

**NORMES DE FIABILITÉ DE LA NERC
(VERSION ANGLAISE)**

A. Introduction

1. **Title:** **Aggregated Actual and Forecast Demands and Net Energy for Load**
2. **Number:** MOD-017-0.1
3. **Purpose:** To ensure that assessments and validation of past events and databases can be performed, reporting of actual Demand data is needed. Forecast demand data is needed to perform future system assessment to identify the need for system reinforcement for continued reliability. In addition to assist in proper real-time operating, load information related to controllable Demand-Side Management programs is needed.
4. **Applicability:**
 - 4.1. Load-Serving Entity.
 - 4.2. Planning Authority.
 - 4.3. Resource Planner.
5. **Effective Date:** May 13, 2009

B. Requirements

- R1. The Load-Serving Entity, Planning Authority and Resource Planner shall each provide the following information annually on an aggregated Regional, subregional, Power Pool, individual system, or Load-Serving Entity basis to NERC, the Regional Reliability Organizations, and any other entities specified by the documentation in Standard MOD-016-1_R1.
 - R1.1. Integrated hourly demands in megawatts (MW) for the prior year.
 - R1.2. Monthly and annual peak hour actual demands in MW and Net Energy for Load in gigawatthours (GWh) for the prior year.
 - R1.3. Monthly peak hour forecast demands in MW and Net Energy for Load in GWh for the next two years.
 - R1.4. Annual Peak hour forecast demands (summer and winter) in MW and annual Net Energy for load in GWh for at least five years and up to ten years into the future, as requested.

C. Measures

- M1. Load-Serving Entity, Planning Authority, and Resource Planner shall each provide evidence to its Compliance Monitor that it provided load data per Standard MOD-017-0_R1.

D. Compliance

1. **Compliance Monitoring Process**
 - 1.1. **Compliance Monitoring Responsibility**

Compliance Monitor: Regional Reliability Organization.

1.2. Compliance Monitoring Period and Reset Time Frame

Annually or as specified in the documentation (Standard MOD-016-1_R1.)

1.3. Data Retention

None specified.

1.4. Additional Compliance Information

None.

2. Levels of Non-Compliance

- 3. Level 1:** Did not provide actual and forecast demands and Net Energy for Load data in one of the four areas as required in Reliability Standard MOD-017-0_R1.
- 4. Level 2:** Did not provide actual and forecast demands and Net Energy for Load data in two of the four areas as required in Reliability Standard MOD-017-0_R1.
- 5. Level 3:** Did not provide actual and forecast demands and Net Energy for Load data in three of the four areas as required in Reliability Standard MOD-017-0_R1.
- 6. Level 4:** Did not provide actual and forecast demands and Net Energy for Load data in any of the areas as required in Reliability Standard MOD-017-0_R1.

E. Regional Differences

None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	April 18, 2008	Revised R1. And D1.2. to reflect update in version from “MOD-016-0_R1” to MOD-016-1_R1.”	Errata
0	February 8, 2005	Adopted By NERC Board of Trustees	
0.1	October 29, 2008	BOT adopted errata changes; updated version number to “0.1”	Errata
0.1	May 13, 2009	FERC Approved — Updated Effective Date	Revised

Standard MOD-017-0.1 — Aggregated Actual and Forecast Demands and Net Energy for Load

Appendix QC-MOD-017-0.1 Provisions specific to the standard MOD-017-0.1 applicable in Québec

This appendix establishes specific provisions for the application of the standard in Québec. Provisions of the standard and of its appendix must be read together for the purposes of understanding and interpretation. Where the standard and appendix differ, the appendix shall prevail.

A. Introduction

1. **Title:** Aggregated Actual and Forecast Demands and Net Energy for Load
2. **Number:** MOD-017-0.1
3. **Purpose:** No specific provision
4. **Applicability:** No specific provision
5. **Effective Date:**
 - 5.1. Adoption of the standard by the Régie de l'énergie: April 26, 2016
 - 5.2. Adoption of the appendix by the Régie de l'énergie: April 26, 2016
 - 5.3. Effective date of the standard and its appendix in Québec: July 1, 2016

B. Requirements

Specific provision applicable to requirement R1°: reference to the standard MOD-016-1 is replaced by reference to the standard MOD-016-1.1

C. Measures

Specific provision applicable to measure M1°: reference to the standard MOD-017-0 is replaced by reference to the standard MOD-017-0.1

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

The Régie de l'énergie is responsible, in Québec, for compliance monitoring with respect to the reliability standard and its appendix that it adopts.

1.2. Compliance Monitoring Period and Reset Timeframe

Specific provision: reference to the standard MOD-016-1 is replaced by reference to the standard MOD-016-1.1

1.3. Data Retention

No specific provision

1.4. Additional Compliance Information

No specific provision

2. Levels of Non-Compliance

Specific provisions applicable to non-compliance levels 2.1, 2.2, 2.3 and 2.4°: references to the standard MOD-017-0 are replaced by reference to the standard MOD-017-0.1

Standard MOD-017-0.1 — Aggregated Actual and Forecast Demands and Net Energy for Load

**Appendix QC-MOD-017-0.1
Provisions specific to the standard MOD-017-0.1 applicable in Québec**

E. Regional Differences

No specific provision

Revision History

Revision	Adoption Date	Action	Change Tracking
0	April 26, 2016	New Appendix	New

A. Introduction

1. **Title:** Treatment of Nonmember Demand Data and How Uncertainties are Addressed in the Forecasts of Demand and Net Energy for Load
2. **Number:** MOD-018-0
3. **Purpose:** To ensure that Assessments and validation of past events and databases can be performed, reporting of actual demand data is needed. Forecast demand data is needed to perform future system assessments to identify the need for system reinforcement for continued reliability. In addition, to assist in proper real-time operating, load information related to controllable Demand-Side Management programs is needed.
4. **Applicability:**
 - 4.1. Load-Serving Entity
 - 4.2. Planning Authority
 - 4.3. Transmission Planner
 - 4.4. Resource Planner
5. **Effective Date:** April 1, 2005

B. Requirements

- R1. The Load-Serving Entity, Planning Authority, Transmission Planner and Resource Planner's report of actual and forecast demand data (reported on either an aggregated or dispersed basis) shall:
 - R1.1. Indicate whether the demand data of nonmember entities within an area or Regional Reliability Organization are included, and
 - R1.2. Address assumptions, methods, and the manner in which uncertainties are treated in the forecasts of aggregated peak demands and Net Energy for Load.
 - R1.3. Items (MOD-018-0_R1.1) and (MOD-018-0_R1.2) shall be addressed as described in the reporting procedures developed for Standard MOD-016-0_R1.
- R2. The Load-Serving Entity, Planning Authority, Transmission Planner and Resource Planner shall each report data associated with Reliability Standard MOD-018-0_R1 to NERC, the Regional Reliability Organization, Load-Serving Entity, Planning Authority, and Resource Planner on request (within 30 calendar days).

