

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.

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- 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.

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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

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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

