

NERC

NORTH AMERICAN ELECTRIC
RELIABILITY CORPORATION

Industry Webinar

Project 2015-09 Establish and Communicate System
Operating Limits

July 15, 2020

RELIABILITY | RESILIENCE | SECURITY



- Presenters
 - Standard Drafting Team
 - Chair, Dean LaForest, ISO New England
 - Member, Stephen Solis, ERCOT
 - NERC Staff
 - Latrice Harkness
- Administrative Items
- Project 2015-09 Status
- Proposed Revisions
- Next Steps
- Questions and Answers

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 - Comments must be submitted during the formal posting

Standard Drafting Team (SDT)

Name	Organization/ Company
Dean LaForest (Chair)	ISO New England
Hari Singh (Vice Chair)	Xcel Energy
Samuel Jager	Independent Electricity System Operator
Thomas Leslie	Georgia Transmission Corp
Stephen Solis	Electric Reliability Council of Texas
Aaron Staley	Orlando Utilities Commission
Dede Subakti	California ISO

- Since the last posting, the SDT has revised FAC-011, 014 and 015 as well as conforming changes to affected standards based upon comments received. The SDT worked with an industry focus group from the MISO footprint to address well described, common concerns with the prior posting.
- The last SDT face-to-face meeting (Jan 2020) yielded a set of revised standards that the group accepted (including the new industry focus group).

Standard	Title	Ballot	Non-binding Poll
		Quorum / Approval	Quorum / Supportive Opinions
CIP-014-3	Physical Security	83.65% / 67.65%	82% / 65.52%
FAC-003-5	Transmission Vegetation Management	84.08% / 67.46%	81.73% / 64.77%
FAC-011-4	System Operating Limits Methodology for the Operations Horizon	83.77% / 53.22%	81.38% / 46.2%
FAC-013-3	Assessment of Transfer Capability for the Near-term Transmission Planning Horizon	84.82% / 77.07%	82.59% / 68.52%
FAC-014-3	Establish and Communicate System Operating Limit	82.43% / 59.02%	80.27% / 51.96%
FAC-015-1	Coordination of Planning Assessments with the Reliability Coordinator's SOL Methodology	82.11% / 59.79%	79.93% / 52.22%
PRC-002-3	Disturbance Monitoring and Reporting Requirements	84.08% / 75.07%	81.46% / 74.44%
PRC-023-5	Transmission Relay Loadability	83.60% / 69.27%	81.25% / 68.39%
PRC-026-2	Relay Performance During Stable Power Swings	83.12% / 71.98%	80.92% / 72.67%
Implementation Plan		80.98% / 69.93%	
Proposed Definition - SOL		83.28% / 82.26%	

- NERC Project 2015-09 Establish and Communicate System Operating SOLs (FAC SDT) is modifying FAC standards that address SOLs and IROLs.
- Primary objective is to align the FAC standards with existing IRO, TOP, and TPL standards as well as new definitions for Operational Planning Analysis and Real-time Assessment.
- Two formal ballots - the proposed FAC standards have yet to pass.
- SAR is broadly written to allow impacted standards to be modified.
 - For example, the SDT is modifying several standards in response to the proposed retirement of FAC-010-3.

- FAC-011
- FAC-014
- Modifications due to proposed FAC-011 (specifically R6)
 - TOP-001 and IRO-008
- FAC-010 (being **retired**)
- FAC-015 (new proposed in prior postings, **now withdrawn**)
- Conforming Changes due to FAC-010 Retirement
 - CIP-014
 - FAC-003
 - FAC-013
 - PRC-002
 - PRC-023
 - PRC-026

- FAC-011 – significant changes since last posting
 - Combined Requirement R3 sub-requirements 3.5, 3.6 and 3.7 into one sub-requirement 3.5
 - Revised sub-requirement 4.2 to focus only on the more severe stability impacts
 - Revised Requirement R5 and its sub-requirements to allow for different contingency lists to determine stability and steady state system impacts
 - Revised Requirement R6 and its sub-requirements describing the performance framework to determine SOL exceedances. Revisions based upon significant industry comment
 - Made conforming changes in TOP-001 and IRO-008 for consistency with this framework for determining SOL exceedances

- FAC-011 – significant changes since last posting
 - Added new Requirement R7 that requires the SOL Methodology to include risk-based methods for use by the Reliability Coordinator (RC) and Transmission Operators (TOPs) to determine how SOL exceedances must be communicated and its associated timeframe
 - Complements the existing SOL exceedance communication requirements in TOP-001 and IRO-008 by providing specific considerations to determine need and timeframe for such communication