C. Measures

- M1. The Load-Serving Entity, Planning Authority, Transmission Planner, and Resource Planner shall each provide evidence to its Compliance Monitor that its actual and forecast demand data were addressed as described in the reporting procedures developed for Reliability Standard MOD-018-0_R1.
- M2. The Load-Serving Entity, Planning Authority, Transmission Planner, and Resource Planner shall each report current information for Reliability Standard MOD-018-0_R1 to NERC, the Regional Reliability Organization, Load-Serving Entity, Planning Authority, and Resource Planner on request (within 30 calendar days).

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations.

1.2. Compliance Monitoring Period and Reset Timeframe

On Request (within 30 calendar days).

1.3. Data Retention

None specified.

1.4. Additional Compliance Information

None.

2. Levels of Non-Compliance

2.1. Level 1: Information for Reliability Standard MOD-018-0 item R1.1 or R1.2 was not provided.

2.2. Level 2: Information for Reliability Standards MOD-018-0 items R1.1 and R1.2 was not provided.

2.3. Level 3: Not applicable.

2.4. Level 4: Not applicable.

E. Regional Differences

1. None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New

Standard MOD-018-0 — Reports of Actual and Forecast Demand Data

Appendix QC-MOD-018-0 Provisions specific to the standard MOD-018-0 applicable in Québec

This appendix establishes specific provisions for the application of the standard in Québec. Provisions of the standard and of its appendix must be read together for the purposes of understanding and interpretation. Where the standard and appendix differ, the appendix shall prevail.

A. Introduction

1. **Title:** Treatment of Non member Demand Data and How Uncertainties are Addressed in the Forecasts of Demand and Net Energy for Load
2. **Number:** MOD-018-0
3. **Purpose:** No specific provision
4. **Applicability:** No specific provision
5. **Effective Date:**
 - 5.1. Adoption date of the standard by the Régie de l'énergie: April 26, 2016
 - 5.2. Adoption date of the appendix by the Régie de l'énergie: April 26, 2016
 - 5.3. Effective date of the standard and its appendix in Québec: July 1, 2016

B. Requirements

Specific provision applicable to requirement R1.3: reference to the standard MOD-016-0 is replaced by reference to the standard MOD-016-1.1

C. Measures

No specific provision

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

The Régie de l'énergie is responsible, in Québec, for compliance monitoring with respect to the reliability standard and its appendix that it adopts.

1.2. Compliance Monitoring Period and Reset Timeframe

No specific provision

1.3. Data Retention

No specific provision

1.4. Additional Compliance Information

No specific provision

2. Levels of Non-Compliance

No specific provision

E. Regional Differences

No specific provision

Standard MOD-018-0 — Reports of Actual and Forecast Demand Data

Appendix QC-MOD-018-0

Provisions specific to the standard MOD-018-0 applicable in Québec

Revision History

Revision	Adoption Date	Action	Change Tracking
0	April 26, 2016	New Appendix	New

A. Introduction

1. **Title:** **Reporting of Interruptible Demands and Direct Control Load Management**
2. **Number:** MOD-019-0.1
3. **Purpose:** To ensure that assessments and validation of past events and databases can be performed, reporting of actual demand data is needed. Forecast demand data is needed to perform future system assessments to identify the need for system reinforcement for continued reliability. In addition, to assist in proper real-time operating, load information related to controllable Demand-Side Management programs is needed.
4. **Applicability:**
 - 4.1. Load-Serving Entity.
 - 4.2. Planning Authority.
 - 4.3. Transmission Planner.
 - 4.4. Resource Planner.
5. **Effective Date:** May 13, 2009

B. Requirements

- R1.** The Load-Serving Entity, Planning Authority, Transmission Planner, and Resource Planner shall each provide annually its forecasts of interruptible demands and Direct Control Load Management (DCLM) data for at least five years and up to ten years into the future, as requested, for summer and winter peak system conditions to NERC, the Regional Reliability Organizations, and other entities (Load-Serving Entities, Planning Authorities, and Resource Planners) as specified by the documentation in Reliability Standard MOD-016-1_R1.

C. Measures

- M1.** The Load-Serving Entity, Planning Authority, Transmission Planner, and Resource Planner shall each provide evidence to its Compliance Monitor that it provided forecasts of interruptible demands and DCLM data per Reliability Standard MOD-019-0_R1.

D. Compliance

1. **Compliance Monitoring Process**
 - 1.1. **Compliance Monitoring Responsibility**

Each Regional Reliability Organization.
 - 1.2. **Compliance Monitoring Period and Reset Time Frame**

Annually or as specified in the documentation (Reliability Standard MOD-016-1_R1.)
 - 1.3. **Data Retention**

None specified.

1.4. Additional Compliance Information

None.

2. Levels of Non-Compliance

2.1. Level 1: Not applicable.

2.2. Level 2: Not applicable.

2.3. Level 3: Not applicable.

2.4. Level 4: Did not provide forecasts of interruptible Demands and DCLM data as required in Standard MOD-019-0_R1.

E. Regional Differences

None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	February 8, 2005	Approved by BOT	Revised
0	July 24, 2007	Changed reference R1. and Dl.1.2. to “MOD-016-0_R1” to MOD-016-1_R1.” (New version number.)	Errata
0.1	October 29, 2008	BOT adopted errata changes; updated version number to “0.1”.	Errata
0.1	May 13, 2009	FERC Approved — Updated Effective Date	Revised

This appendix establishes specific provisions for the application of the standard in Québec. Provisions of the standard and of its appendix must be read together for the purposes of understanding and interpretation. Where the standard and appendix differ, the appendix shall prevail.

A. Introduction

1. **Title:** Reporting of interruptible Demands and Direct Control Load Management
2. **Number:** MOD-019-0.1
3. **Purpose:** No specific provision
4. **Applicability:** No specific provision
5. **Effective Date:**
 - 5.1. Adoption of the standard by the Régie de l'énergie: April 26, 2016
 - 5.2. Adoption of the appendix by the Régie de l'énergie: April 26, 2016
 - 5.3. Effective date of the standard and its appendix in Québec: July 1, 2016

B. Requirements

Specific provision applicable to requirement R1: reference to the standard MOD-016-1 is replaced by reference to the standard MOD-016-1.1

C. Measures

Specific provision applicable to measure M1: reference to the standard MOD-019-0 is replaced by reference to the standard MOD-019-0.1

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

The Régie de l'énergie is responsible, in Québec, for compliance monitoring with respect to the reliability standard and its appendix that it adopts.

1.2. Compliance Monitoring Period and Reset Timeframe

Specific provision: reference to the standard MOD-016-1 is replaced by reference to the standard MOD-016-1.1

1.3. Data Retention

No specific provision

1.4. Additional Compliance Information

No specific provision

2. Levels of Non-Compliance

Specific provision applicable to the non-compliance level 2.4: reference to the standard MOD-019-0 is replaced by reference to the standard MOD-019-0.1

Standard MOD-019-0.1 — Forecasts of Interruptible Demands and DCLM Data

Appendix QC-MOD-019-0.1

Provisions specific to the standard MOD-019-0.1 applicable in Québec

E. Regional Differences

No specific provision

Revision History

Revision	Adoption Date	Action	Change Tracking
0	April 26, 2016	New Appendix	New

A. Introduction

1. **Title:** Documentation of the Accounting Methodology for the Effects of Demand-Side Management in Demand and Energy Forecasts.
2. **Number:** MOD-021-1
3. **Purpose:** To ensure that assessments and validation of past events and databases can be performed, reporting of actual Demand data is needed. Forecast demand data is needed to perform future system assessments to identify the need for system reinforcement for continued reliability. In addition, to assist in proper real-time operating, load information related to Demand-Side Management (DSM) programs is needed.
4. **Applicability:**
 - 4.1. Load-Serving Entity
 - 4.2. Transmission Planner
 - 4.3. Resource Planner
5. **(Proposed) Effective Date:** The first day of the first calendar quarter after applicable regulatory approval; or in those jurisdictions where no regulatory approval is required, the first day of the first calendar quarter after Board of Trustees' adoption.

