

---

---

**BEFORE THE  
NOVA SCOTIA UTILITIES AND REVIEW BOARD  
THE PROVINCE OF NOVA SCOTIA**

**NORTH AMERICAN ELECTRIC                    )  
RELIABILITY CORPORATION                    )**

**ERRATA PETITION OF THE  
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION  
FOR APPROVAL OF TWO (2) CORRECTED RELIABILITY STANDARDS**

Rick Sergel  
President and Chief Executive Officer  
David N. Cook  
Vice President and General Counsel  
North American Electric Reliability  
Corporation  
116-390 Village Boulevard  
Princeton, NJ 08540-5721  
(609) 452-8060  
(609) 452-9550 – facsimile  
david.cook@nerc.net

Rebecca J. Michael  
Assistant General Counsel  
North American Electric Reliability  
Corporation  
1120 G Street, N.W.  
Suite 990  
Washington, D.C. 20005-3801  
(202) 393-3998  
(202) 393-3955 – facsimile  
rebecca.michael@nerc.net

August 4, 2008

---

---

## TABLE OF CONTENTS

I. Introduction	1
II. Notices and Communications	2
III. IRO-005-2 — Reliability Coordination – Current-Day Operations	2
IV. TOP-004-2 — Transmission Operations	3
V. Conclusion	6

### **Exhibit A – Corrected Reliability Standards Submitted for Approval**

## **I. INTRODUCTION**

The North American Electric Reliability Corporation (NERC) hereby requests approval of this errata filing that contains corrected versions of two (2) reliability standards:

- IRO-005-2 — Reliability Coordination – Current-Day Operations
- TOP-004-2 — Transmission Operations

Reliability standard IRO-005-2 was originally submitted for approval on December 5, 2006, but the wrong version was included in the filing. With respect to TOP-004-1, NERC has discovered that, while its original filing accurately depicted the correct version of the Reliability Standard intended to be filed, there were two versions of TOP-004-1 that were not consolidated into one such Reliability Standard in the filing submittal. One version of TOP-004-1 addressed missing compliance elements and the other addressed the FAC Reliability Standard changes.<sup>1</sup> However, only the TOP-004-1 that included the missing compliance elements was included in the prior filing.

While the filing accurately described the correct versions of the intended reliability standards and TOP-004-1 as presented, it is necessary to submit the Board approved and correct versions of these reliability standards for approval as an errata filing. In this filing, NERC has redesignated the Reliability Standard as TOP-004-2 to denote the addition of the FAC modifications. Accordingly, NERC requests approval of the Reliability Standard as corrected herein, to allow it to supersede version TOP-004-1 and to assign it the same effective date of January 1, 2009.

---

<sup>1</sup> One set on revisions added missing compliance elements and was correctly included in the filing. The second set of revisions modified certain requirements in concert with the standard development project for FAC-010-1, FAC-011-1 and FAC-014-1. These were inadvertently omitted from the proposed standard presented for approval.

NERC also requests approval of IRO-005-2 reliability standard to supersede IRO-005-1 reliability standard and make it effective immediately. **Exhibit A** to this filing sets forth the proposed reliability standards.

NERC filed these two corrected reliability standards with the Federal Energy Regulatory Commission (“FERC”) on July 28, 2008, and is also filing these corrected reliability standards with the other applicable governmental authorities in Canada.

## **II. NOTICES AND COMMUNICATIONS**

Notices and communications with respect to this filing may be addressed to the following:

Rick Sergel  
President and Chief Executive Officer  
David N. Cook  
Vice President and General Counsel  
North American Electric Reliability Corporation  
116-390 Village Boulevard  
Princeton, NJ 08540-5721  
(609) 452-8060  
(609) 452-9550 – facsimile  
david.cook@nerc.net

Rebecca J. Michael  
Assistant General Counsel  
North American Electric Reliability  
Corporation  
1120 G Street, N.W.  
Suite 990  
Washington, D.C. 20005-3801  
(202) 393-3998  
(202) 393-3955 – facsimile  
rebecca.michael@nerc.net

## **III. IRO-005-2 — RELIABILITY COORDINATION – CURRENT-DAY OPERATIONS**

On April 4, 2006, NERC filed IRO-005-1 reliability standard for approval. On December 5, 2006, NERC filed the revised IRO-005-2 reliability standard for approval. This proposed revision to the IRO-005-1 reliability standard intended to add missing compliance measures and related compliance elements. NERC’s discussion submitted in the December 5, 2006 filing correctly stated this intent; however, NERC did not include the NERC Board-approved version of IRO-005-2 in Exhibit A when it requested approval of the standard.

