

Corroborating Evidence for NPCC Compliance Audits of NERC Reliability Standards



Northeast Coordinating Council

The Northeast Power Coordinating Council, Inc. (NPCC) is one of eight Regional Entities that have executed Regional Delegation Agreements (RDAs) with NERC. These RDAs give each Regional Entity the responsibility and authority to implement a Compliance Monitoring and Enforcement Program (CMEP) for the NERC Reliability Standards and Regional Reliability Standards within their respective region.

Compliance Monitoring and Enforcement Program

An integral part of the CMEP involves compliance audits of NERC Reliability Standards and Requirements that are applicable to the function(s) for which an entity has registered. The scope of a Compliance Audit is limited to those Reliability Standards and Requirements that are included in the monitored list of NERC Reliability Standards.

New York Independent System Operator

The New York Independent System Operator, Inc. (NYISO) was formed in 1997, and commenced operations in 1999 as a not-for-profit corporation regulated by the Federal Energy Regulatory Commission (FERC) and governed by a 10-member Board of Directors. The NYISO's various authorities are expressly detailed in two Federal Energy Regulatory Commission approved tariffs, commonly called the Open Access Transmission Tariff (OATT) and the Market Services Tariff (MST). These tariffs are further supported by the Transmission Owner – NYISO Agreement and the NYISO Agreement.

The NYISO is registered with NERC as the Reliability Coordinator, Balancing Authority, Interchange Authority, Transmission Operator, Transmission Service Provider, Planning Authority, Transmission Planner and Resource Planner in the New York Control Area (NYCA). The NYCA is located within the NPCC region. The NYISO operates the bulk power system in the NYCA. Its operational responsibilities include facility outage scheduling, transaction scheduling, continuous reliability analysis, day-ahead resource commitment, real-time commitment and dispatch, and voltage control. While the NYISO does not delegate any of its registered entity responsibilities, some physical functions related to operational control are carried out under its direction by eight transmission owner local control centers (LCCs). These functions include passing generator dispatch signals developed by the NYISO's dispatch algorithms to the generating plants, controlling static and rotating var resources, controlling phase angle regulators, and switching facilities in and out of service. The LCCs do not take independent actions on facilities under the NYISO's control.

The NYISO administers all electricity markets in New York State. These include seasonal Capacity auctions and certifications, auctions for financial transmission rights, Real Time and Day-Ahead energy, and six ancillary services which encompass reserves, balancing, voltage control and black start.

The NYISO also provides short and long term comprehensive planning functions. The NYISO Comprehensive Reliability Planning Process is a long-range assessment of both resource adequacy and transmission reliability of the New York Bulk Power Transmission Facilities. It is conducted over a 10-year planning horizon in accordance with existing reliability requirements of the NERC, NPCC, and New York State Reliability Council (NYSRC) as they may change from time to time. As the first step in the Comprehensive Reliability Planning Process, the NYISO conducts a Reliability Needs Assessment to determine whether there are any violations of existing reliability rules with respect to either resource adequacy or transmission reliability.

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Purpose

The operating and planning functions of the NYISO, as specified in its FERC approved Tariffs, often produce unique protocols and approaches that comply with NERC Standards. In some instances, these protocols are accomplished when the NYISO and its Market Participants, acting together as registered entities, coordinate their efforts on a NYCA-wide basis to complete tasks and meet compliance requirements. At other times, these distinctive protocols may be the result of the NYISO's technical approach or organizational structure. As a result, NERC Standards do not always clearly align with entity registration in New York organized under the ISO/RTO model. This document is designed to provide NPCC auditors with evidence that corroborates the statements made by registered entities to demonstrate compliance with NERC Standards while fulfilling their obligations under NYISO Tariffs.

