NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Comment Report

Project Name: 2015-03 FAC Periodic Review | FAC-010, FAC-011 & FAC-014

Comment Period Start Date: 5/4/2015

Comment Period End Date: 6/17/2015

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process. If you feel there has been an error or omission, you can contact the Director of Standards, Howard Gugel (via email) or at (404) 446-9693.

Questions

1. **The PRT is recommending retirement of FAC-010 and has provided justification in the Periodic Review Recommendation. Do you agree that the proposed retirement of FAC-010 is justified and does not create a reliability gap? If you do not agree, or if you agree but have comments or suggestions for the justification please provide your recommendation and explanation.**
2. **The PRT is recommending initiation of a FAC standards project to revise FAC-011 and FAC-014 and has provided justification in the Periodic Review Recommendations. Do you agree with this proposal? If you do not agree, or if you agree but have comments or suggestions for the justification please explain your recommendation.**
3. **The PRT is recommending that the proposed FAC standards project develop revisions to the definition of System Operating Limit and develop a new defined term for SOL Exceedance. Justification is provided in FAC-011 and FAC-014 Periodic Review Recommendations and supporting white paper. Do you agree with this recommendation? If you do not agree, or if you agree but have comments or suggestions for the justification please provide your recommendation and explanation.**
4. **Provide any additional comments for the PRT to consider that were not addressed in the preceding questions, if desired.**

The Industry Segments are:

1 — Transmission Owners
2 — RTOs, ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
9 — Federal, State, Provincial Regulatory or other Government Entities
10 — Regional Reliability Organizations, Regional Entities

Full Name	Entity Name	Segment	Region	Group Name	Group Member Name	Group Member Organization	Group Member Region	Group Member Segment(s)
Ben Engelby	ACES Power Marketing	6		ACES Standards Collaborators - FAC Project	Mike Brytowski	Great River Energy	MRO	1,3,5,6
					Shari Heino	Brazos Electric Power Cooperative, Inc.	TRE	1,5
					Kevin Lyons	Central Iowa Power Cooperative	MRO	1
					Amber Skillern	East Kentucky Power Cooperative	SERC	1,3
					Ginger Mercier	Prairie Power Inc.	SERC	1,3
Kaleb Brimhall	Colorado Springs Utilities	5	WECC	Colorado Springs Utilities	Shawna Speer	Colorado Springs Utilities	WECC	1
					Charlie Morgan	Colorado Springs Utilities	WECC	3
					Shannon Fair	Colorado Springs Utilities	WECC	6
					Kaleb Brimhall	Colorado Springs Utilities	WECC	5
Randi Heise	Dominion - Dominion Resources, Inc.	5		Dominion - RCS	Larry Nash	Dominion Virginia Power	SERC	1
					Louis Slade	Dominion Resources, Inc.	SERC	6
					Connie Lowe	Dominion Resources, Inc.	RFC	3
					Randi Heise	Dominion Resources, Inc,	NPCC	5

Full Name	Entity Name	Segment	Region	Group Name	Group Member Name	Group Member Organization	Group Member Region	Group Member Segment(s)
Colby Bellville	Duke Energy	1,3,5,6	FRCC,SERC ,RFC	Duke Energy	Doug Hils	Duke Energy	RFC	1
					Lee Schuster	Duke Energy	FRCC	3
					Dale Goodwine	Duke Energy	SERC	5
					Greg Cecil	Duke Energy	RFC	6
Dixie Wells	Lower Colorado River Authority	5		LCRA Compliance	Michael Shaw	LCRA	TRE	6
					Teresa Cantwell	LCRA	TRE	1
					Dixie Wells	LCRA	TRE	5
Michael Shaw	Lower Colorado River Authority	6		LCRA Compliance	Teresa Cantwell	LCRA	TRE	1
					Dixie Wells	LCRA	TRE	5
					Michael Shaw	LCRA	TRE	6
Emily Rousseau	MRO	1,2,3,4,5,6	MRO	MRO-NERC Standards Review Forum (NSRF)	Joe Depoorter	Madison Gas & Electric	MRO	3,4,5,6
					Amy Casucelli	Xcel Energy	MRO	1,3,5,6
					Chuck Lawrence	American Transmission Company	MRO	1
					Chuck Wicklund	Otter Tail Power Company	MRO	1,3,5
					Theresa Allard	Minnkota Power Cooperative, Inc	MRO	1,3,5,6
					Dave Rudolph	Basin Electric Power Cooperative	MRO	1,3,5,6
					Kayleigh Wilkerson	Lincoln Electric System	MRO	1,3,5,6