NERC hereby corrects this error by submitting the intended version of IRO-005-2 reliability standard for approval and requests that this version of reliability standard be approved and made effective immediately upon approval.

NERC has not changed the content, language, or structure of any requirements in the IRO-005-1 reliability standard; however, in IRO-005-2, NERC added the missing compliance elements to add clarity to those users, owners or operators to whom the reliability standard applies. Because these changes do not affect the language of the standard, NERC requests that the violation severity levels and violation risk factors with respect to IRO-005-1 be assigned to the instantly filed version of the standard.

In addition, the corrected version of IRO-005-2 reliability standard contains a correction to the applicability section of the standard. Although explicitly listed in the requirements contained within the standard itself, the functional entities, Generator Operators, Load-Serving Entities, and Purchasing-Selling Entities were inadvertently excluded from the Applicability Section A.4 of the standard. This oversight also is remedied in the attached proposed standard.

The record regarding the standard development and the standard drafting team roster for IRO-005-2 were submitted in the December 5, 2006 filing as Exhibits B and C. NERC incorporates these by reference into the instant filing to the extent necessary for approval of the filing of this reliability standard.

#### **IV. TOP-004-2 — TRANSMISSION OPERATIONS**

On April 4, 2006, NERC filed TOP-004-0 reliability standard for approval. On December 5, 2006, NERC filed revised TOP-004-1 reliability standard for approval. This proposed revision to the TOP-004-1 reliability standard intended to address two sets

of modifications: (1) add missing compliance measures and related compliance elements to the original TOP-004-0 version; and (2) incorporate changes to Requirements R3 and to delete Requirement R6.1 and R6.5 in conjunction with the project that proposed FAC-010-1 — System Operating Limits Methodology for the Planning Horizon, FAC-011-1 — System Operating Limits Methodology for the Operations Horizon and FAC-014-1 — Establish and Communicate System Operating Limits reliability standards for approval in the December 2006 filing.

NERC's discussion submitted in the December 5, 2006 filing correctly stated this intent; however, NERC only submitted the NERC Board-approved version of TOP-004-1 that contained the missing compliance elements and measures in Exhibit A when it requested approval of the standard. The version of TOP-004-1 NERC submitted reliability standard did not contain the coordinated changes to the requirements pertaining to the proposed FAC reliability standards. The record regarding the standard development and the standard drafting team roster for this reliability standard was submitted in the December 5, 2006 filing as Exhibits B and C. NERC incorporates these by reference into the instant filing to the extent necessary for approval of the filing of this reliability standard.

NERC requests that the corrected version of the reliability standard be made effective concurrently with the effective date for the implementation of the FAC-014-1 — Establish and Communicate System Operating Limits, that is, January 1, 2009. The basis for this requested effective date is set forth below.

Requirement R3 of TOP-004-1 was changed to eliminate the reference to the regional reliability organization and appropriately reference the reliability coordinator in

support of the responsibilities outlined in the proposed FAC-010-1, FAC-011-1 and FAC-014-1 reliability standards. This approach also has the corollary impact of assigning the requirement to a user, owner or operator of the bulk power system and not to a regional reliability organization which is not a user, owner or operator of the bulk power system. Requirement R6.1 assigned the transmission operator the responsibility to develop policies and procedures for equipment ratings. This is now covered in FAC-008-1 — Facility Ratings Methodology and FAC-009-1 — Establish and Communicate Facility Ratings. Additionally, Requirement 6.5 pertains to policies and protocols for developing interconnection reliability operating limits and system operating limits. This requirement is proposed to be deleted as it is included in proposed reliability standard FAC-014-1 — Establish and Communicate System Operating Limits that takes effect on January 1, 2009. As such, the revised TOP-004-2 as proposed herein and FAC-014-1 must be implemented in a coordinated fashion.

