

A. Introduction

- 1. Title:** **Operational Reliability Information**
- 2. Number:** TOP-005-3a
- 3. Purpose:** To ensure reliability entities have the operating data needed to monitor system conditions within their areas.
- 4. Applicability**
 - 4.1.** Transmission Operators.
 - 4.2.** Balancing Authorities.
 - 4.3.** Purchasing Selling Entities.
- 5. Proposed Effective Date:** See Implementation Plan for the Revised Definition of “Remedial Action Scheme”

B. Requirements

- R1.** As a condition of receiving data from the Interregional Security Network (ISN), each ISN data recipient shall sign the NERC Confidentiality Agreement for “Electric System Reliability Data.”
- R2.** Upon request, each Balancing Authority and Transmission Operator shall provide to other Balancing Authorities and Transmission Operators with immediate responsibility for operational reliability, the operating data that are necessary to allow these Balancing Authorities and Transmission Operators to perform operational reliability assessments and to coordinate reliable operations. Balancing Authorities and Transmission Operators shall provide the types of data as listed in Attachment 1-TOP-005 “Electric System Reliability Data,” unless otherwise agreed to by the Balancing Authorities and Transmission Operators with immediate responsibility for operational reliability.
- R3.** Each Purchasing-Selling Entity shall provide information as requested by its Host Balancing Authorities and Transmission Operators to enable them to conduct operational reliability assessments and coordinate reliable operations.

C. Measures

- M1.** Evidence that the Balancing Authority, Transmission Operator, and Purchasing-Selling Entity is providing the information required, within the time intervals specified, and in a format agreed upon by the requesting entities.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

Self-Certification: Entities shall annually self-certify compliance to the measures as required by its Regional Reliability Organization.

Exception Reporting: Each Region shall report compliance and violations to NERC via the NERC compliance reporting process.

1.2. Compliance Monitoring Period and Reset Time Frame

Periodic Review: Entities will be selected for operational reviews at least every three years. One calendar year without a violation from the time of the violation.

1.3. Data Retention

Not specified.

1.4. Additional Compliance Information

Not specified.

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2. Violation Severity Levels:

R#	Lower	Moderate	High	Severe
R1	N/A	N/A	N/A	The ISN data recipient failed to sign the NERC Confidentiality Agreement for “Electric System Reliability Data”.
R2	The responsible entity failed to provide any of the data requested by other Balancing Authorities or Transmission Operators.	N/A	N/A	The responsible entity failed to provide all of the data requested by its host Balancing Authority or Transmission Operator.
R3	The responsible entity failed to provide any of the data requested by other Balancing Authorities or Transmission Operators.	N/A	N/A	The responsible entity failed to provide all of the data requested by its host Balancing Authority or Transmission Operator.

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		Removed the Reliability Coordinator from the list of responsible functional entities Deleted R1 and R1.1 Modified M1 to omit the reference to the Reliability Coordinator Deleted VSLs for R1 and R1.1	Revised
2	October 17, 2008	Adopted by NERC Board of Trustees	New
2	March 17, 2011	Order issued by FERC approving TOP-005-2 (approval effective 5/23/11)	
2a	April 21, 2011	Added FERC approved Interpretation	
3a	November 13, 2014	Adopted by the NERC Board of Trustees	Replaced references to Special Protection System and SPS with Remedial Action Scheme and RAS

Attachment 1-TOP-005

Electric System Reliability Data

This Attachment lists the types of data that Balancing Authorities, and Transmission Operators are expected to share with other Balancing Authorities and Transmission Operators.

- 1.** The following information shall be updated at least every ten minutes:
 - 1.1.** Transmission data. Transmission data for all Interconnections plus all other facilities considered key, from a reliability standpoint:
 - 1.1.1** Status.
 - 1.1.2** MW or ampere loadings.
 - 1.1.3** MVA capability.
 - 1.1.4** Transformer tap and phase angle settings.
 - 1.1.5** Key voltages.
 - 1.2.** Generator data.
 - 1.2.1** Status.
 - 1.2.2** MW and MVAR capability.
 - 1.2.3** MW and MVAR net output.
 - 1.2.4** Status of automatic voltage control facilities.
 - 1.3.** Operating reserve.
 - 1.3.1** MW reserve available within ten minutes.
 - 1.4.** Balancing Authority demand.
 - 1.4.1** Instantaneous.
 - 1.5.** Interchange.
 - 1.5.1** Instantaneous actual interchange with each Balancing Authority.
 - 1.5.2** Current Interchange Schedules with each Balancing Authority by individual Interchange Transaction, including Interchange identifiers, and reserve responsibilities.
 - 1.5.3** Interchange Schedules for the next 24 hours.
 - 1.6.** Area Control Error and frequency.
 - 1.6.1** Instantaneous area control error.
 - 1.6.2** Clock hour area control error.
 - 1.6.3** System frequency at one or more locations in the Balancing Authority.
- 2.** Other operating information updated as soon as available.
 - 2.1.** Interconnection Reliability Operating Limits and System Operating Limits in effect.
 - 2.2.** Forecast of operating reserve at peak, and time of peak for current day and next day.
 - 2.3.** Forecast peak demand for current day and next day.
 - 2.4.** Forecast changes in equipment status.