Full Name	Entity Name	Segment	Region	Group Name	Group Member Name	Group Member Organization	Group Member Region	Group Member Segment(s)
					Jodi Jenson	Western Area Power Administration	MRO	1,6
					Larry Heckert	Alliant Energy	MRO	4
					Mahmood Safi	Omaha Public Utility District	MRO	1,3,5,6
					Marie Knox	Midwest ISO Inc.	MRO	2
					Mike Brytowski	Great River Energy	MRO	1,3,5,6
					Randi Nyholm	Minnesota Power	MRO	1,5
					Scott Nickels	Rochester Public Utilities	MRO	4
					Terry Harbour	MidAmerican Energy Company	MRO	1,3,5,6
					Tom Breene	Wisconsin Public Service Corporation	MRO	3,4,5,6
					Tony Eddleman	Nebraska Public Power District	MRO	1,3,5
Gregory Campoli	New York Independent System Operator	2		ISO/RTO Standards Review Committee	Gregory Campoli	NYISO	NPCC	2
					Ben Li	IESO	NPCC	2
					Kathleen Goodman	ISONO	NPCC	2
					Mark Holman	PJM	NPCC	2
					Charles Yeung	SPP	SPP	2
					Terry Bilke	MISO	MRO	2

Full Name	Entity Name	Segment	Region	Group Name	Group Member Name	Group Member Organization	Group Member Region	Group Member Segment(s)
					Christina Bigelow	ERCOT	TRE	2
					Ali Miremadi	CAISO	WECC	2
Lee Pedowicz	Northeast Power Coordinating Council	10	NPCC	NPCC--Project 2015-03	Alan Adamson	New York State Reliability Council, LLC	NPCC	10
					David Burke	Orange and Rockland Utilities Inc.	NPCC	3
					Greg Campoli	New York Independent System Operator	NPCC	2
					Sylvain Clermont	Hydro-Quebec TransEnergie	NPCC	1
					Kelly Dash	Consolidated Edison Co. of New York, Inc.	NPCC	1
					Gerry Dunbar	Northeast Power Coordinating Council	NPCC	10
					Mark Kenny	Northeast Utilities	NPCC	1
					Helen Lainis	Independent Electricity System Operator	NPCC	2
					Alan MacNaughton	New Brunswick Power Corporation	NPCC	9

Full Name	Entity Name	Segment	Region	Group Name	Group Member Name	Group Member Organization	Group Member Region	Group Member Segment(s)
					Paul Malozewski	Hydro One Networks Inc.	NPCC	1
					Bruce Metruck	New York Power Authority	NPCC	6
					Lee Pedowicz	Northeast Power Coordinating Council	NPCC	10
					Robert Pellegrini	The United Illuminating Company	NPCC	1
					Si Truc Phan	Hydro-Quebec TransEnergie	NPCC	1
					David Ramkalawan	Ontario Power Generation, Inc.	NPCC	5
					Brian Robinson	Utility Services	NPCC	8
					Wayne Sipperly	New York Power Authority	NPCC	5
					Edward Bedder	Orange and Rockland Utilities Inc.	NPCC	1
					Peter Yost	Consolidated Edison Co. of New York, Inc.	NPCC	3
					Michael Jones	National Grid	NPCC	1
					Brian Shanahan	National Grid	NPCC	1
					Michael Forte	Consolidated Edison Co. of New York, Inc.	NPCC	1

Full Name	Entity Name	Segment	Region	Group Name	Group Member Name	Group Member Organization	Group Member Region	Group Member Segment(s)
					Glen Smith	Entergy Services, Inc.	NPCC	5
					Brian O'Boyle	Consolidated Edison Co. of New York, Inc.	NPCC	8
					RuiDa Shu	Northeast Power Coordinating Council	NPCC	10
					Connie Lowe	Dominion Resources Services, Inc.	NPCC	5
					Kathleen Goodman	ISO - New England	NPCC	2
Shannon Mickens	Southwest Power Pool, Inc. (RTO)	2	SPP	SPP Standards Review Group	Shannon Mickens	Southwest Power Pool Inc.	SPP	2
					Jonathan Hayes	Southwest Power Pool Inc	SPP	2
					Gary Cox	Southwestern Power Administration	SPP	1
					James Nail	City of Independence, Missouri	SPP	3,5
					Stephanie Johnson	Westar Energy, Inc	SPP	1,3,5,6
					Jason Smith	Southwest Power Pool Inc	SPP	2

Full Name	Entity Name	Segment	Region	Group Name	Group Member Name	Group Member Organization	Group Member Region	Group Member Segment(s)
					Jeff Knottek	City Utilities of Springfield	SPP	1,4
					Greg McAuley	Oklahoma Gas and Electric Co.	SPP	1,3,5,6
					Bo Jones	Westar Energy, Inc	SPP	1,3,5,6
					Tiffany Lake	Westar Energy, Inc	SPP	1,3,5,6
					Sing Tay	Oklahoma Gas and Electric Co.	SPP	1,3,5,6
					J.Scott Williams	City Utilities of Springfield	SPP	1,4
					William Wilson	Oklahoma Gas and Electric Co.	SPP	1,3,5,6

1. The PRT is recommending retirement of FAC-010 and has provided justification in the Periodic Review Recommendation. Do you agree that the proposed retirement of FAC-010 is justified and does not create a reliability gap? If you do not agree, or if you agree but have comments or suggestions for the justification please provide your recommendation and explanation.