NERC has not changed the content, language or structure of any other requirements in TOP-004-1, nor does this version intend to address the FERC directives in Order No. 693 as this particular standard development effort concluded prior to the issuance of the final rule. These directives are being addressed in the currently active Project 2007-03: Real-Time Operations.

As a result of the language changes to Requirements R3 and R6, NERC will need to submit revised Violation Severity Levels from those FERC approved for the TOP-004-1 version of the standard. NERC will submit a filing with these modified Violation Severity Levels before January 1, 2009, the effective date of the reliability standard.

As a result of the changes discussed above, this reliability standard has been redesignated as TOP-004-2 reliability standard and is included in **Exhibit A**.

**VI. CONCLUSION**

NERC respectfully requests approval of the instant filing regarding:

- IRO-005-2 — Reliability Coordination – Current-Day Operations
- TOP-004-2 — Transmission Operations

NERC requests that IRO-005-2 be made effective immediately upon approval.

NERC also requests that TOP-004-2 be made effective January 1, 2009, concurrent to the effective date of the FAC-014-1 — Establish and Communicate System Operating Limits reliability standard.

Respectfully submitted,

/s/ Rebecca J. Michael

Rebecca J. Michael  
Assistant General Counsel  
North American Electric Reliability  
Corporation  
1120 G Street, N.W.  
Suite 990  
Washington, D.C. 20005-3801  
(202) 393-3998  
(202) 393-3955 – facsimile  
rebecca.michael@nerc.net

Rick Sergel  
President and Chief Executive Officer  
David N. Cook  
Vice President and General Counsel  
North American Electric Reliability Corporation  
116-390 Village Boulevard  
Princeton, NJ 08540-5721  
(609) 452-8060  
(609) 452-9550 – facsimile  
david.cook@nerc.net



**Exhibit A – Corrected Reliability Standards Submitted for Approval**

IRO-005-2 — Reliability Coordination – Current-Day Operations  
and  
TOP-004-2 — Transmission Operations

**A. Introduction**

- 1. Title:** **Reliability Coordination — Current Day Operations**
- 2. Number:** IRO-005-2
- 3. Purpose:** The Reliability Coordinator must be continuously aware of conditions within its Reliability Coordinator Area and include this information in its reliability assessments. The Reliability Coordinator must monitor Bulk Electric System parameters that may have significant impacts upon the Reliability Coordinator Area and neighboring Reliability Coordinator Areas.
- 4. Applicability**
  - 4.1.** Reliability Coordinators.
  - 4.2.** Balancing Authorities.
  - 4.3.** Transmission Operators.
  - 4.4.** Transmission Service Providers.
  - 4.5.** Generator Operators.
  - 4.6.** Load-Serving Entities.
  - 4.7.** Purchasing-Selling Entities.
- 5. Effective Date:** January 1, 2007

**B. Requirements**

- R1.** Each Reliability Coordinator shall monitor its Reliability Coordinator Area parameters, including but not limited to the following:
  - R1.1.** Current status of Bulk Electric System elements (transmission or generation including critical auxiliaries such as Automatic Voltage Regulators and Special Protection Systems) and system loading.
  - R1.2.** Current pre-contingency element conditions (voltage, thermal, or stability), including any applicable mitigation plans to alleviate SOL or IROL violations, including the plan's viability and scope.
  - R1.3.** Current post-contingency element conditions (voltage, thermal, or stability), including any applicable mitigation plans to alleviate SOL or IROL violations, including the plan's viability and scope.
  - R1.4.** System real and reactive reserves (actual versus required).
  - R1.5.** Capacity and energy adequacy conditions.
  - R1.6.** Current ACE for all its Balancing Authorities.
  - R1.7.** Current local or Transmission Loading Relief procedures in effect.
  - R1.8.** Planned generation dispatches.
  - R1.9.** Planned transmission or generation outages.
  - R1.10.** Contingency events.
- R2.** Each Reliability Coordinator shall be aware of all Interchange Transactions that wheel through, source, or sink in its Reliability Coordinator Area, and make that Interchange Transaction information available to all Reliability Coordinators in the Interconnection.