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Index of Standards Addressed in this Document

NERC Standard	Title
BAL – 005-0.2b	Automatic Generation Control
CIP-002-5.1a	Cyber Security – BES System Categorization
COM-001-3	Communications
FAC-003-4	Transmission Vegetation Management
INT – 004-3.1	Dynamic Transfers
IRO – 001-4	Reliability Coordination – Responsibilities and Authorities
PRC-001-1.1(ii)	System Protection Coordination
PRC-005-6	Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance
PRC-006-2	Automatic Underfrequency Load Shedding
PRC – 010-2	Undervoltage Load Shedding
PRC – 011-0	Undervoltage Load Shedding System Maintenance and Testing
VAR – 002-4	Generator Operation for Maintaining Network Voltage Schedules

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Standards and Dispositions

NERC Standard	BAL-005-0.2b Automatic Generation Control
Requirement	R1: All generation, transmission, and load operating within an Interconnection must be included within the metered boundaries of a Balancing Authority Area
Applicable to	Balancing Authorities , Generator Operators, Transmission Operators and Load Serving Entities
NYISO Disposition BAL- 005-0.2b	In its registration process, the NYISO requires its applicants to provide evidence which demonstrates that their facilities possess the metering necessary for them to be included in the NYISO Balancing Authority Area. Market Participants must sign and conform to the Control Center Requirements Manual 3.2.4 – NYISO Data Requirements; the Market Services Tariff Article 5, 5.6 -Requirements For Inclusion Within The New York Control Area; OATT Section 3 and Attachments A & B –Agreements for Firm and non-Firm Point to Point Transmission Service.

NERC Standard	CIP-002-5.1a Cyber Security – BES System Categorization
Requirement	<p>R1. Each Responsible Entity shall implement a process that considers each of the following assets for purposes of parts 1.1 through 1.3:</p> <ul style="list-style-type: none"> iii. Generation resources; 1.2. Identify each of the medium impact BES Cyber Systems according to Attachment 1, Section 2 if any, at each asset; <p style="text-align: center;"><u>Attachment 1</u></p> <p>2.3. Each generation Facility that it’s Planning Coordinator or Transmission Planner designates, and informs the Generator Owner or Generator Operator, as necessary to avoid an Adverse Reliability Impact in the planning horizon of more than one year.</p> <p>2.6. Generation at a single plant location or Transmission Facilities at a single station or substation location that are identified by its Reliability Coordinator, Planning Coordinator, or Transmission Planner as critical to the derivation of Interconnection Reliability Operating Limits (IROLs) and their associated contingencies.</p> <p>2.9. Each Special Protection System (SPS), Remedial Action Scheme (RAS), or automated switching System that operates BES Elements, that, if destroyed, degraded, misused or otherwise rendered unavailable, would cause one or more Interconnection Reliability Operating Limits (IROLs) violations for failure to operate as designed or cause a reduction in one or more IROLs if destroyed, degraded, misused, or otherwise rendered unavailable.</p>

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NERC Standard	CIP-002-5.1a Cyber Security – BES System Categorization
Applicable to	Generator Operators, Generator Owners
NYISO Disposition CIP-002-5.1a	The NYISO informs Generator Owners or Generator Operators when their generation facility impacts reliability pursuant CIP-002-5 Attachment 1, Sections 2.3, 2.6, and 2.9. A generating facility that wishes to receive confirmation from the NYISO that they have not been notified of their facility impacting reliability pursuant to CIP-002-5, should contact the NYISO’s Stakeholders Services at: stakeholder_services@nyiso.com.