- 2.5. New facilities in place.
- 2.6. New or degraded Remedial Action Schemes.
- 2.7. Emergency operating procedures in effect.
- 2.8. Severe weather, fire, or earthquake.
- 2.9. Multi-site sabotage.

Appendix 2

Requirement Number and Text of Requirement
<p>TOP-005-1 Requirement R3¹</p> <p>Upon request, each Balancing Authority and Transmission Operator shall provide to other Balancing Authorities and Transmission Operators with immediate responsibility for operational reliability, the operating data that are necessary to allow these Balancing Authorities and Transmission Operators to perform operational reliability assessments and to coordinate reliable operations. Balancing Authorities and Transmission Operators shall provide the types of data as listed in Attachment 1-TOP-005-0 “Electric System Reliability Data,” unless otherwise agreed to by the Balancing Authorities and Transmission Operators with immediate responsibility for operational reliability.</p> <p><i>The above-referenced Attachment 1 — TOP-005-0 specifies the following data as item 2.6: New or <u>degraded</u> Remedial Action Schemes. [Underline added for emphasis.]</i></p> <p>IRO-005-1 Requirement R12</p> <p>R12. Whenever a Remedial Action Scheme 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 Remedial Action Scheme on inter-area flows. The Transmission Operator shall immediately inform the Reliability Coordinator of the status of the Remedial Action Scheme including any <u>degradation</u> or potential failure to operate as expected. [Underline added for emphasis.]</p> <p>PRC-012-0 Requirements R1 and R1.3</p> <p>R1. Each Regional Reliability Organization with a Transmission Owner, Generator Owner, or Distribution Providers that uses or is planning to use a RAS shall have a documented Regional Reliability Organization RAS review procedure to ensure that RAS comply with Regional criteria and NERC Reliability Standards. The Regional RAS review procedure shall include:</p> <p style="padding-left: 40px;">R1.3. Requirements to demonstrate that the RAS shall be designed so that a single RAS component failure, when the RAS was intended to operate, does not prevent the interconnected transmission system from meeting the performance requirements defined in Reliability Standards TPL-001-0, TPL-002-0, and TPL-003-0.</p>
Background Information for Interpretation
<p>The TOP-005-1 standard focuses on two key obligations. The first key obligation (Requirement R1) is a “responsibility mandate.” Requirement R1 establishes who is responsible for the obligation to provide operating data “required” by a Reliability Coordinator within the framework of the Reliability Coordinator requirements defined in the IRO standards. The second key obligation (Requirement R3) is a “performance mandate.” Requirement R3 defines the obligation to provide data “requested” by other reliability entities that is needed “to perform assessments and to coordinate operations.”</p> <p>The Attachment to TOP-005-1 is provided as a guideline of what “can be shared.” The Attachment is not an obligation of “what must be shared.” Enforceable NERC Requirements must be explicitly contained within a given Standard’s approved requirements. In this case, the standard only requires data “upon request.” If a Reliability Coordinator or other reliability entity were to request data such as</p>

¹ In the current version of the Standard (TOP-005-2a), this requirement is R2.

listed in the Attachment, then the entity being asked would be mandated by Requirements R1 and R3 to provide that data (including item 2.6, whether it is or is not in some undefined “degraded” state).

IRO-002-1 requires the Reliability Coordinator to have processes in place to support its reliability obligations (Requirement R2). Requirement R4 mandates that the Reliability Coordinator have communications processes in place to meet its reliability obligations, and Requirement R5 et al mandate the Reliability Coordinator to have the tools to carry out these reliability obligations.

IRO-003-2 (Requirements R1 and R2) requires the Reliability Coordinator to monitor the state of its system.

IRO-004-1 requires that the Reliability Coordinator carry out studies to identify Interconnection Reliability Operating Limits (Requirement R1) and to be aware of system conditions via monitoring tools and information exchange.

IRO-005-1 mandates that each Reliability Coordinator monitor predefined base conditions (Requirement R1), collect additional data when operating limits are or may be exceeded (Requirement R3), and identify actual or potential threats (Requirement R5). The basis for that request is left to each Reliability Coordinator. The Purpose statement of IRO-005-1 focuses on the Reliability Coordinator’s obligation to be aware of conditions that may have a “significant” impact upon its area and to communicate that information to others (Requirements R7 and R9). Please note: it is from this communication that Transmission Operators and Balancing Authorities would either obtain or would know to ask for RAS information from another Transmission Operator.

The IRO-005-1 (Requirement R12) standard implies that degraded is a condition that will result in a failure to operate as designed. If the loss of a communication channel will result in the failure of a RAS to operate as designed then the Transmission Operator would be mandated to report that information. On the other hand, if the loss of a communication channel will not result in the failure of the RAS to operate as designed, then such a condition can be, but is not mandated to be, reported.

Conclusion

The TOP-005-1 standard does not provide, nor does it require, a definition for the term “degraded.”

The IRO-005-1 (R12) standard implies that degraded is a condition that will result in a failure of a RAS to operate as designed. If the loss of a communication channel will result in the failure of a RAS to operate as designed, then the Transmission Operator would be mandated to report that information. On the other hand, if the loss of a communication channel will not result in the failure of the RAS to operate as designed, then such a condition can be, but is not mandated to be, reported.

To request a formal definition of the term degraded, the Reliability Standards Development Procedure requires the submittal of a Standards Authorization Request.