

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

1. SAR version 1 posted on May 15, 2007.
2. SAR version 1 comment period closed on June 13, 2007.
3. SAR version 2 posted on August 7, 2007.
4. SAR version 2 comment period closed on September 7, 2007.
5. SAR approved by SC on November 1, 2007.
6. First posting of revised standards on October 7, 2008.
7. Second posting of revised standards on April 7, 2009.
8. Third posting of revised standards on August 25, 2009.
9. Fourth posting of revised standard on August 4, 2010.

Proposed Action Plan and Description of Current Draft:

The SDT began meeting in January 2008 following the approval of the SAR by the SC. The original schedule showed completion of the project in 4Q09. The last draft was the fourth posting of the revised standards and represents one additional posting that was not anticipated. As part of the proposed revisions, TOP-004-2, TOP-005-1, TOP-006-1, TOP-007-0, and TOP-008-0, and PER-001-0 will be retired. The requirements in those standards have been eliminated or moved to other standards within this project.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Post for ballot.	1Q11
2. Post for recirculation ballot.	2Q11
3. Submit to BOT.	3Q11

Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these defined terms will be removed from the individual standard and added to the Glossary.

There are no new or revised definitions proposed in this standard revision.

Three separate drafting teams wrote definitions for Reliability Directive. The three drafting teams have coordinated on a common definition and agreed that the Reliability Coordinator Standards Drafting Team (Project 2006-06) would write the definition and post it for vetting by the industry. The agreed upon definition is included here for ease of reference although it needs to be noted that this is still a draft and hasn't been approved by the industry.

Reliability Directive — A communication initiated by a Reliability Coordinator, Transmission Operator, or Balancing Authority where action by the recipient is necessary to address an actual or expected Emergency.

A. Introduction

1. **Title:** Coordination of Transmission Operations
2. **Number:** TOP-001-2
3. **Purpose:** To ensure coordination between and among reliability entities for the reliability of the Bulk Electric System (BES).
4. **Applicability**
 - 4.1. Balancing Authorities
 - 4.2. Transmission Operators
 - 4.3. Generator Operators
 - 4.4. Distribution Providers
 - 4.5. Load-Serving Entities
5. **Effective Date:** All requirements become effective the first day of the first calendar quarter twenty-four months following applicable regulatory approval. In those jurisdictions where no regulatory approval is required, the requirements become effective the first day of the first calendar quarter twenty-four months following Board of Trustees adoption.

B. Requirements

- R1. Each Balancing Authority, Distribution Provider, Load-Serving Entity, and Generator Operator shall comply with each identified Reliability Directive issued by its Transmission Operator, unless the respective entity informs its Transmission Operator that such actions would violate safety, equipment, regulatory, or statutory requirements. *[Violation Risk Factor: High] [Time Horizon: Operations Planning, Same-day Operations, Real-Time Operations]*
- R2. Each Balancing Authority, Distribution Provider, Load-Serving Entity, and Generator Operator shall inform its Transmission Operator upon recognition of its inability to perform ~~an~~ identified Reliability Directive issued by that Transmission Operator. *[Violation Risk Factor: High] [Time Horizon: Operations Planning, Same Day Operations, Real-time Operations]*
- R3. Each Transmission Operator shall inform its Reliability Coordinator and all other Transmission Operators that are known or expected to be affected ~~of~~ by actual and anticipated Emergencies based on its assessment of its Operational Planning Analysis. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations, Real-Time Operations]*
- R4. Each Transmission Operator shall render emergency assistance to other Transmission Operators, as requested and available, provided that the requesting entity has implemented its comparable emergency procedures, unless such actions would violate safety, equipment, regulatory, or statutory requirements. *[Violation Risk Factor: High] [Time Horizon: Real-Time Operations]*
- R5. Each Transmission Operator shall ~~coordinate~~ inform other Transmission Operators of its operations known or expected to result in an Adverse Reliability Impact on ~~other~~ those respective Transmission Operator Areas ~~with those Transmission Operators~~ unless conditions do not permit such ~~coordination~~ communications. Such operations may include relay or equipment failures and changes in generation, Transmission, or Load. *[Violation Risk Factor: Medium] [Time Horizon: Operations Planning, Same-day Operations, Real-Time Operations]*