B. Requirements

- R1. The Load-Serving Entity, Transmission Planner and Resource Planner's forecasts shall each clearly document how the Demand and energy effects of DSM programs (such as conservation, time-of-use rates, interruptible Demands, and Direct Control Load Management) are addressed.
- R2. The Load-Serving Entity, Transmission Planner and Resource Planner shall each include information detailing how Demand-Side Management measures are addressed in the forecasts of its Peak Demand and annual Net Energy for Load in the data reporting procedures of Standard MOD-016-0_R1.
- R3. The Load-Serving Entity, Transmission Planner and Resource Planner shall each make documentation on the treatment of its DSM programs available to NERC on request (within 30 calendar days).

C. Measures

- M1. The Load-Serving Entity, Transmission Planner and Resource Planner forecasts clearly document how the demand and energy effects of DSM programs (such as conservation, time-of-use rates, interruptible demands, and Direct Control Load Management) are addressed.
- M2. The Load-Serving Entity, Transmission Planner and Resource Planner information detailing how Demand-Side Management measures are addressed in the forecasts of Peak Demand and annual Net Energy for Load are included in the data reporting procedures of Reliability Standard MOD-016-0_R1.
- M3. The Load-Serving Entity, Planning Authority and Resource Planner shall each provide evidence to its Compliance Monitor that it provided documentation on the treatment of DSM programs to NERC as requested (within 30 calendar days).

D. Compliance

1. **Compliance Monitoring Process**
 - 1.1. **Compliance Enforcement Authority**

Standard MOD-021-1 — Accounting Methodology for Effects of DSM in Forecasts

Regional Entity.

1.2. Compliance Monitoring Period and Reset Timeframe

On request (within 30 calendar days).

1.3. Compliance Monitoring and Enforcement Processes:

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.4. Data Retention

None specified.

1.5. Additional Compliance Information

None.

2. Violation Severity Levels (no changes)

E. Regional Differences

1. None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0.1	April 15, 2009	R1. – comma inserted after Load-Serving Entity	
0.1	December 10, 2009	Approved by FERC — Added effective date	Update
1	TBD	Modified to address Order No. 693 Directives contained in paragraph 1300.	Revised.

Standard MOD-021-1 — Accounting Methodology for Effects of DSM in Forecasts

Appendix QC-MOD-021-1

Provisions specific to the standard MOD-021-1 applicable in Québec

This appendix establishes specific provisions for the application of the standard in Québec. Provisions of the standard and of its appendix must be read together for the purposes of understanding and interpretation. Where the standard and appendix differ, the appendix shall prevail.

A. Introduction

1. **Title:** **Documentation of the Accounting Methodology for the Effects of Demand-Side Management in Demand and Energy Forecasts**
2. **Number:** MOD-021-1
3. **Purpose:** No specific provision
4. **Applicability:** No specific provision
5. **Effective Date:**
 - 5.1. Adoption of the standard by the Régie de l'énergie: April 26, 2016
 - 5.2. Adoption of the appendix by the Régie de l'énergie: April 26, 2016
 - 5.3. Effective date of the standard and its appendix in Québec: July 1, 2016

B. Requirements

Specific provision applicable to requirement R2: reference to the standard MOD-016-0 is replaced by reference to the standard MOD-016-1.1

C. Measures

Specific provisions applicable to measure M2: reference to the standard MOD-016-0 is replaced by reference to the standard MOD-016-1.1

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

The Régie de l'énergie is responsible, in Québec, for enforcement of the reliability standard and its appendix that it adopts.

1.2. Compliance Monitoring Period and Reset Timeframe

No specific provision

1.3. Compliance Monitoring and Enforcement Processes

No specific provision

1.4. Data Retention

No specific provision

1.5. Additional Compliance Information

No specific provision

Standard MOD-021-1 — Accounting Methodology for Effects of DSM in Forecasts

**Appendix QC-MOD-021-1
Provisions specific to the standard MOD-021-1 applicable in Québec**

2. Violation Severity Levels

Requirement	Lower	Moderate	High	Severe
R1	The responsible entity's forecasts document how the Demand and energy effects of DSM programs but failed to document how one (1) of the following elements of the Demand and energy effects of DSM programs are addressed: conservation, time-of-use rates, interruptible Demands or Direct Control Load Management.	The responsible entity's forecasts document how the Demand and energy effects of DSM programs but failed to document how two (2) of the following elements of the Demand and energy effects of DSM programs are addressed: conservation, time-of-use rates, interruptible Demands or Direct Control Load Management.	The responsible entity's forecasts document how the Demand and energy effects of DSM programs but failed to document how three (3) of the following elements of the Demand and energy effects of DSM programs are addressed: conservation, time-of-use rates, interruptible Demands or Direct Control Load Management.	The responsible entity's forecasts failed to document how the Demand and energy effects of DSM programs are addressed.
R2	N/A	N/A	N/A	The responsible entity failed to include information detailing how Demand-Side Management measure(s) are addressed in the forecasts of its Peak Demand and annual Net Energy for Load in the data reporting procedures of Standard MOD-016-1.1_R1.
R3	The responsible entity provided documentation on the treatment of its DSM programs more than 30 calendar days but less than or equal to 40 calendar days following the request from NERC.	The responsible entity provided documentation on the treatment of its DSM programs more than 40 calendar days but less than or equal to 50 calendar days following the request from NERC.	The responsible entity provided documentation on the treatment of its DSM programs more than 50 calendar days but less than or equal to 60 calendar days following the request from NERC.	The responsible entity provided documentation on the treatment of its DSM programs more than 60 calendar days following the request from NERC. OR The responsible entity failed to provide documentation on the treatment of its DSM programs following a request from NERC.