- FAC-014 – significant changes since last posting
 - Revised Purpose to include “...Planning Assessment criteria be coordinated with System Operating Limit methodologies”
 - Revisions to simplify / improve Requirement R3 and R4
 - Revisions to sub-requirements 5.1 and 5.2
 - Added Transmission Planners as recipients of data from RC
 - Removed Requirement R6 to determine SOL exceedances based on numerous industry comments
 - Replaced by new Requirements in TOP-001 and IRO-008 to use the RC’s SOL methodology, and the new framework for determining SOL exceedances specified in FAC-011 for proposed TOP-001 and IRO-008 changes covered in later slides)

- FAC-014 – continued
 - Proposed FAC-015 withdrawn and relocated as Requirements R6 and R7 in FAC-014
 - New Requirement R6 – requires Planning Coordinator (PC) and Transmission Planner (TP) to implement a documented process
 - To use Facility Ratings, steady-state voltage limits and Stability criteria in its near-term planning assessment that are at least as conservative as those used in its RC’s SOL methodology
 - Exception allowances exist to describe cases where planning ratings and criteria are less conservative than those used in operations
 - Based on FERC staff comments, this provision is required to allow retirement of FAC-010

- Requirement R7
 - New R7 – requires PCs and TPs to annually communicate to impacted RCs and TOPs the Corrective Action Plans (CAP) developed to address any instability identified in its Planning Assessment of the Near-Term Transmission Planning Horizon
 - Sub-requirements include information to fully describe the identified instability conditions and the CAP developed for its mitigation
 - Replaces existing R5.3, R5.4 and R6 in current FAC-014-2

The FAC SDT proposes clarifying modifications to the following standards to address the potential impacts on SOL exceedance determinations and resulting documentation and communication needs:

- IRO-008-2
 - Requirement R5 and associated measure M5
 - Requirement R6 and associated measure M6
 - New Requirement R7
- TOP-001-4
 - Measure M14
 - Requirement R15 and associated measure M15
 - Compliance evidence retention for Requirement R14
 - New Requirement R25

- Proposed FAC-011-4 Requirement R6 provides clear, consistent framework for SOL exceedance determination across industry
- Per R6, if a TOP's Real-Time Assessment (as part of RTCA) indicates that a Contingency is expected to result in a Facility exceeding its Emergency Rating, an SOL is being exceeded.
- TOP-001-4 Requirements R14 and R15 states the following:
 - *R14. Each Transmission Operator shall initiate its Operating Plan to mitigate a SOL exceedance identified as part of its Real-time monitoring or Real-time Assessment.*
 - *R15. Each Transmission Operator shall inform its Reliability Coordinator of actions taken to return the System to within limits when a SOL has been exceeded.*

- New Requirement R25 in TOP-001-6 requires RC's SOL methodology to be used by the TOP to determine SOL exceedances
- New Requirement R7 in FAC-011-4 provides consistent, documented method for communicating SOL exceedances, as indicated in TOP-001-6 Requirement R15, between RCs and TOPs
- Revised Measure M14 in TOP-001-6 – provides examples of “other evidence” acceptable for demonstrating actions taken to mitigate SOL exceedances
- Revised Requirement R15 in TOP-001-6 to align with the new complementary Requirement R7 in FAC-011-4 for consistent, documented method for communicating SOL exceedances between RCs and TOPs

- *R25. Each Transmission Operator shall use the applicable Reliability Coordinator's SOL methodology when determining SOL exceedances for Real-time Assessments, Real-time Monitoring, and Operational Planning Analysis.*

- TOP-001

- *R14. Each Transmission Operator shall initiate its Operating Plan to mitigate a SOL exceedance identified as part of its Real-time monitoring or Real-time Assessment.*
- *M14. Each Transmission Operator shall have evidence that it initiated its Operating Plan for mitigating SOL exceedances identified as part of its Real-time monitoring or Real-time Assessments. This evidence could include but is not limited to dated computer logs showing times the Operating Plan was initiated, dated checklists, or other evidence. **Other evidence could include but is not limited to: Reliability Coordinator's SOL Methodology, system logs/records showing successfully mitigated SOL exceedances in conjunction with Operating Plans (e.g. mutually agreed operating protocols between TOPs and their Reliability Coordinator, Operating Procedures, Operating Processes, operating policies, generator redispatch logs, equipment settings for automatically switched equipment and reactive power/voltage control devices, switching schedules, etc.).***