- R3.** As portions of the transmission system approach or exceed SOLs or IROLs, the Reliability Coordinator shall work with its Transmission Operators and Balancing Authorities to evaluate and assess any additional Interchange Schedules that would violate those limits. If a potential or actual IROL violation cannot be avoided through proactive intervention, the Reliability Coordinator shall initiate control actions or emergency procedures to relieve the violation without delay, and no longer than 30 minutes. The Reliability Coordinator shall ensure all resources, including load shedding, are available to address a potential or actual IROL violation.
- R4.** Each Reliability Coordinator shall monitor its Balancing Authorities' parameters to ensure that the required amount of operating reserves is provided and available as required to meet the Control Performance Standard and Disturbance Control Standard requirements. If necessary, the Reliability Coordinator shall direct the Balancing Authorities in the Reliability Coordinator Area to arrange for assistance from neighboring Balancing Authorities. The Reliability Coordinator shall issue Energy Emergency Alerts as needed and at the request of its Balancing Authorities and Load-Serving Entities.
- R5.** Each Reliability Coordinator shall identify the cause of any potential or actual SOL or IROL violations. The Reliability Coordinator shall initiate the control action or emergency procedure to relieve the potential or actual IROL violation without delay, and no longer than 30 minutes. The Reliability Coordinator shall be able to utilize all resources, including load shedding, to address an IROL violation.
- R6.** Each Reliability Coordinator shall ensure its Transmission Operators and Balancing Authorities are aware of Geo-Magnetic Disturbance (GMD) forecast information and assist as needed in the development of any required response plans.
- R7.** The Reliability Coordinator shall disseminate information within its Reliability Coordinator Area, as required.
- R8.** Each Reliability Coordinator shall monitor system frequency and its Balancing Authorities' performance and direct any necessary rebalancing to return to CPS and DCS compliance. The Transmission Operators and Balancing Authorities shall utilize all resources, including firm load shedding, as directed by its Reliability Coordinator to relieve the emergent condition.
- R9.** The Reliability Coordinator shall coordinate with Transmission Operators, Balancing Authorities, and Generator Operators as needed to develop and implement action plans to mitigate potential or actual SOL, IROL, CPS, or DCS violations. The Reliability Coordinator shall coordinate pending generation and transmission maintenance outages with Transmission Operators, Balancing Authorities, and Generator Operators as needed in both the real time and next-day reliability analysis timeframes.
- R10.** As necessary, the Reliability Coordinator shall assist the Balancing Authorities in its Reliability Coordinator Area in arranging for assistance from neighboring Reliability Coordinator Areas or Balancing Authorities.
- R11.** The Reliability Coordinator shall identify sources of large Area Control Errors that may be contributing to Frequency Error, Time Error, or Inadvertent Interchange and shall discuss corrective actions with the appropriate Balancing Authority. The Reliability Coordinator shall direct its Balancing Authority to comply with CPS and DCS.
- R12.** Whenever a Special Protection System that may have an inter-Balancing Authority, or inter-Transmission Operator impact (e.g., could potentially affect transmission flows resulting in a SOL or IROL violation) is armed, the Reliability Coordinators shall be aware of the impact of the operation of that Special Protection System on inter-area flows. The Transmission

Operator shall immediately inform the Reliability Coordinator of the status of the Special Protection System including any degradation or potential failure to operate as expected.