Standard MOD-021-1 — Accounting Methodology for Effects of DSM in Forecasts

Appendix QC-MOD-021-1

Provisions specific to the standard MOD-021-1 applicable in Québec

E. Regional Differences

No specific provision

Revision History

Revision	Adoption Date	Action	Change Tracking
0	April 26, 2016	New Appendix	New

A. Introduction

1. **Title:** Under-Voltage Load Shedding Program Data
2. **Number:** PRC-021-1
3. **Purpose:** Ensure data is provided to support the Regional database maintained for Under-Voltage Load Shedding (UVLS) programs that were implemented to mitigate the risk of voltage collapse or voltage instability in the Bulk Electric System (BES).
4. **Applicability**
 - 4.1. Transmission Owner that owns a UVLS program.
 - 4.2. Distribution Provider that owns a UVLS program.
5. **Effective Date:** August 1, 2006

B. Requirements

- R1. Each Transmission Owner and Distribution Provider that owns a UVLS program to mitigate the risk of voltage collapse or voltage instability in the BES shall annually update its UVLS data to support the Regional UVLS program database. The following data shall be provided to the Regional Reliability Organization for each installed UVLS system:
 - R1.1. Size and location of customer load, or percent of connected load, to be interrupted.
 - R1.2. Corresponding voltage set points and overall scheme clearing times.
 - R1.3. Time delay from initiation to trip signal.
 - R1.4. Breaker operating times.
 - R1.5. Any other schemes that are part of or impact the UVLS programs such as related generation protection, islanding schemes, automatic load restoration schemes, UFLS and Special Protection Systems.
- R2. Each Transmission Owner and Distribution Provider that owns a UVLS program shall provide its UVLS program data to the Regional Reliability Organization within 30 calendar days of a request.

C. Measures

- M1. Each Transmission Owner and Distribution Provider that owns a UVLS program shall have documentation that its UVLS data was updated annually and includes all items specified in Requirement 1.1 through 1.5.
- M2. Each Transmission Owner and Distribution Provider that owns a UVLS program shall have evidence it provided the Regional Reliability Organization with its UVLS program data within 30 calendar days of a request.

D. Compliance

1. **Compliance Monitoring Process**
 - 1.1. **Compliance Monitoring Responsibility**

Regional Reliability Organization.
 - 1.2. **Compliance Monitoring Period and Reset Time Frame**

One calendar year.
 - 1.3. **Data Retention**

Each Transmission Owner and Distribution Provider that owns a UVLS program shall retain a copy of the data submitted over the past two years.

The Compliance Monitor shall retain all audit data for three years.

1.4. Additional Compliance Information

Transmission Owner and Distribution Provider shall demonstrate compliance through self-certification or audit (periodic, as part of targeted monitoring or initiated by complaint or event), as determined by the Compliance Monitor.

2. Levels of Non-Compliance

2.1. Level 1: Did not update its UVLS data annually.

2.2. Level 2: UVLS data was provided, but did not address one of the items identified in R1.1 through R1.5.

2.3. Level 3: UVLS data was provided, but did not address two or more of the items identified in R1.1 through R1.5.

2.4. Level 4: Did not provide any UVLS data.

E. Regional Differences

None identified.

Version History

Version	Date	Action	Change Tracking
1	12/01/05	<ol style="list-style-type: none"> 1. Removed comma after 2004 in “Development Steps Completed,” #1. 2. Changed incorrect use of certain hyphens (-) to “en dash” (–) and “em dash (—).” 3. Added heading above table “Future Development Plan.” 4. Lower cased the word “region,” “board,” and “regional” throughout document where appropriate. 5. Added or removed “periods” where appropriate. 6. Changed “Timeframe” to “Time Frame” in item D, 1.2. 	01/20/05

Standard PRC-021-1 — Under-Voltage Load Shedding Program Data

Appendix QC-PRC-021-1

Provisions specific to the standard PRC-021-1 applicable in Québec

This appendix establishes specific provisions for the application of the standard in Québec. Provisions of the standard and of its appendix must be read together for the purposes of understanding and interpretation. Where the standard and appendix differ, the appendix shall prevail.

A. Introduction

1. **Title:** Under-Voltage Load Shedding Program Data
2. **Number:** PRC-021-1
3. **Purpose:** No specific provision
4. **Applicability:** No specific provision
5. **Effective Date:**
 - 5.1. Adoption of the standard by the Régie de l'énergie: April 26, 2016
 - 5.2. Adoption of the appendix by the Régie de l'énergie: April 26, 2016
 - 5.3. Effective date of the standard and its appendix in Québec: July 1, 2016

B. Requirements

Specific provision applicable to requirement R1.5:

In requirement R1.5, the Special Protection Systems are the type I or type II SPS classified by NPCC.

C. Measures

No specific provision

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

The Régie de l'énergie is responsible, in Québec, for compliance monitoring with respect to the reliability standard and its appendix that it adopts.

1.2. Compliance Monitoring Period and Reset Time Frame

No specific provision

1.3. Data Retention

No specific provision

1.4. Additional Compliance Information

No specific provision

2. Levels of Non-Compliance

No specific provision

E. Regional Differences

No specific provision

Standard PRC-021-1 — Under-Voltage Load Shedding Program Data

Appendix QC-PRC-021-1

Provisions specific to the standard PRC-021-1 applicable in Québec

Revision History

Revision	Adoption Date	Action	Change Tracking
0	April 26, 2016	New appendix	New

A. Introduction

1. **Title:** Normal Operations Planning
2. **Number:** TOP-002-2.1b
3. **Purpose:** Current operations plans and procedures are essential to being prepared for reliable operations, including response for unplanned events.
4. **Applicability**
 - 4.1. Balancing Authority.
 - 4.2. Transmission Operator.
 - 4.3. Generator Operator.
 - 4.4. Load Serving Entity.
 - 4.5. Transmission Service Provider.
5. **Effective Date:** Immediately after approval of applicable regulatory authorities.

B. Requirements

- R1. Each Balancing Authority and Transmission Operator shall maintain a set of current plans that are designed to evaluate options and set procedures for reliable operation through a reasonable future time period. In addition, each Balancing Authority and Transmission Operator shall be responsible for using available personnel and system equipment to implement these plans to ensure that interconnected system reliability will be maintained.
- R2. Each Balancing Authority and Transmission Operator shall ensure its operating personnel participate in the system planning and design study processes, so that these studies contain the operating personnel perspective and system operating personnel are aware of the planning purpose.
- R3. Each Load Serving Entity and Generator Operator shall coordinate (where confidentiality agreements allow) its current-day, next-day, and seasonal operations with its Host Balancing Authority and Transmission Service Provider. Each Balancing Authority and Transmission Service Provider shall coordinate its current-day, next-day, and seasonal operations with its Transmission Operator.
- R4. Each Balancing Authority and Transmission Operator shall coordinate (where confidentiality agreements allow) its current-day, next-day, and seasonal planning and operations with neighboring Balancing Authorities and Transmission Operators and with its Reliability Coordinator, so that normal Interconnection operation will proceed in an orderly and consistent manner.
- R5. Each Balancing Authority and Transmission Operator shall plan to meet scheduled system configuration, generation dispatch, interchange scheduling and demand patterns.
- R6. Each Balancing Authority and Transmission Operator shall plan to meet unscheduled changes in system configuration and generation dispatch (at a minimum N-1 Contingency planning) in accordance with NERC, Regional Reliability Organization, subregional, and local reliability requirements.
- R7. Each Balancing Authority shall plan to meet capacity and energy reserve requirements, including the deliverability/capability for any single Contingency.