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NERC Standard	COM-001-3 Communications
Requirement	<p>R7. Each Distribution Provider shall have Interpersonal Communication capability with the following entities (unless the Distribution Provider detects a failure of its Interpersonal Communication capability in which case Requirement R11 shall apply): <i>[Violation Risk Factor: Medium] [Time Horizon: Real-time Operations]</i></p> <p>7.1. Its Balancing Authority. 7.2. Its Transmission Operator.</p> <p>R8. Each Generator Operator shall have Interpersonal Communication capability with the following entities (unless the Generator Operator detects a failure of its Interpersonal Communication capability in which case Requirement R11 shall apply): <i>[Violation Risk Factor: High] [Time Horizon: Real-time Operations]</i></p> <p>8.1. Its Balancing Authority. 8.2. Its Transmission Operator.</p>
Applicable to	Distribution Provider, Generator Operator
NYISO Disposition COM-001-3	<p>Operational communications between the NYISO and each Generator Operator and Distribution Provider are through each Entity's interconnected Transmission Owner. Dispatch signals for Generator Operators are transmitted via the Transmission Owners' Energy Management Systems. This means of communication has been used exclusively and consistently since the inception of the NYISO. For practical purposes, it serves as an efficient mechanism to apprise both the Transmission Owner, who is managing local transmission and local security, as well as the NYISO, of important generator and transmission system parameters and statuses.</p> <p>Please refer to NYISO Transmission and Dispatch Operations Manual Section 2.2.3 - NERC Generator Operator (GOP) Standards Compliance; NYISO Technical Bulletin #235 - NERC Distribution Provider (DP) Standards Compliance.</p>

NERC Standard	FAC-003-4 Transmission Vegetation Management
Applicability	<p>4.2. Transmission Facilities: Defined below (referred to as "applicable lines"), including but not limited to those that cross lands owned by federal¹, state, provincial, public, private, or tribal entities:</p> <p>4.2.2 Each overhead transmission line operated below 200kV identified as an element of an IROL under NERC Standard FAC-014 by the Planning Coordinator.</p>
Applicable to	Transmission Owners, Generator Owners
NYISO Disposition FAC-003-4	The NYISO maintains a list of all IROLs and their associated transmission lines in the Thermal Transfer Limit Studies folder in the Operations Engineering library on the NYISO eConnect secured website.

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NERC Standard	INT-004-3.1 Dynamic Transfers
Purpose	To ensure Dynamic Schedules and Pseudo-Ties are communicated and accounted for appropriately in congestion management procedures.
Applicable to	Balancing Authorities and Purchasing-Selling Entities
NYISO Disposition INT 004-3.1	<p>NYISO currently only dispatches generation within the NYCA operational jurisdiction footprint and, therefore, per the NERC definitions, there is no Dynamic Scheduling in the NYCA. The NYISO does not have Pseudo-Ties with other areas.</p> <p>Please refer to the Market Services Tariff Article 4: Market Services: Rights and Obligations for scheduling systems that are used by the NYISO.</p>

NERC Standard	IRO-001-4 Reliability Coordination — Responsibilities and Authorities
Requirement	<p>R2. Each Transmission Operator, Balancing Authority, Generator Operator, and Distribution Provider shall comply with its Reliability Coordinator's Operating Instructions unless compliance with the Operating Instructions cannot be physically implemented or unless such actions would violate safety, equipment, regulatory, or statutory requirements.</p> <p>R3. Each Transmission Operator, Balancing Authority, Generator Operator, and Distribution Provider shall inform its Reliability Coordinator of its inability to perform the Operating Instruction issued by its Reliability Coordinator in Requirement R1.</p>
Applicable to	Reliability Coordinators, Transmission Operators, Balancing Authorities, Generator Operators, and Distribution Providers
NYISO Disposition IRO – 001-4	<p>The NYISO is registered with FERC as the Reliability Coordinator, a Transmission Operator, Balancing Authority and Transmission Provider for the New York Control Area. Under its FERC approved Tariffs and its numerous agreements and operating protocols, the NYISO directs the operation of the Bulk Electric System by communicating directly with the Transmission Owner Control Centers in New York.</p> <p>Operational communications between the NYISO and each Generator Operator and Distribution Provider are through each Entity's interconnected Transmission Owner. Dispatch signals for Generator Operators are transmitted via the Transmission Owners' Energy Management Systems. This means of communication has been used exclusively and consistently since the inception of the NYISO. For practical purposes, it serves as an efficient mechanism to apprise both the Transmission Owner, who is managing local transmission and local security, as well as the NYISO, of important generator and transmission system parameters and statuses.</p> <p>Please refer to the NYISO Transmission and Dispatch Operations Manual Section 2.2.3 - NERC Generator Operator (GOP) Standards Compliance;</p>

