New York State Reliability Council

Reliability Rules & Compliance Manual

For Planning and Operating the New York State Power System

Version 41
September 8, 2017
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 elements 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 Participants. 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 elements provide for the reliable operation of the NYS Bulk Power System. One of these elements, Requirements, defines specific obligations of the NYISO and New York Market Participants for meeting intended reliability outcomes specified by a Reliability Rule. These Requirements are material to reliability and measureable. 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 elements.
• **Security** – The ability of the electric systems to withstand sudden *disturbances* such as electric short circuits or unanticipated loss of system *elements*.

### 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

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

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 Bulk Power System within the NYCA, generally comprising generating units 300 MW and larger; and generally comprising transmission facilities 230 kV and above. However, smaller generating units and lower voltage transmission facilities on which faults and disturbances can have a significant adverse impact outside of the local area are also part of the NYS Bulk Power System.

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 Participants 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 Participants 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: 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 site at:

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

The NYISO, Market Participants 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.
1.2.7: 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, [http://NYISO.com](http://NYISO.com).

Prior to the NYISO startup, the *Applications of the Reliability Rules* were implemented by the Transmission Owners. The implementation of the *Applications of the Reliability Rules* requires close coordination between the Transmission Owners and the NYISO in order to protect the reliability of the NYS Power System. For example, the Transmission Owners 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.

1.2.8: 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 in at [www.nysrc.org/NYSRCReliabilityRulesComplianceMonitoring.asp](http://www.nysrc.org/NYSRCReliabilityRulesComplianceMonitoring.asp).

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 Participants 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 Participants (Transmission Owners, Generation Owners, Installed Capacity Providers, Black Start Providers, Equipment Owners, Developers, 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 resources.

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 resources, 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:

\[ \text{ICR} = (1 + \frac{\text{IRM Requirement} \, (\%)}{100}) \times \text{Forecasted NYCA Peak Load} \]

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

<table>
<thead>
<tr>
<th>Reliability Rule</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1</td>
<td>Establishing NYCA Installed Reserve Margin Requirements</td>
</tr>
<tr>
<td>A.2</td>
<td>Establishing Load Serving Entity and Installed Capacity Requirements and Deliverable External Area Installed Capacity</td>
</tr>
<tr>
<td>A.3</td>
<td>Review of Resource Adequacy</td>
</tr>
</tbody>
</table>
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

B. Requirements

R1. The NYSRC shall establish the IRM requirement for the NYCA such that the probability (or risk) of disconnecting any firm load due to resource deficiencies shall be, on average, not more than once in ten years. Compliance with this criterion shall be evaluated probabilistically, such that the loss of load expectation (LOLE) of disconnecting firm load due to resource deficiencies shall be, on average, no more than 0.1 day per year. This evaluation shall make due allowance for demand uncertainty, scheduled outages and deratings, forced outages and deratings, assistance over interconnections with neighboring control areas, NYS Transmission System emergency transfer capability, and capacity and/or load relief from available operating procedures.

R2. The NYSRC shall periodically perform resource adequacy studies to update the required statewide IRM. A report shall be prepared providing the assumptions, procedures, and results of the study.

C. Compliance

1. Measures
   M1. The NYSRC Installed Capacity Subcommittee conducted the annual resource adequacy study for the following Capability Period, and reported the results of the study in accordance with R1 and R2.
2. Levels of Non-Compliance
   2.1 For Measure 1
       Level 1: Not applicable.
       Level 2: A report was submitted, but was incomplete in one or more areas.
       Level 3: Not applicable.
       Level 4: A 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 and Deliverable External Area Installed Capacity

A. Reliability Rule

_Load Serving Entity installed capacity_ requirements and deliverable external area _installed capacity_ for each _Capability Year_ shall be established.

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

2. Applicable Entities: _NYISO_ and _LSEs_

B. Requirements

R1. _LSEs_ shall be required to procure sufficient _resource capacity_ for the entire _NYISO_ defined _obligation procurement period_ so as to meet the statewide _IRM_ requirement determined from A.1. Further, this _LSE capacity_ obligation shall be distributed so as to meet _locational ICAP requirements_, considering the _availability_ and capability of the _NYS Transmission System_ to maintain A(R1) _reliability_ requirements.

