, shall be initiated to bring the loading to established limits within fifteen (15) minutes. If loadings are not below the *stability limit* within thirty (30) minutes from the initial overload, the *Transmission Owners* shall be ordered by the *NYISO* to institute *load relief* measures.

R6.2. More than 5%

If the loading of an internal New York transfer *interface* or the power flow towards New York on an inter-*control area interface* exceeds the system *stability limit* by 5% or more, an Alert State shall be declared immediately and corrective measures shall be applied to bring the loading to below 105% of the limit within ten (10) minutes.

If, after taking corrective action, loadings are not below 105% of the limit within ten (10) minutes, or are not below the established limit within fifteen (15) minutes, a *Major Emergency* shall be declared immediately and corrective measures, which may include *load relief,* shall be initiated to bring the loading to established limits. If loadings are not below 105% of the *stability limit* within fifteen (15) minutes from the initial overload, or below the *stability limit* within thirty (30) minutes from the initial overload, *load relief* measures must be instituted.

At the NYISO's discretion, a *Major Emergency* may be declared at any time an interface associated with system stability becomes loaded by 5% or more over the established limit.

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D Emergency Operations, cont.

R7. Low Frequency

A sustained low frequency of 59.9 Hz is an indication of major *load-generation* imbalance in which case a *major emergency* shall be declared. During a *Major Emergency* resulting from a low frequency condition caused by *load-generation* imbalance within the *NYCA*, *load* shall be shed in accordance with a schedule previously determined.

R8. The *NYISO* shall maintain procedures and systems that ensure that appropriate actions are taken when frequency, *reserves*, *thermal*, *voltage*, and/or *stability limits* are violated in accordance with R1 through R7. The *NYISO* must notify the *NYSRC* of any changes to these procedures and systems.

R9. The *NYISO* shall report to the *NYSRC* on every instance of a *Major Emergency*. Included in this report shall be a description of the incident, a summary of conditions that warranted the change to a *Major Emergency* state, a summary of actions taken, and the effectiveness of those actions. A preliminary report shall be provided to the *NYSRC* within one week of the incident; and a final report, if requested by the *NYSRC*, shall be provided within one month following the incident.

R10. The *NYISO* shall institute a statewide *voltage reduction* test during the summer *Capability Period* of each year if statewide *voltage reduction* has not been called for during the early portion of the summer. The results of the test or actual *voltage reduction* shall be recorded and provided to the *NYSRC* every year.

C. Compliance

1. Measures

M1. The *NYISO* maintained procedures and systems in accordance with R8 that ensures all *Market Participant*s will respond correctly when frequency, *reserve*s and thermal, voltage and/or *stability limit*s are violated, as required by R1 through R7.

M2. The *NYISO* provided a preliminary report of *Major Emergencies* within one week of an incident. In addition, if requested by the *NYSRC*, a final report was provided within one month following the incident. These reports were prepared in accordance with R9 and demonstrate what *NYISO* actions were taken and their effectiveness for meeting *NYSRC* Reliability Rules.

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M3. The *NYISO* provided the annual results of test or actual statewide *voltage reduction* within an appropriate time period to the *NYSRC*, in accordance with R10.

2. Levels of Non-Compliance

2.1 <u>For Measure 1</u>

Level 1: Not applicable.

Level 2: *NYISO* procedures were provided, but were incomplete in one or more areas.

Level 3: Not applicable.

Level 4: Procedures were not provided by the *NYISO*.

2.2 <u>For Measure 2</u>

Level 1: Not applicable.

Level 2: The required reports were provided following a *Major Emergency, but at least one report was incomplete in one or m*ore areas.

Level 3: The required *Major Emergency* reports were provided, but a review indicated that the NYCA system was not operated in accordance with *NYSRC* Reliability Rules.

Level 4: At least one of the required *Major Emergency* reports was not provided following a reportable incident.

2.3 For Measure 3

Level 1: Not applicable.

Level 2: A statewide *voltage reduction* test was performed if required, but the results of this test or actual *voltage reduction* were not provided to the *NYSRC* within an appropriate time period.

Level 3: Not applicable.

Level 4: A statewide *voltage reduction* test, if required, was not performed

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- M1: RCMS
- M2: RCMS
- M3: RCMS

3.2 Compliance Documentation Reporting Frequency

- M1: In accordance with *NYSRC* Compliance Monitoring Program schedule.
- M2: As Required.
- M3: In accordance with *NYSRC* Compliance Monitoring Program schedule.

3.3 Compliance Reporting Requirements

- M1: *NYISO* Self-Certification. This may be supplemented, if determined by the *NYSRC*, by audits or other information specified by the *NYSRC* Compliance Monitoring Program, or other requirements determined by the *NYSRC*.
- M2: A report in accordance with M2 requirements.
- M3: *Voltage reduction* data.

E. OPERATING RESERVES

Introduction

The Reliability Rules in this Section establish the minimum level of *operating reserves* to be provided in the *NYCA*. Adequate *resource capacity* in excess of projected *load* requirements is necessary to assure an acceptable degree of service continuity. The Reliability Rules provide requirements governing the amount, *availability*, distribution, and activation of *operating reserve*s.

The factors considered in establishing the minimum desired magnitude of *operating reserve* include unexpected *resource* and transmission contingencies, regulation of frequency and tie line flow, and *load* forecast error. The nature and characteristics of the various types of synchronized and non-synchronized *resource capacity* which comprise the *operating reserve* have been considered in the formulation of *NYCA's operating reserve* requirements.

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E.1: Establishing the Minimum Level of Operating Reserve

A. Reliability Rule

A minimum level of *operating reserve* for ensuring an acceptable degree of service continuity in the *NYCA* to protect against the possibility of equipment failure shall be established.

1. **Associated NERC and SPCC Standards and Criteria:**
   NPCC: Directory 5
   NERC: BAL-002
2. **Applicable Entities:** *NYISO*

B. Requirements

R1. Scheduled outages and deratings of *resource*s shall be coordinated in such a manner that the available *resource*s, with due allowance for forced outages and deratings, will be adequate to meet *NYCA's* forecasted *load* and *operating reserve* requirements. Procedures shall be developed consistent with the Reliability Rules that: maintain a minimum *operating reserve* level for each type of *reserve*, in both computer directed and non-computer directed dispatch; define how anticipated

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E. Operating Reserves, cont.

future shortages of *reserve* will be handled; and defines coordination with other *Market Participants* in NPCC and PJM to share *reserves*. The procedure must include forecasts for weekly, daily, and hourly *reserves*, and reflect the impact of capability, *loads*, response rates, transactions, transmission limitations, and unit commitment. These forecasts must also support unit commitment.

R2. The minimum *operating reserve* requirement of the *NYISO* shall be the sum of:

a. Sufficient *ten (10) minute operating reserve* to replace the operating *capacity* loss caused by the most severe *contingency* observed under *Normal Transfer Criteria* multiplied by the *Contingency Reserve Adjustment Factor*.

b. Sufficient *thirty (30) minute operating reserve* equal to one-half of the *ten (10) minute operating reserve* necessary to replace the operating *capacity* loss caused by the most severe c*ontingency* observed under *Normal Transfer Criteria*.

At all times sufficient *ten (10) minute operating reserve* shall be maintained to cover the energy loss due to the most severe *Normal Transfer Criteria contingency* within the *NYCA* or the energy loss caused by the cancellation of an interruptible energy purchase from another system, whichever is greater multiplied by the *Contingency Reserve Adjustment Factor*.

R3. The *ten (10) minute operating reserve* portion of the *NYISO's* minimum *operating reserve* requirement shall be fully available within ten (10) minutes and shall be in the following categories:

R3.1. *Synchronized Operating Reserve* - At least one-half of the *ten (10) minute operating reserve* will consist of unused *resource capacity* which is synchronized and ready to achieve claimed *capacity*, or *resource capacity* which can be made available by curtailing pumping hydro units, or canceling energy sales to other systems.

R3.2. *Non-Synchronized Ten Minute (10) Operating Reserve* - The remainder of the *ten (10) minute operating reserve* may be composed of non-synchronized *resource capacity* such as hydro, pumped storage hydro, and quick start combustion *generation,* which can be synchronized and loaded to claimed *capacity* in ten (10) minutes or less, and *interruptible load* that can be activated in ten (10) minutes or less.

R4. The *thirty (30) minute operating reserve* portion of the *NYISO's operating reserve* requirement is that portion of unused *resource capacity* or *interruptible load* which can and will be made fully available as promptly as possible, but in no more than thirty (30) minutes.

R5. *Resource capacity* associated with the delivery of interruptible sales to adjacent *control areas* may be included as *operating reserve* in the category agreed upon by the purchaser.

R6. Following a *contingency*, the *ten (10) minute operating reserve* shall be restored within thirty (30) minutes of the time that the *contingency* occurred, or sooner if possible.

R7. The *NYISO* shall maintain procedures and systems that ensure the *adequacy* of *operating reserves* and shall provide documentation of these procedures and systems, in accordance with R1 to R6. The *NYISO* must notify the *NYSRC* of any changes to these procedures and systems.

C. Compliance

1. Measures

M1. In accordance with R7, *NYISO* has procedures consistent with maintaining the requirements for operating *resource* adequacy (R1), and the requirement to maintain *availability* and minimum level in all *operating reserve* categories (R2 and R3). *NYISO* commitment and dispatch systems shall maintain *resource*s and *operating reserve* consistent with the requirements of R1 to R6. To the extent necessary these procedures and systems took into consideration *local reliability rules*. The *NYISO* notified *NYSRC* of any changes to the procedures or systems.

2. Levels of Non-Compliance

2.1 <u>For Measure 1</u>

Level 1: *NYISO* did not have adequate procedures or systems in place, or failed to notify *NYSRC* of a change to its procedures or systems.

Level 2: Not applicable.

Level 3: Not applicable.

Level 4: The *NYISO* did not provide the required procedures.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- M1: RCMS

3.2 Compliance Documentation Reporting Frequency

- M1: In accordance with *NYSRC* Compliance Monitoring Program schedule.

3.3 Compliance Reporting Requirements

- M1: *NYISO* Self-Certification.

F. SYSTEM RESTORATION

Introduction

The *NYISO* and *Market Participant*s must have plans and procedures to ensure the restoration of the *NYS Bulk Power System* to a normal condition in the event of a partial or system-wide shutdown, as promptly as reasonably possible. Accordingly, this Rule Group sets forth Reliability Rules for the establishment and documentation of plans and procedures for the effective restoration of the NYCA system, and the identification and testing of the black start facilities necessary for system restoration. These Reliability Rules cover requirements for *NYISO* and *Transmission Owner* procedures, system *black start* capability and testing, and training.

System Restoration Reliability Rule

	Reliability Rule
F.1	NYCA System Restoration Plan

F.1: NYCA System Restoration Plan

A. Reliability Rule

A NYCA System Restoration Plan (NYCA SRP) shall be maintained to restore the NYCA system to a normal operating state in a safe and orderly manner and as promptly as reasonably possible following a major or total blackout. The NYCA SRP shall be composed of a *NYISO* system restoration plan and *Transmission Owner* system restoration plans.

1. **Associated NERC and NPCC Standards and Criteria:**
   NERC: EOP-005, EOP-006
   NPCC: Directory 8
2. **Applicable Entities:** *NYISO*, *TOs,* and *Black Start Providers*

B. Requirements

R1. The *NYISO* shall develop and maintain a NYCA SRP that provides assurance that the NYCA system will be restored in a safe and orderly manner and as promptly as reasonable possible following a major or total blackout.

The NYCA SRP shall include system restoration at two integrated levels: restoration of the NYCA backbone system in accordance with a *NYISO* System Restoration Plan (*NYISO* SRP) and restoration of local areas in accordance with *Transmission Owner* system restoration plans (TO SRPs).

The NYISO shall develop and maintain an SRP that meets NERC and NPCC requirements. In addition, the NYCA SRP shall include the following more stringent and more specific requirements:

R1.1. Procedures for coordinating the *NYISO* SRP and the *Transmission Owner* SRPs.

R1.2. Required actions to be included in each *Transmission Owner's* restoration plan, consistent with *NYISO* procedures and *NYSRC*, NPCC, and NERC criteria.

R1.3. Procedures for coordinating the SRPs of the *NYISO* and neighboring Reliability Coordinators, including restoration of interconnections.

R1.4. Identification of *black start facilities* required for implementing the *NYISO* SRP, including the names, location, megawatt capabilities, megavar capabilities, and unit type.

R1.5. Procedures for *black start facility* test requirements to verify that each *black start* unit in the *NYISO* and *Transmission Owner* SRP's is capable of meeting the requirements of these SRP's. These *black start* testing requirements shall include:

R1.5.1. Each *black start facility* shall be tested annually. The *NYISO* shall determine the time within the *Capability Year* that testing shall be completed. The NYISO shall determine the number of units within a *black start facility* that shall be tested annually.

F. System Restoration, cont.

R1.5.2. The NYISO procedures shall indicate that with due regard for reliability considerations and subject to approval by the *Transmission Owner* and the *NYISO*, a test performed by *black start facilities* in the Transmission Owner's SRP within one month beyond the *Capability Year* test period, or longer in force majeure cases, shall be considered a valid test for the *Capability Year*. On request by the *NYSRC*, the *NYISO* shall certify that *reliability* was considered when the *NYISO* and the *Transmission Owner* approved *black start facility* testing beyond the *Capability Year*.

R1.5.3. Each *black start* unit shall test the ability to start with no support from the transmission system or when designed to remain energized without connection to the remainder of the System.

R1.5.4. Each *black start* unit shall test the ability to energize its transmission bus. If it is not possible to energize its transmission bus during the test, the testing facility must affirm that the unit has the capability to energize its transmission bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected from synchronizing circuits.

R1.5.5. Each *black start* unit shall be tested such that once the unit has been started, it shall continue to demonstrate its capability to operate in a stable condition while isolated from the power system for a minimum of ten minutes.

R1.6. Procedures requiring that each *Transmission Owner* identify *black start resource*s that are necessary for implementing its SRP. These procedures shall also require *Transmission Owner*s to identify the name, location, megawatt *capacity*, megavar *capacity*, and type of *black start resource*(s). The identity of transmission SRP *black start facilities* shall be made available to the *NYISO* and to affected *Transmission Owners*. In addition, *NYISO* procedures shall include a requirement that each *Black Start Provider* annually provide a letter to the *NYISO* confirming that it identifies and maintains a list of critical components in its facilities (i.e., batteries, diesel back-up generators, inverters etc.) to verify the condition of these critical components in accordance with good industry practice.

F. System Restoration, cont.

R1.7. Identification of the necessary operating instructions and procedures to cover loss of telecommunications channels during a system *disturbance*.

R1.8. Identification of protocols for disseminating information to operating entities identified in the plan during a system *disturbance*.

R1.9. Procedures for ensuring that the coordination of *NYISO* and *Transmission Owner* SRPs be demonstrated by drill or by simulation.

R1.10. Procedures requiring *Transmission Owners* to notify the *NYISO* of any proposed changes to *Transmission Owner* SRP facilities or procedures that could affect the coordination of the *NYISO* and *TO* restoration plans at least two months prior to their implementation.

R1.11. Procedures requiring that the *NYISO* and *Transmission Owner* SRPs be reviewed and updated annually and whenever changes are made in the *NYS Power System*. This review shall evaluate the impact of planned system expansion or reconfiguration on these SRPs, prior to implementation.

R1.12. Identification of guidelines which provide the basis for alternative restoration actions if normal restoration procedures cannot be executed due to system conditions.

R1.13. Procedures for coordinating annual updates to the *NYISO* SRP and restoration plans of neighboring Reliability Coordinators.

R1.14. Procedures for training *NYISO* and *Market Participants* operating personnel for the effective implementation of the NYCA SRP. The *NYISO* shall maintain program records showing that operating personnel have been trained in the implementation of the NYCA SRP and participated in restoration exercises. These records shall be provided to the *NYSRC* upon request.

R2. Each *Transmission Owner* shall establish and maintain a restoration plan in accordance with the NYCA SRP, *NYISO* procedures, and R1. These restoration plans shall be coordinated with the restoration plans of other *Transmission Owners* and shall be part of the NYCA SRP.

F. System Restoration, cont.

R2.1. The *Transmission Owner* SRP shall adopt procedures to identify black start *resource*s that are necessary for implementing their SRP including testing requirements, in accordance with the NYCA SRP and *NYISO* procedures.

R2.2. *Transmission Owners* shall conduct an annual review of their SRP.

R2.3. *Transmission Owners* shall conduct annual training of their operating personnel on their SRP procedures, including the procedures for coordinating with the *NYISO* SRP. Each *Transmission Owner* shall report to the *NYISO* the completion of the annual training and review.

R3. Each *Black Start Provider* shall develop and implement appropriate test procedures in accordance with R1, R2, and *NYISO* requirements and procedures to ensure those *black start facilities* that are included in the *NYISO's* and *Transmission Owner's* SRPs are able to perform their intended functions. These *black start* testing requirements shall include:

R3.1. Each *black start facility* shall be tested annually. The NYISO shall determine the number of units within a *black start facility* that shall be tested annually.

R3.2. Each *black start* unit shall test the ability to start with no support from the transmission system or when designed to remain energized without connection to the remainder of the System.

R3.3. Each *black start* unit shall test the ability to energize its transmission bus. If it is not possible to energize its transmission bus during the test, the testing facility must affirm that the unit has the capability to energize its transmission bus such as verifying that the breaker close coil relay can be energized with the voltage and frequency monitor controls disconnected from the synchronizing circuits.

R3.4. Each *black start unit* shall be tested such that once the unit has been started, it shall continue to demonstrate its capability to operate in a stable condition while isolated from the power system for a minimum of ten minutes.

R3.5. With due regard for *reliability* considerations and subject to approval by the *Transmission Owner* and the *NYISO*, a test performed by *black start facilities*

in the *Transmission Owner's* SRP within one month beyond the *Capability Year* test period, or longer in force majeure cases, shall be considered a valid test for that *Capability Year*. Each *Black Start Provider* shall provide documentation of these test results to the appropriate entity in accordance with *NYISO* and *Transmission Owner* procedures.

R3.6. Each *Black Start Provider* shall annually provide a letter to the *NYISO* confirming that it identifies and maintains a list of critical components in its facilities (i.e., batteries, diesel back-up generators, inverters etc.) and performs tests to verify the condition of these critical components in accordance with good industry practice. Test results will be provided to the *NYISO* upon request.