- R6. Each Transmission Operator, Balancing Authority, and Generator Operator shall ~~coordinate~~ notify the Reliability Coordinator and negatively impacted interconnected NERC registered entities of planned outages of ~~telemetering and telemetry~~, control equipment and associated communication channels between the affected entities. *[Violation Risk Factor: Medium]*
[Time Horizon: Operations Planning, Same-day Operations, Real-Time Operations]
- R7. Each Transmission Operator shall not operate outside any identified Interconnection Reliability Operating Limit (IROL) for a continuous duration exceeding its associated IROL T_v .
[Violation Risk Factor: High] *[Time Horizon: Real-time Operations]*
- R8. Each Transmission Operator shall inform its Reliability Coordinator of all SOLs which, while not IROLs, have been identified by the Transmission Operator as supporting its ~~local~~internal area reliability based on its assessment of its Operational Planning Analysis. *[Violation Risk Factor: Medium]* *[Time Horizon: Real-Time Operations]*
- R9. Each Transmission Operator shall not operate outside any System Operating Limit (SOL) identified in Requirement R8 for a continuous duration exceeding 30 minutes. *[Violation Risk Factor: ~~High~~Medium]* *[Time Horizon: Real-time Operations]*
- R10. Each Transmission Operator shall inform its Reliability Coordinator of its actions to return the system to within limits when an IROL, or each SOL identified in Requirement R8, has been exceeded. *[Violation Risk Factor: Medium]* *[Time Horizon: Real-Time Operations]*
- R11. Each Transmission Operator shall act or direct others to act, to mitigate both the magnitude and duration of exceeding an IROL within the IROL's T_v , or of an SOL identified in Requirement R8 within 30 minutes. *[Violation Risk Factor: High]* *[Time Horizon: Real-time Operations]*
- ~~R12. Each Transmission Operator shall monitor, or shall have access to information about, conditions and Facilities within its Transmission Operator Area. *[Violation Risk Factor: High]* *[Time Horizon: Real-Time Operations]*~~
- ~~R13. Each Transmission Operator shall monitor, or shall have access to information about, conditions and Facilities identified in its Operational Planning Analysis within any Transmission Operator Area. *[Violation Risk Factor: High]* *[Time Horizon: Real-Time Operations, Same-day Operations, Operations Planning]*~~
- ~~R14. Each Transmission Operator shall provide approval rights for planned maintenance of its monitoring and analysis capabilities to its System Operators. *[Violation Risk Factor: Medium]* *[Time Horizon: Real-Time Operations]*~~

C. Measures

- M1. Each Balancing Authority, Distribution Provider, Load-Serving Entity, and Generator Operator shall make available upon request, evidence that it either: (a) complied with each Reliability Directive issued by the Transmission Operator or, (b) informed the Transmission Operator that such actions would violate safety, equipment, regulatory, or statutory requirements, in accordance with Requirement R1. Such evidence could include, but is not limited to, dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence in electronic or hard copy format.
- M2. Each Balancing Authority, Distribution Provider, Load-Serving Entity, and Generator Operator shall make available upon request, evidence which may include, but is not limited to dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or equivalent evidence in electronic or hard copy format, that it informed its Transmission