Standard TOP-002-2.1b — Normal Operations Planning

- R8.** Each Balancing Authority shall plan to meet voltage and/or reactive limits, including the deliverability/capability for any single contingency.
- R9.** Each Balancing Authority shall plan to meet Interchange Schedules and ramps.
- R10.** Each Balancing Authority and Transmission Operator shall plan to meet all System Operating Limits (SOLs) and Interconnection Reliability Operating Limits (IROLs).
- R11.** The Transmission Operator shall perform seasonal, next-day, and current-day Bulk Electric System studies to determine SOLs. Neighboring Transmission Operators shall utilize identical SOLs for common facilities. The Transmission Operator shall update these Bulk Electric System studies as necessary to reflect current system conditions; and shall make the results of Bulk Electric System studies available to the Transmission Operators, Balancing Authorities (subject to confidentiality requirements), and to its Reliability Coordinator.
- R12.** The Transmission Service Provider shall include known SOLs or IROLs within its area and neighboring areas in the determination of transfer capabilities, in accordance with filed tariffs and/or regional Total Transfer Capability and Available Transfer Capability calculation processes.
- R13.** At the request of the Balancing Authority or Transmission Operator, a Generator Operator shall perform generating real and reactive capability verification that shall include, among other variables, weather, ambient air and water conditions, and fuel quality and quantity, and provide the results to the Balancing Authority or Transmission Operator operating personnel as requested.
- R14.** Generator Operators shall, without any intentional time delay, notify their Balancing Authority and Transmission Operator of changes in capabilities and characteristics including but not limited to:
 - R14.1.** Changes in real output capabilities.
- R15.** Generation Operators shall, at the request of the Balancing Authority or Transmission Operator, provide a forecast of expected real power output to assist in operations planning (e.g., a seven-day forecast of real output).
- R16.** Subject to standards of conduct and confidentiality agreements, Transmission Operators shall, without any intentional time delay, notify their Reliability Coordinator and Balancing Authority of changes in capabilities and characteristics including but not limited to:
 - R16.1.** Changes in transmission facility status.
 - R16.2.** Changes in transmission facility rating.
- R17.** Balancing Authorities and Transmission Operators shall, without any intentional time delay, communicate the information described in the requirements R1 to R16 above to their Reliability Coordinator.
- R18.** Neighboring Balancing Authorities, Transmission Operators, Generator Operators, Transmission Service Providers and Load Serving Entities shall use uniform line identifiers when referring to transmission facilities of an interconnected network.
- R19.** Each Balancing Authority and Transmission Operator shall maintain accurate computer models utilized for analyzing and planning system operations.

C. Measures

- M1.** Each Balancing Authority and Transmission Operator shall have and provide upon request evidence that could include, but is not limited to, documented planning procedures, copies of

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- current day plans, copies of seasonal operations plans, or other equivalent evidence that will be used to confirm that it maintained a set of current plans. (Requirement 1 Part 1).
- M2.** Each Balancing Authority and Transmission Operator shall have and provide upon request evidence that could include, but is not limited to, copies of current day plans or other equivalent evidence that will be used to confirm that its plans address Requirements 5, 6, and 10.
- M3.** Each Balancing Authority shall have and provide upon request evidence that could include, but is not limited to, copies of current day plans or other equivalent evidence that will be used to confirm that its plans address Requirements 7, 8, and 9.
- M4.** Each Transmission Operator shall have and provide upon request evidence that could include, but is not limited to, its next-day, and current-day Bulk Electric System studies used to determine SOLs or other equivalent evidence that will be used to confirm that its studies reflect current system conditions. (Requirement 11 Part 1)
- M5.** Each Transmission Operator shall have and provide upon request evidence that could include, but is not limited to, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence that will be used to confirm that the results of Bulk Electric System studies were made available to the Transmission Operators, Balancing Authorities (subject to confidentiality requirements), and to its Reliability Coordinator. (Requirement 11 Part 2)
- M6.** Each Generator Operator shall have and provide upon request evidence that, when requested by either a Transmission Operator or Balancing Authority, it performed a generating real and reactive capability verification and provided the results to the requesting entity in accordance with Requirement 13.
- M7.** Each Generator Operator shall have and provide upon request evidence that could include, but is not limited to, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence that will be used to confirm that without any intentional time delay, it notified its Balancing Authority and Transmission Operator of changes in real capabilities. (Requirement 14)
- M8.** Each Generator Operator shall have and provide upon request evidence that could include, but is not limited to, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence that will be used to confirm that, on request, it provided a forecast of expected real power output to assist in operations planning. (Requirement 15)
- M9.** Each Transmission Operators shall have and provide upon request evidence that could include, but is not limited to, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence that will be used to confirm that, without any intentional time delay, it notified its Balancing Authority and Reliability Coordinator of changes in capabilities and characteristics. (Requirement 16)
- M10.** Each Balancing Authority, Transmission Operator, Generator Operator, Transmission Service Provider and Load Serving Entity shall have and provide upon request evidence that could include, but is not limited to, a list of interconnected transmission facilities and their line identifiers at each end or other equivalent evidence that will be used to confirm that it used uniform line identifiers when referring to transmission facilities of an interconnected network. (Requirement 18)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations shall be responsible for compliance monitoring.

1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 calendar days to prepare for the investigation. An entity may request an extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of non-compliance.

1.3. Data Retention

For Measures 1 and 2, each Transmission Operator shall have its current plans and a rolling 6 months of historical records (evidence).

For Measures 1, 2, and 3 each Balancing Authority shall have its current plans and a rolling 6 months of historical records (evidence).

For Measure 4, each Transmission Operator shall keep its current plans (evidence).

For Measures 5 and 9, each Transmission Operator shall keep 90 days of historical data (evidence).

For Measures 6, 7 and 8, each Generator Operator shall keep 90 days of historical data (evidence).

For Measure 10, each Balancing Authority, Transmission Operator, Generator Operator, Transmission Service Provider, and Load-serving Entity shall have its current list interconnected transmission facilities and their line identifiers at each end or other equivalent evidence as evidence.

If an entity is found non-compliant the entity shall keep information related to the noncompliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all supporting compliance data

1.4. Additional Compliance Information

None.

2. Levels of Non-Compliance for Balancing Authorities:

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- 2.1. **Level 1:** Did not use uniform line identifiers when referring to transmission facilities of an interconnected network as specified in R18.
 - 2.2. **Level 2:** Not applicable.
 - 2.3. **Level 3:** Not applicable.
 - 2.4. **Level 4:** There shall be a separate Level 4 non-compliance, for every one of the following requirements that is in violation:
 - 2.4.1 Did not maintain an updated set of current-day plans as specified in R1.
 - 2.4.2 Plans did not meet one or more of the requirements specified in R5 through R10.
3. **Levels of Non-Compliance for Transmission Operators**
 - 3.1. **Level 1:** Did not use uniform line identifiers when referring to transmission facilities of an interconnected network as specified in R18.
 - 3.2. **Level 2:** Not applicable.
 - 3.3. **Level 3:** One or more of Bulk Electric System studies were not made available as specified in R11.
 - 3.4. **Level 4:** There shall be a separate Level 4 non-compliance, for every one of the following requirements that is in violation:
 - 3.4.1 Did not maintain an updated set of current-day plans as specified in R1.
 - 3.4.2 Plans did not meet one or more of the requirements in R5, R6, and R10.
 - 3.4.3 Studies not updated to reflect current system conditions as specified in R11.
 - 3.4.4 Did not notify its Balancing Authority and Reliability Coordinator of changes in capabilities and characteristics as specified in R16.
4. **Levels of Non-Compliance for Generator Operators:**
 - 4.1. **Level 1:** Did not use uniform line identifiers when referring to transmission facilities of an interconnected network as specified in R18.
 - 4.2. **Level 2:** Not applicable.
 - 4.3. **Level 3:** Not applicable.
 - 4.4. **Level 4:** There shall be a separate Level 4 non-compliance, for every one of the following requirements that is in violation:
 - 4.4.1 Did not verify and provide a generating real and reactive capability verification and provide the results to the requesting entity as specified in R13.
 - 4.4.2 Did not notify its Balancing Authority and Transmission Operator of changes in capabilities and characteristics as specified in R14.
 - 4.4.3 Did not provide a forecast of expected real power output to assist in operations planning as specified in R15.
5. **Levels of Non-Compliance for Transmission Service Providers and Load-serving Entities:**
 - 5.1. **Level 1:** Did not use uniform line identifiers when referring to transmission facilities of an interconnected network as specified in R18.
 - 5.2. **Level 2:** Not applicable.