- R13.** Each Reliability Coordinator shall ensure that all Transmission Operators, Balancing Authorities, Generator Operators, Transmission Service Providers, Load-Serving Entities, and Purchasing-Selling Entities operate to prevent the likelihood that a disturbance, action, or non-action in its Reliability Coordinator Area will result in a SOL or IROL violation in another area of the Interconnection. In instances where there is a difference in derived limits, the Reliability Coordinator and its Transmission Operators, Balancing Authorities, Generator Operators, Transmission Service Providers, Load-Serving Entities, and Purchasing-Selling Entities shall always operate the Bulk Electric System to the most limiting parameter.
- R14.** Each Reliability Coordinator shall make known to Transmission Service Providers within its Reliability Coordinator Area, SOLs or IROLs within its wide-area view. The Transmission Service Providers shall respect these SOLs or IROLs in accordance with filed tariffs and regional Total Transfer Calculation and Available Transfer Calculation processes.
- R15.** Each Reliability Coordinator who foresees a transmission problem (such as an SOL or IROL violation, loss of reactive reserves, etc.) within its Reliability Coordinator Area shall issue an alert to all impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area without delay. The receiving Reliability Coordinator shall disseminate this information to its impacted Transmission Operators and Balancing Authorities. The Reliability Coordinator shall notify all impacted Transmission Operators, Balancing Authorities, when the transmission problem has been mitigated.
- R16.** Each Reliability Coordinator shall confirm reliability assessment results and determine the effects within its own and adjacent Reliability Coordinator Areas. The Reliability Coordinator shall discuss options to mitigate potential or actual SOL or IROL violations and take actions as necessary to always act in the best interests of the Interconnection at all times.
- R17.** When an IROL or SOL is exceeded, the Reliability Coordinator shall evaluate the local and wide-area impacts, both real-time and post-contingency, and determine if the actions being taken are appropriate and sufficient to return the system to within IROL in thirty minutes. If the actions being taken are not appropriate or sufficient, the Reliability Coordinator shall direct the Transmission Operator, Balancing Authority, Generator Operator, or Load-Serving Entity to return the system to within IROL or SOL.

### **C. Measures**

- M1.** The Reliability Coordinator shall have and provide upon request evidence that could include, but is not limited to, Energy Management System description documents, computer printouts, a prepared report specifically detailing compliance to each of the bullets in Requirement 1, EMS availability, SCADA data collection system communications performance or equivalent evidence that will be used to confirm that it monitors the Reliability Coordinator Area parameters specified in Requirements 1.1 through 1.9.
- M2.** The Reliability Coordinator shall have and provide upon request evidence that could include, but is not limited to, Historical Tag Archive information, Interchange Transaction records, computer printouts, voice recordings or transcripts of voice recordings or equivalent evidence that will be used to confirm that it was aware of and made Interchange Transaction information available to all other Reliability Coordinators, as specified in Requirement 2.
- M3.** If a potential or actual IROL violation occurs, the Reliability Coordinator involved in the event shall have and provide upon request evidence that could include, but is not limited to, operator logs, voice recordings or transcripts of voice recordings, electronic communications, system

event logs, operator action notes or equivalent evidence that will be used to determine if it initiated control actions or emergency procedures to relieve that IROL violation within 30 minutes. (Requirement 3 Part 2 and Requirement 5)