- Operator of its inability to comply with issued, identified, Reliability Directive(s) in accordance with Requirement R2.
- M3.** Each Transmission Operator shall make available upon request, evidence that it has informed its Reliability Coordinator and all other Transmission Operators that it knew or expected to be affected ~~of~~by actual and anticipated Emergencies based on its assessment of its Operational Planning Analysis in accordance with Requirement R3. Such evidence could include, but is not limited to, dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence in electronic or hard copy format.
- M4.** Each Transmission Operator shall make available upon request, evidence that requested and available emergency assistance was rendered to other Transmission Operators in accordance with Requirement R4 unless such actions would violate safety, equipment, regulatory, or statutory requirements. Such evidence could include, but is not limited to, dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence in electronic or hard copy format.
- M5.** Each Transmission Operator shall make available upon request, evidence that ~~operations~~it ~~coordinated~~informed other Transmission Operators of its operations known or expected to result in an Adverse Reliability Impact on ~~other~~those respective Transmission Operator Areas ~~with those Transmission Operators~~ in accordance with Requirement R5 unless conditions did not permit such ~~coordination~~communications. Such evidence could include, but is not limited to, dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence.
- M6.** Each Transmission Operator, Balancing Authority, and Generator Operator shall make available upon request, evidence that it notified the Reliability Coordinator and negatively impacted interconnected NERC registered entities of planned outages of ~~telemetry and telemetry~~, control equipment, and associated communication channels ~~were coordinated among impacted reliability entities~~ in accordance with Requirement R6. Such evidence could include, but is not limited to, dated operator logs, voice recordings or transcripts of voice recordings, electronic communications, or other equivalent evidence.
- M7.** Each Transmission Operator shall make available evidence for any occasion in which it has operated outside any identified Interconnection Reliability Operating Limit (IROL) for a continuous duration exceeding its associated IROL T_v as specified in Requirement R7. Such evidence could include but is not limited to dated computer logs or reports in electronic or hard copy format specifying the date, time, duration, and details of the excursion.
- M8.** Each Transmission Operator shall make available evidence that it has informed ~~it's~~sits Reliability Coordinator of each ~~SOLs~~SOL which, while not an IROL, has been identified by the Transmission Operator as supporting its ~~local~~internal area reliability based on its assessment of its Operational Planning Analysis in accordance with Requirement R8. Such evidence could include but is not limited to dated operator logs, voice recordings or transcripts of voice recordings, or dated computer printouts.
- M9.** Each Transmission Operator shall make available evidence for any occasion in which it has operated outside an SOL for a continuous duration exceeding 30 minutes as specified in Requirement R8 and in Requirement R9. Such evidence could include but is not limited to dated computer logs or reports in electronic or hard copy format specifying the date, time, duration, and details of the excursion.
- M10.** Each Transmission Operator shall make available evidence that it has informed its Reliability Coordinator of actions being taken to return the system to within limits when an IROL, or an

SOL identified in Requirement R8, has been exceeded in accordance with Requirement ~~R9~~R10. Such evidence could include but is not limited to dated operator logs, voice recordings or transcripts of voice recordings, or dated computer printouts.

M11. Each Transmission Operator shall make available evidence of when it acted or directed others to mitigate both the magnitude and duration of exceeding an IROL within the IROL's T_{v_2} or of an SOL identified in Requirement R8 within 30 minutes, in accordance with Requirement ~~R10~~R11. Such evidence could include but is not limited to dated operator logs, voice recordings or transcripts of voice recordings, or dated computer printouts.

~~**M12.** Each Transmission Operator shall make available evidence that it can monitor, or has access to information about, conditions and Facilities within its Transmission Operator Area in accordance with Requirement R11. Such evidence could include Energy Management System description documents, computer printouts, or SCADA data collection system communications performance printouts.~~

~~**M13.** Each Transmission Operator shall make available evidence that it can monitor, or has access to information about, conditions and Facilities identified in its Operational Planning Analysis within any Transmission Operator Area in accordance with Requirement R12. Such evidence could include Energy Management System description documents, computer printouts, or SCADA data collection system communications performance printouts.~~

~~**M14.** Each Transmission Operator shall make available evidence that its System Operators have approval rights for planned maintenance of its monitoring and analysis capabilities in accordance with Requirement R13. Such evidence could include a documented procedure that shows that the Transmission Operator's System Operator has the authority to veto planned outages to monitoring and analysis capabilities.~~

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority

Regional Entity

- -For entities that do not work for the Regional Entity, the Regional Entity shall serve as the Compliance Enforcement Authority.
- For functional entities that work for their Regional Entity, the ERO shall serve as the Compliance Enforcement Authority.

1.2. Compliance Monitoring and Enforcement Processes

Compliance Audits

Self-Certifications

Spot Checking

Compliance Violation Investigations

Self-Reporting

Complaints

1.3. Data Retention

Each Balancing Authority, Transmission Operator, Distribution Provider, Load-Serving Entity, and Generator Operator shall each keep data or evidence to show compliance for each applicable Requirement R1 through R6, R8, and R10 through ~~R14~~R11 and Measure M1 through M6, M8, and M10 through ~~M14~~M11 for the current calendar year and one previous calendar year unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.