R3.7. *Black Start Providers* shall attend *NYISO* and *Transmission Owner* restoration training as required.

C. Compliance

1. Measures

M1. The *NYISO* has developed a NYCA SRP in accordance with R1 that includes documented procedures specified by the sub-requirements R1.1 through R1.14. The *NYISO* also certified that it identified *NYISO* SRP black start facilities in accordance with R1.4., and completed certain actions, when required, in accordance with R1.5.2, R1.11 and R1.14.

M2. The *NYISO* certified that each TO has a SRP in accordance with R2 and each TO has confirmed that the black start *resource*s that each TO has identified as necessary for implementing its SRP will assure that the TO system will be restored in a safe and orderly manner, and as promptly as reasonably possible following a major or total blackout.

M3. As defined in R1 and R3, the *NYISO* certified that for the *Capability Year* specified by the *NYSRC*: (1) it received the annual letter from each *Black Start Provider* confirming that it maintained a list of critical components and tests these components accordingly, in accordance with R3.3, (2) it received sufficient documentation from each *Black Start Provider* showing that the *Black Start Provider* developed required test procedures and accordingly successfully tested its black start facilities for each *Capability Year*, in

accordance with R3.1, and (3) each *Black Start Provider* met *NYISO* training requirements, in accordance with R3.4.

2. Levels of Non-Compliance

2.1 <u>For Measure 1</u>

Level 1: The *NYISO* has an NYCA SRP, but the SRP failed to include procedures – or the *NYISO* failed to complete actions -- needed to fully comply with one of the sub-requirements within R1.

Level 2: The *NYISO* has an NYCA SRP, but the SRP failed to include procedures – or the *NYISO* failed to complete actions -- needed to fully comply with two of the sub-requirements within R1.
OR
The *NYISO* failed to identify *NYISO* black start facilities in accordance with R1.4.

Level 3: The *NYISO* has an NYCA SRP, but the SRP failed to include procedures– or the *NYISO* failed to complete actions – needed to fully comply with three of the sub-requirements within R1.

Level 4: The *NYISO* has an NYCA SRP, but the SRP failed to include procedures – or the *NYISO* failed to complete actions – needed to fully comply with four or more of the sub-requirements within R1.

2.2 <u>For Measure 2</u>

Level 1: The *NYISO* certified that all *Transmission Owners* have SRPs, but one or more failed to fully comply with one of the three of the black start testing, SRP coordination, or training requirements in their SRP's as specified in R2.1, R2.3 and R2.3.

Level 2: The *NYISO* certified that all *Transmission Owners* have SRPs, but one or more failed to fully comply with two of three of the black start testing, SRP coordination, or training requirements in their SRP's as specified in R2.1, R2.2 and R2.3.
OR
The *NYISO* certified that one or more *Transmission Owner* failed to confirm that black start *resource*s it has identified will assure that its

system will be restored in a safe and orderly manner, and as promptly as reasonably possible.

Level 3: The *NYISO* certified that all *Transmission Owners* have SRPs, but one or more failed to fully comply with all of the black start testing, SRP coordination, and training requirements in their SRP's as specified in R2.1, R2.2 and R2.3.

Level 4: The *NYISO* certified that one or more *Transmission Owners* do not have a SRP.

2.3 <u>For Measure 3</u>

Level 1: N/A

Level 2: The *NYISO* certified that, for the *Capability Year* specified by the *NYSRC*, one or more *Black Start Providers* did not address one or more of the testing requirements in their test procedures as specified in R1.3.

Level 3: The *NYISO* certified that, for the *Capability Year* specified by the *NYSRC*, one or more *Black Start Providers* did not provide a letter to the *NYISO* satisfying required testing of critical facility components,
OR
The *NYISO* certified that one or more *Black Start Providers* failed to attend restoration training as required by the *NYISO* or *Transmission Owner*.

Level 4: The *NYISO* certified that, for the *Capability Year* specified by the *NYSRC*, one or more *Black Start Providers* did not comply with black start facility testing requirements in accordance with R1, R2, R3, and *NYISO* or *Transmission Owner* procedures or schedules.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- M1: RCMS
- M2: *NYISO*/RCMS
- M3: *NYISO/*RCMS

F. System Restoration, cont.

3.2 Compliance Documentation Reporting Frequency

- M1: In accordance with *NYSRC* Compliance Monitoring Program schedule.
- M2: Annually
- M3: Annually

3.3 Compliance Reporting Requirements

- M1: *NYISO* Self-Certification
- M2**:** *NYISO* Certification of TO Compliance
- M3: *NYISO* Certification of *Black Start Provider* Compliance

G. LOCAL AREA OPERATION

Introduction

*Local reliability rule*s have been adopted that apply to the New York City and Long Island *zones*. These *local reliability rule*s are more stringent and more specific than other *NYSRC* Reliability Rules because of the need to protect the reliable delivery of electricity to these *zone*s in light of their specific electric system characteristics and *load* density. These characteristics include unique circumstances and complexities related to the maintenance of reliable transmission service, and the consequences that would result from failure to provide uninterrupted service. Any constraints imposed by the more stringent or specific design and operation criteria in these *local reliability rule*s shall be observed in daily operations.

Certain of these Reliability Rules have been instituted as the result of NYS Public Service Commission orders or directives. The *local reliability rules* in this rule group apply to the New York City (G.1, G.2, and G.4) and Long Island (G.3) *zones*.

Local Area Operation Reliability Rules

	Reliability Rule
G.1	New York City System Operations
G.2	Loss of Gas Supply – New York City
G.3	Loss of Gas Supply – Long Island
G.4	System Restoration from Eligible Black Start Resources

G.1: New York City System Operations

A. Reliability Rule

Con Edison shall plan and operate certain areas of the *NYS Bulk Power System* to meet more stringent local *reliability* requirements than the rest of the *NYS Bulk Power System*.

1. **Associated NERC and NPCC Standards and Criteria:**
   None

2. **Applicability:** *NYISO* and Con Edison

B. Requirements

R1. Certain areas of the Con Edison system shall be designed and operated for the occurrence of a second *contingency*.

R2. Unit commitment in the New York City (NYC) *zone* shall be based on second *contingency* operation and consideration of the Storm Watch Procedure, loss of the six lines south of Millwood, and the locational requirements for *operating reserves*.

R3. Sufficient *ten (10) minute operating reserves* shall be maintained in the NYC *zone* as follows:

R3.1. The *ten (10) minute operating reserve* for *NYCA* shall be determined in accordance with Reliability Rules.

R3.2. A percentage of the *ten (10) minute NYCA operating reserves* equal to the ratio of the NYC *zone* peak *load* to the statewide peak *load* shall be required to be selected from *resources* located within the NYC *zone*.

R3.3. NYC *zone ten (10) minute operating reserves* shall be maintained at all levels of dispatch, except as necessary to alleviate *emergency* conditions.

R4. Con Edison shall operate its system as if the first *contingency* has already occurred on its northern transmission system when thunderstorms are within one hour of the system or are actually being experienced**.**

R5. The *NYISO* shall document, maintain, and publish requirements for Con Edison to develop procedures for operating its system in accordance with R1, R2, and R4, including notification of the *NYISO* when actions are taken in accordance with these *local reliability rules*, and the reasons thereof. The *NYISO* shall review and approve Con Edison procedures and required studies, including any updates to such procedures and studies.

R6. The *NYISO* shall have in place procedures to ensure that sufficient *ten (10) minute reserves* are maintained in the NYC *zone* in accordance with R3.

R7. Con Edison shall have in place procedures for operating its system in accordance with R1, R2, R3, R4, and *NYISO* requirements. These procedures must include notification to

the *NYISO* when actions are taken in accordance with these requirements, and the reasons thereof.

C. Compliance

1. Measures

M1. The *NYISO* made available and provided upon request, complete documentation for implementing R5.

M2. The *NYISO* has required procedures in place and operated the NYCA system to ensure implementation of R6.

M3. The *NYISO* certified that Con Edison submitted, when requested, documents, reports, and analyses in accordance with *NYISO* requirements and R7.

2. Levels of Non-Compliance

2.1 For M1:

Level 1: Not applicable.

Level 2: *NYISO* documentation for implementing R5 was provided when requested, but was incomplete in one or more areas.

Level 3: Not applicable.

Level 4: The required *NYISO* documentation for implementing Rules R5 was not provided when requested.

2.2 For M2:

Level 1: Not applicable

Level 2: The *NYISO* has required procedures in place, but they are incomplete in one or more areas.

Level 3: Not applicable

Level 4: The required *NYISO* procedures not available or were not provided.

2.3 For M3:

Level 1: Not applicable

G. Local Area Operation, cont.

Level 2: Con Edison transmitted requested information to the *NYISO*, but the submitted documents, reports, and analyses did not meet R7 or *NYISO* requirements in one or more areas.

Level 3: Not applicable

Level 4: Con Edison failed to supply the *NYISO* with requested documents, reports, and analyses in accordance with R7 or *NYISO* requirements.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

M1: RCMS
M2: RCMS
M3: *NYISO*/RCMS

3.2 Compliance Documentation Reporting Frequency

M1: In accordance with *NYSRC* Compliance Monitoring Program schedules.
M2: In accordance with *NYSRC* Compliance Monitoring Program schedules.
M3. Annually

3.3 Compliance Reporting Requirements

M1: *NYISO* Self-Certification
M2: *NYISO* Self-Certification
M3: Certification of Con Edison compliance

G.2: Loss of Gas Supply – New York City

A. Reliability Rule

The *NYS Bulk Power System* shall be operated so that the loss of a single gas facility does not result in the loss of electric *load* within the New York City *zone.*

1. **Associated NERC and NPCC Standards and Criteria:**
   None

2. **Applicability:** *NYISO*, Con Edison, and Generator Owners of combined cycle units that are part of the Minimum Oil Burn program

B. Requirements

R1. The *NYISO* shall document, maintain, and publish requirements for operating the New York City zone to comply with G.2. These requirements shall include:

R1.1 A requirement for Con Edison to prepare procedures and studies for implementing actions for complying with G.2. The *NYISO* shall review and approve these Con Edison procedures and studies.

R1.2 A requirement for Con Edison to submit to the *NYISO* the dates when actions in accordance with R.1.1 procedures are invoked.

R1.3 A requirement for the *NYISO* to submit dates and descriptions of R1.2 required actions – when implemented by Con Edison – to the NYSRC when requested.

R2. Con Edison shall have in place procedures for operating its system to comply with G.2 and NYISO procedures in accordance with R1.1. Con Edison shall notify the *NYISO* when actions are taken in accordance with R1.2.

R3. The *NYISO* shall document, maintain and publish the current list of dual fuel units that are part of the Minimum Oil Burn (MOB) program.

R4. The *NYISO* shall have procedures requiring Generating Owners of combined cycle units that are part of the MOB program, which have the ability to automatically swap from natural gas to a liquid fuel source in the event of the sudden interruption of gas fuel

G. Local Area Operation, cont.

supply or loss of gas pressure or unavailability of gas supply to the generator, to test to ensure those units are able to perform their intended function.

R4.1 The *NYISO* procedures shall require a unit to complete a successful test of the automatic swap from natural gas to a liquid fuel during each *Capability Period*.

The requirement for a test can be substituted by a real-time automatic fuel swap, if that fuel swap was successful and occurred during the current *Capability Period*.

R4.2 The *NYISO* procedures shall identify the appropriate parameters for a test to be considered successful.

R5. Each Generator Owner of a combined cycle unit that is part of the MOB Program, which has the ability to automatically swap from natural gas to a liquid fuel source in the event of the sudden interruption of gas fuel supply or loss of gas pressure or unavailability of gas supply to the generator, shall develop and implement test procedures in accordance with requirement R4 to ensure those combine cycle units are able to perform their intended functions. These procedures shall be provided to the NYISO and Con Edison.

R6. Each Generator Owner of a combined cycle unit that is part of the MOB program, which has the ability to automatically swap from natural gas to a liquid fuel source in the event of the sudden interruption of gas fuel supply or loss of gas pressure or unavailability of gas supply to the generator, shall test its dual fuel capability per requirements R4 and R5.

R6.1 If the automatic swap from natural gas to liquid fuel test is not successful, the Generator Owner shall identify the causes of the failure, shall take steps to undertake remedial actions that are necessary to resolve the failure and keep the NYISO and Con Edison informed as to the progress of its remedial actions.

C. Compliance

1. Measures

M1. The *NYISO* certified that (1) it has requirements in place for Con Edison to prepare procedures and studies, and that the *NYISO* has approved such Con Edison procedures and studies, in accordance with the R1.1 requirements; (2) that Con Edison reported to the *NYISO* when actions were invoked, in accordance with R1.2;

and (3) that it submitted Con Edison actions and their dates to the NYSRC when requested, in accordance with R1.3.

M2. The NYISO certified that Con Edison procedures and studies for complying with G.2 are in accordance with R1.1 and R1.2 requirements; and that Con Edison notified the NYISO when actions for complying with G.2 were taken, in accordance with R1.2 and R2 requirements.

M3. The *NYISO* documented, maintained and published a current list of dual fuel generating units that are part of the MOB program in accordance with the R3. The *NYISO* also had in place procedures, in accordance with R4, requiring all Generator Owners of combined cycle units that are part of the MOB program, which have the ability to automatically swap from natural gas to a liquid fuel source in the event of the sudden interruption of gas fuel supply, loss of gas pressure or unavailability of gas supply to the generator, to test to ensure those units are able to perform their intended functions, including identification of parameters for a test to be considered successful.

M4. The *NYISO* certified that each Generator Owner of a combined cycle unit that is part of the MOB program, which has the ability to automatically swap from natural gas to a liquid fuel source in the event of the sudden interruption of gas fuel supply, loss of gas pressure or unavailability of gas supply to the generator, developed and implemented test procedures in accordance with requirement R5.

M5. The NYISO certified that each Generator Owner of a combined cycle unit that is part of the MOB program, which has the ability to automatically swap from natural gas to a liquid fuel source in the event of the sudden interruption of gas fuel supply, loss of gas pressure or unavailability of gas supply to the generator, tested its dual fuel capability per requirements R4, R5, and R6. In addition, per requirement R6.1, if a dual fuel test was not successful, the Generator Owner identified the causes of the failure and took steps to undertake remedial actions that were necessary to resolve the failure and kept the *NYISO* and Con Edison informed as to progress of its remedial actions.

G. Local Area Operation, cont.

2. Levels of Non-Compliance

2.1 For Measure 1:

Level 1: Not applicable

Level 2: The *NYISO* did not submit a list of actions taken by Con Edison and their dates to the NYSRC when requested.

Level 3 Not applicable

Level 4: The *NYISO* failed to provide Con Edison with requirements for preparing procedures and studies for meeting R1.1 requirements, or the *NYISO* failed to approve such Con Edison procedures and studies.

2.2 For Measure 2:

Level 1: Not applicable.

Level 2: Con Edison failed to transmit requested documents, reports and analyses to the *NYISO*.

Level 3: Con Edison failed to report actions taken for meeting R2 and *NYISO* requirements to the *NYISO*.

Level 4: Con Edison procedures for R2 and *NYISO* requirements were not available or incomplete.

2.3 For Measure 3:

Level 1: Not applicable.

Level 2: *NYISO* procedures requiring all Generator Owners of combined cycle units that are part of the MOB program, which have the ability to automatically swap from natural gas to a liquid fuel source in the event of the sudden interruption of gas fuel supply or loss of gas pressure or unavailability of gas supply to the generator, to test their dual fuel capability, including identification of parameters for a test to be considered successful have been prepared, but were incomplete in one or more areas.

Level 3: Not applicable.

Level 4: *NYISO* procedures requiring all Generator Owners of combined cycle units that are part of the MOB program, which have the ability to automatically swap from natural gas to a liquid fuel source in the event of the sudden interruption of gas fuel supply or loss of gas pressure or unavailability of gas supply to the generator, to test their dual fuel capability, including identification of parameters for a test to be considered successful have not been prepared.

2.4 For Measure 4:

Level 1: Not applicable.

Level 2: The *NYISO* certified that the required test procedure that was provided was complete, but was not submitted to the *NYISO* -- by one or more Generator Owners.

Level 3: The *NYISO* certified that the required test procedure was submitted to the *NYISO* – by one or more Generator Owners – on time, but was incomplete in one or more areas.

Level 4: The *NYISO* certified that the required test procedure from one or more dual fuel units was not submitted to the *NYISO*.

2.5 For Measure 5:

Level 1: Not applicable.

Level 2: Not applicable.

Level 3: Not applicable.

Level 4: The *NYISO* certified that the required dual fuel test (1) has not been performed, or (2) the required test has been unsuccessfully performed and the Generator Owner is not progressing with remedial actions.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

M1: RCMS

M2: *NYISO*/RCMS

M3: RCMS
M4: *NYISO*/RCMS
M5: *NYISO*/RCMS

3.2 Compliance Documentation Reporting Frequency

M1: In accordance with *NYSRC* Compliance Monitoring Program schedules
M2: Annually
M3: In accordance with *NYSRC* Compliance Monitoring Program schedules
M4: Annually
M5: Annually

3.3 Compliance Reporting Requirements

M1: *NYISO* Self-Certification
M2: *NYISO* Certification of Con Edison compliance
M3: *NYISO* Self-Certification
M4: *NYISO* Certification of dual fuel unit compliance
M5: *NYISO* Certification of dual fuel unit compliance

D. Guidelines

There are applications, approved by the *NYISO* for implementing this Reliability Rule, which specify minimum oil burn requirements for select generators in New York City.

From time to time, changes in system conditions and other circumstances may render existing applications inadequate, or may require alternate applications. Con Edison with *NYISO* review and approval, shall determine whether revised or additional applications are necessary to meet this Reliability Rule and associated measurements. Any changes must be reviewed by the *NYSRC* for compliance with the Reliability Rules.

G.3: Loss of Gas Supply – Long Island

A. Reliability Rule

The *NYS Bulk Power System* shall be operated so that the loss of a single gas facility does not result in the *uncontrolled loss of electric load* within the Long Island *zone.*

1. **Associated NERC and NPCC Standards and Criteria:**
   None

2. **Applicability:** *NYISO* and LIPA

B. Requirements

R1. The *NYISO* shall document, maintain and publish requirements for operating the Long Island Zone to comply with G.3. These requirements shall include:

R1.1 A requirement for LIPA to prepare procedures and studies for implementing actions for complying with G.3. The *NYISO* shall review and approve these LIPA procedures and studies.