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5.3. Level 3: Not applicable.

5.4. Level 4: Not applicable.

E. Regional Differences

None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised
2	June 14, 2007	Fixed typo in R11., (subject to ...)	Errata
2a	February 10, 2009	Added Appendix 1 – Interpretation of R11 approved by BOT on February 10, 2009	Interpretation
2a	December 2, 2009	Interpretation of R11 approved by FERC on December 2, 2009	Same Interpretation
2b	November 4, 2010	Added Appendix 2 – Interpretation of R10 adopted by the Board of Trustees	
2b	October 20, 2011	FERC Order issued approving the Interpretation of R10 (FERC’s Order became effective on October 20, 2011)	
2.1b	March 8, 2012	Errata adopted by Standards Committee; (Removed unnecessary language from the Effective Date section. Deleted retired sub-requirements from Requirement R14)	Errata
2.1b	April 11, 2012	Additional errata adopted by Standards Committee; (Deleted language from retired sub-requirement from Measure M7)	Errata
2.1b	September 13, 2012	FERC approved	Errata

Appendix 1

Interpretation of Requirement R11

Requirement Number and Text of Requirement

Requirement R11: The Transmission Operator shall perform seasonal, next-day, and current-day Bulk Electric System studies to determine SOLs. Neighboring Transmission Operators shall utilize identical SOLs for common facilities. The Transmission Operator shall update these Bulk Electric System studies as necessary to reflect current system conditions; and shall make the results of Bulk Electric System studies available to the Transmission Operators, Balancing Authorities (subject to confidentiality requirements), and to its Reliability Coordinator.

Question #1

Is the Transmission Operator required to conduct a “unique” study for each operating day, even when the actual or expected system conditions are identical to other days already studied? In other words, can a study be used for more than one day?

Response to Question #1

Requirement R11 mandates that each Transmission Operator review (i.e., study) the state of its Transmission Operator area both in advance of each day and during each day. Each day must have “a” study that can be applied to it, but it is not necessary to generate a “unique” study for each day. Therefore, it is acceptable for a Transmission Operator to use a particular study for more than one day.

Question #2

Are there specific actions required to implement a “study”? In other words, what constitutes a study?

Response to Question #2

The requirement does not mandate a particular type of review or study. The review or study may be based on complex computer studies or a manual reasonability review of previously existing study results. The requirement is designed to ensure the Transmission Operator maintains sensitivity to what is happening or what is about to happen.

Question #3

Does the term, “to determine SOLs” as used in the first sentence of Requirement R11 mean the “determination of system operating limits” or does it mean the “identification of potential SOL violations?”

Response to Question #3

TOP-002-2 covers real-time and near-real-time studies. Requirement R11 is meant to include both determining new limits and identifying potential “exceedances” of pre-defined SOLs. If system conditions indicate to the Transmission Operator that prior studies and SOLs may be outdated, TOP-002-2 mandates the Transmission Operator to conduct a study to identify SOLs for the new conditions. If the Transmission Operator determines that system conditions do not warrant a new study, the primary purpose of the review is to check that the previously defined (i.e., defined from the current SOLs in use, or the set defined by the planners) SOLs are not expected to be exceeded. As written, the standard provides the Transmission Operator discretion regarding when to look for new SOLs and when to rely on its current set of SOLs.

Appendix 2

Requirement Number and Text of Requirement:

R10. Each Balancing Authority and Transmission Operator shall plan to meet all System Operating Limits (SOLs) and Interconnection Reliability Operating Limits (IROLs).

Clarification needed:

Requirement 10 is proposed to be eliminated in Project 2007-03 because it is redundant with TOP-004-0 R1, which only applies to TOP not to BA. However, that will not be effective for more than two years. In the meantime, in Requirement 10 is the requirement of the BA to plan to maintain load-interchange-generation balance under the direction of the TOPs meeting all SOLs and IROLs?

Project 2009-27: Response to Request for an Interpretation of TOP-002-2a, Requirement R10, for Florida Municipal Power Pool

The following interpretation of TOP-002-2a — Normal Operations Planning, Requirement R10, was developed by the Real-time Operations Standard Drafting Team.

Requirement Number and Text of Requirement

R10. Each Balancing Authority and Transmission Operator shall plan to meet all System Operating Limits (SOLs) and Interconnection Reliability Operating Limits (IROLs).

Question

In Requirement 10, is the requirement of the BA to plan to maintain load-interchange-generation balance under the direction of the TOPs meeting all SOLs and IROLs?

Response

Yes. As stated in the NERC *Glossary of Terms used in Reliability Standards*, the Balancing Authority is responsible for integrating resource plans ahead of time, maintaining load-interchange-generation balance within a Balancing Authority Area, and supporting Interconnection frequency in real time. The Balancing Authority does not possess the Bulk Electric System information necessary to manage transmission flows (MW, MVAR or Ampere) or voltage. Therefore, the Balancing Authority must follow the directions of the Transmission Operator to meet all SOLs and IROLs.

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Appendix QC-TOP-002-2.1b

Provisions specific to the standard TOP-002-2.1b applicable in Québec

This appendix establishes specific provisions for the application of the standard in Québec. Provisions of the standard and of its appendix must be read together for the purposes of understanding and interpretation. Where the standard and appendix differ, the appendix shall prevail.

A. Introduction

1. **Title:** Normal Operations Planning

2. **Number:** TOP-002-2.1b

3. **Purpose:** No specific provision

4. **Applicability:**

Functions

No specific provision

Facilities

This standard only applies to the facilities of the Main Transmission System (RTP).

5. **Effective Date:**

5.1. Adoption of the standard by the Régie de l'énergie: April 13, 2016

5.2. Adoption of the appendix by the Régie de l'énergie: April 13, 2016

5.3. Effective date of the standard and its appendix in Québec: July 1, 2016

B. Requirements

Specific provision regarding generation facilities for industrial use applicable to requirement R3:

The Generator Operator whose facilities are mainly used to supply industrial loads is not required to coordinate all its operations with the Balancing Authority and the Transmission Service Provider as required under requirement R3. However, it shall coordinate any variation in the generation that impacts the flow at the connection point with the Balancing Authority.