- M4.** If one of its Balancing Authorities has insufficient operating reserves, the Reliability Coordinator shall have and provide upon request evidence that could include, but is not limited to computer printouts, operating logs, voice recordings or transcripts of voice recordings, or equivalent evidence that will be used to determine if the Reliability Coordinator directed and, if needed, assisted the Balancing Authorities in the Reliability Coordinator Area to arrange for assistance from neighboring Balancing Authorities. (Requirement 4 Part 2 and Requirement 10)
- M5.** The Reliability Coordinator shall have and provide upon request evidence that could include, but is not limited to, operator logs, voice recordings or transcripts of voice recordings, electronic communications or equivalent evidence that will be used to determine if it informed Transmission Operators and Balancing Authorities of Geo-Magnetic Disturbance (GMD) forecast information and provided assistance as needed in the development of any required response plans. (Requirement 6)
- M6.** The Reliability Coordinator shall have and provide upon request evidence that could include, but is not limited to, operator logs, voice recordings or transcripts of voice recordings, Hot Line recordings, electronic communications or equivalent evidence that will be used to determine if it disseminated information within its Reliability Coordinator Area in accordance with Requirement 7.
- M7.** The Reliability Coordinator shall have and provide upon request evidence that could include, but is not limited to, computer printouts, operator logs, voice recordings or transcripts of voice recordings, electronic communications or equivalent evidence that will be used to confirm that it monitored system frequency and Balancing Authority performance and directed any necessary rebalancing, as specified in Requirement 8 Part 1.
- M8.** The Transmission Operators and Balancing Authorities shall have and provide upon request evidence that could include, but is not limited to, operator logs, voice recordings or transcripts of voice recordings, electronic communications or equivalent evidence that will be used to confirm that it utilized all resources, including firm load shedding, as directed by its Reliability Coordinator, to relieve an emergent condition. (Requirement 8 Part 2)
- M9.** The Reliability Coordinator shall have and provide upon request evidence that could include, but is not limited to, voice recordings or transcripts of voice recordings, electronic communications, operator logs or equivalent evidence that will be used to determine if it coordinated with Transmission Operators, Balancing Authorities, and Generator Operators as needed to develop and implement action plans to mitigate potential or actual SOL, IROL, CPS, or DCS violations including the coordination of pending generation and transmission maintenance outages with Transmission Operators, Balancing Authorities and Generator Operators. (Requirement 9 Part 1)
- M10.** If a large Area Control Error has occurred, the Reliability Coordinator shall have and provide upon request evidence that could include, but is not limited to, operator logs, voice recordings or transcripts of voice recordings, Hot Line recordings, electronic communications or equivalent evidence that will be used to determine if it identified sources of the Area Control Errors, and initiated corrective actions with the appropriate Balancing Authority if the problem was within the Reliability Coordinator's Area (Requirement 11 Part 1)
- M11.** If a Special Protection System is armed and that system could have had an inter-area impact, the Reliability Coordinator shall have and provide upon request evidence that could include,

but is not limited to, agreements with their Transmission Operators, procedural documents, operator logs, computer analysis, training modules, training records or equivalent evidence that will be used to confirm that it was aware of the impact of that Special Protection System on inter-area flows. (Requirement 12)

- M12.** If there is an instance where there is a disagreement on a derived limit, the Reliability Coordinator, Transmission Operator, Balancing Authority, Generator Operator, Load-serving Entity, Purchasing-selling Entity and Transmission Service Provider involved in the disagreement shall have and provide upon request evidence that could include, but is not limited to, operator logs, voice recordings, electronic communications or equivalent evidence that will be used to determine if it operated to the most limiting parameter. (Part 2 of Requirement 13)
- M13.** The Reliability Coordinator shall have and provide upon request evidence that could include, but is not limited to, procedural documents, operator logs, voice recordings or transcripts of voice recordings, electronic communications or equivalent evidence that will be used to confirm that it provided SOL and IROL information to Transmission Service Providers within its Reliability Coordinator Area. (Requirement 14, Part 1)
- M14.** The Transmission Service Providers shall have and provide upon request evidence that could include, but is not limited to, procedural documents, operator logs, voice recordings or transcripts of voice recordings, electronic communications or equivalent evidence that will be used to confirm that it respected the SOLs or IROLs in accordance with filed tariffs and regional Total Transfer Calculation and Available Transfer Calculation processes.(Requirement 14 Part 2)
- M15.** The Reliability Coordinator shall have and provide upon request evidence that could include, but is not limited to, operator logs, voice recordings or transcripts of voice recordings, electronic communications or equivalent evidence that will be used to confirm that it issued alerts when it foresaw a transmission problem (such as an SOL or IROL violation, loss of reactive reserves, etc.) within its Reliability Coordinator Area, to all impacted Transmission Operators and Balancing Authorities in its Reliability Coordinator Area as specified in Requirement 15 Part 1.
- M16.** The Reliability Coordinator shall have and provide upon request evidence that could include, but is not limited to, operator logs, voice recordings or transcripts of voice recordings, electronic communications or equivalent evidence that will be used to confirm that upon receiving information such as an SOL or IROL violation, loss of reactive reserves, etc. it disseminated the information to its impacted Transmission Operators and Balancing Authorities as specified in Requirement 15 Part 2.
- M17.** The Reliability Coordinator shall have and provide upon request evidence that could include, but is not limited to, operator logs, voice recordings or transcripts of voice recordings, electronic communications or equivalent evidence that will be used to confirm that it notified all impacted Transmission Operators, Balancing Authorities and Reliability Coordinators when a transmission problem has been mitigated. (Requirement 15 Part 3)

## **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**

For Measures 1 and 11, each Reliability Coordinator shall have its current in-force documents as evidence.