R1.2 A requirement for the LIPA to submit to the *NYISO* the dates when actions in accordance with the R1.1 procedures are invoked.

R1.3 A requirement for the *NYISO* to submit dates and descriptions of R1.2 required actions – when implemented by LIPA – to the NYSRC when requested.

R2. LIPA shall have in place procedures for operating its system to comply with G.3 and NYISO procedures in accordance with R1.1 and R2. LIPA shall notify the NYISO when actions are taken in accordance with R1.2 and R2.

C. Compliance

1. **Measures**

M1. The *NYISO* certified that (1) it has requirements in place for LIPA to prepare procedures and studies, and that the NYISO has approved such LIPA procedures and studies, in accordance with R1.1 requirements; (2) that LIPA reported to the *NYISO* when actions were invoked, in accordance with R1.2; and (3) it submitted LIPA actions and their dates to the NYSRC when requested, in accordance with R1.3.

M2. The *NYISO* certified that LIPA procedures and studies for complying with G.3 are in accordance with R1.1 and R2 requirements; and that LIPA notified the *NYISO* when actions for complying with G.3 were taken, in accordance with R1.2 and R2 requirements.

2. Levels of Non-Compliance

2.1 For M1:

Level 1: Not applicable

Level 2: The *NYISO* did not submit a list of actions taken by LIPA and their dates to the NYSRC when requested.

Level 3: Not applicable

Level 4: The *NYISO* failed to provide LIPA with requirements for preparing procedures and studies for meeting R1.1 requirements, or the *NYISO* failed to approve such LIPA procedures and studies.

2.2 For M2:

Level 1: Not applicable.

Level 2: LIPA failed to transmit requested documents, reports and analyses to the *NYISO*.

Level 3: LIPA failed to report actions taken for meeting R2 and *NYISO* requirements to the *NYISO*.

Level 4: LIPA procedures for meeting R2 and *NYISO* requirements were not available or incomplete.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

M1: RCMS
M2: NYISO/RCMS

3.2 Compliance Documentation Reporting Frequency

M1**:** In accordance with *NYSRC* Compliance Monitoring Program schedules.

M2: Annually

3.3 Compliance Reporting Requirements

M1: *NYISO* Self-Certification

M2: *NYISO* Certification of LIPA compliance

E. Guidelines

There are applications, approved by the *NYISO* for implementing this Reliability Rule, which specify minimum oil burn requirements for select generators in Long Island.

From time to time, changes in system conditions and other circumstances may render existing applications inadequate, or may require alternate applications. LIPA with *NYISO* review and approval, shall determine whether revised or additional applications are necessary to meet this Reliability Rule and associated measurements. Any changes must be reviewed by the *NYSRC* for compliance with the Reliability Rules.

G.4: System Restoration from Eligible Black Start Resources

A. Reliability Rule

The NYCA SRP shall allow for the inclusion or continued inclusion of any *Eligible Black Start Resource* in the Con Edison SRP that would provide a *Material Benefit* to its SRP if included.

1. **Associated NERC and NPCC Standards and Criteria:**
   None
2. **Applicability:** *NYISO* and Con Edison

B. Requirements

R1. The *NYISO* shall have procedures and implement actions to provide for the inclusion or continued inclusion of any *Eligible Black Start Resource* in the Con Edison SRP, as follows:

R1.1. Con Edison shall perform and document studies to identify any *Eligible Black Start Resource* that would provide a *Material Benefit* to its SRP if included. These studies shall be conducted whenever changes to relevant system conditions may affect the results of the previous study.

For this requirement, "relevant system conditions" are defined as:

> An existing black start resource leaves the NYISO Black Start and System Restoration Services Program, or the cranking path (a portion of the electric system that can be isolated and then energized to deliver electric power from a generation source to enable the startup of one or more other generating units) utilized in the SRP has been permanently altered.

R1.2. If Con Edison identifies an *Eligible Black Start Resource* that would provide a *Material Benefit* to its SRP if included based on a study pursuant to R1.1, Con Edison shall designate the *resource* for participation in its SRP. Con Edison shall notify the *NYISO* and the applicable generator owner that the *resource* has been designated for participation or continued participation as a black start *resource* in its SRP. This notification shall be accompanied by supporting rationale and documentation, including a Con Edison study, subject to appropriate confidentiality protections. The *NYISO* may request additional documentation, as required, from Con Edison.

G. Local Area Operation, cont.

R1.3. If the owner of the *Eligible Black Start Resource* designated by Con Edison pursuant to R1.2 does not want to participate or continue to participate in the Con Edison SRP, it must seek an exemption from the *NYISO* for good cause.

R1.3.1. The *NYISO* shall require the owner of the *Eligible Black Start Resource* seeking an exemption to provide to the *NYISO* and Con Edison a study and/or other documentation to support its contention that good cause exists for the exemption. Good cause may include engineering, technical, financial, environmental, or other reasons that would render the provision or continued provision of black start service by the *resource* unduly burdensome or unreasonable.

R1.3.2. After reviewing the documentation pursuant to R1.3.1, the *NYISO* may request additional documentation from the *Eligible Black Start Resource* requesting the exemption or from Con Edison.

R1.3.3. The *NYISO* shall determine whether good cause for an exemption has been demonstrated after considering: (1) the supporting documentation submitted by the *resource* owner seeking the exemption, and (2) information developed by the *NYISO* or provided by Con Edison. If the *NYISO* determines that good cause has been demonstrated for an exemption, it shall grant the exemption. If the *NYISO* determines that good cause has not been demonstrated, it shall deny the exemption and direct the black start *resource* to participate or continue to participate in the Con Edison SRP.

R1.3.4. The *NYISO* shall inform the *NYSRC* that an exemption request has been made and submit a report to the *NYSRC* regarding its determination, subject to appropriate confidentiality protections.

R2. Con Edison shall have procedures and implement actions for the identification of *Eligible Black Start Resources* in accordance with R1 and *NYISO* procedures, as follows:

R2.1. Con Edison shall perform and document studies to identify *Eligible Black Start Resources* that would provide a *Material Benefit* to its SRP if included. These studies shall be conducted whenever changes to relevant system conditions may affect the results of the previous study.

For this requirement, "relevant system conditions" are defined as:

An existing black start resource leaves the NYISO Black Start and System Restoration Services Program, or the cranking path (a portion of the electric system that can be isolated and then energized to deliver electric power from a generation source to enable the startup of one or more other generating units) utilized in the SRP has been permanently altered.

R2.2. If Con Edison identifies an *Eligible Black Start Resource* that would provide a *Material Benefit* to its SRP if included based on a study pursuant to R2.1, it shall designate the *resource* for participation or continued participation in its SRP. Con Edison shall notify the *NYISO* and the applicable generator owner that the *resource* has been designated for participation or continued participation as a black start *resource* in its SRP. This notification shall be accompanied by supporting rationale and documentation, including a Con Edison study, subject to appropriate confidentiality protections. If requested, Con Edison shall provide additional documentation to the *NYISO*.

R2.3. If, after being notified that it has been designated as a *Eligible Black Start Resource* for participation or continued participation in the Con Edison SRP, the owner of the *resource* does not want to participate or continue to participate, Con Edison shall prepare supplemental information, if requested by the *NYISO*, for use in a *NYISO* review to determine whether an exemption for the *resource* from participation or continued participation in the Con Edison SRP shall be granted or denied pursuant to R1.3.3.

C. Compliance

1. Measures

M1. The *NYISO* has documented procedures and has implemented actions for Con Edison to designate *Eligible Black Start Resources* in the Con Edison SRP, in accordance with requirements in R1.

M2. Con Edison provided evidence that: (1) Con Edison has prepared procedures for identifying *Eligible Black Start Resources,* in accordance with R2; (2) Con Edison performed and documented a study for identifying Eligible Black Start Resources conducted during the past 12 months, or certified that a study was not required because there were no changes to relevant system conditions that would have affected the results of the previous study, in accordance with R2.1; (3) Con Edison submitted to the NYISO its methodology and/or study that identified a *Eligible Black Start Resource* that would provide a *Material Benefit* to its SRP, in accordance with R2.2; and (4) when a *Eligible Black Start Resource* that was designated to participate

in the Con Edison SRP did not want to participate or continue to participate, Con Edison prepared supplemental information requested by the *NYISO*, in accordance with R2.3.

2. Levels of Non-Compliance

2.1 For M1:

Level 1: Not applicable.

Level 2: The *NYISO* has procedures and implemented required actions for Con Edison to identify *Eligible Black Start Resources,* but the *NYISO* did not fully comply with required actions in R1.3 when an *Eligible Black Start Resource* requests an exemption.

Level 3: Not applicable.

Level 4: The *NYISO* does not have procedures nor implemented actions for Con Edison to identify *Eligible Black Start Resources*.

2.2 For M2:

Level 1: Not applicable

Level 2: Con Edison has procedures for identifying *Eligible Black Start Resources* for inclusion or continued inclusion in its SRP, but the procedures were incomplete.

Level 3: Con Edison did not submit its black start *resource* identification methodology or study or other information to the *NYISO* when requested, in accordance with R2.2 and R2.3.

Level 4: Con Edison failed to conduct a study for determining the need to include or continue to include any *Eligible Black Start Resources* in its SRP when required and did not certify that the study was not needed because there were no changes to relevant system conditions that would have affected the results of the previous study, as required by R2.1.

G. Local Area Operation, cont.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

M1: RCMS

M2: *NYISO*/RCMS

3.2 Compliance Documentation Reporting Frequency

M1: In accordance with *NYSRC* Compliance Monitoring Program schedules.

M2: Annually

3.3 Compliance Reporting Requirements

M1: *NYISO* Self-Certification.

M2: *NYISO* Certification of Con Edison compliance.

H. CONTROL CENTER COMMUNICATIONS

Introduction

Adequate and reliable data and telecommunication *interface*s between the *NYISO* and *Market Participants* are essential for the exchange of necessary operating information. This Section covers requirements for developing *NYISO* procedures necessary for supporting the required *NYISO*/*Market Participant* communication facilities for meeting this objective.

H.1: Control Center Communications

A. Reliability Rule

The *NYISO* shall install and maintain adequate and reliable facilities for data and voice communications with *Transmission Owner*s for the exchange of operating information necessary to maintain *reliability*.

1. **Associated NERC and NPCC Standards and Criteria:**
   NPCC: None
   NERC: COM-001 and COM-002
2. **Applicable Entities:** *NYISO*

B. Requirements

R1. *NYISO*/*Market participant* Communications

Procedures shall be developed to support communications between the *NYISO* and *Market Participants* during both normal and off-normal conditions. These procedures shall recognize the need for *NYISO*/*Market Participant* voice communications using *emergency* hot lines and "red phones" during off-normal conditions.

R2. *NYISO* Communications Under *Emergency* Conditions

Procedures shall be developed to support data and voice communications between the *NYISO* and *Market Participants* to ensure safe and reliable operations under the following *emergency* conditions:

a. Failure of data and/or voice communications between the *NYISO* and *Market Participants*.

b. *Emergency* transfer of control after evacuation of the *NYISO* Power Control Center.
c. Continued operations from the *NYISO* Alternate Control Center.

The procedures shall identify how various systems are monitored for *availability* and include methods of tracking performance measures of system *availability*.

R3. The *NYISO* shall prepare reports summarizing performance data of control center communication *interface*s. These reports shall be provided to the *NYSRC* on request or when significant changes are made, and shall include a tracking basis of historical performance of voice and data communication equipment.

R4. The *NYISO* shall provide to the *NYSRC* within one month a report summarizing any loss of critical voice and/or data systems. The report shall describe the problem and its relationship to the control of the *NYS Bulk Power System*, the cause of the problem, the corrective action, and implementation schedule.

C. Compliance

1. Measures

M1. The *NYISO* established procedures for *NYISO* to *Market Participant* communications such that communications are consistent, efficient, and effective during normal and *emergency* conditions. These procedures included requirements for enabling operation to continue during loss of communication facilities, including specific requirements of R1 and R2.

M2. When requested, the *NYISO* provided the *NYSRC* reports providing performance data of control center communications *interface*s in accordance with R3.

M3. The *NYISO* provided to the *NYSRC* a report of the loss of critical voice and data systems in accordance with R4.

2. Levels of Non-Compliance

2.1 <u>For Measure 1</u>

Level 1: Not applicable.
Level 2: *NYISO* operator communications procedures have been developed, but they do not include all of the required items.
Level 3: Not applicable.
Level 4: There are no *NYISO* communications procedures in place.

2.2 <u>For Measure 2</u>

Level 1: Not applicable.

Level 2: The required *NYISO* report was provided when requested, but was incomplete in one or more areas.

Level 3: Not applicable.

Level 4: The required *NYISO* report was not provided when requested.

2.3 <u>For Measure 3</u>

Level 1: Not applicable.

Level 2: The required *NYISO* report was provided, but was incomplete in one or more areas.

Level 3: Not applicable.

Level 4: The required *NYISO* report was not provided.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- M1: RCMS
- M2: RCMS
- M3: RCMS

3.2 Compliance Documentation Reporting Frequency

- M1: In accordance with *NYSRC* Compliance Monitoring Program schedule.
- M2: In accordance with *NYSRC* Compliance Monitoring Program schedule.
- M3: When required.

3.3 Compliance Reporting Requirements

- M1: *NYISO* Self-Certification.
- M2: Complete documentation.
- M3: Complete documentation.

I. MODELING AND DATA

Introduction

System modeling is the first step toward planning and operating a reliable *NYS Bulk Power System*. The development of system modeling data to realistically simulate the operation of *resource* and transmission facilities is essential for planning and operating studies used to assess electric system *reliability*. To achieve this purpose, the Reliability Rules establish requirements for the development and submission of complete, accurate, and timely data necessary for *NYSRC* studies for establishing statewide *IRM* requirements and various *NYISO resource* and transmission analyses and assessments required by the Reliability Rules and *NYISO* procedures.

System modeling data required under this section includes *resource capacity* verification testing, generating unit *availability*, system data, and *load* forecasting.

Modeling and Data Reliability Rules

	Reliability Rule
I.1	Verification Testing of Resource Capacity
I.2	Generating Unit Availability and Special Case Resource Performance
I.3	Load Forecasting
I.4	Transmission Data

I.1: Verification Testing of Resource Capacity

A. Reliability Rule

Equipment used for providing resource capacity shall be tested to verify *capacity* data.

1. **Associated NERC and NPCC Standards and Criteria:**
   NPCC: Directories 9 & 10 (To be retired July 1, 2019)
   NERC: FAC-008, MOD-025, TOP-002

2. Applicable Entities: *NYISO* and *Generation Owners* (GO)

B. Requirements

R1. The *NYISO* shall establish and maintain procedures for *resource capacity* data verification testing or demonstration for all equipment utilized for providing *installed capacity* to the NYCA.

R.1.1 The data to be provided to the *NYISO* shall include *resource net dependable capacity* for all *resource*s that are participating in the *NYISO installed capacity* market. The procedures shall include requirements for *resource* providers to provide to the *NYISO* the net MW at the time of the DMNC test.

R.1.2 The *NYISO* procedures shall provide dependable net *capacity* data to the operating function of the *Transmission Owner* that the *resource* connects to, within 60 calendar days following the close of the seasonal *Capability Period* or annual test period, respectively. Documentation of the *NYISO* procedures and verification results shall be provided to the *NYSRC* upon request.

R2. The *NYISO* shall establish and maintain procedures for *resource capacity* data verification testing or demonstration for all equipment utilized for providing *reactive power capacity* to the NYCA.

R.2.1 The data to be provided to the *NYISO* shall include *reactive power capacity* for all *resource*s that are voltage support ancillary service providers. The procedures shall include requirements for *resource* providers to provide to the *NYISO* the net MW and gross MVAr quantities taken simultaneously at the time of the *reactive power capability* test. These *reactive power* tests shall be undertaken for both leading and lagging *reactive power* operation.

R.2.1 *NYISO* procedures shall include a requirement that, following leading *reactive power* testing, each *Generation* Equipment Owner shall provide a certification to the *NYISO* that the data submitted for the leading *reactive power* test accurately demonstrates the maximum leading *reactive power* of the generator at the time of the test.

R.2.3 The *NYISO* shall provide gross *reactive power capacity* data to the operating function of the *Transmission Owner* that the *resource* connects to, within 60

calendar days following the close of the seasonal *Capability Period* or annual test period, respectively. Documentation of the *NYISO* procedures and verification results shall be provided to the *NYSRC* upon request.

R3. Owners of *resources* responsible for providing *ICAP* shall seasonally verify the *net dependable capacity* of their equipment and report these results to the *NYISO* in accordance with *NYISO* procedures and schedules as required in R1.

R4. *Generation* Equipment Owners shall annually perform lagging *reactive power* tests for all generators that are voltage support ancillary service providers. *Generation* Equipment Owners shall perform leading *reactive power* tests once every three calendar years for all generators that are voltage support ancillary service providers. These tests shall verify the maximum *reactive power capacity* offered into the voltage support service program. Test results shall be reported to the *NYISO*, in accordance with *NYISO* procedures and schedules as required in R1.

C. Compliance

1. Measures

M1. The *NYISO* established and maintained *resource capacity* verification procedures in accordance with R1 and R2. The schedule for the testing of *generation* equipment and the schedule for submission of the verification or tests to the *NYISO* was included in these *NYISO* procedures. The dependable net *capacity* and gross reactive *capacity* data was forwarded to the operating function of the *Transmission Owner* in accordance with time requirements specified in R1 and R2.

M2. The *NYISO* certified that all applicable *Generation Owner*s responsible for providing ICAP verified the *net dependable capacity* of their equipment and reported these results to the *NYISO* as specified by *NYISO* procedures and schedules under R1, in accordance with R3.

M3. The *NYISO* certified that all applicable *Generation Owner*s performed tests to verify the *reactive power capacity* for their generators, and reported these test results to the *NYISO* as specified by *NYISO* procedures and schedules under R2, in accordance with R4.

I. Modeling and Data, cont.

2. Levels of Non-Compliance

2.1 For Measure 1

Level 1: Not applicable.

Level 2: Documentation of *NYISO* procedures for *resource capacity* equipment testing did not meet R1 and R2 requirements in one or more areas.

Level 3: The *NYISO* did not provide *capacity* data to the *Transmission Owners* within the time requirements specified in R1 and R2.

Level 4: Documentation of *NYISO* procedures for *resource capacity* equipment testing in accordance with R1 and R2 requirements were not provided.