Specific provision applicable to requirement R6:

Only the compliance with reliability standards adopted by the Régie de l'énergie is mandatory. Compliance with other reliability requirements mentioned in requirement R6 is optional.

Specific provision applicable to requirement R15:

In the context of the application of requirement R15 of this reliability standard, the forecast real power output requested by the Balancing Authority or the Transmission Operator shall contain, according to the power generating facility type, the following data for the different planning time frames. The Generator Operator whose facilities are mainly used to supply industrial loads is not required to provide the data of its generating facilities. However, it shall provide forecast of total expected real power output of its generating facilities.

Run-of-river power generating facilities and Wind turbine Farms

Time Frame	Type of Data
48 hours	Hourly forecast by generating facility expressed in MW, according to water supplies and weather.

Standard TOP-002-2.1b — Normal Operations planning

Appendix QC-TOP-002-2.1b

Provisions specific to the standard TOP-002-2.1b applicable in Québec

10 days	Hourly forecast by generating facility expressed in MW, statistically evaluated.
Monthly	Weekly forecast by generating facility expressed in MW, statistically evaluated.
12 à 18 months	Monthly forecast by generating facility expressed in MW, statistically evaluated.

Other Power Stations

Time Frame	Type of Data
48 hours	Generation strategy by generating facility (Hourly generation forecast expressed in MW, water level to reach or maintain, water flow to maintain...)
10 days	Generation strategy by generating facility (Hourly generation forecast expressed in MW, water level to reach or maintain, water flow to maintain...)
Monthly	Weekly forecast per generating facility in MW, statistically evaluated.
12 à 18 months	Monthly forecast per generating facility in MW, statistically evaluated.

C. Measures

No specific provision

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

The Régie de l'énergie is responsible, in Québec, for compliance monitoring with respect to the reliability standard and its appendix that it adopts.

1.2. Compliance Monitoring and Reset Time Frame

No specific provision

1.3. Data Retention

No specific provision

1.4. Additional Compliance Information

No specific provision

2. Levels of Non-Compliance for Balancing Authorities:

No specific provision

3. Levels of Non-Compliance for Balancing Authorities:

No specific provision

4. Levels of Non-Compliance for Generator Operators:

No specific provision

Standard TOP-002-2.1b — Normal Operations planning

Appendix QC-TOP-002-2.1b

Provisions specific to the standard TOP-002-2.1b applicable in Québec

5. Levels of Non-Compliance for Transmission Service Providers and Load-serving Entities:

No specific provision

E. Regional Differences

No specific provision

Appendix 1

No specific provision

Appendix 2

No specific provision

Revision History

Revision	Adoption Date	Action	Change Tracking
0	July 1, 2016	New appendix	New

A. Introduction

1. **Title:** **Monitoring System Conditions**
2. **Number:** TOP-006-2
3. **Purpose:** To ensure critical reliability parameters are monitored in real-time.
4. **Applicability**
 - 4.1. Transmission Operators.
 - 4.2. Balancing Authorities.
 - 4.3. Generator Operators.
 - 4.4. Reliability Coordinators.
5. **Proposed Effective Date:** In those jurisdictions where no regulatory approval is required, the standard shall become effective on the latter of either April 1, 2009 or the first day of the first calendar quarter, three months after BOT adoption.

In those jurisdictions where regulatory approval is required, the standard shall become effective on the latter of either April 1, 2009 or the first day of the first calendar quarter, three months after applicable regulatory approval.

B. Requirements

- R1. Each Transmission Operator and Balancing Authority shall know the status of all generation and transmission resources available for use.
 - R1.1. Each Generator Operator shall inform its Host Balancing Authority and the Transmission Operator of all generation resources available for use.
 - R1.2. Each Transmission Operator and Balancing Authority shall inform the Reliability Coordinator and other affected Balancing Authorities and Transmission Operators of all generation and transmission resources available for use.
- R2. Each Reliability Coordinator, Transmission Operator, and Balancing Authority shall monitor applicable transmission line status, real and reactive power flows, voltage, load-tap-changer settings, and status of rotating and static reactive resources.
- R3. Each Reliability Coordinator, Transmission Operator, and Balancing Authority shall provide appropriate technical information concerning protective relays to their operating personnel.
- R4. Each Transmission Operator, and Balancing Authority shall have information, including weather forecasts and past load patterns, available to predict the system's near-term load pattern.
- R5. Each Reliability Coordinator, Transmission Operator, and Balancing Authority shall use monitoring equipment to bring to the attention of operating personnel important deviations in operating conditions and to indicate, if appropriate, the need for corrective action.
- R6. Each Balancing Authority and Transmission Operator shall use sufficient metering of suitable range, accuracy and sampling rate (if applicable) to ensure accurate and timely monitoring of operating conditions under both normal and emergency situations.
- R7. Each Reliability Coordinator, Transmission Operator, and Balancing Authority shall monitor system frequency.

C. Measures

Standard TOP-006-2 — Monitoring System Conditions

- M1.** The Generator Operator shall have and provide upon request evidence that could include but is not limited to, operator logs, voice recordings, electronic communications, or other equivalent evidence that will be used to confirm that it informed its Host Balancing Authority and Transmission Operator of all generation resources available for use. (Requirement 1.1)
- M2.** Each Transmission Operator and Balancing Authority shall have and provide upon request evidence that could include but is not limited to, operator logs, voice recordings, electronic communications, or other equivalent evidence that will be used to confirm that it informed its Reliability Coordinator and other affected Balancing Authorities and Transmission Operators of all generation and transmission resources available for use. (Requirement 1.2)
- M3.** Each Reliability Coordinator, Transmission Operator and Balancing Authority shall have and provide upon request evidence that could include but is not limited to, computer printouts or other equivalent evidence that will be used to confirm that it monitored each of the applicable items listed in Requirement 2.
- M4.** Each Transmission Operator and Balancing Authority shall have and provide upon request evidence that could include but is not limited to, printouts, training documents, description documents or other equivalent evidence that will be used to confirm that it has weather forecasts and past load patterns, available to predict the system's near-term load pattern. (Requirement 4)
- M5.** Each Reliability Coordinator, Transmission Operator and Balancing Authority shall have and provide upon request evidence that could include but is not limited to, a description of its EMS alarm capability, training documents, or other equivalent evidence that will be used to confirm that important deviations in operating conditions and the need for corrective actions will be brought to the attention of its operators. (Requirement 5)
- M6.** Each Reliability Coordinator, Transmission Operator and Balancing Authority shall have and provide upon request evidence that could include but is not limited to, a list of the frequency monitoring points available to the shift-operators or other equivalent evidence that will be used to confirm that it monitors system frequency. (Requirement 7)

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Regional Reliability Organizations shall be responsible for compliance monitoring.

1.2. Compliance Monitoring and Reset Time Frame

One or more of the following methods will be used to assess compliance:

- Self-certification (Conducted annually with submission according to schedule.)
- Spot Check Audits (Conducted anytime with up to 30 days notice given to prepare.)
- Periodic Audit (Conducted once every three years according to schedule.)
- Triggered Investigations (Notification of an investigation must be made within 60 days of an event or complaint of noncompliance. The entity will have up to 30 days to prepare for the investigation. An entity may request an extension of the preparation period and the extension will be considered by the Compliance Monitor on a case-by-case basis.)