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NERC Standard	IRO-001-4 Reliability Coordination — Responsibilities and Authorities
	NYISO Technical Bulletin #235 - NERC Distribution Provider (DP) Standards Compliance; NYISO Outage Scheduling Manual – Section 2; NYISO OATT Section 2.4 – Open Access Same Time Information System.

NERC Standard	PRC-001-1.1(ii) System Protection Coordination
Requirement	<p>R2. Each Generator Operator and Transmission Operator shall notify reliability entities of relay or equipment failures as follows: R2.1. If a protective relay or equipment failure reduces system reliability; the Generator Operator shall notify its Transmission Operator and Host Balancing Authority. The Generator Operator shall take corrective action as soon as possible.</p> <p>R3. A Generator Operator or Transmission Operator shall coordinate new protective systems and changes as follows. R3.1. Each Generator Operator shall coordinate all new protective systems and all protective system changes with its Transmission Operator and Host Balancing Authority. <input type="checkbox"/> Requirement R3.1 is not applicable to the individual generating units of dispersed power producing resources identified through Inclusion I4 of the Bulk Electric System definition.</p> <p>R5. A Generator Operator or Transmission Operator shall coordinate changes in generation, transmission, load or operating conditions that could require changes in the Protection Systems of others: R5.1. Each Generator Operator shall notify its Transmission Operator in advance of changes in generation or operating conditions that could require changes in the Transmission Operator’s Protection Systems.</p>
Applicable to	Generator Operators
NYISO Disposition PRC-001-1.1(ii)	<p>The NYISO is registered with FERC as a Transmission Operator, and Balancing Authority for the New York Control Area.</p> <p>The NYISO Transmission and Dispatch Operations Manual, section 4.2.11 directs Transmission Owners and Generation Owners and Operators to coordinate all protection systems with the affected facility owners. Protection system operational status and failures are reported to the NYISO Grid Operations Shift Supervisor through the affected Transmission Owner’s control center.</p> <p>NPCC Directory 4, section 6 “Compliance Requirements” provides additional guidance for complying with R3. And R5.</p>

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NERC Standard	PRC – 005-6 Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance
Facilities	4.2.7 Automatic Reclosing ¹ , including: 4.2.7.1 Automatic Reclosing applied on the terminals of Elements connected to the BES bus located at generating plant substations where the total installed gross generating plant capacity is greater than the gross capacity of the largest BES generating unit within the Balancing Authority Area or, if a member of a Reserve Sharing Group, the largest generating unit within the Reserve Sharing Group.
Applicable to	Transmission Owner, Generator Owner, and Distribution Provider
NYISO Disposition PRC – 005-6	The NYISO’s Load and Capacity Data Report (Gold Book), located in the Markets and Operations section on the NYISO’s public website, identifies that current capability of all generators within the NYISO’s Balancing Authority Area. By reviewing this list, registered entities will be able to determine the gross capacity of the largest BES generating unit with the NYISO BA. To access the Report, follow this link “Planning – Documents and Resources” , then select <Planning Data and Reference Docs – Data and Reference Docs>.

NERC Standard	PRC-006-2 Automatic Underfrequency Load Shedding
Requirement	10: Each Transmission Owner shall provide automatic switching of its existing capacitor banks, Transmission Lines, and reactors to control over-voltage as a result of underfrequency load shedding if required by the UFLS program and schedule for implementation, including any Corrective Action Plan, as determined by the Planning Coordinator(s) in each Planning Coordinator area in which the Transmission Owner owns transmission.
Applicable to	Transmission Owners
NYISO Disposition PRC – 006-2	The NYISO requires no Transmission Owners to provide automatic switching of reactive resources in conjunction with UFLS.