Each Transmission Operator shall retain evidence for three calendar years of any occasion in which it has operated outside an identified IROL and its associated IROL T_v or SOL identified in Requirement R8 as specified in Requirements R7 and R9 and Measurements M7 and M9.

If a Balancing Authority, Transmission Operator, Distribution Provider, Load-Serving Entity, or Generator Operator is found non-compliant, it shall keep information related to the non-compliance until found compliant or the time period specified above, whichever is longer.

The Compliance Enforcement Authority shall keep the last audit records and all requested and submitted subsequent audit records.

1.4. Additional Compliance Information

None.

2. Violation Severity Levels

	Lower	Moderate	High	Severe
R1	N/A	N/A	N/A	The responsible entity did not comply with a Reliability Directive issued by the Transmission Operator, and the respective entity did not inform the Transmission Operator that such action would violate safety, equipment, regulatory, or statutory requirements.
R2	N/A	N/A	N/A	The responsible entity did not comply with a <u>an identified</u> Reliability Directive issued by its Transmission Operator, and the respective entity did not inform the Transmission Operator of its inability to do so.
R3	The Transmission Operator did not inform one other <u>known or expected to be</u> affected Transmission Operator or 5% or less of the other Transmission Operators <u>known or expected to be</u> affected whichever is less of <u>by</u> an actual or anticipated Emergency based on its assessment of its Operational Planning Analysis.	The Transmission Operator did not inform two other <u>known or expected to be</u> affected Transmission Operators or more than 5% or less than or equal to 10% of the <u>known or expected to be</u> affected Transmission Operators whichever is less of <u>by</u> an actual or anticipated Emergency based on its assessment of its Operational Planning Analysis.	The Transmission Operator did not inform three other <u>known or expected to be</u> affected Transmission Operators or more than 10% or less than or equal to 15% of the <u>known or expected to be</u> affected Transmission Operators whichever is less of <u>by</u> an actual or anticipated Emergency based on its assessment of its Operational Planning Analysis.	The Transmission Operator did not inform its Reliability Coordinator of an actual Emergency or an anticipated Emergency condition based on its assessment of its Operational Planning Analysis. OR The Transmission Operator did not inform four or more other <u>known or expected to be</u> affected Transmission Operators or more than 15% of the <u>known or expected to be</u> affected Transmission operators <u>Operators</u> whichever is less of <u>by</u> an actual or anticipated Emergency based on its assessment of its Operational Planning Analysis.
R4	N/A	N/A	N/A	The Transmission Operator did not render emergency assistance to other Transmission Operators, as requested and available, when the requesting