2.2 For Measure 2

Level 1: The *NYISO* certified that one *Generation Owner* did not submit complete verified dependable net *capacity* test results to the *NYISO* as required by *NYISO* procedures and R3.

Level 2: The *NYISO* certified that two *Generation Owner*s did not submit complete verified dependable net *capacity* test results to the *NYISO* as required by *NYISO* procedures and R3.

Level 3: The *NYISO* certified that three *Generation Owner*s did not submit complete verified dependable net test results to the *NYISO* as required by *NYISO* procedures and R3.

Level 4: The *NYISO* certified that four or more *Generation Owners* did not submit complete verified dependable net *capacity* test results to the *NYISO* as required by *NYISO* procedures and R3.

I. Modeling and Data, cont.

2.3 <u>For Measure 3</u>

Level 1: The *NYISO* certified that one or more *Generation Owner*s failed to submit test results to the *NYISO* on schedule.

Level 2: The *NYISO* certified that generator *reactive power capacity* verification testing reports were incomplete in one or more areas for one or more generator owners, as specified by *NYISO* procedures.

Level 3: Not applicable.

Level 4: The *NYISO* certified that generator *reactive power capacity* verification tests was either not completed, or testing results not provided to the *NYISO*, as specified by *NYISO* procedures and schedules, for one or more Generator Owners.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- M1: RCMS
- M2: *NYISO*/RCMS
- M3: *NYISO*/RCMS

3.2 Compliance Documentation Reporting Frequency

- M1: In accordance with *NYSRC* Compliance Monitoring Program schedules.
- M2: Annually
- M3: Annually

3.3 Compliance Reporting Requirements

- M1: *NYISO* Self-Certification.
- M2: *NYISO* Certification of GO compliance.
- M3: *NYISO* Certification of GO compliance.

I.2: Generating Unit Availability and Special Case Resource Performance

A. Reliability Rule

Accurate generating unit outage data and Special Case Resource performance data needed to analyze and model the *reliability* of the NYCA shall be collected and maintained.

1. **Associated NERC and NPCC Standards and Criteria:**
   NPCC: Directory 1
   NERC: None
2. **Applicable Entities:** *NYISO* and Installed Capacity Providers

B. Requirements

R1. The *NYISO* shall establish, maintain and follow procedures to address Installed Capacity Provider generating unit outage data reporting requirements and methods of processing outage data. These procedures shall be designed to provide complete, consistent and accurate data to support *NYSRC* and *NYISO reliability* studies. This data shall include, but not be limited to, forced, partial and maintenance outage statistics. *NYISO* outage data reporting and processing procedures shall include the following requirements:

R1.1. Installed Capacity Provider generating unit outage data reporting instructions.

R1.2. Installed Capacity Provider outage data reporting schedules.

R1.3. Training programs for Installed Capacity Providers that focus on proper generating unit outage data collection and reporting methods for submission of accurate data to the *NYISO*.

R1.4. The consequences to an Installed Capacity Provider of failing to submit complete, accurate and timely data to the *NYISO*.

R1.5. Due diligence *NYISO* processes for screening of all generating unit outage data received from Installed Capacity Providers. These processes shall be

I. Modeling and Data, cont.

designed to screen outage data and replace misreported outage data or *Suspect Data* with corrected or proxy data as necessary, and shall be employed by the *NYISO* before the data is used in *NYSRC* and *NYISO reliability* studies. On request by the *NYSRC*, the *NYISO* shall make available for inspection documentation covering its processes for reviewing and screening outage data.

R2. Installed Capacity Providers located in or serving the *NYCA* shall provide generating unit outage data for their generating units in accordance with *NYISO* procedures, tariffs and schedules for reporting outage data to the *NYISO*.

R3. The *NYISO* shall annually prepare, from generating unit outage data received under R1, a document depicting outage data statistics to be specified by the *NYSRC*, and submitted in accordance with *NYSRC* time schedules.

R4. The *NYISO* shall establish, maintain and follow procedures to address *Responsible Interface Party* reporting requirements for submitting performance data for all *installed capacity* associated with Special Case Resources (SCRs), and requirements for calculating SCR performance. These procedures shall be designed to provide estimates of the amount of *load* reduction that can be expected at the time of a SCR activation for supporting *NYSRC* and *NYISO reliability* studies. *NYISO* SCR performance data reporting and calculation procedures shall include the following requirements:

R4.1. Reporting requirements and instructions for Responsible *Interface* Parties to provide SCR performance data to the *NYISO*. These instructions shall include requirements that Responsible Interface Parties report data for any SCR that was required to provide *load* reduction for *NYISO*-deployed test or event.

R4.2. Reporting schedules for Responsible Interface Parties to provide SCR performance data to the *NYISO*.

R4.3. *NYISO* procedures for calculating and measuring SCR performance based on data received from the Responsible Interface Parties (R4.1 and R4.2).

R4.4. An annual report that presents SCR performance results for the most recent *Capability Year*, prepared in accordance with R4.3 and specified by the *NYSRC*. The report shall be submitted to the *NYSRC* in accordance with *NYSRC*

time schedules, no earlier than 90 days after the end of the *Capability Year*.

R5. Responsible Interface Parties serving the NYCA shall provide performance data to the *NYISO* for their Special Case Resources (SCRs) in accordance with R4 and *NYISO* procedures, tariffs and schedules.

C. Compliance

1. Measures

M1. The *NYISO* had full documentation of its generating unit outage data reporting procedures (R1.1 through R1.4) and outage data processing procedures (R1.5). The *NYISO* made available, on request, documentation describing its generating unit outage data processes. The *NYISO* provided documentation showing that it has employed its generating unit outage data processes for review and screening of all reported outage data, and corrected misreported outage data or developed proxy data, as necessary, before the data was used in *NYSRC* and *NYISO reliability* studies.

M2. The *NYISO* certified that, during the time period designated by the *NYSRC*, all Installed Capacity Providers reported generating unit outage data in accordance with applicable *NYISO* procedures, tariffs and schedules.

M3. The *NYISO* prepared the annual document depicting NYCA generating unit outage statistics from outage data received from Installed Capacity Providers, as specified in R3. This document was submitted to the *NYSRC* in accordance with *NYSRC* time schedules.

M4. The *NYISO* prepared documentation of its *Responsible Interface Party* SCR performance data reporting instructions (R4.1 and R4.2) and SCR performance data calculation procedures (R4.3). The *NYISO* prepared an annual report depicting SCR performance results – as specified by the *NYSRC* – and submitted to the *NYSRC* in accordance with *NYSRC* time schedules (R4.4).

M5. The *NYISO* certified that, during the previous *Capability Year*, all Responsible Interface Parties reported required information in accordance with R5 and applicable *NYISO* procedures, tariffs, and schedules and that the data provided was sufficient to provide a statistically valid estimate of the amount of *load* reduction that could be expected at the time of an SCR call.

2. Levels of Non-Compliance

2.1 <u>For Measure 1</u>

Level 1: *NYISO* generating unit outage data reporting and processing procedures were provided, but were incomplete relative to one of the five requirements defined in R1. Following a *NYSRC* request, the *NYISO* did not make available documentation describing its outage data processes.

Level 2: *NYISO* compliance documentation showed that not all reported generating unit outage data were reviewed, screened and corrected using the *NYISO* generating unit outage data process procedure before the data was used in *NYSRC* and *NYISO reliability* studies.

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Level 3: *NYISO* generating unit outage data reporting and processing procedures were provided, but were incomplete relative to two of the five sub-requirements defined in R1.

Level 4: *NYISO* generating unit outage data reporting and processing procedures were provided, but were incomplete relative to three or more of the five sub-requirements defined in R1.

2.2 <u>For Measure 2</u>

Level 1: The *NYISO* certified that an Installed Capacity Provider failed to report its generating unit outage data in accordance with *NYISO* data reporting schedules.

Level 2: The *NYISO* certified that generating unit outage data from an Installed Capacity Provider was found to be misreported after the data was used in *reliability* studies.

Level 3: The *NYISO* certified that generating unit outage data from a single Installed Capacity Provider was found to be misreported two or more times over a two-year period, after the data was used in *reliability* studies.

I. Modeling and Data, cont.

Level 4: The *NYISO* certified that an Installed Capacity Provider did not report its generating unit outage data in accordance with applicable *NYISO* procedures and tariffs.

2.3 For Measure 3

Level 1: Not applicable.

Level 2: The required document depicting NYCA generating unit outage statistics was not submitted to the *NYSRC*.

Level 3: Not applicable.

Level 4: Not applicable.

1.4 For Measure 4

Level 1: *NYISO* SCR performance data reporting instructions and calculation procedures were provided when requested, but were incomplete relative to R4.1, R4.2 and R4.3; or a SCR performance data report for the previous *Capability Year* (R4.4) was provided, but did not follow *NYSRC* specifications.

Level 2: Not applicable.

Level 3: The required annual report providing SCR performance data results for the previous *Capability Year* (R4.4) was not prepared.

Level 4: *NYISO* SCR performance data reporting instructions and calculation procedures in accordance with R4.1, R4.2, and R4.3 were not prepared.

2.5 For Measure 5

Level 1: The *NYISO* certified that one or more Responsible Interface Parties reported SCR information in accordance with *NYISO* instructions during the previous *Capability Year*, but did not meet *NYISO* reporting schedules.

Level 2: The *NYISO* certified that one or more Responsible Interface Parties reported SCR information during the previous *Capability Year*, but

failed to report this information in accordance with *NYISO* instructions.

Level 3: Not applicable.

Level 4: The *NYISO* certified that one or more Responsible Interface Parties failed to report required SCR information during the previous *Capability Year*.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- M1: RCMS
- M2: *NYISO/*RCM*S*
- M3: RCMS
- M4: RCMS
- M5: *NYISO*/RCMS

3.2 Compliance Documentation Reporting Frequency

- M1: In accordance with *NYSRC* Compliance Monitoring Program schedule.
- M2: Annually
- M3: Annually
- M4: In accordance with *NYSRC* Compliance Monitoring Program schedule.
- M5: Annually

3.3 Compliance Reporting Requirements

- M1: *NYISO* Self-Certification.
- M2: *NYISO* Certification of *LSE* Compliance
- M3: Generating Unit Outage Data
- M4: *NYISO* Self-Certification
- M5: *NYISO* Certification of *Responsible Interface Party* Compliance

I.3: Load Forecasting

A. Reliability Rule

Actual and forecast *demand*s and net energy for *load* data required for the analysis of the *reliability* of the *NYCA* shall be developed, provided, and maintained on an aggregated statewide, *transmission district*, and *zone* basis.

1. **Associated NERC and SPCC Standards and Criteria:**
   NPCC: Directory 1
   NERC: MOD-031
2. **Applicable Entities:** *NYISO*

B. Requirements

R1. The *NYISO* shall have documentation identifying the scope and details of the actual and forecast (a) *demand* data and (b) net energy for *load* data to be reported for system modeling and *reliability* analyses. The documentation of the scope and details of the data reporting requirements shall be available to the *NYSRC* on request.

R2. The following information shall be provided annually to the *NYSRC* as specified by *NYISO* procedures required under R1.

R2.1. Annual peak hour actual *demand*s in MW and net energy for *load* in gigawatthours (GWh) for the prior year, on an aggregated statewide and *transmission district* basis.

R2.2. Annual peak hour forecast *demand*s in MW (summer and winter) in MW and annual net energy in GWh for at least five years and to ten years into the future, on an aggregated statewide and *Transmission Owner* basis. In addition, annual peak hour forecast *demand*s for the *NYCA zones*, for a specified future period, will be provided to the *NYSRC* on request.

C. Compliance

1. Measures

M1. The *NYISO* prepared procedures specifying *load* data requirements in accordance with R1, which addressed the data requirements in R2, as well as a schedule for reporting this data.

M2. Aggregated actual and forecast demand and net energy for *load* data was provided when requested in accordance with R2.

2. Levels of Non-Compliance

2.1 <u>For Measure 1</u>

Level 1: Procedures specifying *load* data requirements were incomplete in one or more areas.

Level 2: Not applicable.

Level 3: Not applicable.

Level 4: Procedures specifying *load* data requirements were not provided.

2.2 <u>For Measure 2</u>

Level 1: Not applicable.

Level 2: Actual and forecast demand and energy data was not provided when requested in one or more of the areas as required by R2.

Level 3: Not applicable.

Level 4: No actual and forecast demand and energy data, as required by R2, was provided when requested.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- M1: RCMS
- M2: RCMS

3.2 Compliance Documentation Reporting Frequency

I. Modeling and Data, cont.

- M1: In accordance with *NYSRC* Compliance Monitoring Program schedule.
- M2: Annually

3.3 Compliance Reporting Requirements

- M1: *NYISO* Self-Certification.
- M2: Aggregated actual and forecast demand and net energy for *load* data was provided when requested.

I.4: Transmission Data

A. Reliability Rule

Accurate *load* flow, short circuit, and *stability* data bases required for planning and operating studies of the *NYS Bulk Power System* shall be developed and maintained. The data shall include appropriate detail from adjacent *control areas.*

1. **Associated NERC and NPCC Standards and Criteria:**
   NPCC: Directory 1
   NERC: MOD-001, FAC-008, IRO-010

2. **Applicable Entities:** *NYISO, Market Participants*

B. Requirements

R1. The *NYISO* shall establish and maintain procedures for the development and maintenance of load flow, short circuit, and *stability* data bases. These procedures shall:

R1.1. Require *Market Participants* to provide accurate and comprehensive equipment data for the data bases used to support technical analyses for the purpose of preserving the *reliability* of the *NYS Bulk Power System*. This data reporting procedure shall be conducted at least annually and shall include data submission schedules.

R1.2. Require *Market Participants* to report accurate and comprehensive equipment data for facilities that are installed or modified outside of the normal reporting process. This procedure shall address appropriate time requirements for reporting such data.

R1.3. Include data screening guidelines for checking the reasonableness of equipment data (*load* flow, short circuit and *stability* data) to identify *Suspect Data.* These guidelines shall specify reasonable data parameters.

R1.4. Require *Market Participants* to apply the data screening guidelines in R.1.3 to data provided to NYISO. In addition, the NYISO shall apply these screening

guidelines to data provided by the *Market Participants.*

R1.5. Require *Market Participants* to report to the *NYISO* data errors and corrections or *Suspect Data* that they may have identified. This procedure shall address appropriate time requirements for reporting such data.

R1.6. Require the *NYISO* to request verification or corrections of any *Suspect Data* from the *Market Participant* that provided the data.

R1.7. Require the *NYISO* to assess the potential for an adverse material impact of a *Market Participant's* data error on the *reliability* of the *NYS Bulk Power System* if the data error was used in planning or operating studies.

For this requirement, "adverse material impact" is defined as:

The *NYISO* assessment identifies a reliability violation on the *NYS Bulk Power System*, or the conclusions of a *NYISO* planning or operating study change as the result of the data error.

R2. Load flow, short-circuit, and *stability* data bases shall be updated by the *NYISO* on an annual basis or whenever system changes warrant an update, as specified by *NYISO* procedures required under R1. These data bases shall be made available per *NYISO* procedures.

R3. *Market Participants* shall:

R3.1. Review and update load flow, short circuit, and *stability* data bases as specified by *NYISO* procedures required by R.1.1.

R3.2. Report to the *NYISO* equipment data for equipment additions or modifications in accordance with NYISO procedures required by R.1.2.

R3.3. Apply data screening guidelines as required in R.1.4 and report to the *NYISO* data errors or Suspect Data that are identified in accordance with *NYISO* procedures required by R.1.5.

R3.4. Respond to *NYISO* requests for data verification or correction of *Suspect Data*

required by R.1.6.

R3.5. Respond to *NYISO* requests for supplemental data or other information required for its assessment of the material impact of a data error on the reliability of the *NYS Bulk Power System* after the misreported data was used in planning or operating studies, in accordance with *NYISO* procedures required by R.1.7.

C. Compliance

1. Measures

M1. The *NYISO* provided evidence that it has established and maintained procedures for the development and maintenance of load flow, short circuit and *stability* data, in accordance with R.1, including the procedures and actions specified in R.1.1 through R.1.7.

M2. *Load* flow, short-circuit, and *stability* data bases were updated as specified by *NYISO* procedures and schedules, in accordance with R2.

M3. The *NYISO* certified that every *Market Participant*, as appropriate, provided evidence that it reviewed, updated, and reported load flow, short circuit, and *stability* data bases in accordance with R.3.1; reported equipment data to the *NYISO* in accordance with R.3.2; and reported data errors, *Suspect Data*, and information requested by the *NYISO*, in accordance with R.3.3, R.3.4, and R.3.5.

2. Levels of Non-Compliance

2.1 <u>For Measure 1</u>

Level 1: Not applicable.

Level 2: *NYISO* procedures for development and maintenance of load flow, short-circuit, and *stability* data bases have been prepared, but were incomplete in one or more areas identified in R.1.1 through R.1.7.

Level 3: The *NYISO* did not adequately apply its guidelines for identifying *Suspect Data* in accordance with R.1.5 for data provided by *Market Participant*s after a review of equipment data used in a planning or operating study indicated that the data fell outside the range of reasonable data parameters.

Level 4: *NYISO* procedures for development and maintenance of load flow, short-circuit, and *stability* data bases have not been prepared in accordance with R.1.1 through R.1.7, or the *NYISO* did not prepare guidelines for identifying *Suspect Data*.

2.2 For Measure 2

Level 1: Not applicable.

Level 2: *NYISO* load flow, short-circuit, or *stability* data bases were not updated as specified by *NYISO* procedures and schedules and in accordance with R.2.

Level 3: Not applicable.

Level 4: *NYISO* load flow, short-circuit, and *stability* data bases were not updated as specified by *NYISO* procedures and schedules and R.2.

2.2 For Measure 3

Level 1: The *NYISO* certified that the required data, in accordance with R.3.1 and R.3.2, was complete, but was not submitted to the *NYISO* by the specified time by one or more *Market Participant*s.

Level 2: The *NYISO* certified that the required data, in accordance with R.3.1 and R.3.2, was submitted to the *NYISO* on time, but was incomplete in one or more areas for one or more *Market Participant*s.