R2. _ICAP_ from _resources_ external to the _NYCA_ for satisfying a portion of _LSE ICAP_ requirements must be demonstrated to be available and deliverable to the _NYCA_ borders. _ICAP_ from _resources_ external to the _NYCA_ shall be permitted to the extent A.1 _reliability_ requirements are satisfied.

R3. The _NYISO_ shall prepare a report for the next _Capability Period_ showing (1) _LSE IRM_ and _ICAP_ requirements so as to meet the statewide _IRM_ requirement, (2) _LSE locational ICAP requirements_ for applicable _NYCA zones_, such as New York City and Long Island, and (3) the allowable amount of _LSE ICAP_ requirements that may be located externally to the _NYCA_. The report shall include the procedures, factors, and assumptions utilized by the _NYISO_ to determine these _LSE ICAP_ requirements. The _NYISO_ Installed Capacity Manual shall include procedures to establish _LSE ICAP_ requirements.
R4. Each LSE shall certify and maintain its ICAP obligation for the next Capability Period, including any locational and external ICAP, in accordance with LSE ICAP requirements established by the NYISO Tariff and the NYISO Installed Capacity Manual.

R5. The NYISO shall notify those LSEs that are determined to be deficient in meeting their ICAP requirements including locational ICAP requirements, for the next Capability Period. 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 installed capacity (ICAP) requirements for the next Capability Year. The analysis was based on NYCA ICAP requirements established by the NYSRC and utilizes models and assumptions consistent with those used by the NYSRC for its ICAP requirement study. A report was prepared in accordance with R3, which addresses the results of the study, models utilized, study procedures and assumptions, and other study considerations. The report demonstrates that the LSE and locational ICAP requirements established by the NYISO and the allowable amount of LSE ICAP that may be located externally to the NYCA meets NYSRC Reliability Rules, in accordance with R1 and R2, respectively.

M2. Each LSE demonstrated that it procured sufficient capacity from Installed Capacity Suppliers to meet its ICAP requirement, in accordance with R4.

M3. The NYISO immediately notified the NYSRC that a LSE failed to demonstrate that it meets its ICAP requirement for the next Capability Period, in addition to other requirements specified in R5.

2. Levels of Non-Compliance

2.1 For Measure 1

Level 1: Not applicable.

Level 2: The NYISO report, or analyses of LSE and locational ICAP requirements, was incomplete in one or more areas.
Resource Adequacy, cont.

Level 3: Analyses of LSE and locational ICAP requirements did not meet NYSRC Reliability Rules, or did not meet NYCA ICAP requirements established by the NYSRC.

Level 4: Analyses of LSE and locational ICAP requirements were not provided.

2.2 For Measure 2
Level 1: Not applicable.
Level 2: Not applicable.
Level 3: Not applicable.
Level 4: The LSE fails to comply with NYISO requirements to demonstrate that it procured sufficient capacity to meet its ICAP obligation.

2.3 For Measure 3
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.

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 resources 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. An NYCA resource adequacy assessment shall be conducted annually for the next summer period and two years beyond, for demonstrating that proposed NYCA resources meet NYCA statewide IRM and New York City and Long Island locational capacity requirements as determined by NYSRC and NYISO studies conducted in accordance with A.1 and A.2. The assessment shall be documented in a resource adequacy report, covering at a minimum, the evaluations and information below:

   R1.1 The assessment shall evaluate a base case assuming proposed resources and the most likely load forecast, as well as alternate scenarios approved by RCMS.

   R1.2 Any potential base case resource adequacy needs shall be addressed by NYISO procedures. The NYISO shall report to the NYSRC on identified needs and possible corrective actions consistent with NYISO procedures.

   R1.3 The resource adequacy report shall include key assumptions and other factors considered in the assessment.

C. Compliance

1. Measures
   - M1. The NYISO submitted the annual NYCA resource adequacy assessment report to the NYSRC in accordance with R1 requirements.
2. Levels of Non-Compliance

2.1 For Measure 1

Level 1: Not applicable.
Level 2: A NYCA resource adequacy assessment was submitted to the NYSRC, but the report was deficient in one or more areas.
Level 3: The NYISO failed to report to the NYSRC in a reasonable time on possible corrective actions after potential base case resource adequacy needs were identified.
Level 4: A NYCA resource adequacy assessment was not submitted to the NYSRC.

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 Resource Adequacy Assessment
B. Transmission Planning, cont.

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 *ratings*.
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.