Standard TOP-001-2 — Coordination of Transmission Operations

	Lower	Moderate	High	Severe
				entity had implemented its comparable emergency procedures, and such actions would not have violated safety, equipment, regulatory, or statutory requirements.
<p><u>For the Requirement R5 VSL only, the intent of the SDT is to start with the Severe VSL first and then to work your way to the left until you find the situation that fits. In this manner, the VSL will not be discriminatory by size of entity. If a small entity has just one affected reliability entity to inform, the intent is that that situation would be a Severe violation.</u></p>				
R5	<p>The Transmission Operator did not coordinate<u>inform other Transmission Operators of</u> its operations known or expected to result in an Adverse Reliability Impact on other<u>those respective</u> Transmission Operator Areas with one affected reliability entity or 5% or less of the affected reliability entities whichever is less when conditions did permit such coordination<u>communications</u>.</p>	<p>The Transmission Operator did not coordinate<u>inform other Transmission Operators of</u> its operations known or expected to result in an Adverse Reliability Impact on other<u>those respective</u> Transmission Operator Areas with two affected reliability entities or more than 5% or less than or equal to 10% of the affected reliability entities whichever is less when conditions did permit such coordination<u>communications</u>.</p>	<p>The Transmission Operator did not coordinate<u>inform other Transmission Operators of</u> its operations known or expected to result in an Adverse Reliability Impact on other<u>those respective</u> Transmission Operator Areas with three affected reliability entities or more than 10% or less than or equal to 15% of the affected reliability entities whichever is less when conditions did permit such coordination<u>communications</u>.</p>	<p>The Transmission Operator did not coordinate<u>inform other Transmission Operators of</u> its operations known or expected to result in an Adverse Reliability Impact on other<u>those respective</u> Transmission Operator Areas with four or more affected reliability entities or more than 15% of the affected entities whichever is less when conditions did permit such coordination<u>communications</u>.</p>
R6	<p>The responsible entity did not coordinate<u>notify negatively impacted interconnected NERC registered entities of</u> its respective planned outages of telemetry<u>and telemetry</u>, control equipment, and associated communication channels with one affected reliability entity<u>negatively impacted interconnected NERC registered entities</u> or 5% or less of the affected entities whichever is less.</p>	<p>The responsible entity did not coordinate<u>notify negatively impacted interconnected NERC registered entities of</u> its respective planned outages of telemetering and control equipment and associated communication channels with two affected reliability<u>negatively impacted interconnected NERC registered</u> entities or more than 5% or less than or equal to 10% of the affected entities whichever is less.</p>	<p>The responsible entity did not coordinate<u>notify negatively impacted interconnected NERC registered entities of</u> its respective planned outages of telemetering and control equipment and associated communication channels with three affected reliability<u>negatively impacted interconnected NERC registered</u> entities or more than 10% or less than or equal to 15% of the affected entities whichever is less.</p>	<p>The responsible entity did not coordinate<u>notify the Reliability Coordinator of its respective planned outages of telemetry, control equipment, and associated communication channels</u>. <u>OR,</u> <u>The responsible entity did not notify the Reliability Coordinator and negatively impacted interconnected NERC registered entities of its respective planned outages of telemetering and control equipment and associated communication channels with four or more affected</u></p>

Standard TOP-001-2 — Coordination of Transmission Operations

	Lower	Moderate	High	Severe
				reliability negatively impacted interconnected NERC registered entities or more than 15% of the affected entities whichever is less.
R7	N/A	N/A	N/A	The Transmission Operator exceeded an identified Interconnection Reliability Operating Limit (IROL) for a continuous duration greater than its associated IROL T _v .
R8	The Transmission Operator did not inform its Reliability Coordinator of one SOL, or 5% or less of the SOLs, whichever is less, which, while not an IROL, has been identified by the Transmission Operator as supporting its local area reliability.	The Transmission Operator did not inform its Reliability Coordinator of two SOLs or more than 5% or less than or equal to 10% of the SOLs whichever is less, which, while not IROLs, have been identified by the Transmission Operator as supporting its local area reliability.	The Transmission Operator did not inform its Reliability Coordinator of three SOLs or more than 10% or less than or equal to 15% of the Sols whichever is less, which, while not IROLs, have been identified by the Transmission Operator as supporting its local area reliability.	The Transmission Operator did not inform its Reliability Coordinator of four or more SOLs or more than 15% of the SOLs whichever is less, which, while not IROLs, have been identified by the Transmission Operator as supporting its local area reliability.
R9	N/A	N/A	N/A	The Transmission Operator exceeded a System Operating Limit (SOL) as identified in Requirement R9 R8 for a continuous duration greater than 30 minutes.
R10	N/A	N/A	N/A	The Transmission Operator did not inform its Reliability Coordinator of actions being taken to return the system to within limits when an IROL, or an SOL identified in Requirement R8, has been exceeded.
R11	N/A	N/A	N/A	The Transmission Operator did not act or direct others to act, to mitigate both the magnitude and duration of exceeding an IROL within the IROL's T _v , or <u>of an</u> SOL identified in Requirement R8 <u>within 30 minutes</u> .

Standard TOP-001-2 — Coordination of Transmission Operations

	Lower	Moderate	High	Severe
R12	N/A	N/A	N/A	The Transmission Operator did not have monitoring capability, or access to information about, the conditions and Facilities within its Transmission Operator Area.
R13	N/A	N/A	N/A	The Transmission Operator did not monitor, or have access to information about, conditions and Facilities identified in its Operational Planning Analysis within any Transmission Operator Area.
R14	N/A	N/A	N/A	The Transmission Operator's System operator did not have approval rights for planned maintenance of its monitoring and analysis capabilities.

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	TBD	Revisions pursuant to Project 2007-03	Revised