Level 3: The *NYISO* certified that one or more *Market Participant*s did not report data errors and Suspect Data to the *NYISO*, or did not respond to the *NYISO* for requests for data verification or correction of data errors or *Suspect Data*, in accordance with R.3.3 through R.3.5

-OR-

The *NYISO* certified that an error, found in data submitted by one or more *Market Participants*, had the potential of having an adverse material impact on the reliability of the *NYS Bulk Power System* if the data had been used in a planning or operating study.

Level 4: The *NYISO* certified that the required data, in accordance with R.3.1 and R.3.2, from one or more *Market Participant*s was not submitted to the *NYISO*.

3. Compliance Process

3.1 Compliance Monitoring Responsibility

- M1: RCMS
- M2: RCMS
- M3: *NYISO*/RCMS

3.2 Compliance Documentation Reporting Frequency

- M1: In accordance with *NYSRC* Compliance Monitoring Program schedule.
- M2: In accordance with *NYSRC* Compliance Monitoring Program schedule.
- M3: Annually

3.3 Compliance Reporting Requirements

- M1: *NYISO* Self-Certification.
- M2: *NYISO* Self-Certification.
- M3: *NYISO* Certification of *Market Participant* compliance.

3. Glossary

3.1 Glossary Index

Glossary Index	Introduction or Rule Groups	Source of Definition
Applications of the Reliability Rules	Introduction	NYSRC
Availability	A, I	NPCC
Black Start	F	NPCC
Black Start Facility	F	NYSRC
Black Start Provider	F	NYSRC
Bulk Power System		See NYS Bulk Power System
Capability Period	A	NYISO
Capability Year	F	NYSRC
Capacity	Introduction, A, D, E, F, I	NPCC
Installed Capacity ("ICAP")	A, I	NYSRC
Installed Capacity Requirement ("ICR")	Introduction, A	NYSRC
External Installed Capacity ("External ICAP")	A	NYSRC
Net Dependable Capacity	I	NYSRC
Contingency	B, C, D, E, G, I	NYSRC
Contingency Reserve Adjustment Factor (CRA)	E	NYSRC
Control Area	A, E, F	NYSRC
Demand	Introduction, A, B, I	NPCC
Developer	I	NYSRC
Disturbance	Introduction, B, C	NPCC
Eligible Black Start Resource(s)	F	NYSRC
Element	Introduction, B, C, F	NYSRC
Emergency	Introduction, B, C, D, G, H	NPCC
Major Emergency	Introduction, F, D	NYSRC
Emergency Transfer Criteria	C, D	NYSRC
Emergency Transfer Limit	B,C,D	NYSRC
Fault	Introduction, B, C, D	NPCC
Fault Clearing	B	NPCC
Delayed Fault Clearing	B	NPCC
Normal Fault Clearing	B	NPCC
Generation	Introduction, B, C, D, E, F, G, I	NPCC
Interface	B, D, H	NPCC
Large IBR Generating Facility	B	NYSRC
Large IBR Generating facility Developer	B	NYSRC
Interconnection Studies	B	NYISO
Load	A, B, D, E, G, I	NPCC
Firm Load	A, C	NYSRC
Interruptible Load	E	NYSRC
Load Relief	A, D	NYSRC
Load Shedding	C, G	NPCC (modified)
Load Serving Entities (LSE)	A	NYSRC
Local Reliability Rules	Introduction, C, G	NYSRC
Locational Installed Capacity Requirement ("Locational ICAP Requirement")	A	NYISO (modified)
Market Participant(s)	Introduction, C, D, E, F, H	NYSRC
Material Benefit	F	NYSRC
NYISO Secured Transmission System	Introduction	NYSRC
New York Control Area (NYCA)	Introduction, A, C, D, E, F, G, I, K	NYISO
New York Independent System Operator (NYISO)	Introduction, A	NYISO

Glossary Index, cont.

New York State Bulk Power System (NYS Bulk Power System)	Introduction, B, C, D, G, I	NYSRC
New York State Power System (NYS Power System)	Introduction, B	NYISO
New York State Reliability Council, LLC (NYSRC)	Introduction, A, B, C, D, E, I	NYSRC

Glossary Index	Introduction or Rule Groups	Source of Definition
New York State Transmission System (NYS Transmission System)	Introduction, A, F	NYISO
Normal Transfer Criteria	E	NYSRC
Normal Transfer Limit	B	NYSRC
Obligation Procurement Period	A	NYISO
Operating Limit	C, G	NPCC
Operating Procedures	Introduction, A	NPCC
Protection Protection Group Protection System	C C B	NPCC NPCC NPCC
Rating Normal Rating Long Time Emergency (LTE) Rating Short Time Emergency (STE) Rating	B, C, D B, C, D B, C, D B, C, D	NPCC NYSRC NYSRC NYSRC
Rating Authority	D	NYSRC
Reactive Power Reactive Power Capacity	B, I B, I	NYSRC NYSRC
Reclosing Delayed Reclosing With Due Regard to Reclosing	 B, C B	 NYSRC NPCC
Reliability Adequacy Security	Introduction, A, B, C, H, I Introduction, A, E, G Introduction, C, G	NPCC NPCC NPCC
Reliability Risk Metrics Loss of Load Expectation Loss of Load Hours Expected Unserved Energy Normalized Expected Unserved Energy Event Day Event Hour	A	NYSRC
Reserve Installed Reserve Margin (IRM) Operating Reserve Non-synchronized Ten (10) Minute Operating Reserve Synchronized Operating Reserve Ten (10) Minute Operating Reserve Thirty (30) Minute Operating Reserve	D, E A, I C, D, E, G E E B, C, D, E, G E	NPCC NYSRC NYSRC NYSRC NPCC (modified) NPCC NYSRC NYSRC
Resource Energy-Only Resources	A, C, E, F, I I	NPCC NYISO
Responsible Interface Party	I	NYISO
Significant Adverse Impact	Introduction	NPCC
Special Protection System (SPS)	B, C	NPCC
Stability	B, C, D	NPCC
Stability Limit	C, D	NPCC (modified)

Glossary Index, cont.

Steady State	B	NYSRC
Suspect Data	I	NYSRC
System Operating States	F	NYSRC
Thermal Limit	C, D	NYSRC
Transfer Capability	A, C, D	NYPP
Transmission District	G, I	NYISO (modified)
Transmission Owners	Introduction, B, C, D, F, I	NYSRC
Uncontrolled Loss of Electric Load	G	NYSRC
Voltage Limit	B, C	NYSRC
Voltage Reduction	C, D	NYSRC
Zone	A, D, G, I	NYISO

3.2 Glossary

Applications of the Reliability Rules – New York *Transmission Owner operating procedures* that apply to very specific NYCA system locations or conditions which are applications of the NYS Reliability Rules, and require close coordination between the transmission owners and the *NYISO*.

Availability – A measure of time a generating unit, transmission line, or other facility is capable of providing service, whether or not it actually is in service. Typically, this measure is expressed as a percent available for the period under consideration.

Black Start - The ability of a generating unit or station to go from a shutdown condition to an operating condition and start delivering power without assistance from the electric system.

Black Start Facility - A generating unit or units at a specific location: (i) that the *NYISO* or a TO has identified as a candidate to provide black start service; (ii) the owner of which has committed to the *NYISO* to provide such service; and (iii) that meets the requirements contained in the NYCA BCP.

Black Start Provider - The owner of a black start facility.

Bulk Power System – See NYS Bulk Power System

Capability Period - Six (6) month periods which are established as follows: (1) from May 1 through October 31 of each year (Summer Capability Period); and (2) from November 1 of each year through April 30 of the following year ("Winter Capability Period"); or such other periods as may be determined by the Operating Committee of the *NYISO*. Each capability period shall consist of on-peak and off-peak periods.

Capability Year - A summer *Capability Period* followed by a winter *Capability Period*.

Capacity – The rated continuous *load*-carrying ability, expressed in megawatts (MW) or megavolt-amperes (MVA) of *generation*, transmission or other electrical equipment.

Installed Capacity (ICAP) - Capacity of a facility accessible to the *NYS Bulk Power System*, that is capable of supplying and/or reducing the *demand* for energy in the NYCA for the purpose of ensuring that sufficient energy and capacity is available to meet the reliability rules.

Installed Capacity Requirement (ICR) - The annual statewide requirement established by the NYSRC in order to ensure *resource* adequacy in the NYCA.

External Installed Capacity (External ICAP) – Installed capacity from *resource*s located in *control area*s outside the NYCA that must meet certain *NYISO* requirements and criteria in order to qualify to supply New York *LSE*s.

Net Dependable Capacity – The capability of electric *generation resource*s that shall be the sustained maximum net output averaged over a period of time defined by the *NYISO* Installed Capacity Manual for the determination of net system capacity. The certified ability by equipment used for providing *resource* capacity shall be verified in accordance with the *NYISO* Installed Capacity Manual.

Contingency - An actual or potential unexpected failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch, or other electrical *element*. A contingency also may include multiple components, which are related by situations leading to simultaneous component outages.

Contingency Reserve Adjustment Factor (CRA) - A factor used in determining the additional ten-minute reserve that the *NYISO*, not meeting the Disturbance Control Standard (DCS) for a given quarter must carry. It is calculated using the following formula:

$CRA_{quarter}$=2 – {the average percentage DCS (expressed as a decimal) for the quarter of measurement}

Control Area - An electric system or systems, bounded by interconnection metering and telemetry, capable of controlling *generation* to maintain its interchange schedule with other control areas and contributing to frequency regulation of the interconnection.

Demand – The rate at which energy must be generated or otherwise provided to supply an electric power system.

Developer -- An Eligible Customer (as defined by the *NYISO* Tariff) developing a *generation* project larger than 10 megawatts, or a merchant transmission project, proposing to connect to the *New York State Transmission System*, in compliance with the *NYISO* Minimum Interconnection Standard

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Disturbance – Severe oscillations or severe step changes of current, voltage and/or frequency usually caused by *fault*s.

Eligible Black Start Resource(s) - Either a non-participating black start capable resource in the Con Edison SRP that has the physical capability installed to provide black start service or a participating black start resource that has given notice of its intent to withdraw from black start service in the Con Edison SRP.

Element - Any electrical device with terminals which may be connected to other electrical devices; usually limited to a generator, transformer, transmission circuit, circuit breaker, an high voltage direct current (HVDC) pole, braking resistor, a series or shunt compensating device or bus section. A circuit breaker is understood to include its associated current transformer(s) and the bus section between the breaker bushing and its current transformer(s).

Emergency - Any abnormal system condition that requires automatic or immediate, manual action to prevent or limit loss of transmission facilities or *generation resource*s that could adversely affect the *reliability* of an electric system.

Major Emergency - A situation usually accompanied by abnormal frequency, abnormal voltage and/or equipment overloads which might seriously affect the *reliability* of the *NYS Bulk Power System***.**

Emergency Transfer Criteria - It is intended that the *NYS Bulk Power System* be operated within *Normal Transfer Criteria* at all times insofar as possible. However, in the event that adequate facilities are not available to supply *firm load* within *Normal Transfer Criteria*, emergency transfer criteria may be invoked. Under emergency transfer criteria, transfers may be increased up to, but not exceed, emergency *rating*s and limits as follows:

a. Pre-contingency line and equipment loadings may be operated up to LTE *rating*s for up to four (4) hours, provided the STE *rating*s are set appropriately. Otherwise, pre-contingency line and equipment loadings must be within normal *rating*s. Pre-contingency voltages and transmission *interface* flows must be within applicable pre-contingency voltage and *stability limit*s.

b. Post-contingency line and equipment loadings within STE *rating*s. Post-contingency voltages and transmission *interface* flows within applicable post-contingency voltage and *stability limit*s.

Emergency Transfer Limit **-**The maximum allowable transfer is calculated based on thermal, voltage, and stability testing, considering contingencies, ratings, and limits specified for emergency conditions. The emergency transfer limit is the lowest limit of these three maximum allowable transfers

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Fault – An electrical short circuit.

Fault Clearing

Delayed Fault Clearing - Fault clearing consistent with correct operation of a breaker failure *protection group* and its associated breakers, or of a backup *protection* group with an intentional time delay.

Normal Fault *Clearing* - Fault clearing consistent with correct operation of the *protection* system and with correct operation of all circuit breakers or other automatic switching devices intended to operate in conjunction with that *protection* system.

Generation – The process of producing electrical energy from other forms of energy; also, the amount of electric energy produced, usually expressed in kilowatt-hours (kWh) or megawatthours (MWh).

Interface – The specific set of transmission *element*s between two areas or between two areas comprising one or more electrical systems.

Interconnection Studies - The studies outlined in NYISO's OATT Attachment X and Transmission Expansion and Interconnection Manual.

Large Inverter Based Resource (IBR) Generating Facility Developer - Includes a Large IBR Plant Developer or Large IBR Plant Owner or Large IBR Plant Operator.

Large Inverter Based Resource (IBR) Generating Facility - The IEEE Standard 2800-2022 definition of a grouping of one or more IBR unit(s) and possibly supplemental IBR device(s) operated by a common Facility level controller along with a collector system to achieve the performance requirements of this standard at a single reference point of applicability (RPA) and FERC's definition of Large Generating Facilities having capacities greater than 20 MWs.

Load – The electric power used by devices connected to an electrical generating system. (IEEE Power Engineering)

Firm Load - The load of a *Market Participant* that is not contractually interruptible.

Interruptible Load – The load of a *Market Participant* that is contractually interruptible.

Load Relief - Load reduction accomplished by *voltage reduction* or load shedding or both. *Voltage reduction* and load shedding as defined in this document, are measures by order of the *NYISO*.

Load Shedding – The process of disconnecting (either manually or automatically) preselected customers' load from a power system in response to an abnormal condition to maintain the integrity of the system and minimize overall customer outages. Load shedding is a measure

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undertaken by order of the *NYISO*. If ordered to shed load, transmission owner system dispatchers shall immediately comply with that order. Load shall normally all be shed within 5 minutes of the order.

Load Serving Entity (LSE) - In a wholesale competitive market, Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., Long Island Power Authority ("LIPA"), New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation, Orange & Rockland Utilities, Inc., and Rochester Gas and Electric Corporation, the current forty-six (46) members of the Municipal Electric Utilities Association of New York State, the City of Jamestown, Rural Electric Cooperatives, the New York Power Authority ("NYPA"), any of their successors, or any entity through regulatory requirement, tariff, or contractual obligation that is responsible for supplying energy, *capacity* and/or ancillary services to retail customers within New York State.

Local Reliability Rule – Reliability rules of the individual transmission owners which are based on meeting specific *reliability* concerns in limited areas of the *NYS Bulk Power System*, including but not limited to special conditions that apply to nuclear plants, such as NRC licensing requirements, and special requirements applicable to the New York City metropolitan area.

Locational Installed Capacity Requirement (Locational ICAP Requirement) – Due to transmission constraints, that portion of the NYCA ICAP requirement that must be electrically located within a *zone*, in order to ensure that sufficient energy and *capacity* are available in that *zone* and that *NYSRC* Reliability Rules are met.

Locational ICAP requirements are currently applicable to two transmission constrained *zone*s, New York City and Long Island, and are normally expressed as a percentage of each *zone*'s annual peak *load*.

Market Participant(s) - Entity or entities producing, transmitting, selling, and/or purchasing for resale *capacity*, energy, and ancillary services in the wholesale market, excluding the *NYISO*.

Material Benefit – The benefit to system restoration when the addition of a black start resource would materially improve the speed, adequacy or flexibility of restoring electric service in a safe, orderly and prompt manner following a major system disturbance. This definition is consistent with use of the *material benefit* term in NYISO OATT Section 30.2.5.

NYISO Secured Transmission System – Those specific facilities monitored and secured by the *NYISO* in the day-ahead unit commitment and real-time dispatch consistent with the reliability rules.

New York Control Area (NYCA) – The control area located within New York State which is under the control of the *NYISO*. See Control Area.

New York Independent System Operator (NYISO) – The NYISO is a not-for-profit organization formed in 1998 as part of the restructuring of New York State's electric power industry. Its mission is to ensure the reliable, safe and efficient operation of the State's major transmission system and to administer an open, competitive and nondiscriminatory wholesale market for electricity in New York State.

New York State Bulk Power System (NYS BPS) – The portion of the New York Transmission System identified as the NYS Bulk Power System (NYS BPS) pursuant to the NPCC Document A-10*, Classification of Bulk Power System Elements.*

Version 3 is the current version of NPCC Document A-10, dated May 6, 2020.

New York State Power System (NYS Power System) – All facilities of the *New York State Transmission System*, and all those generators located within New York State or outside New York State, some of which may be from time-to-time subject to operational control by the *NYISO*.

New York State Reliability Council, LLC (NYSRC) - An organization established by agreement (the NYSRC Agreement) by and among Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., LIPA, New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation, Orange & Rockland Utilities, Inc., Rochester Gas and Electric Corporation, and the New York Power Authority, to promote and maintain the *reliability* of the *Bulk Power System*, and which provides for participation by Representatives of Transmission Owners, sellers in the wholesale electric market, large commercial and industrial consumers of electricity in the NYCA, and municipal systems or cooperatively-owned systems in the NYCA, and by unaffiliated individuals.

New York State Transmission System (NYS Transmission System) – The entire New York State electric transmission system, which includes (1) the transmission facilities under *NYISO* operational control; (2) the transmission facilities requiring *NYISO* notification; and (3) all remaining facilities within the NYCA.

Normal Transfer Criteria - Under normal transfer criteria, adequate facilities are available to supply *firm load* with the bulk power transmission system within applicable normal *rating*s and limits as follows:

a. Pre-contingency line and equipment loadings within normal *rating*s. Pre-contingency voltages and transmission *interface* flows within applicable pre-contingency voltage and *stability limit*s.

b. Post-contingency line and equipment loadings within applicable *emergency* (LTE or STE) *rating*s. Post-contingency voltages and transmission *interface* flows within applicable post-contingency voltage and *stability limit*s.

All contingencies listed in Table B2 "NYSRC Planning Design Criteria: Contingency Event," in the reliability rules apply under normal transfer criteria.

Normal Transfer Limit **-** The maximum allowable transfer is calculated based on thermal, voltage, and *stability* testing, considering contingencies, *rating*s, and limits specified for normal conditions. The normal transfer limit is the lowest limit of these three maximum allowable transfers.

Obligation Procurement Period – The period of time for which LSEs shall be required to satisfy their ICAP. Starting with the 2001-2002 winter *Capability Period*, obligation procurement periods shall be one calendar month in duration and shall begin on the first day of each calendar month.