**Transmission Planning Reliability Rules**

<table>
<thead>
<tr>
<th>Reliability Rule</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.1</td>
<td>Transmission System Planning Performance Requirements</td>
</tr>
<tr>
<td>B.2</td>
<td>Transmission System Planning Assessments</td>
</tr>
<tr>
<td>B.3</td>
<td>List of NYS Bulk Power System Facilities</td>
</tr>
</tbody>
</table>
B. Transmission Planning, cont.

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, 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.

R4. *Fault duty* levels shall be planned to be within appropriate equipment *ratings*. *Fault*
B. Transmission Planning, cont.

*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 **For Measure 1**
      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
B. Transmission Planning, cont.

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, www.nyiso.com/services.

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. Transmission Planning, cont.

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).
B. Transmission Planning, cont.

- 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 For Measure 1
     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. Transmission Planning, cont.

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 For Measure 1
      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.
Table B-1

NYSRC Planning Design Criteria: Contingency Events and Performance Requirements

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

<table>
<thead>
<tr>
<th>Category</th>
<th>Contingency events</th>
<th>Fault type (permanent)</th>
<th>Performance requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Contingency events</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td>Three-phase fault with normal fault clearing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. <em>Fault</em> on any of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. transmission circuit</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. transformer</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. shunt device</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. generator</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. bus section</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Opening of any circuit breaker or the loss of the following:</td>
<td>No fault</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. transmission circuit</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. transformer</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. shunt devise</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. generator</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. bus section</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Loss of single pole of a direct current facility</td>
<td>No fault</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. <em>Fault</em> on any of the following:</td>
<td>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.</td>
<td>i to viii</td>
</tr>
<tr>
<td></td>
<td>a. transmission circuit</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. transformer</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. shunt device</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. generator</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. bus section</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Category</th>
<th>Contingency events</th>
<th>Fault type (permanent)</th>
<th>Performance requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>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.</td>
<td>Phase to ground fault, with normal fault clearing.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td><em>Fault</em> on a circuit breaker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Simultaneous <em>fault</em> on two adjacent transmission circuits on a multiple circuit tower.</td>
<td>Phase to ground faults on different phases of each circuit, with normal fault clearing.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Simultaneous permanent loss of both poles of a direct current bipolar facility</td>
<td>Without an ac fault.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>The failure of a circuit breaker to operate when initiated by an SPS after a <em>fault</em> on the following: a. transmission circuit b. transformer c. shunt device d. generator e. bus section</td>
<td>Phase to ground fault, with normal fault clearing.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>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</td>
<td>No fault</td>
<td></td>
</tr>
</tbody>
</table>
B. Transmission Planning, cont.

<table>
<thead>
<tr>
<th>Category</th>
<th>Contingency events</th>
<th>Fault type (permanent)</th>
<th>Performance requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>Event(s) after a first loss and after System Adjustment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Following the loss of any critical:</td>
<td>Any Category I event as described above.</td>
<td>Performance requirements i to viii apply.</td>
</tr>
<tr>
<td></td>
<td>a. transmission circuit,</td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>b. transformer,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. series or shunt compensating device or</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. generator</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. single pole of a direct current facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>and after System Adjustment, Category I Contingencies shall also apply.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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, 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.

