NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Modifications to TOP and IRO Standards

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Industry Webinar

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RELIABILITY | ACCOUNTABILITY




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Agenda

- Project 2016-01 background
- Review of proposed changes to IRO-002 and TOP-001
- Next steps
- Questions and answers

Project 2016-01 Background

- FERC issued Order No. 817 in November 2015 approving revised TOP and IRO Standards and directing modifications
  - Revised TOP and IRO standards become effective in 2017
- Modifications address three objectives:
  - Transmission Operator (TOP) monitoring of some non-BES facilities
  - Redundancy and diverse routing of data exchange capabilities
  - Testing for data exchange capabilities used in primary control centers
- Revisions must be filed by July 2017

Standards Authorization Request (SAR)

- Standards Committee (SC) authorized posting Project 2016-01 SAR in January 2016
- *The SDT shall address each of the Order 817 directives by developing modifications to requirements in TOP-001-3 and IRO-002-4*
- **SAR** and **Consideration of Comments** are posted on the project page

Overview of Proposed Changes

- The SDT has developed revisions to IRO-002 and TOP-001 addressing all of the SAR objectives
- Proposed **IRO-002-5 – Reliability Coordination – Monitoring and Analysis** contains revised requirements applicable to Reliability Coordinators (RC)
- Proposed **TOP-001-4 – Transmission Operations** contains revised requirements applicable to TOPs and Balancing Authorities (BA)
- The SDT did not develop revisions to other requirements (not in project scope)

Monitoring Non-BES Facilities

- **Directive:** Modify requirements to address monitoring non-BES facilities within or outside the TOP area as necessary for determining System Operating Limit (SOL) exceedances
  - Addresses potential gap during BES exception processing, or situations where some non-BES facilities should be monitored for reliability purposes
- RC requirements for monitoring non-BES facilities are in approved IRO-002-4 Requirement R3

Proposed TOP-001 Requirement

R10. Each Transmission Operator shall perform the following for determining System Operating Limit (SOL) exceedances within its Transmission Operator Area:

10.1 Monitor Facilities within its Transmission Operator Area;

10.2 Monitor the status of Remedial Action Schemes within its Transmission Operator Area;

10.3 **Monitor non-BES facilities within its Transmission Operator Area identified as necessary by the Transmission Operator**;

10.4 Obtain and utilize status, voltages, and flow data for Facilities outside its Transmission Operator Area identified as necessary by the Transmission Operator;

10.5 Obtain and utilize the status of Remedial Action Schemes outside its Transmission Operator Area identified as necessary by the Transmission Operator; and

10.6 **Obtain and utilize status, voltages, and flow data for non-BES facilities outside its Transmission Operator Area identified as necessary by the Transmission Operator**.

Rationale Box Explanation

The intent of the requirement is to ensure that all facilities (i.e., BES and non-BES) that can adversely impact reliability are monitored. These facilities should be either designated as part of the BES, or otherwise be incorporated into monitoring when identified by planning and operating studies such as the Operational Planning Analysis required by TOP-002-4 Requirement R1 and IRO-008-2 Requirement R1. The SDT recognizes that not all non-BES facilities that a TOP considers necessary for its monitoring needs will need to be included in the BES.

Rationale Box Explanation

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TOP-003-3 Requirement R1 specifies that the TOP shall develop a data specification which includes data and information needed by the TOP to support its Operational Planning Analyses, Real-time monitoring, and Real-time Assessments. This includes non-BES data and external network data as deemed necessary by the TOP.

The format of the proposed requirement has been changed from the approved standard to more clearly indicate which monitoring activities are required to be performed.

Data Exchange Redundancy

- **Directive:** Modify standards to include requirements for redundancy and diverse routing of data exchange capabilities used by RC, TOP, and BA
- Proposed changes to IRO-002 are presented on the following slides
  - Similar requirements for TOP and BA are in proposed TOP-001-4

Proposed IRO-002 Requirement

R2. Each Reliability Coordinator shall have data exchange capabilities, with redundant and diversely routed data exchange infrastructure within the Reliability Coordinator's Control Center, for the exchange of Real-time data with its Balancing Authorities and Transmission Operators, and with other entities it deems necessary, for it to perform its Real-time monitoring and Real-time Assessments.

Rationale Box Explanation

Redundant and diversely routed data exchange capabilities consist of infrastructure that will provide continued functionality despite failure or malfunction of an individual component within the Reliability Coordinator's Control Center. Requirement R2 does not require automatic or instantaneous fail-over of data exchange capabilities. Redundancy and diverse routing may be achieved in various ways depending on the arrangement of the infrastructure or hardware within the RC Control Center.

Infrastructure that is not within the RC's Control Center is not addressed by this requirement.

Data Exchange Redundancy Testing

- **Directive:** Modify standards to require testing of alternate data exchange capabilities used by RC, TOP, and BA in primary control centers
- Proposed changes to IRO-002 for addressing the Data Exchange Redundancy testing are presented on the following slide
  - Similar requirements for TOP and BA are in proposed TOP-001-4

Proposed IRO-002 Requirement

R3. Each Reliability Coordinator shall test its data exchange capabilities specified in Requirement R2 for redundant functionality at least once each calendar month. If the test is unsuccessful, the Reliability Coordinator shall initiate action within two hours to restore redundant functionality.

Rationale:

- *A test for redundant functionality demonstrates that data exchange capabilities will continue to operate despite the malfunction or failure of an individual component. An entity's testing practices should, over time, examine the various failure modes of its data exchange capabilities. When an actual event successfully exercises the redundant functionality, it can be considered a test for the purposes of the proposed requirement.*

Implementation

- Proposed implementation period for revised IRO-002 requirements is 3 months following regulatory approval
- Proposed implementation period for revised TOP-001 requirements is 12 months following regulatory approval
  - Longer implementation period is needed due to new requirement for TOPs to monitor some non-BES facilities

Next Steps

- Proposed standards are posted for comment through August 3, 2016
  - Initial ballots and non-binding polls will be conducted July 25 – August 3, 2016
- Draft Reliability Standards Audit Worksheets (RSAWs) are posted for comment
  - Send feedback to RSAWfeedback@nerc.net
- SDT will meet in August 2016 to consider comments and revise drafts
- Revised standards must be filed with FERC by July 2017

Contact Information

- Refer to the Project 2016-01 page for more information
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Questions and Answers