Operating Limit –The maximum value of the most critical system operation parameter(s) which meet(s): (a) pre-contingency criteria as determined by equipment loading capability and acceptable voltage conditions; (b) *stability* criteria; (c) post-contingency loading and voltage criteria.

Operating Procedures – A set of policies, practices, or system adjustments that may be automatically or manually implemented by the system operator within a specified time frame to maintain the operational integrity of the interconnected electric systems.

Protection – The provisions for detecting power system *fault*s or abnormal conditions and taking appropriate automatic corrective action.

Protection Group - A fully integrated assembly of protective relays and associated equipment that is designed to perform the specified protective functions for a power system *element* independent of other groups.

Notes:

(a.) Variously identified as main protection, primary protection, breaker failure protection, back-up protection, alternate protection, secondary protection, A protection, B protection, Group A, Group B, System 1 or System 2.

Protection System –

(b) Pilot protection is considered to be one *protection group*.

Element Basis

One or more *protection group*s; including all equipment such as instrument transformers, station wiring, circuit breakers and associated trip/close modules, and communication facilities; installed at all terminals of a power system *element* to provide the complete protection of that *element*.

Terminal Basis

One or more *protection group*s, as above, installed at one terminal of a power system *element*, typically a transmission line.

Rating – The operational limits of an electric system, facility, or *element* under a set of specified conditions.

Normal Rating - The *capacity* rating of a transmission facility that may be carried through consecutive twenty- four (24) hour *load* cycles.

Long Time Emergency (LTE) Rating - The *capacity* rating of a transmission facility that can be carried through infrequent, non- consecutive four (4) hour periods.

Short Time Emergency (STE) Rating - The *capacity* rating of a transmission facility that may be carried during very infrequent contingencies of fifteen (15) minutes or less duration.

Rating Authority - The transmission owner who has the authority and responsibility for maintaining the correct dynamic rating for *NYS Bulk Power System* facilities in the *NYISO* Power Control Center computer.

Reactive Power - The product of voltage and the quadrature component of alternating current. Reactive Power, is usually measured in mega-volt-amperes-reactive (MVAr).

Reactive Power Capacity - The certified ability of an electrical *element* to produce or absorb Reactive Power, as defined in the *NYISO* Services Manual.

*Element*s that produce reactive power such as capacitors and over-excited generators/synchronous condensers; and *element*s that absorb reactive power such as reactors, under-excited generators/ synchronous condensers and other inductive devices including the inductive portion of *load*s.

Reclosing

Delayed Reclosing - The reclosing of a circuit breaker after a time delay which is intentionally longer than that for high speed reclosing.

With Due Regard to Reclosing - This phrase means that before any manual system adjustments, recognition will be given to the type of reclosing (i.e., manual or automatic) and the kind of protection systems.

Reliability – The degree of performance of the bulk electric system that results in electricity being delivered to customers within accepted standards and in the amount desired. Reliability may be measured by the frequency, duration, and magnitude of adverse effects on the electric supply. Electric system reliability can be addressed by considering two basic and functional aspects of the electric system – adequacy and security.

Adequacy – The ability of the electric system to supply the aggregate electrical *demand* and energy requirements of the customers at all times, taking into account scheduled and reasonably expected unscheduled outages of system *element*s.

Security – The ability of the electric system to withstand *disturbance*s such as electric short circuits or unanticipated loss of system *element*s.

Reliability Risk Measures

Loss of Load Expectation (LOLE) - The expected number of loss of load *Event-Days* in a given time period (often one year) when a system's resources are in sufficient to meet demand.

Loss of Load Hours (LOLH) - The expected number of loss of load *Event-Hours* in a given time period (often one year) when a system's resources are insufficient to meet demand.

Expected Unserved Energy (EUE) - The expected amount of energy (MWh) of unserved load in a given time period (often one year) when a system's resources are in sufficient to meet demand.

Normalized Expected Unserved Energy (Normalized EUE) - The EUE as percent (%) of the total annual system net energy for load.

Event-Day - An event-period lasting one day during which at least one Event-Hour occurs.

Event-Hour - An event-period lasting one hour during which, at some point, system resources are insufficient to meet demand.

Reserve – In normal usage, reserve is the amount of *capacity* available in excess of the *demand*.

Installed Reserve Margin (IRM) - That *capacity* above firm system *demand* required to provide for equipment forced and scheduled outages and transmission capability limitations.

Operating Reserve - *Resource capacity* that is available to supply energy, or curtailable *load* that is willing to stop using energy, in the event of *emergency* conditions or increased system *load*, and can do so within a specified time period.

Non-synchronized Ten (10) Minute Operating Reserve - The portion of ten (10) minute reserve consisting of *resource capacity* such as hydroelectric, pumped storage hydroelectric, and quick start combustion *generation* which can be synchronized and loaded to claimed *capacity* in ten (10) minutes or less, and *interruptible load*, including *load* reduction achieved by starting *generation* to offset *demand*, which can be achieved in 10 minutes or less. Non-synchronized reserve must not exceed half of the ten (10) minute reserve.

Synchronized Operating Reserve -The portion of ten (10) minute reserve consisting of unused *resource capacity* which is synchronized and ready to achieve claimed *capacity* or *resource capacity* which can be made available by curtailing pumping hydro units or canceling energy sales to other systems.

Ten (10) Minute Operating Reserve - The sum of synchronized and non-synchronized reserve *capacity* that is fully available in ten (10) minutes.

Thirty (30) Minute Operating Reserve - That portion of the *NYISO*'s operating reserve requirement that includes unused *resource capacity* which can and will be made fully available as promptly as possible, but in no more than thirty (30) minutes. It is the sum of synchronized and non-synchronized reserve that can be utilized in thirty (30) minutes, excluding reserve that is counted as ten (10) minute reserve.

Resource - The total contributions provided by supply-side and demand-side facilities and/or actions. Supply-side facilities include utility and non-utility *generation* and purchases from neighboring systems. Demand-side facilities include measures for reducing *load*, such as conservation, *demand* management, and *interruptible load*.

Responsible Interface Party - A customer that is authorized by the *NYISO* 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 the *NYISO* Market Services Tariff and *NYISO* Procedures.

Significant Adverse Impact – With due regard for the maximum operating capability of the affected systems, on or more of the following conditions arising from *fault*s or *disturbance*s, shall be deemed as having significant adverse impact*:*

a. system instability;
b. unacceptable system dynamic response or equipment tripping;
c. voltage levels in violation of applicable *emergency* limits;
d. loadings on transmission facilities in violation of applicable *emergency* limits;
e. unacceptable loss of *load*.

Special Protection System (SPS) - A protection system designed to detect abnormal system conditions, and take corrective action other than the isolation of *fault*ed *element*s. Such action may include changes in *load*, *generation*, or system configuration to maintain system *stability*, acceptable

voltages or power flows. Automatic under frequency *load shedding* is not considered an SPS. Conventionally switched, locally controlled shunt devices are not SPSs.

Stability – The ability of an electric system to maintain a state of equilibrium during normal and abnormal system conditions or *disturbance*s.

Stability Limit – The maximum power flow possible through a particular transmission *element* or *interface*, while maintaining stability in the entire system or the part of the system to which the stability limit refers.

Steady State – That point in time following a *contingency* after fast acting automatic equipment has operated. This equipment includes *generation* rejection, transmission cross-tripping (including capacitors and reactors), *load* rejections, generator voltage regulators, and static VAR compensators.

Suspect Data – Data provided by *Market Participant*s or *Developer*s that does not meet the *NYISO* screening criteria for reasonableness and accuracy.

System Operating States **-** In addition to the Normal State, the four other operating states into which certain system conditions may cause a departure from the Normal State, are as follows: Warning, Alert, Major *Emergency*, and Restoration. These five operating states are defined in the "System Conditions of the *NYS Bulk Power System*", Section V of the *NYSRC Reliability* Rules Manual. Examples of system conditions that could cause departure from the Normal State are: *capacity* deficiencies, energy deficiencies, loss of *generation* or transmission facilities, transmission facility overloads and high or low voltages, abnormal power system frequency, and environmental episodes. When the system enters an operating state other than the Normal State, the primary objective of the *NYISO* shall be to return the system to the Normal State as soon as possible.

Thermal Limit - The maximum power flow through a particular transmission *element* or interface, considering the application of thermal assessment criteria.

Transfer Capability - The measure of the ability of interconnected electrical systems to reliably move or transfer power from one area to another over all transmission lines (or paths) between those areas under specified system conditions.

Transmission District – The geographic area served by the NYCA investor-owned transmission owners and LIPA, as well as customers directly interconnected with the transmission facilities of NYPA.

Transmission Owners - Those parties who own, control and operate facilities in New York State used for the transmission of electric energy in interstate commerce. Transmission owners are those who own, individually or jointly, at least 100 circuit miles of 115 kV or above in New York State and have become a signatory to the TO/ISO Agreement. The Transmission Owners currently consist of Central Hudson Gas and Electric Corporation, Consolidated Edison Company of New York, Inc., LIPA, New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation, Rochester Gas and Electric Corporation, and the New York Power Authority.

Uncontrolled Loss of Electric Load - Loss of *load* resulting from voltage collapse, instability, separation of *NYS Power System element*s, or cascading failure caused by a sudden *disturbance* to or unanticipated failure of *NYS Power System* transmission *element*s, and which cannot be prevented by the *Transmission Owner*'s operator.

Voltage Limit – The maximum power flow through some particular point in the system considering the application of voltage assessment criteria.

Voltage Reduction - A means of achieving *load* reduction by reducing customer supply voltage, usually by 3, 5, or 8 percent. If ordered by the *NYISO* to go into voltage reduction, *transmission owner* system dispatchers shall immediately comply with that order. Quick response voltage reduction shall normally be accomplished within ten (10) minutes of the order. See "Order" definition.

Zone - A defined portion of the NY *Control Area* that encompasses a set of *load* and *generation* buses. Each zone has an associated zonal price that is calculated as a weighted average price based on generator LBMPs and generator bus *load* distribution factors. A "zone" outside the NY *Control Area* is referred to as an external zone. Currently New York State is divided into eleven zones, corresponding to ten major transmission *interface*s that can become congested.

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4. NYSRC Procedure for New York Control Area Transmission Reviews

NYSRC Procedure for New York Control Area Transmission Reviews

1. Introduction

Requirement R1 of NYSRC Reliability Rule B.2, *Transmission System Planning Assessments*, requires that the *NYISO* annually conduct an annual **Transmission Review** of the planned Bulk Power System of the New York Control Area (NYCA). The purpose of this review is to demonstrate that the planned *NYCA* bulk power transmission system is in conformance with performance criteria in Requirements R1 through R4 of Reliability Rule B.1, *Transmission System Planning Performance Requirements*. It is also the intention of the *NYSRC* that conformance with the NYSRC Reliability Rules assure consistency with NERC and NPCC Standards and Criteria. By this NYCA Transmission Review, the *NYSRC* will satisfy itself that the *NYCA* transmission system, as planned, is in conformance with NYSRC Reliability Rules, and in general, that the reliability of the NYCA Bulk Power System will be maintained.

The NYCA Transmission Review shall be incorporated in a single report to the provided, when required, to the NYSRC Reliability Compliance Monitoring Subcommittee.

2. Relationship with NPCC Area Transmission Reviews

NPCC Directory #1, *NPCC Design and Operation of the Bulk Power System*, requires that each Planning Coordinator Area of NPCC prepare an annual assessment to determine whether its planned transmission system is in conformance with NPCC criteria. Procedures for conducting and reporting these transmission reviews are addressed in Appendix B of Directory #1. This *NYSRC* NYCA Transmission Review procedure adopts certain NPCC assessment requirements as applied to *NYCA*, and supplements it with requirements for additional *NYSRC* assessments as required by NYSRC Reliability Rule B.2. Coordination with preparation of the Transmission Review required by NPCC is addressed in this procedure. It is the intention by the *NYSRC* that the *NYISO* not duplicate transmission system analyses and reporting already required by NPCC Directory #1.

3. Assessments to be Included in Transmission Reviews

The NYCA Transmission Review shall incorporate the following assessments for documenting compliance with NYSRC Reliability Rule B.2, in accordance with Requirement R1.3:

- Assessment 1: This assessment requires thermal, voltage, stability, and short circuit assessments in accordance with performance criteria in Requirement 1 of Reliability Rule B.1.
- Assessment 2: This assessment requires the assessment of the risks and system performance resulting from extreme contingencies in accordance with criteria in Requirement 2 of Reliability Rule B.1.
- Assessment 3: This assessment requires the assessment of extreme system conditions in accordance with criteria in Requirement 3 of Reliability Rule B.1.
- Assessment 4: This assessment requires fault duty assessments in accordance with criteria in Requirement 4 of Reliability Rules B.1.
- Assessment 5: This assessment requires an analysis of the impacts that planned system expansion or reconfiguration plans have on the NYCA System Restoration Plan, as described in Requirement R1.3 of Reliability Rule B.2.

The above transmission assessments shall cover the 4-6 year planning horizon and shall be coordinated with NPCC and NERC assessment requirements. They shall cover system performance results of simulation tests and include all supporting documentation specified in NPCC Directory #1, Appendix B, *Guidelines and Procedures for NPCC Area Transmission Reviews*.

4. Study Year

The transmission assessments in the NYCA Transmission Review for meeting Requirement 1 of Reliability Rule B.2 shall generally cover the 4-6 year planning horizon, as required by NPCC (refer to NPCC Directory #1, Appendix B, Section 3.0).

5. Frequency of Reviews

The *NYISO* shall submit the *NYCA* Transmission Review annually to the Reliability Compliance (RCMS) Subcommittee. The schedule for this submission shall be coordinated with NPCC reliability assessment program due dates. The *NYISO* shall notify RCMS of the NPCC due date of the next review as soon as it is announced by NPCC (refer to NPCC Directory #1, Appendix B, Section 4.0).

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6. Scope of Assessments

6.1. Thermal, Voltage, Stability, Short Circuit, Extreme Contingency, and Extreme System Condition Assessments – Assessments 1 through 4

These assessments may include one of the following types: a Comprehensive (or Full) Review, an Intermediate (or Partial) Review, or an Interim Review. The type of assessment required to be submitted by the *NYISO* in any given year is defined in NPCC Directory #1, Appendix B, Section 4.0. The types of assessments to be prepared for the NYSRC by the *NYISO* for *NYCA* transmission reviews shall be consistent with these NPCC requirements. These assessments shall demonstrate conformance with Directory #1 criteria, as well as the more stringent and specific NYSRC performance criteria in Requirements R1 through R4 of Reliability Rule B.1.

The scope of Assessments 1-4 in the *NYCA* Transmission Review shall be consistent with the assessment presentation formats as defined in NPCC Directory #1, Appendix B, Sections 5.0, 6.0, and 7.0.

6.2. System Restoration – Assessment 5

This assessment is specific to only NYSRC requirements. Assessment 5 requires the *NYISO* to evaluate the *NYCA* reliability impacts of system expansion plans on the *NYCA* system restoration plan (SRP). This assessment further requires that the *NYISO* identify modifications in the SRP required if such reliability impacts are found. The *NYISO* shall provide documentation or references for this assessment.

7.0 Corrective Action Plans

Requirement R1.4 of Reliability Rule B.2 requires the NYISO to include in its transmission reviews, Corrective Action Plans for avoiding criteria violations and achieving conformance with Reliability Rule B.1 performance requirements. The transmission review report shall include a tabular presentation that summarizes all corrective action plans described in the report's assessment discussions. The table shall provide for each Corrective Action Plan: a description of the planned transmission upgrade or operating procedure for achieving compliance, the responsible TO, and the proposed in-service date.

5. NYSRC Guidelines for Reporting NYCA Long-Term Resource Adequacy Requirements

NYSRC Guidelines for Reporting NYCA Long-Term Resource Adequacy Requirements

The purpose of these guidelines is to specify the minimum documentation required in a summary report prepared by the NYISO for NYCA Long-Term Resource Adequacy Assessments for satisfying compliance with NYSRC Reliability Rule A.3: R2. The purpose of these Resource Adequacy Assessments is to determine whether currently proposed NYCA resources over the next 10-year period will meet NYSRC's "one-day-in-10-years" LOLE resource adequacy criterion. Resource Adequacy Assessment reports shall include the study assumptions, assessment procedures, and findings described below. The NYISO may include in the report other related information it seems appropriate that is not covered by these guidelines.

1. **Assumptions**
   - 1.1. Load forecast for the assessment period, including base case and high load forecasts. The basis for the high load forecast should be provided.
   - 1.2. Proposed resources and retirements for the assessment period.
     Other scenarios assessed by the NYISO as part of their Resource Adequacy Assessment or other recent applicable studies.

2. **NYISO procedures used to perform Long-Term Resource Adequacy Assessments**

3. **Findings**
   - 3.1. Provide the LOLE for each year for the base case, high load forecast, and various other scenarios.
   - 3.2. Provide compensatory MW for years not complying with the LOLE criterion.
   - 3.3. State the process the NYISO will utilize to identify solutions for satisfying projected capacity needs.
   - 3.4. Identify potential zonal resource adequacy risks and mitigation options.
   - 3.5. Provide NYISO conclusions regarding issues and concerns affecting resource adequacy over the 10-year assessment period.

6. NYSRC Procedure for Application of IEEE 2800-2022 Standard for Large IBR Generating Facilities for the New York Control Area

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NYSRC Procedure for Application of IEEE 2800-2022 Standard for Large IBR Generating Facilities for the New York Control Area

All normative mandatory requirements[6] specified in IEEE 2800-2022 (the Standard) shall be mandatory for NYISO's *Interconnection Studies*[7] of *Large IBR Generating Facilities*[2] in the New York Control Area with the exceptions, modifications, clarifications, and additional requirements as specified in this document.

All other italicized words in this procedure document are terms specifically defined in IEEE 2800 and these definitions shall apply.

IEEE 2800-2022 Requirements as amended by NYSRC

Clause 1 – Overview

1. Clause 1.4 – General Remarks and Limitations

Application of the Standard is specified by New York State Reliability Council's Reliability Rule B.5 - NYISO's Interconnection Studies for Large (>20 MW) IBR Generating Facilities shall be based on IBR Plants compliant with the IEEE 2800-2022 Standard as amended for NYCA application, and their associated IBR models and data.

Clause 2 – Normative references

Adopted in full.

Clause 3 –Definitions, acronyms, and abbreviations

Adopted in full.