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.
<table>
<thead>
<tr>
<th>Type of Assessment</th>
<th>Performance Requirements for Thermal, Voltage and Stability Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Thermal</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Pre-Contingency Assessment</strong></td>
<td></td>
</tr>
<tr>
<td>1. For normal transfers, no transmission facility shall be loaded beyond its normal <em>rating</em>.</td>
<td></td>
</tr>
<tr>
<td>2. For <em>emergency</em> transfers, no transmission facility shall be loaded beyond its normal <em>rating</em>. 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.</td>
<td></td>
</tr>
<tr>
<td><strong>Post-Contingency Assessment</strong></td>
<td></td>
</tr>
<tr>
<td>1. For normal transfers, no facility shall be loaded beyond its LTE <em>rating</em> 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 <em>rating</em> as following:</td>
<td></td>
</tr>
<tr>
<td>Loss of Generation - provided <em>ten (10)</em> minute operating reserve and/or phase angle regulation is available to reduce the loading to its LTE <em>rating</em> within fifteen (15) minutes and not cause any other facility to be loaded beyond its LTE <em>rating</em>.</td>
<td></td>
</tr>
<tr>
<td>Loss of Transmission Facilities - provided phase angle regulation is available to reduce the loading to its LTE <em>rating</em> within fifteen (15) minutes and not cause any other facility to be loaded beyond its LTE <em>rating</em>.</td>
<td></td>
</tr>
<tr>
<td>For Contingency Events 4, 5, 6, 7, 8, and 9 in Table B-1 that are not confined to the loss of a single <em>element</em>, <em>Transmission Owners</em> may request permission from the NYISO to design the system so that post-contingency flows up to the STE <em>ratings</em> on the remaining facilities can occur. This is permissible provided operating measures are available to reduce the loading to its LTE <em>rating</em> within fifteen (15) minutes and not cause any other facility to be loaded beyond its LTE <em>rating</em>.</td>
<td></td>
</tr>
<tr>
<td>Design exceptions should be well documented, including NYISO comments, and must be approved by the NYSRC.</td>
<td></td>
</tr>
<tr>
<td>2. For <em>emergency</em> transfers, no facility shall be loaded beyond its STE <em>rating</em> following the more severe of Contingency Events 1, 2, or 3 in Table B-1. The STE <em>rating</em> is based on an assumed pre-loading equal to the normal <em>rating</em>. Therefore, if the limiting facility is loaded above its normal <em>rating</em> pre-contingency, the STE <em>rating</em> must be reduced accordingly.</td>
<td></td>
</tr>
<tr>
<td><strong>Voltage</strong></td>
<td>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 <em>emergency</em> transfers, consistent with the Reliability Rules and all applicable guidelines and procedures.</td>
</tr>
<tr>
<td><strong>Pre-Contingency Assessment</strong></td>
<td>For both normal and <em>emergency</em> transfers, no bus voltage shall be below its pre-contingency low <em>voltage limit</em> nor be above its pre-contingency high <em>voltage limit</em>.</td>
</tr>
<tr>
<td><strong>Post-Contingency Assessment</strong></td>
<td></td>
</tr>
</tbody>
</table>
B. Transmission Planning, cont.

<table>
<thead>
<tr>
<th>Type of Assessment</th>
<th>Performance Requirements for Thermal, Voltage and Stability Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

**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 *faulted 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 *faulted element* is re-energized by *delayed reclosing* before any manual system adjustment. *Emergency* transfer levels may require *generation* adjustment before manually *reclosing* faulted elements 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.
## B. Transmission Planning, cont.

### Table B-3

**Extreme Contingency and System Conditions, Fault type and Performance Assessments to be applied to Bulk Power System elements**

<table>
<thead>
<tr>
<th>Category</th>
<th>Contingency events</th>
<th>Fault type (permanent) and/or condition applied</th>
<th>Performance to be assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme Contingency</td>
<td>- Loss of the entire capability of a generating station.</td>
<td>No Fault</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Loss of all transmission circuits emanating from a generating station, switching station, substation or dc terminal.</td>
<td>No Fault</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Loss of all transmission circuits on a common right-of-way.</td>
<td>No Fault</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 4. Fault on any of the following:</td>
<td>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).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. transmission circuit</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. transformer</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. shunt device</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. generator</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. bus section</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 5. Fault on a circuit breaker</td>
<td>Three-phase fault, with normal fault clearing</td>
<td>i, ii, iii.</td>
</tr>
<tr>
<td></td>
<td>- Sudden loss of a large load or major load center.</td>
<td>No Fault</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 7. The effect of severe power swings arising from disturbances outside the NYS Bulk Power System.</td>
<td>Fault applied as necessary.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 8. Failure of a Special Protection System, to operate when required following the normal contingencies listed in Table B-1, Category I, Single Event.</td>
<td>As listed in Table B-1, Category I, Single Event.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 9. The operation or partial operation of a Special Protection System for an event or condition for which it was not intended to operate.</td>
<td>No Fault</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 10. Sudden loss of fuel delivery system to multiple plants, (e.g. gas pipeline contingencies).</td>
<td>No Fault</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contingency events listed in Table 1, Category I, Single Event</td>
<td>Peak load conditions resulting from extreme weather.</td>
<td>i (b, c), ii, iii.</td>
</tr>
</tbody>
</table>
B. Transmission Planning, cont.