- *R15. Each Transmission Operator shall inform its Reliability Coordinator of actions taken to return the System to within limits when a SOL has been exceeded **in accordance with its Reliability Coordinator's SOL Methodology**.*
- *M15. Each Transmission Operator shall make available evidence that it informed its Reliability Coordinator of actions taken to return the System to within limits when a SOL was exceeded **in accordance with its Reliability Coordinator's SOL Methodology**. Such evidence could include but is not limited to dated operator logs, voice recordings or transcripts of voice recordings, or dated computer printouts. If such a situation has not occurred, the Transmission Operator may provide an attestation.*

- Proposed FAC-011-4 Requirement R6 provides clear, consistent framework for SOL exceedance determination across industry
- Proposed FAC-011-4 Requirement R7 provides clear, consistent, documented method for communicating SOL exceedances between RCs and TOPs
- New Requirement R7 in IRO-008-3 (similar to the new R25 in TOP-001-6) requires RC's SOL methodology to be used to determine SOL exceedances
- Revised Requirements R5 and R6 in IRO-008-3 to align with the complementary new Requirements R6 and R7 in FAC-011-4

- IRO-008 - continued
 - *R7. Each Reliability Coordinator shall use its SOL Methodology when determining SOL exceedances when Real-time Assessments, Real-time Monitoring, and Operational Planning Analysis.*

- IRO-008
 - R5. Each Reliability Coordinator shall notify, *in accordance with its SOL Methodology*, impacted Transmission Operators and Balancing Authorities within its Reliability Coordinator Area, and other impacted Reliability Coordinators as indicated in its Operating Plan, when the results of a Real-time Assessment indicate an actual or expected condition that results in, or could result in, a System Operating Limit (SOL) *exceedance* or an Interconnection Reliability Operating Limit (IROL) exceedance within its Wide Area.
 - R6. Each Reliability Coordinator shall notify, *in accordance with SOL Methodology*, impacted Transmission Operators and Balancing Authorities within its Reliability Coordinator Area, and other impacted Reliability Coordinators as indicated in its Operating Plan, when the System Operating Limit (SOL) or Interconnection Reliability Operating Limit (IROL) exceedance identified in Requirement R5 has been prevented or mitigated.

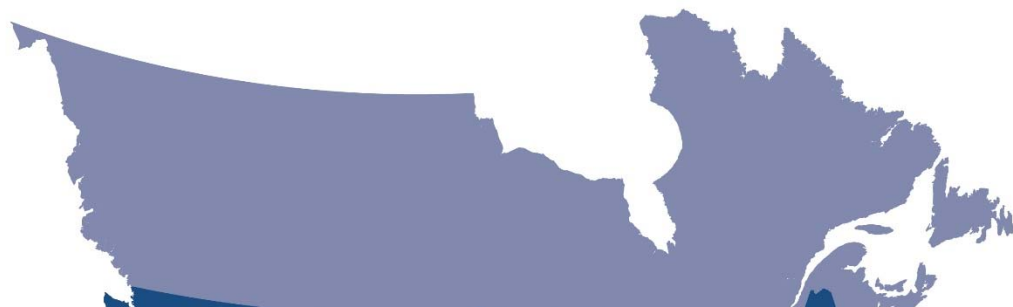
- The SDT firmly believes that proposed FAC-011-4 Requirement R6 improves reliability by providing an industry-wide framework for SOL exceedance determination found in the NERC SOL White Paper.
- Proposed FAC-011-4 Requirement R6 also maps to the currently effective FAC-011-3 Requirement R2 and subparts – so Requirement R6 is a critical component of FAC-011-4.
- The SDT believes these changes, coupled with the changes made in TOP-001 and IRO-008, per industry comment, improve on prior postings and allow most sound SOL exceedances practices to continue with little modification to practices.
- The SDT strongly believes in the need for FAC-011 R7

- Framework allows RCs to set risk basis for SOL exceedances, which is then shared with its TOPs via inclusion in the SOL methodology. Certain higher risk SOL exceedances (IROLs, non-IROL stability limits and other higher risk SOLs) have to be communicated.
- Framework allows TOPs to mitigate lower risk SOL exceedances within a certain timeframe (not to exceed 30 minutes) without being required to communicate the lower risk SOL exceedance and its mitigation actions to its RC.
- Allows operators to focus on mitigating the SOL exceedance rather than after the fact communications.
- This provision is accomplished through new Requirement R7 FAC-011-4 and corresponding modifications in IRO-008-3 and TOP-001-6.

- Posting
 - [Project Page 2015-09](#)
 - 45-day comment period ends August 3, 2020
 - Formal Ballot July 24 – August 3, 2020
- Point of contact
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 - Latrice.Harkness@nerc.net or call 404-446-9728
- Webinar posting
 - 48-72 hours
 - Standards Bulletin

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Questions and Answers