Clause 4 – General interconnection technical specifications and performance requirements

1. Clause 4.2 – Reference Point of Applicability (RPA location)

The *Reference Point of Applicability (RPA)* shall be the *Point of Interconnection (POI)* with the exception of requirements specified in Clauses 7.2.2.3.4 and 7.2.2.3.5 of the Standard to have the *RPA* at the *Point of Connection (POC),* or at the Point of Measurement (POM) by mutual agreement between the NYISO, interconnection Transmission Owner and the IBR Plant developer.

[6] IEEE standards use "shall" as the operative verb for mandatory requirements. Standards may include recommendations, using the verb "should" or guidelines using the verb "may" which are not mandatory.
[7] NYSRC Glossary definitions

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CLAUSE 5 – REACTIVE POWER-VOLTAGE CONTROL REQUIREMENTS WITHIN THE CONTINUOUS OPERATION REGION

1. Clause 5.1 – Reactive Power Capability (Supply of reactive power support)
Reactive power support shall be supplied to the *Transmission System*, within the defined range of reactive power capability specified in Clause 5 of the Standard whenever active power is delivered to the *Transmission System*, or absorbed from the *Transmission System* at a level greater than electrical losses within the *IBR plant* and the *Interconnection System* between the *POI* and *POM* . Supply of reactive power and voltage support, and related voltage setpoint and regulation droop parameters, shall be as directed by the *Transmission System Operator* (NYISO).[8]

2. Clause 5.1 – Reactive Power Capability (reactive power support at or near zero active power)
Plant capability for reactive power at all active power levels between zero and *ICR*, or *ICAR* and *ICR* in the case of bidirectional *IBR plants* having energy storage capability, is required as specified in Clause 5 of the Standard. Except for *IBR plants* having energy storage capability, supply of reactive power support at net active power export levels less than or equal to zero shall not be required unless agreed to by the NYISO and *IBR owner* as an Ancillary Service. For *IBR plants* containing energy storage capability, supply of reactive power support shall not be required at levels of power import required to meet plant standby loss (i.e., provide power to plant auxiliary loads). Reactive power supply may be required when the plant is in standby mode if agreed to by the NYISO and IBR owner as an Ancillary Service. In that case, reactive power support within the ranges defined by Clause 5 of the Standard shall be continuously maintained during transitions from power export to import and import to export. Supply of reactive power support at net power levels within these exclusions is optional.

3. Clause 5.1 – Reactive Power Capability (dynamic reactive power)
The definition of dynamic reactive power is further defined to mean that the net reactive power flow of the *IBR plant* can move between any points within the reactive power capability plot shown in Figure 8 of the Standard, while active power flow is held constant, with time response characteristics as specified in Table 5 of the Standard. The time response shall not be degraded by repetition of voltage change events or changes of required reactive power. Dynamic reactive power is further defined to mean net reactive power that is continuously variable, without discrete steps greater than 1% of the required reactive capability.

4. Clause 5.2.2 – Voltage Control (clarification of target voltage)
The first sentence Clause 5.2.2 of the Standard, for application in the New York Control Area, shall be modified to: "When in this mode, the *IBR plant* shall operate in closed-loop automatic voltage control mode to regulate the steady-state voltage at the *RPA* to the reference value, as

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[8] The Standard only requires that the IBR be designed to have the capability to provide reactive power. This additional requirement mandates that this reactive capability be provided (supplied) to the transmission system in order to hold voltage schedule or as otherwise directed by NYISO operations.

adjusted by the droop function, to within ±0.01 p.u. of the adjusted voltage set point unless to do so requires reactive power exceeding the reactive power capability of the *IBR plant*."[9]

5. Clause 5.2.2 – Voltage Control (dynamic performance)
The voltage control small-signal dynamic performance specified in Table 5 of the Standard shall be applicable when the system short-circuit strength at the RPA is equal to or above the minimum short-circuit strength identified in cases provided by the NYISO for a minimum feasible generation scenario and NYSRC Reliability Rules, Table B-1, Category I, Item 2 contingencies (Opening of elements without fault) local to the POI. The maximum step response time for this condition shall be less than 15 seconds.

For any transmission system conditions within the planning design criteria defined by the New York State Reliability Council, voltage control performance shall be positively damped.

Clause 6 – Active-power—frequency response requirements

1. Clause 6.1.1 – PFR Capability (supply of primary frequency response)
Primary frequency response, for which the capability is defined in Clause 6.1.1, shall be supplied to the *Transmission System* as a mandatory requirement, within the constraints of the *available active power* and the *IBR plant's minimum active power capability,* and is not subject to *IBR owner* mutual agreement. Supply of primary frequency response and the relevant control frequency response control parameters (e.g., droop, dead band) shall be as directed by the *Transmission System Operator* (NYISO).[10] Pre-curtailment of active power to provide an underfrequency response is not required. If the *IBR plant* active power has been curtailed to less than the *available active power* for any reason, supply of underfrequency response, to the extent of the *available active power*, is mandatory. The IBR plant shall be designed such that there is capability for underfrequency response to override power curtailment limits. In operation, selection of whether the underfrequency response or the power curtailment limits have priority shall be at the discretion of the NYISO as indicated by the NYISO in its curtailment order.

CLAUSE 7 – Response to TS abnormal conditions

1. Clause 7.2.2.1 – General Requirements and Exceptions (RPA location)

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[9] As an example, consider an IBR plant rated 150 MW connected to a 230 kV system and with a 236 kV voltage reference value and 6% voltage droop (on ICR base, as defined in the Standard) specified by the NYISO system operator. The voltage control shall hold the RPA voltage to 236 kV ±2.3 kV ± the droop value. If the reactive power injection to hold voltage to the reference, as adjusted for droop, is 30 MVAR, the droop value is -30/150 ´ 0.06 ´ 230 = -2.76 kV. Therefore, the actual RPA voltage must be between 230.9 kV and 235.6 kV for compliance in this example.

[10] The Standard only requires that the IBR be designed to have the capability to provide primary frequency response. This additional requirement mandates that primary frequency response be provided (supplied) to the transmission system as directed by NYISO operations.

The *Reference Point of Applicability* (*RPA*) for voltage *ride-through* requirements shall be the *Point of Interconnection* with the exception of requirements specified in the Standard to be applicable at the *IBR unit Points of Connection (POCs)*.

2. Clause 7.2.2.2 – Voltage Disturbances Within Continuous Operating Region (temporary power deviations)
Active power changes, due to voltage deviations for which all *applicable voltages* at the *RPA* remain within the *continuous operating region*, shall not cause a change in active power, in per-unit of the *ICR* (or the *ICAR* for energy storage in the charging mode), greater than twice the magnitude of abrupt voltage change, in per-unit of the nominal voltage, for greater than or equal to 0.05 seconds. The active power output shall return to within ± 0.05 p.u. of the lesser of the pre-disturbance active power and the *available active power*, on the base of the *ICR* or *ICAR*, as applicable, within one second of the disturbance.

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3. Clause 7.2.2.2 – Voltage Disturbances Within Continuous Operating Region (extended voltage imbalance)
In addition to the exceptions to requirements for *continuous operation* stated in this clause of the Standard, the *IBR plant* may also trip for negative sequence component of the *applicable voltage* exceeding 6.7% of the *nominal voltage* for a duration exceeding two seconds.

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4. Clause 7.2.2.3.2 – Low and High-Voltage Ride-Through Capability (reactive power priority in mandatory operation range)
The *IBR plant* shall operate in *reactive current priority mode* during high- and low-voltage *ride-through* events within the *mandatory operating range*. The relationships between voltage deviation at the *POCs* of *IBR units* and the reactive components of current from these units shall be determined by NYISO based on interconnection studies with consideration of the characteristics of the *IBR units*, with default relationships as proposed by the *IBR owner*. The *IBR plant* shall perform according to these specifications determined by NYISO, which may differ for voltage deviations above and below the *continuous operating range*.

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5. Clause 7.2.2.3.4 – Current Injection During *Ride-Through* Mode (negative sequence current injection during *ride-through*)
The relationship between the negative sequence component of *IBR unit* currents and the negative sequence components of the respective *POC* negative sequence voltage components is not specified by this document. The required relationship may be specified by the Connecting Transmission Owner in the Interconnection Agreement.

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6. Clause 7.2.2.3.4 – Current Injection During Ride-Through Mode (negative sequence current injection from type 3 wind turbines)
Negative sequence currents of Type 3 (doubly fed asynchronous generator) wind turbines, shall not be required to follow a predefined proportional relationship to the negative sequence voltages at the *POCs*.

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7. Clause 7.2.2.3.5 – Performance Specifications (ride-through dynamic performance requirement applicability)
The dynamic performance requirements specified in Table 13 of the Standard, with the exception of the settling time and settling band requirements, shall be applicable to all contingencies within the Planning Design Criteria defined by the New York State Reliability Council. The settling time and settling band requirements of Table 13 are recommended goals for typical system conditions and ~~but~~ are not mandatory.

8. Clause 7.2.2.4 – Consecutive Voltage Deviations Ride-Through Capability (*ride-through* for dynamic voltage oscillations)
Where interconnection system impact studies for an *IBR plant* indicate post-fault voltage oscillations repeatedly exceeding the limits of the *continuous operating region*, the studies shall define voltage *ride-through* performance requirements applicable to such situations. The *IBR plant* shall provide the performance thus required.

9. Clause 7.2.2.4 – Consecutive Voltage Deviations Ride-Through Capability (energy dissipative device limitations)
Where *IBR plants* interconnected to the New York Transmission System via HVDC transmission apply energy dissipative devices to meet *ride-through* requirements, the *IBR plant* interconnection studies shall define the credible magnitude and duration of repeated fault events, within the time frame of the energy dissipative device's thermal cool-down period, that may be credibly experienced within New York Reliability Council planning design criteria and reasonable engineering judgement. The defined event scenario shall be applied as the minimum duty cycle requirements and energy ratings of the dissipative devices. Exception to the requirements of Clause 7.2.2.4 of the Standard shall be defined by the NYISO. This exception shall specifically include dc choppers and similar devices used for interconnection of generation resources with the New York Transmission System via HVDC tie lines.

10. Clause 7.2.2.6 – Restore Output after Voltage Ride-Through (Recovery Time)
If interconnection studies reveal that IBR plant voltage disturbance recovery times equal to or close to one second may result in voltage collapse, delayed voltage recovery, or other adverse system performance consequences and a slower recovery time is deemed to be favorable , to the New York Transmission System, a suitable recovery time less than ten seconds shall be specified by the NYISO.

Clause 8 – Power quality

Excluded.

Clause 9 – Protection

Adopted in full.

Clause 10 – Modeling data

Excluded

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Clause 11 – Measurement data for performance monitoring and validation

Excluded.

Clause 12 – Test and verification requirements

This clause is excluded. However, the following shall apply in substitution:

1. Forthcoming IEEE 2800.2

It is recognized that IEEE 2800.2 "Guide for Test and Verification Procedures for Inverter Based Resources Interconnecting with Bulk Power Systems" is undergoing development and will include test, evaluation, model validation and monitoring criteria.

2. Self-certification of compliance

The attestation of IBR plant compliance with IEEE 2800-2022, as amended by this document, will be based on IBR plant performance in the fundamental frequency phasor-domain using system models (e.g., PSSE loadflow, short-circuit and dynamic models and databases) that are provided to the IBR Developer by NYISO.

IBR performance constraints that can only be identified by EMT representations of the external transmission system are excluded from Reliability Rule B.5, to be covered in future Reliability Rules.

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Addendum - Background Notes on the Development of Potential Reliability Rule 151 adopted by NYSRC Executive Committee as Reliability Rule B.5 on 2/9/24

1. Need for rule change, including advantages and disadvantages

The NYISO Interconnection Queue as of 6/30/23 has approximately 120,000 MWs of Large Facility (>20 MW) Inverter Based Resources (IBR). NYSRC does not presently have specific IBR interconnection criteria in its Reliability Rules. PRR 151 is therefore proposed for EC approval to be applicable to all future IBR projects seeking interconnection to the NYCA.

This proposal is based upon: (1) recent disturbances in Texas, California and Utah where IBRs failed to perform reliably; (2) the cumulative magnitude of IBRs in NYCA per New York State's CLCPA mandates; (3) NERC's recommendation for Authorities Governing Interconnection Requirements (AGIR) to immediately adopt IEEE Standard 2800-2022; (4) FERC's RM22-12-000 NOPR on Reliability Standards to Address Inverter Based Resources; and (5) FERC Order 2023 on Improvements to Generator Interconnection Procedures and Agreements.

It is noted that IEEE 2800-2022 compliant IBR Plant specifications will evolve from the as-designed stage through the as-built stage. Corresponding models and data likewise will evolve from those required for interconnection studies (as-designed IBR Plant) to those required for test and verification studies (as-built IBR Plant).

PRR 151 is focused on the interconnection study stage for the as-designed IBR Plant with the adoption of a critical subset of IEEE Standard 2800-2022 requirements, as amended for NYCA applicability. Further revisions to incorporate and adopt all pertinent IEEE Standard 2800-2022 requirements will be included in subsequent PRRs.

The advantage to immediate adoption of PRR 151 is that it establishes minimum IBR interconnection criteria critical to NYCA reliability as NYCA transitions to higher penetration of inverter-based resources per CLCPA mandates. There are no disadvantages.

Comments

1. IEEE Standard 2800-2022: "IEEE Standard for Interconnection and Interoperability of Inverter-Based Resources (IBRs) Interconnecting with Associated Transmission Electric Power Systems" is covered by IEEE Copyright, available through IEEE Xplore: https://ieeexplore.ieee.org/document/9762253

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2. New Glossary Terms:
- "Large IBR Generating Facility" in this PRR is based on:
  - IEEE Standard 2800-2022 definition of a grouping of one or more IBR unit(s) and possibly supplemental IBR device(s) operated by a common Facility level controller along with a collector system to achieve the performance requirements of this standard at a single reference point of applicability (RPA), and
  - FERC's definition of Large Generating Facilities having capacities greater than 20 MWs.
- "Interconnection Studies" in this PRR are based upon the studies outlined in NYISO's OATT Attachment X and Transmission Expansion and Interconnection Manual.
- "IBR Plant Developer" as used in this PRR includes an IBR Plant Developer or IBR Plant Owner or IBR Plant Operator.

3. IEEE 2800-2022 requirements for this PRR specifically apply to the IBR Developer where:
- Requirements designated with the word "shall" are mandatory.
- Requirements designated with the words "should", "may" or "can" are not mandatory.

4. Exclusions from the requirements in IEEE 2800-2022 for this PRR are:
- Section 8: Power Quality
- Section 10: Modeling Data
- Section 11: Measurement Data for Performance Monitoring and Validation
- Section 12: Test and Verification Requirements

5. Miscellaneous Notes
- EMT models and studies are not required by this PRR but may be required by the as-built requirements, to be covered in future PRRs.
- IEEE Standard 2800-2022 does not explicitly specify requirements for HVDC facilities. However, it does include requirements for VSC-HVDC transmission facilities connecting isolated IBR to the AC transmission system.
- IBR models and data for IBR plant compliant with IEEE Standard 2800-2022 may be modified as the IBR plant progresses through the interconnection process. The procedures for obtaining the as-designed models and data, and their updating during the various stages of interconnection are addressed by NYSRC's existing Reliability Rule I - Modeling and Data, I.4 - Transmission Data.
- NYSRC Policy 1, Section 5: Exceptions to Reliability Rules covers exception procedures https://www.nysrc.org/wp-content/uploads/2023/03/POLICY-1-11-Final-2-7-17.pdf. A request for a new exception to a Reliability Rule, or the removal or modification of a current exception to a Reliability Rule (an Exception Change) must be submitted to the

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Executive Committee for approval. An Exception Change request to the Executive Committee shall be initiated in one of three ways: (1) a request by a transmission owner following an annual transmission owner review of current exceptions, (2) a request made at any time by a market participant, or (3) a request by the NYISO or any member of the Executive Committee.

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7. Reliability Rule Revision Log

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Reliability Rule Revision Log

Reliability Rules & Related Elements[11]	Initially Adopted	Revisions
A. Resource Adequacy		
A.1: Establishing NYCA Installed Reserve Margin Requirements	01/01/2015	
R1	01/01/2015	5/11/2018, 7/10/20, 6/10/22
R2	01/01/2015	Retired 5/11/2018, 7/10/20, 6/10/22
R3	06/10/2022	
M1	01/01/2015	5/11/2018, 7/10/20, 6/10/22
A.2: Establishing Load Serving Entity Installed Capacity Requirements	01/01/2015	5/11/2018
R1	01/01/2015	5/11/2018
R2	01/01/2015	5/11/2018
R3	01/01/2015	5/11/2018
R4	01/01/2015	Retired 5/11/2018
R5	01/01/2015	Retired 5/11/2018
M1	01/01/2015	5/11/2018
M2	01/01/2015	5/11/2018
M3	01/01/2015	5/11/2018
A.3: Review of Resource Adequacy	01/01/2015	
R1	01/01/2015	7/10/20
R2	07/10/20	
R3	07/10/20	
M1	01/01/2015	
M2	07/10/20	
M3	07/10/20	
B. Transmission Planning		
B.1: Transmission System Planning Performance Requirements	01/01/2015	
R1	01/01/2015	3/11/2016, 5/10/2024
R2	01/01/2015	08/14/2015, 3/11/2016, 5/10/2024
R3	01/01/2015	3/11/2016, 5/10/2024
R4	01/01/2015	3/11/2016
R5	01/01/2015	Retired 3/11/2016
M1	01/01/2015	3/11/2016
B.2: Transmission System Planning Assessments	01/01/2015	
R1	01/01/2015	3/11/2016
R2	01/01/2015	Retired 3/11/2016

[11] R = Requirement; M = Measure and corresponding non-compliance levels

Reliability Rules & Related Elements[11]	Initially Adopted	Revisions
R3	01/01/2015	Retired 3/11/2016
R4	01/01/2015	Retired 3/11/2016
R5	01/01/2015	Retired 3/11/2016
R6	01/01/2015	Retired 3/11/2016
R7	01/01/2015	Retired 3/11/2016
M1	01/01/2015	3/11/2016
B.3: List of NYS Bulk Power System Facilities	01/01/2015	
R1	01/01/2015	
R2	01/01/2015	
R3	01/01/2015	
M1	01/01/2015	
B.4: Transmission System Interconnection Studies	07/10/20	
R1	07/10/20	
M1	07/10/20	
B.5: Large IBR Interconnection Studies	2/9/2024	
R1	2/9/2024	
M1	2/9/2024	
R2	2/9/2024	
M2	2/9/2024	
C. Transmission Operation		
C.1: Establishing Operating Transfer Capabilities	01/01/2015	
R1	01/01/2015	3/11/2016
R2	01/01/2015	6/10/2016
M1	01/01/2015	6/10/2016
C.2 Post-Contingency Operation	01/01/2015	
R1	01/01/2015	
R2	01/01/2015	
M1	01/01/2015	
C.3: Outage Coordination	01/01/2015	
R1	01/01/2015	
R2	01/01/2015	
R3	01/01/2015	
R4	01/01/2015	Retired 4/11/2019
R5	01/01/2015	4/11/2019
R6	01/01/2015	4/11/2019
M1	01/01/2015	
M2	04/11/2019	
C.4: Operation Prior to and During Extreme Weather Conditions and Solar Magnetic Disturbances	01/01/2015	
R1	01/01/2015	
R2	01/01/2015	
R3	01/01/2015	
M1	01/01/2015	
C.5: Fault Current Assessment	01/01/2015	
R1	01/01/2015	
R2	01/01/2015	
R3	01/01/2015	

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Reliability Rule Revision Log, cont.