NERC Standard	PRC – 010-2 Undervoltage Load Shedding
Purpose	To establish an integrated and coordinated approach to the design, evaluation, and reliable operation of Undervoltage Load Shedding Programs (UVLS Programs).
Applicable to	Planning Coordinator, Transmission Planner, UVLS Entities
NYISO Disposition PRC – 010-2	This Standard applies to registered entities that own or operate an Undervoltage Load Shedding program. The NYISO does not operate a UVLS program. A “NPCC Assessment of Under-Voltage Load Shedding (UVLS)” report was published on November 29, 2005. This report provided conclusions and

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NERC Standard	PRC – 010-2 Undervoltage Load Shedding
	<p>recommendations based on limited steady-state analysis conducted by the SS-37 Working Group. The SS-37 report did not recommend general use of, and drew no conclusion about, the practicality of UVLS schemes. The report left it to individual Areas to assess the benefits against the costs and risks of deployment of UVLS schemes in specific situations. Further, the SS-37 report concluded that UVLS schemes cannot be universally and unconditionally applied as a means to limit cascading outages, as they can potentially have a counterproductive effect. In addition, the final conclusion of the SS-37 report stated, "If UVLS schemes are found to be potentially beneficial, more detailed steady state and transient stability studies will be required to thoroughly assess if a UVLS scheme should be pursued."</p> <p>On January 31, 2007 the NPCC Task Force on System Studies (TFSS) recommended not to pursue further generic studies of UVLS¹. TFSS stated that further action should only be taken if a member system in the Eastern Interconnection proposes a specific UVLS application, which can then be studied in more detail.</p>

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NERC Standard	PRC – 011-0 Undervoltage Load Shedding System Maintenance and Testing
Purpose	Provide System preservation measures in an attempt to prevent system voltage collapse or voltage instability by implementing an Undervoltage Load Shedding (UVLS) program.
Applicable to	Transmission Owners and Distribution Providers that own a UVLS program
NYISO Disposition PRC-011-0	This Standard applies to registered entities that own or operate an Undervoltage Load Shedding program. The NYISO does not operate a UVLS program.

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NERC Standard	VAR-002-4 Generator Operation for Maintaining Network Voltage Schedules
Requirement	<p>R3. Each Generator Operator shall notify its associated Transmission Operator of a status change on the AVR, power system stabilizer, or alternative voltage controlling device within 30 minutes of the change. If the status has been restored within 30 minutes of such change, then the Generator Operator is not required to notify the Transmission Operator of the status change.</p> <p>R4. Each Generator Operator shall notify its associated Transmission Operator within 30 minutes of becoming aware of a change in reactive capability due to factors other than a status change described in Requirement R3. If the capability has been restored within 30 minutes of the Generator Operator becoming aware of such change, then the Generator Operator is not required to notify the Transmission Operator of the change in reactive capability.</p>
Applicable to	Generator Owner , Generator Operator
NYISO Disposition VAR-002-4	<p>The NYISO is registered with FERC as the Transmission Operator for the New York Control Area.</p> <p>Dispatch signals for Generator Operators are transmitted via the Transmission Owners’ Energy Management Systems.</p> <p>Operational communications between the NYISO and each Generator Operator is through each Generator’s interconnected Transmission Owner. This means of communication has been used exclusively and consistently since the inception of NYISO. For practical purposes, it serves as an efficient mechanism to apprise both the Transmission Owner, who is managing local transmission and local security, as well as the NYISO, of important generator parameters and statuses.</p> <p>Please refer to, NYISO Outage Scheduling Manual – Section 2, and NYISO Transmission & Dispatching Operations Manual – Section 2.2.3</p>