For Measures 2–10 and Measure 13, and Measures 15 through 16, the Reliability Coordinator shall keep 90 days of historical data (evidence).

For Measure 8, the Transmission Operator and Balancing Authority shall keep 90 days of historical data (evidence).

For Measure 12, the Reliability Coordinator, Transmission Operator, Balancing Authority, and Transmission Service Provider shall keep 90 days of historical data (evidence).

For Measure 14, the Transmission Service Provider shall keep 90 days of historical data (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 requested and submitted subsequent compliance records.

### **1.4. Additional Compliance Information**

None.

## **2. Levels of Non-Compliance for a Transmission Operator, Balancing Authority, Generator Operator, Load-serving Entity, Purchasing-selling Entity and Transmission Service Provider**

**2.1. Level 1:** Not applicable.

**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 follow the Reliability Coordinator's directives in accordance with R8 Part 2).
  - 2.4.2 Did not operate to the most limiting parameter when a difference in derived limits existed. (R13 Part 2)
- 3. **Levels of Non-Compliance for a Reliability Coordinator:**
  - 3.1. **Level 1:** Not applicable.
  - 3.2. **Level 2:** Did not make Interchange Transaction information available to all other Reliability Coordinators in the Interconnection. (Requirement 2)
  - 3.3. **Level 3:** There shall be a separate Level 3 non-compliance, for every one of the following requirements that is in violation:
    - 3.3.1 Did not communicate to each of its Balancing Authorities and Transmission Operators to make them aware of GMD forecast information or did not assist in the development of any required response plans to a predicted GMD. (Requirement 6)
    - 3.3.2 Did not disseminate information within its Reliability Coordinator Area. (Requirement 7)
  - 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 Does not meet one or more of the requirements as specified in requirement 1 (Requirements 1.1 through R1.9)
    - 3.4.2 Did not make Interchange Transaction information available to all other Reliability Coordinators. (Requirement 2)
    - 3.4.3 Did not initiate control actions or emergency procedures to relieve an IROL violation without delay, and no longer than 30 minutes. (Requirement 3 Part 2 and Requirement 5)
    - 3.4.4 Did not direct the Balancing Authorities in the Reliability Coordinator Area to arrange for assistance from neighboring Balancing Authorities. (Requirement 4 Part 2)
    - 3.4.5 Did not monitor the system frequency or each of its Balancing Authorities performance or did not direct rebalancing to return to DCS and CPS compliance. (Requirement 8 Part 1)
    - 3.4.6 Did not coordinate with Transmission Operators, Balancing Authorities, and Generator Operators as needed to develop and implement action plans to mitigate potential or actual SOL, IROL, CPS, or DCS violations. (Requirement 9)
    - 3.4.7 When it identified a source of large Area Control Errors, it did not initiate corrective actions with the appropriate Balancing Authority if the problem was inside its Reliability Coordinator Area. (Requirement 11 part 1)
    - 3.4.8 Did not provide evidence that it was aware of the impact of the operation of a Special Protection System on inter-area flows. (Requirement 12)



- 3.4.9** Did not operate to the most limiting parameter when a difference in derived limits existed. (Requirement 13 Part 2)
- 3.4.10** Did not provide Transmission Service Providers with SOLs or IROs (within the Reliability Coordinator’s wide-area view ) (Requirement 14 Part 1)
- 3.4.11** Did not issue alerts when it foresaw a transmission problem (such as an SOL or IROL violation, loss of reactive reserves, etc.) within its Reliability Coordinator Area. (Requirement 15)

**4. Levels of Non-Compliance for a Transmission Service Provider**

- 4.1. Level 1:** Not applicable.
- 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 operate to the most limiting parameter when a difference in derived limits existed. (R13 Part 2)
  - 4.4.2** Did not respect the SOLs or IROs in accordance with filed tariffs and regional Total Transfer Calculation and Available Transfer Calculation processes.(Requirement 14 Part 2)

**E. Regional Differences**

None identified.