<table>
<thead>
<tr>
<th>Category</th>
<th>Contingency events</th>
<th>Fault type (permanent) and/or condition applied</th>
<th>Performance to be assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme System Conditions</td>
<td>Simulate the removal of all elements that protection systems, including Special</td>
<td>Generating unit(s) fuel shortage (e.g. gas supply adequacy or low hydro) under normal</td>
<td>i (c), ii, iii</td>
</tr>
<tr>
<td></td>
<td>Protection Systems, are expected to automatically disconnect for each event that</td>
<td>weather peak conditions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>involves an AC fault.</td>
<td></td>
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</tr>
</tbody>
</table>

**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 ratings. Unless specific instructions describing alternate action are in effect, normal transfers shall be such that manual reclosing of a faulted 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 faulted elements.

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 ratings 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 Participants 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.

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<tr>
<th>Transmission Operation Reliability Rules</th>
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C. Transmission Operation, cont.

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 limits 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 limits 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 limits 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. Transmission Operation, cont.

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 limits 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 limits, 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. Transmission Operation, cont.

C.3: Outage Coordination

A. Reliability Rule

The NYISO shall schedule outages and notify adjacent control areas 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. Maintenance of facilities which impact the reliability of the NYS Bulk Power System shall be expedited.

R5. Appropriate adjustments shall be made to NYCA operations to accommodate the impact of protection group outages.

R5.1. 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.
C. Transmission Operation, cont.

**R5.2** 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*.

**R6.** The *NYISO* shall maintain procedures and systems which ensure that outages of transmission facilities are coordinated in such a manner to ensure *reliability*. The *NYISO* must notify the *NYSRC* of any changes to these procedures and systems.

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*.

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

      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. Transmission Operation, cont.

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 disturbances.

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
C. Transmission Operation, cont.

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 disturbances. 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 disturbances 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 disturbances 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 disturbances 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
C. Transmission Operation, cont.

C.5: Fault Current Assessment

C. Reliability Rule

*Fault* duty levels shall be within appropriate equipment *ratings*.

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 *ratings*.

**R2.** After evaluating and considering the *NYISO* assessment in R1 concerning a location for which *fault* duty levels may exceed appropriate equipment *ratings*, 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
C. Transmission Operation, cont.

ratings 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 ratings 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. Transmission Operation, cont.

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.
C. Transmission Operation, cont.

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. Transmission Operation, cont.

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.
C. Transmission Operation, cont.

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. Transmission Operation, cont.

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 *reserves* for the monthly peak *load* hour for all *reserve* categories (10 minute synchronized, 10 minute non-synchronized, and 30 minute *operating reserves*). The report shall distinguish between supply and demand side *resources*.
   **R1.5** The response of the system to activations of *reserve*, including: the number of occasions *reserves* 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 disturbances.
   **R1.7.** *Emergency* 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*
C. Transmission Operation, cont.

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**

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

<table>
<thead>
<tr>
<th>Contingency events</th>
<th>Fault type (permanent)</th>
<th>Performance requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contingency events</td>
<td>Fault type (permanent)</td>
<td>Performance requirements</td>
</tr>
<tr>
<td></td>
<td>On the listed elements where applicable</td>
<td>Normal Transfer Capability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emergency Transfer Capability (only after an Emergency is identified)</td>
</tr>
<tr>
<td>1. Fault on any of the following:</td>
<td>Three-phases <em>fault</em>, with normal fault clearing</td>
<td>i, ii, iii, iv, v, vi, vii, viii, x</td>
</tr>
<tr>
<td>a. transmission circuit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. transformer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. shunt device</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. generator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. bus section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Opening of any circuit breaker or the loss of any of the following:</td>
<td>No <em>fault</em></td>
<td>i, ii, iii, iv, v, vi, vii, viii, x</td>
</tr>
<tr>
<td>a. transmission circuit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. transformer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. shunt devise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. generator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. bus section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Loss of single pole of a direct current facility</td>
<td>No <em>fault</em></td>
<td></td>
</tr>
<tr>
<td>4. Fault on any of the following:</td>
<td>Phase to ground <em>fault</em> with failure of a circuit breaker to operate and correct operation of a breaker failure protection system and its associated breakers.</td>
<td>i, ii, iii, iv, v, vi, vii, ix, x</td>
</tr>
<tr>
<td>a. transmission circuit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. transformer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. shunt device</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. generator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. bus section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Fault on a circuit breaker</td>
<td>Phase to ground <em>fault</em>, with normal <em>fault</em> clearing</td>
<td></td>
</tr>
</tbody>
</table>