Reliability Rules & Related Elements[11]	Initially Adopted	Revisions
M1	01/01/2015	
M2	01/01/2015	
C.6: Applications of the NYSRC Reliability Rules	01/01/2015	
R1	01/01/2015	
M1	01/01/2015	
C.7: Exceptions to the NYSRC Reliability Rules	01/01/2015	
R1	01/01/2015	
M1	01/01/2015	
C.8: Real-Time Operations of the NYS Bulk Power System	01/01/2015	
R1	01/01/2015	
M1	01/01/2015	
D. Emergency Operations		
D.1: Mitigation of Major Emergencies	01/01/2015	
R1	01/01/2015	
R2	01/01/2015	
R3	01/01/2015	
R4	01/01/2015	07/10/20
R5	01/01/2015	
R6	01/01/2015	07/10/20
R7	01/01/2015	
R8	01/01/2015	
R9	01/01/2015	
R10	01/01/2015	
M1	01/01/2015	07/10/20
M2	01/01/2015	
M3	01/01/2015	
D.2: Underfrequency Load Shedding	01/01/2015	Retired 9/8/2017
R1	01/01/2015	Retired 9/8/2017
R2	01/01/2015	Retired 9/8/2017
R3	01/01/2015	Retired 9/8/2017
M1	01/01/2015	Retired 9/8/2017
M2	01/01/2015	Retired 9/8/2017
E. Operating Reserve		
E.1: Establishing the Minimum Level of Operating Reserve	01/01/2015	
R1	01/01/2015	
R2	01/01/2015	
R3	01/01/2015	
R4	01/01/2015	
R5	01/01/2015	
R6	01/01/2015	
R7	01/01/2015	
M1	01/01/2015	
F. System Restoration		
F.1: NYCA System Restoration Plan	01/01/2015	

Reliability Rules & Related Elements[11]	Initially Adopted	Revisions
R1	01/01/2015	11/10/2016
R2	01/01/2015	
R3	01/01/2015	11/10/2016
M1	01/01/2015	11/10/2016
M2	01/01/2015	11/10/2016
M3	01/01/2015	11/10/2016
F.2: System Restoration Training and Simulation Programs	01/01/2015	Retired 11/10/2016
R1	01/01/2015	Retired 11/10/2016
M1	01/01/2015	Retired 11/10/2016
G. Local Area Operation		
G.1: New York City System Operations	01/01/2015	
R1	01/01/2015	
R2	01/01/2015	
R3	01/01/2015	
R4	01/01/2015	
R5	01/01/2015	
R6	01/01/2015	
R7	01/01/2015	
M1	01/01/2015	
M2	01/01/2015	
M3	01/01/2015	
G.2: Loss of Gas Supply – New York City	01/01/2015	11/10/2016
R1	01/01/2015	2/9/2018
R2	01/01/2015	2/9/2018
R3	11/10/2016	
R4	11/10/2016	
R5	11/10/2016	
R6	11/10/2016	
M1	01/01/2015	2/9/2018
M2	01/01/2015	2/9/2018
M3	11/10/2016	
M4	11/10/2016	
M5	11/10/2016	
G.3: Loss of Gas Supply – Long Island	01/01/2015	
R1	01/01/2015	01/12/2017, 2/9/2018
R2	01/01/2015	01/12/2017, 2/9/2018
M1	01/01/2015	2/9/2018
M2	01/01/2015	01/12/2017, 2/9/2018
G.4: System Restoration from Eligible Black Start Resources	01/01/2015	
R1	01/01/2015	04/13/2017
R2	01/01/2015	04/13/2017
M1	01/01/2015	
M2	01/01/2015	
H. Control Center Communications		

Reliability Rule Revision Log, cont.

Reliability Rules & Related Elements[11]	Initially Adopted	Revisions
H.1: Control Center Communications	01/01/2015	
R1	01/01/2015	
R2	01/01/2015	
R3	01/01/2015	
R4	01/01/2015	
M1	01/01/2015	
M2	01/01/2015	
M3	01/01/2015	
I. Modeling and Data		
I.1: Verification Testing of Resource Capacity	01/01/2015	
R1	01/01/2015	03/05/2015
R2	01/01/2015	
R3	01/01/2015	
R4	01/01/2015	
M1	01/01/2015	
M2	01/01/2015	
M3	01/01/2015	
I.2: Generating Unit Availability and Special Case Resource Performance	01/01/2015	
R1	01/01/2015	
R2	01/01/2015	
R3	01/01/2015	
R4	01/01/2015	
R5	01/01/2015	
M1	01/01/2015	
M2	01/01/2015	
M3	01/01/2015	
M4	01/01/2015	
M5	01/01/2015	
I.3: Load Forecasting	01/01/2015	
R1	01/01/2015	
R2	01/01/2015	
M1	01/01/2015	
M2	01/01/2015	
I.4: Transmission Data	01/01/2015	
R1	01/01/2015	09/09/2016, 04/13/2017
R2	01/01/2015	
R3	01/01/2015	09/09/2016, 04/13/2017
M1	01/01/2015	09/09/2016
M2	01/01/2015	
M3	01/01/2015	09/09/2016
I.5: Disturbance Recording	01/01/2015	Retired 11/10/2016
R1	01/01/2015	Retired 11/10/2016
R2	01/01/2015	Retired 11/10/2016
M1	01/01/2015	Retired 11/10/2016
M2	01/01/2015	Retired 11/10/2016

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8. Manual Version History

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SECTION 8

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Reliability Rules and Compliance Manual Version History

Version	Date	Changes
1	2/1/02	Initial Rev 2 version
2	4/11/02	Table of Contents; Rules I-R3 & 5 replaced by new I-R3 (PRR #47)
3	5/10/02	Expedited rule modification to C-R1 and C-M1 (PRR #50) ; Revision to rule exception #19 (PRR #49)
4	6/14/02	Table of Contents; New Rule B-R6 and Measurement B-M4 (PRR #48); Revision to Measurement H-M2; Update of NYSRC/NPCC/NERC Reliability Rule Cross-Reference
5	11/12/02	New measurement J-M2 (PRR #53); Glossary: Revised definition of *Reactive Power* (PRR #51)
6	3/14/03	Table of Contents; New Rule B-R7 and modified Measurement B-M1 (PRR #29); Modified Rule C- R1 and Measurement C-M1 (PRR #50); New Rule C-R4 and Measurements C-M9&10 (PRR #58); Update of NYSRC/NPCC/NERC Reliability Rule Cross-Reference; Revised Glossary definition of *Dependable Maximum Net Capacity*
7	5/9/03	Revised Measurement H-M2 and new Measurement H-M3 (PRR #55); Revised Exception #18 (PRR #56)
8	10/7/03	New Rule E-R8 and related Measurements E-M6 & E-M7 (PRR #57); New Measurement C-M11 (PRR #63); Revised Measurement E-M2 & New Measurement F-M5 (PRR #64); Updated Reliability Rules Section B & E Guidelines
9	1/9/04	Revised Rule D-R3 (PRR #65); Revised Measurement G-M1 (PRR #66); New Glossary definition of *Interruptible Load*
10	12/17/04	Revised Rule J-R2 & Measurement J-M2 and New Measurement J-M3 (PRR #67); Revised Rule B-R3 (PRR #70); Revised Rules Section B Tables A & B (PRR #71); Revised Rule A-R1 (PRR #75); Revised Rules Section B Introduction
11	3/4/05	Revisions to the Introduction and Glossary Index
12	5/2/05	New Measurement F-M6 (PRR #77); Revised Part III to account for new NERC Version 0 Standards
13	8/12/05	New Rule K-R3 & Measurement K-M3 (PRR #72); New Rule C-R5 & Measurements C-M12 and C-M13 (PRR #69); Revised Section III to include new rules
14	10/14/05	Revised Rule C-R1 and Measurements C-M1, C-M2, and C-M3 (PRR #73); Revised Measurement F-M2, and removal of Measurement K-M2e and renumbering of F-M2f&g (PRR #78)
15	12/9/05	Revisions to the Introduction; Revised Measurements C-M9 and C-M11 (PRR #74)
16	3/10/06	Revised Table of Contents; Revised Rules G-R1, G-R2 and G-R3 and Measurements G-M1, G-M2, G-M3, and G-M4 (PRR

Version	Date	Changes
		#76); New Rule E-R9 and New Measurement E-M8 (PRR #79); Revised Measurement C-M5 (PRR #80); Revised Measurement E-M7 (PRR #81); Revised Measurement F-M4 (PRR #82); Revised Measurements I-M5 and I-M6 (PRR #83); Revised Part III to include new rule; new glossary definitions of *Black Start Facility, Black Start Provider, and System Operating States*
17	8/11/06	Revised Rule D-R2 and new glossary definition of *Contingency Reserve Adjustment Factor* (PRR #85)
18	1/5/07	Revised Manual Introduction; Revised Introductions to Reliability Rules Sections B, C, E, F, G, and I; Revised Rule A-R1 (PRR #89)
19	4/13/07	Revised Rules B-R2, B-R3, E-R2, and E-R3 and Measurement B-M1 (PRR #86); Revised B-R5 and B-M3 (PRR #90); Revised I-R3 Reliability Rule Application
20	7/13/07	Revised Table of Contents; Revised Rule I-R3 and new Rule I-R5, revised Measurements I-M2, I-M4 and I-M6, new glossary definition of *Uncontrolled Loss of Electric Load* (PRR #88); Revised Rule B-R4 (PRR #91); Revised Measurements G-M1.2 and G-M1.10 (PRR #92)
21	12/14/07	Revised Table of Contents; Revised Introduction to Rule Section D; Revised Rules D-R3 and I-R2, revised Measurement D-M1, revised glossary definitions of *Operating Reserve, Non-Synchronized Reserve, Synchronized Reserve, and 30-Minute Reserve* (PRR #93); New Rule E-R10 and new Measurement E-M9 (PRR #94); Revised Part III to include new Rule E-R10; Revised Section VI, Exceptions to NYSRC Reliability Rules.
22	5/9/08	Revised Manual Introduction; Revised Measurements G-M2 and G-M4 (PRR #95); Removed References subsection from each Reliability Rule section; Revised Part III, NYSRC/NPCC/NERC Reliability Rules Cross-Reference to account for new NPCC and NERC Standards
23	1/9/09	Revised Measurements C-M1 and C-M2 (PRR #96); Revised Measurement K-M2a (PRR #98); Revised Section I Introduction; Moved I-R3 and I-R5 Applications to follow Rule I-R5; Revised Part III, NYSRC/NPCC/NERC Reliability Rules Cross-Reference.
24	8/14/09	Revised Rules G-R1, removed G-R2, revised G-R3 and renumber to G-R2, revised Measurements G-M1, G-M2, G-M3, and G-M4 (PRR #99); Revised Part III, Cross-Reference Section to remove G-R2.
25	10/9/09	Revised Rule C-R2, revised Measurements C-M4, C-M5, and C-M6, new Glossary definition of *Suspect Data* (PRR #101)
26	12/4/09	Revised Measurement K-M2d, retirement of Measurements D-M1, D-M3, E-M2, E-M5, and F-M5 (PRR #102); Revised

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		Part III, NYSRC/NPCC/NERC Reliability Rules Cross-Reference to account for new NPCC directories.
27	7/8/10	Revised Rule C-R4, revised Measurements C-M9 and C-M11, new Glossary definition of Developer, revised Glossary definition of *Suspect Data* (PRR 103).
28	11/12/10	Revised Measurements C-M1 and C-M3 (PRR #104); Revised Measurement E-M9 (PRR #105)
29	1/7/11	Revised Measurements G-M1 and G-M3, new Glossary definition of *Capability Year* and revised definition of *Capability Period* (PRR #106); Updated Section III – Reliability Rule Cross-Reference, New Section VII, "NYSRC Procedure for NYCA Transmission Reviews."
30	11/10/11	Revised Measurement F-R1 and revised Section V, "System Conditions for Operating States of the NYS BPS" (PRR 108)
31	5/11/12	Revised Rule C-R2, new Measurements C-M14 and C-M15, and new Glossary definition of "*Responsible Interface Party*" (PRR 109); Revised Rules Section B, Table B, Contingency "i" (PRR 111); Revised Introduction to Rules Section B, Transmission Planning.
32	1/11/13	Revised Measurements G-M1 and G-M3 (PRR 114). Revised Section VI, "Exceptions to the Reliability Rules."
33	4/10/14	New Reliability Rule I-R6, Revised Reliability Rule G-R1, New Measurements I-M7 and I-M8, Revised Measurements G-M1 and G-M2 (PRR 116A); Revised Measurement B-M4 (PRR 117); Retirement of Reliability Rules H-R1 and H-R2, Retirement of Measurements H-M1, H-M2, and H-M3 (PRR 118); Revised Reliability Rules Section I Introduction; Revised Reliability Rule Sections B and D Guidelines; Removed Reliability Rules Exception #15; Revised Table of Contents; New Glossary definitions of "*Material Benefit"* and "*Eligible Black Start Resources*;" Revised NYSRC/NPCC/NERC Reliability Rules Cross-Reference.
34	1/1/15	Complete reformatting of the Reliability Rules in accordance with the NYSRC Reliability Rules Enhancement Project.
35	8/14/15	Errata changes in Rule Groups A, B, and I; Revised Glossary definition of *Material Benefit*; Revised Table C-1 (PRR 127); Reliability Rule numbering system change.
36	3/11/2016	Revised Requirements B.1 (R1 through R4) and retired B.1 (R5), revised Measure M1, and revised Levels of Non-Compliance (PRR 120); Revised Requirement B.2 (R1) and retired B.2 (R2 through R7), revised Measure M1, and revised Levels of Non-Compliance (PRR 121); Revised Requirement C.1 (R1) (PRR 122); revised Section 4, Procedure for NYCA Transmission Reviews.

Version	Date	Changes
37	6/10/2016	Revised Requirement C.1 (R.2) and related Measure M1 (PRR 130); Revised Introductions to Rule Sections B and C. Various Errata changes.
38	9/9/2016	Revised Requirements I.4 (R1 and R3), related Measures M1 and M3, and Levels of Non-Compliance (PRR 132).
39	11/10/2016	Revised Requirements F.1 (R1 and R3), related Measures 1 and 3, and Levels of Non-Compliance; and removed Reliability Rule F.2 and related Requirements and compliance elements; (PRR 133); New Requirements G.2 (R3, R4, R5, and R6) and related Measures M3, M4, and M5 and Levels of Non-Compliance (PRR 131C); Retired Reliability Rule I.5 and related Requirements and compliance elements (PRR 134).
40	4/13/2017	Revised Requirements G.4 (R1.1 and R2.1), related Measure 2 and Levels of Non-Compliance (PRR 135); Revised Requirements I.4 (R1 and R3) (PRR 136).
41	9/8/2017	Retired Reliability Rule D.2 and related Requirements and compliance elements (PRR 137); Revised Introduction to Transmission Planning Rule Section B; Updated several NERC and NPCC references.
42	2/9/2018	Revised Requirements G.2 (R1 and R2) and related compliance elements (PRR 139); Revised Requirements G.3 (R1 and R2) and related compliance elements (PRR 138).
43	5/11/2018	Revised Requirement A.1 (R1) and related compliance elements (PRR 140); Revised Reliability Rule A.2 and replaced Requirements A.2 (R1-5) with revised Requirements A.2 (R1-3). Revised related compliance elements (PRR 141).
44	4/11/2019	Revised Requirements C.3 (R4, R5, and R6) and new Measurement M2 (PRR 144); New Introduction section on Protected Information.
45	7/17/2020	Replaced Requirement A.3 (R1) and related M1 and Levels of Non-Compliance with new Requirements A.3 (R1, R2 and R3) and related M1, M2 and M3 and Levels of Non-Compliance, added new Manual Section 5, *Guidelines for Reporting NYCA Long-Term Resource Adequacy Assessments* (PRR 145); New Reliability Rule B.4 and related Requirement B.4 (R1) and compliance elements (PRR 146); Replaced existing Requirement A.1 (R1) with new Requirements A.1 (R1 and R2) (PRR 147); Revised Requirements D.1 (R4.2 and R6.2) and related M1 (PRR 148); Revise Introduction Section 1.2.4 and Glossary to reflect revised definition of NYS Bulk Power System (PRR 128).
46	6/10/2022	For Reliability Rule A.1: Revised Requirement R1.1; added a new Requirement R2; renumbered Requirement R2 to R3; renumbered Requirements R2.1, R2.2 and R2.3 to R3.1, R3.2, and R3.4, respectively; added a new Requirement R3.3; revised

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		Measure M1 and related levels of non-compliance; and added new glossary definitions of various reliability risk metric terms (PRR 149). Added a new glossary definition of "Emergency Transfer Limit" and revised the definition of "Normal Transfer Limit."
47	5/30/2024	Added new RR B.5 "Establishing New York Control Area (NYCA) Interconnection Standards for Large IBR Facilities" (PRR 151) based on IEEE Standard 2800-2022 together with an associated procedures document and new glossary terms Added new Category I & II contingency events for loss of gas fuel in Table B-1 and clarified extreme contingency event 10 to apply to multiple "fossil" fuel in Table B-3 (PRR 153a). Revised RR B.1: R1.1 & Table B-3 to include system conditions related to weather conditions (PRR 154a).

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