**Version History**

<b>Version</b>	<b>Date</b>	<b>Action</b>	<b>Change Tracking</b>
0	April 1, 2005	Effective Date	New
0	August 8, 2005	Removed “Proposed” from Effective Date	Errata
1	February 2, 2006	Approved by Board of Trustees	Revised
	August 31, 2006	Added three items that were inadvertently left out to “Applicability” section: 4.5 Generator Operators. 4.6 Load-Serving Entities. 4.7 Purchasing-Selling Entities.	Errata
2	November 1, 2006	Approved by Board of Trustees	Revised

**A. Introduction**

- 1. Title:**                   **Transmission Operations**
- 2. Number:**               TOP-004-2
- 3. Purpose:** To ensure that the transmission system is operated so that instability, uncontrolled separation, or cascading outages will not occur as a result of the most severe single Contingency and specified multiple Contingencies.
- 4. Applicability:**
  - 4.1. Transmission Operators**
- 5. Proposed Effective Date:**       Twelve months after BOT adoption of FAC-014.

**B. Requirements**

- R1.** Each Transmission Operator shall operate within the Interconnection Reliability Operating Limits (IROLs) and System Operating Limits (SOLs).
- R2.** Each Transmission Operator shall operate so that instability, uncontrolled separation, or cascading outages will not occur as a result of the most severe single contingency.
- R3.** Each Transmission Operator shall operate to protect against instability, uncontrolled separation, or cascading outages resulting from multiple outages, as specified by its Reliability Coordinator.
- R4.** If a Transmission Operator enters an unknown operating state (i.e. any state for which valid operating limits have not been determined), it will be considered to be in an emergency and shall restore operations to respect proven reliable power system limits within 30 minutes.
- R5.** Each Transmission Operator shall make every effort to remain connected to the Interconnection. If the Transmission Operator determines that by remaining interconnected, it is in imminent danger of violating an IROL or SOL, the Transmission Operator may take such actions, as it deems necessary, to protect its area.
- R6.** Transmission Operators, individually and jointly with other Transmission Operators, shall develop, maintain, and implement formal policies and procedures to provide for transmission reliability. These policies and procedures shall address the execution and coordination of activities that impact inter- and intra-Regional reliability, including:
  - R6.1.** Monitoring and controlling voltage levels and real and reactive power flows.
  - R6.2.** Switching transmission elements.
  - R6.3.** Planned outages of transmission elements.
  - R6.4.** Responding to IROL and SOL violations.

**C. Measures**

- M1.** Each Transmission Operator that enters an unknown operating state for which valid limits have not been determined, shall have and provide upon request evidence that could include, but is not limited to, operator logs, voice recordings or transcripts of voice recordings, electronic communications, alarm program printouts, or other equivalent evidence that will be used to determine if it restored operations to respect proven reliable power system limits within 30 minutes as specified in Requirement 4.
- M2.** Each Transmission Operator shall have and provide upon request current policies and procedures that address the execution and coordination of activities that impact inter- and intra-Regional reliability for each of the topics listed in Requirements 6.1 through 6.6.

## 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 Transmission Operator shall keep 90 days of historical data for Measure 1.

Each Transmission Operator shall have current, in-force policies and procedures, as evidence of compliance to Measure 2.

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:

2.1. **Level 1:** Not applicable.

2.2. **Level 2:** Did not have formal policies and procedures to address one of the topics listed in R6.1 through R6.4.

2.3. **Level 3:** Did not have formal policies and procedures to address two of the topics listed in R6.1 through R6.4.

## Standard TOP-004-2 — Transmission Operations

---

**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 restore operations to respect proven reliable power system limits within 30 minutes as specified in R4.

**2.4.2** Did not have formal policies and procedures to address three or all of the topics listed in R6.1 through R6.4.

### 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	Added language from Missing Measures and Compliance Elements adopted by Board of Trustees on November 1, 2006	Revised
2	December 19, 2007	Revised to reflect merging of both sets of changes approved by BOT on November 1, 2006 (Addition of measures and compliance elements and revisions to R3 and R6 with conforming changes made as errata to Levels of Non-compliance)	Revised Errata