---

3 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.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6.</td>
<td>Simultaneous fault on two adjacent transmission circuits on a multiple circuit tower.</td>
<td>Phase to ground faults on different phases of each circuit, with normal fault clearing</td>
</tr>
<tr>
<td>7.</td>
<td>Simultaneous permanent loss of both poles of a direct current bipolar facility</td>
<td>Without an ac fault</td>
</tr>
<tr>
<td>8.</td>
<td>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)</td>
<td>Phase to ground fault, with normal fault clearing</td>
</tr>
<tr>
<td>9.</td>
<td>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</td>
<td>No fault.</td>
</tr>
</tbody>
</table>

**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
C. Transmission Operation, cont.

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

<table>
<thead>
<tr>
<th>Reliability Rule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D.1</strong> Mitigation of Major Emergencies</td>
</tr>
</tbody>
</table>

**D.1: Mitigation of Major Emergencies**

**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*
A. Requirements

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.
D Emergency Operations, cont.

R4. Post-Contingency Voltage

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, 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.

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 fifteen (15) 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, 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.

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.
D Emergency Operations, cont.

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 Participants will respond correctly when frequency, reserves and thermal, voltage and/or stability limits are violated.

      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.

      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 For Measure 1
      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 For Measure 2
      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 more 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 reserves.

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.

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 resources shall be coordinated in such a manner that the available resources, 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.
E. Operating Reserves, cont.

that: maintain a minimum operating reserve level for each type of reserve, in both computer directed and non-computer directed dispatch; define how anticipated 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 contingency 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
E. Operating Reserves, cont.

*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 *resources* 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 For Measure 1

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.
E. Operating Reserves, cont.

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 Participants 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

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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
F. System Restoration, cont.

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 resources that are necessary for implementing its SRP. These procedures shall also require Transmission Owners 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.
R2.1. The Transmission Owner SRP shall adopt procedures to identify black start resources 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 resources 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 For Measure 1

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 For Measure 2

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 resources it has identified will assure that its
F. System Restoration, cont.

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 For Measure 3
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 rules have been adopted that apply to the New York City and Long Island zones. These local reliability rules are more stringent and more specific than other NYSRC Reliability Rules because of the need to protect the reliable delivery of electricity to these zones 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 rules 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.

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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
G. Local Area Operation, cont.

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
G. Local Area Operation, cont.

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. Local Area Operation, cont.

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. Con Edison shall have in place procedures for operating its system in accordance with G.2 and *NYISO* requirements. These procedures must include notification to the *NYISO* when actions are taken in accordance with G.2, and the reasons thereof.

R2. The *NYISO* shall document, maintain, and publish requirements for Con Edison to develop procedures in accordance with G.2, including notification of the *NYISO* when actions are taken in accordance with G.2, and the reasons thereof. The *NYISO* shall review and approve Con Edison procedures and required studies, including any updates to such procedures and studies.

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 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*. 
G. Local Area Operation, cont.

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 Con Edison submitted, when requested, documents, reports, and analyses in accordance with NYISO requirements and R1 requirements for implementing G.2.

**M2.** The NYISO made available and provided when requested, complete documentation for implementing G.2, in accordance with R2.

**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
G. Local Area Operation, cont.

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.

2. Levels of Non-Compliance

2.1 For Measure 1:

Level 1: Not applicable

Level 2: Con Edison transmitted requested information to the NYISO, but the submitted documents, reports, and analyses did not meet R1 and 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 R1 and NYISO requirements.
G. Local Area Operation, cont.

2.2 For Measure 2:

Level 1: Not applicable.

Level 2: NYISO documentation in accordance with R2 was provided when requested, but was incomplete in one or more areas.

Level 3: Not applicable.

Level 4: The required NYISO documentation in accordance with R2 was not provided when requested.

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.
G. Local Area Operation, cont.

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: NYISO/RCMS
M2: RCMS
M3: RCMS
M4: NYISO/RCMS
M5: NYISO/RCMS

3.2 Compliance Documentation Reporting Frequency
M1: Annually
M2: In accordance with NYSRC Compliance Monitoring Program schedules
M3: In accordance with NYSRC Compliance Monitoring Program schedules
M4: Annually
M5: Annually

3.3 Compliance Reporting Requirements
M1: NYISO Certification of Con Edison compliance.
M2: NYISO Self-Certification
G. Local Area Operation, cont.