The Performance-Reset Period shall be 12 months from the last finding of non-compliance.

1.3. Data Retention

Each Generator Operator shall keep 90 days of historical data (evidence) for Measure 1.

Each Transmission Operator and Balancing Authority shall keep 90 days of historical data (evidence) for Measure 2.

Each Reliability Coordinator, Transmission Operator and Balancing Authority shall have current documents as evidence for Measure 3, 5 and 6.

Each Transmission Operator and Balancing Authority shall have current documents as evidence of compliance to Measure 4.

If an entity is found non-compliant the entity shall keep information related to the noncompliance until found compliant or for two years plus the current year, whichever is longer.

Evidence used as part of a triggered investigation shall be retained by the entity being investigated for one year from the date that the investigation is closed, as determined by the Compliance Monitor,

The Compliance Monitor shall keep the last periodic audit report and all supporting compliance data

1.4. Additional Compliance Information

None.

Standard TOP-006-2 — Monitoring System Conditions

2. Violation Severity Levels:

R#	Lower	Moderate	High	Severe
R1	N/A	N/A	N/A	The responsible entity failed to know the status of all generation and transmission resources available for use, even though said information was reported by the Generator Operator, Transmission Operator, or Balancing Authority.
R1.1	N/A	N/A	N/A	The Generator Operator failed to inform its Host Balancing Authority and the Transmission Operator of all generation resources available for use.
R1.2	N/A	N/A	N/A	The responsible entity failed to inform the Reliability Coordinator and other affected Balancing Authorities and Transmission Operators of all generation and transmission resources available for use.
R2	N/A	The responsible entity monitors the applicable transmission line status, real and reactive power flows, voltage, load-tap-changer settings, but is not aware of the status of rotating and static reactive resources.	The responsible entity fails to monitor all of the applicable transmission line status, real and reactive power flows, voltage, load-tap-changer settings, and status of all rotating and static reactive resources.	The responsible entity fails to monitor any of the applicable transmission line status, real and reactive power flows, voltage, load-tap-changer settings, and status of rotating and static reactive resources.
R3	The responsible entity failed to provide any of the appropriate technical information concerning protective relays to their operating personnel.	N/A	N/A	The responsible entity failed to provide all of the appropriate technical information concerning protective relays to their operating personnel.

Standard TOP-006-2 — Monitoring System Conditions

R#	Lower	Moderate	High	Severe
R4	N/A	N/A	The responsible entity has either weather forecasts or past load patterns, available to predict the system's near-term load pattern, but not both.	The responsible entity failed to have both weather forecasts and past load patterns, available to predict the system's near-term load pattern.
R5	N/A	N/A	The responsible entity used monitoring equipment to bring to the attention of operating personnel important deviations in operating conditions, but does not have indication of the need for corrective action.	The responsible entity failed to use monitoring equipment to bring to the attention of operating personnel important deviations in operating conditions.
R6	N/A	N/A	N/A	The responsible entity failed to use sufficient metering of suitable range, accuracy and sampling rate (if applicable) to ensure accurate and timely monitoring of operating conditions under both normal and emergency situations.
R7	N/A	N/A	N/A	The responsible entity failed to monitor system frequency.

Standard TOP-006-2 — Monitoring System Conditions

E. Regional Variances

None identified.

Version History

Version	Date	Action	Change Tracking
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata
1	November 1, 2006	Adopted by Board of Trustees	Revised
2		Modified R4 Modified M4 Modified Data Retention for M4 Replaced Levels of Non-compliance with the Feb 28, BOT approved Violation Severity Levels (VSLs)	Revised
2	October 17, 2008	Adopted by NERC Board of Trustees	
2	March 17, 2011	Order issued by FERC approving TOP-006-2 (approval effective 5/23/11)	

Standard TOP-006-2 — Monitoring System Conditions

Appendix QC-TOP-006-2 Provisions specific to the standard TOP-006-2 applicable in Québec

This appendix establishes specific provisions for the application of the standard in Québec. Provisions of the standard and of its appendix must be read together for the purposes of understanding and interpretation. Where the standard and appendix differ, the appendix shall prevail.

A. Introduction

1. **Title:** Monitoring System Conditions

2. **Number:** TOP-006-2

3. **Purpose:** No specific provision

4. **Applicability:**

Functions

No specific provision

Facilities

This standard only applies to the facilities of the Main Transmission System (RTP).

5. **Effective Date:**

5.1. Adoption of the standard by the Régie de l'énergie: April 13, 2016

5.2. Adoption of the appendix by the Régie de l'énergie: April 13, 2016

5.3. Effective date of the standard and its appendix in Québec: July 1, 2016

B. Requirements

For requirements R1.1 and R1.2, the generation and transmission resources are defined as:

- Turbine-generator unit (hydraulic, thermal or gas)
- Wind turbine;
- Turbine-generator or wind farm voltage regulator;
- Turbine-generator unit stabilizer;
- Static compensator;
- Synchronous compensator;
- Series compensator;
- Shunt reactor;
- Capacitor bank;
- Capacitor;
- Filter;
- Transformer (step-up, power or voltage regulator);
- Variable frequency transformer;
- Back-to-back converter;
- Busbar (section of a busbar system delimited by switching devices);
- Line;

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Appendix QC-TOP-006-2 Provisions specific to the standard TOP-006-2 applicable in Québec

- Circuit-breaker;
- Disconnecter;
- Synchroscope required for system restoration;
- Load-shedding device;
- Special Protection Systems.

However, the notification about resources availability shall be made on an exception basis by informing the Transmission Operator, the Balancing Authority or the Reliability Coordinator, as appropriate, of the unavailable resources above as soon as the unavailability is known.

Specific provisions regarding generation facilities for industrial use applicable to requirements R1, R1.1, R1.2 and R2:

The Generator Operator whose facilities are mainly used to supply industrial loads is not required to inform the Balancing Authority and the Transmission Operator of all generation resources available as required under requirement R1.1. However, it shall submit (i) in the planning time horizon, the net power at the connection points of its system, total production of its generation facilities and its system load and (ii) in real time, the net power at the connection points of its system.

Consequently, the Reliability Coordinator, the Transmission Operator and the Balancing Authority are not required to know, to mutually inform themselves or to monitor the status of generation resources for generation facilities that are mainly used to supply industrial loads as required under requirements R1, R1.2 and R2. However, they shall acquire and obtain, in real time, the data at the connection points of the system of the entity that owns generation facilities that are mainly used to supply industrial loads.

C. Measures

No specific provision

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

The Régie de l'énergie is responsible, in Québec, for compliance monitoring with respect to the reliability standard and its appendix that it adopts.

1.2. Compliance Monitoring and Reset Time Frame

No specific provision

1.3. Data Retention

No specific provision

1.4. Additional Compliance Information

No specific provision

2. Violation Severity Levels

No specific provision

Standard TOP-006-2 — Monitoring System Conditions

Appendix QC-TOP-006-2

Provisions specific to the standard TOP-006-2 applicable in Québec

E. Regional Variances

No specific provision

Revision History

Revision	Adoption Date	Action	Change Tracking
0	April 13, 2016	New appendix	New