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. Local Area Operation, cont.

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. LIPA shall have in place procedures for operating its system in accordance with G.3 and *NYISO* requirements. These procedures must include notification to the *NYISO* when actions are taken in accordance with G.3, and the reasons thereof.

R2. The *NYISO* shall document, maintain, and publish requirements for LIPA to develop procedures for operating its system in accordance with G.3, including notification of the *NYISO* when actions are taken in accordance with G.3, and the reasons thereof. The *NYISO* shall review and approve LIPA procedures and required studies, including any updates to such procedures and studies.

C. Compliance

1. Measures
   M1. The *NYISO* certified that LIPA submitted, when requested, documents, reports, and analyses in accordance with *NYISO* requirements and R1.

   M2. The *NYISO* made available and provided when requested, complete documentation for implementing G.3, in accordance with R2.

2. Levels of Non-Compliance
   2.1 For M1:
      Level 1: Not applicable

      Level 2: LIPA transmitted requested information to the *NYISO*, but the submitted documents, reports, and analyses did not meet *NYISO* requirements in one or more areas.
G. Local Area Operation, cont.

Level 3: Not applicable

Level 4: LIPA failed to supply the NYISO with requested documents, reports, and analyses.

2.2 For M2:
Level 1: Not applicable.

Level 2: NYISO documentation in accordance with R2 was provided when requested, but was incomplete in one or more areas.

Level 3: Not applicable.

Level 4: The required NYISO documentation in accordance with R2 was not provided when requested.

3. Compliance Process
3.1 Compliance Monitoring Responsibility
  M1: NYISO/RCMS
  M2: RCMS

3.2 Compliance Documentation Reporting Frequency
  M1: Annually
  M2: In accordance with NYSRC Compliance Monitoring Program schedules.

3.3 Compliance Reporting Requirements
  M1: NYISO Certification of LIPA compliance
  M2: NYISO Self-Certification

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. Local Area Operation, cont.

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:
G. Local Area Operation, cont.

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 an 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 interfaces 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 Owners 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 *interfaces*. 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 *interfaces* 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 For Measure 1**

   Level 1: Not applicable.

   Level 2: *NYISO* operator communications procedures have been developed, but they do not include all of the required items.
H. Control Center Communications, cont.

Level 3: Not applicable.
Level 4: There are no NYISO communications procedures in place.

2.2 For Measure 2
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 For Measure 3
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.

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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
II. Modeling and Data, cont.

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 resources 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 resources 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.2.3 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 Owners 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 Owners 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.
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 Owners 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 Owners 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.

2.3 For Measure 3

Level 1: The NYISO certified that one or more Generation Owners failed to submit test results to the NYISO on schedule.
I. Modeling and Data, cont.

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. Modeling and Data, cont.

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 Party* 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*.
I. Modeling and Data, cont.

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 For Measure 1

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.

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 For Measure 2

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.
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
I. Modeling and Data, cont.

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/RCMS
- 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. Modeling and Data, cont.

I.3: Load Forecasting

A. Reliability Rule

Actual and forecast demands 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 demands 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 demands 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 demands 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 For Measure 1

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 For Measure 2

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. Modeling and Data, cont.

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
I. Modeling and Data, cont.

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
1. Modeling and Data, cont.

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 For Measure 1

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 Participants 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 Participants*.

   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 Participants*.

   Level 3: The *NYISO* certified that one or more *Market Participants* 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 Participants 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

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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 resources located in control areas outside the NYCA that must meet certain NYISO requirements and criteria in order to qualify to supply New York LSEs.

**Net Dependable Capacity** – The capability of electric generation resources 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:

\[
\text{CRA}_{\text{quarter}} = 2 - \{\text{the average percentage DCS (expressed as a decimal) for the quarter of measurement}\}
\]

**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

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

**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 resources 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 ratings and limits as follows:

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

b. Post-contingency line and equipment loadings within STE ratings. Post-contingency voltages and transmission interface flows within applicable post-contingency voltage and stability limits.

**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.
Glossary, cont.

*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 megawathours (MWh).

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

*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 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 Edision 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.
Glossary, cont.

**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 zones, 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 Bulk Power System)** – The portion of the Bulk Power System within the New York Control Area, generally comprising generating units 300 MW and larger, and generally comprising transmission facilities 230 kV and above. However, smaller generating units and lower voltage transmission facilities on which faults and disturbances can have a significant adverse impact outside of the local area are also part of the NYS Bulk Power System.

**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 ratings and limits as follows:

a. Pre-contingency line and equipment loadings within normal ratings. Pre-contingency voltages and transmission interface flows within applicable pre-contingency voltage and stability limits.
b. Post-contingency line and equipment loadings within applicable emergency (LTE or STE) ratings. Post-contingency voltages and transmission interface flows within applicable post-contingency voltage and stability limits.

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, ratings, and limits specified for normal conditions. The normal transfer limit is the lowest limit based on the most restrictive 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.
Glossary, cont.

**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 faults 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 groups*; 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 groups*, 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.

Elements that produce reactive power such as capacitors and over-excited generators/synchronous condensers; and elements that absorb reactive power such as reactors, under-excited generators/ synchronous condensers and other inductive devices including the inductive portion of loads.

**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 elements.

**Security** – The ability of the electric system to withstand disturbances such as electric short circuits or unanticipated loss of system elements.

**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 faults or disturbances, 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 faulted elements. 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 disturbances.

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 Participants or Developers 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 elements, or cascading failure caused by a sudden disturbance to or unanticipated failure of NYS Power System transmission elements, 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 interfaces that can become congested.
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).
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. Reliability Rule Revision Log
Reliability Rule Revision Log

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## SECTION 6  
Reliability Rules and Compliance Manual Version History

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<td>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.</td>
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<tr>
<td>26</td>
<td>12/4/09</td>
<td>Revised Measurement K-M2d, retirement of Measurements D-M1, D-M3, E-M2, E-M5, and F-M5 (PRR #102); Revised</td>
</tr>
<tr>
<td>Version</td>
<td>Date</td>
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<td>Part III, NYSRC/NPCC/NERC Reliability Rules Cross-Reference to account for new NPCC directories.</td>
</tr>
<tr>
<td>27</td>
<td>7/8/10</td>
<td>Revised Rule C-R4, revised Measurements C-M9 and C-M11, new Glossary definition of Developer, revised Glossary definition of <em>Suspect Data</em> (PRR 103).</td>
</tr>
<tr>
<td>28</td>
<td>11/12/10</td>
<td>Revised Measurements C-M1 and C-M3 (PRR #104); Revised Measurement E-M9 (PRR #105)</td>
</tr>
<tr>
<td>29</td>
<td>1/7/11</td>
<td>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.”</td>
</tr>
<tr>
<td>30</td>
<td>11/10/11</td>
<td>Revised Measurement F-R1 and revised Section V, “System Conditions for Operating States of the NYS BPS” (PRR 108)</td>
</tr>
<tr>
<td>31</td>
<td>5/11/12</td>
<td>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.</td>
</tr>
<tr>
<td>33</td>
<td>4/10/14</td>
<td>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 “<em>Material Benefit</em>” and “<em>Eligible Black Start Resources</em>”; Revised NYSRC/NPCC/NERC Reliability Rules Cross-Reference.</td>
</tr>
<tr>
<td>34</td>
<td>1/1/15</td>
<td>Complete reformatting of the Reliability Rules in accordance with the NYSRC Reliability Rules Enhancement Project.</td>
</tr>
<tr>
<td>35</td>
<td>8/14/15</td>
<td>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.</td>
</tr>
<tr>
<td>36</td>
<td>3/11/2016</td>
<td>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.</td>
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<tr>
<td>Version</td>
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<tr>
<td>37</td>
<td>6/10/2016</td>
<td>Revised Requirement C.1 (R.2) and related Measure M1 (PRR 130); Revised Introductions to Rule Sections B and C. Various Errata changes.</td>
</tr>
<tr>
<td>38</td>
<td>9/9/2016</td>
<td>Revised Requirements I.4 (R1 and R3), related Measures M1 and M3, and Levels of Non-Compliance (PRR 132).</td>
</tr>
<tr>
<td>39</td>
<td>11/10/2016</td>
<td>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).</td>
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<tr>
<td>40</td>
<td>4/13/2017</td>
<td>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)</td>
</tr>
<tr>
<td>41</td>
<td>9/8/2017</td>
<td>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.</td>
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