Summary: The PRT thanks all commenters. Many commenters agree with the proposed retirement of FAC-010-3 and the justification provided in the Periodic Review Recommendation (PRR). Of those commenters that do not agree with the PRT's recommendation:

- **Some state that retirement of FAC-010-3 would create a reliability gap by eliminating requirements for an SOL methodology to be used in planning.** The PRT maintains that TPL-001-4 and other standards provide this methodology, and that FAC-010-3 should be retired accordingly.
- **Some commenters in the Western Interconnection state that retirement of FAC-010-3 could create a gap because some requirements in the Regional Differences section are needed for planning studies in the interconnection.** The PRT is

basing its proposed retirement of FAC-010-3 on the continent-wide applicability of the standard. The PRT recognizes that WECC exceptions are being addressed through the WECC standards process.

Specific responses to all commenters are provided below.

John Fontenot - Bryan Texas Utilities - 1 -

Selected Answer: Yes

Robert Hirchak - Cleco Corporation - 6 -

Selected Answer: Yes

Nick Vtyurin - Manitoba Hydro - 1,3,5,6 - MRO

Selected Answer: Yes

Emily Rousseau - MRO - 1,2,3,4,5,6 - MRO

Andrew Pusztai - American Transmission Company, LLC - 1 -

Selected Answer: No

Answer Comment: The NSRF agrees with the retirement of R2 and R3 (except the IROL criteria in R3.6) of FAC-010-3 standard in light of R2, R3 and R4 in the new TPL-001-4 standard. The NSRF also agrees with the retirement of R5, which NERC has already approved. However, The NSRF believes that the retirement of R1 and R4 would create partial reliability gaps for the four types of SOLs – Facility Ratings, Voltage Limits, Transient Stability Limits and Voltage Stability Limits, as noted below.

Facility Ratings: The NSRF acknowledges that the Facility Ratings methodology part of R1.1 of FAC-010-3 (develop a methodology for SOLs used in the planning horizon) is covered by R1, R2, and R3 of FAC-008-3. R4 of FAC-010-3 (issue the SOL methodology to applicable entities) is covered by R4 of FAC-008-3.

Voltage Limits: The NSRF recognizes that the Voltage Limits methodology part of R1.1 of FAC-010-3 may be viewed as covered by R5 of TPL-001-4 (have voltage limit criteria). However, no TPL-001-4 requirement requires including Voltage Limits methodology/criteria in the Planning Assessment, which must be provided to applicable entities.

Transient Stability Limits: No requirement in any existing standard is known that requires having a Transient Stability Limits methodology or providing the methodology to any applicable entities. During the webinar, the PRT indicated a lack of value to retaining the FAC-010-3 standard. However, we believe the reliability gap in this area created by retiring FAC-010-3 is significant. There must be clarity on how needed SOLs and IROLs can be adequately identified and represented in the Planning Horizon analyses of multiple parties. The FAC-010-3 standard results in clearly defined and consistently applied SOLs and IROLs in the Planning Horizon.

Voltage Stability Limits: The NSRF recognizes that the Voltage Stability Limits methodology part of R1.1 of FAC-010-3 may be viewed as covered by R6 of TPL-001-4 (document criteria or methodology for voltage instability). R4 of FAC-010-3 may be covered by R6 of TPL-001-4 (include criteria or methodology in the Planning Assessment).

FAC-010-3_R1.2: No requirement in any existing standard is known to require that SOL for a BES element to be the most limiting applicable Rating/Limit.

FAC-010-3_R1.3: No requirement in any existing standard is known to require having criteria or methodology for identifying the subset of SOLs that are classified as IROLs. The R1.3 should not be retired without considering the impact on existing NERC reliability standards (e.g. CIP-002-5, CIP-014-1, and PRC-002-2) that have requirements, which use planning horizon IROLs.

The NSRF proposes the concept of establishing a FAC-010-4 standard, but modifying it to be a “System Planning Limits” standard and move the existing planning horizon SOL requirements out of the FAC-014-2 standard and into a single standard for SPLs (see response to question #3 for our concerns with the proposed System Operating Limits definitions leading to this proposal). Having SPL terminology would readily

differentiate operating horizon System Operating Limits and planning horizon System Planning Limits. Moving the planning horizon requirements into a FAC-010-4 standard would eliminate having planning horizon requirements mixed together with operating horizon requirements in a FAC-014-3 standard (especially those in R5).

If the concept of “System Planning Limits” is accepted, then definitions would need to be establishing the terms, “System Planning Limits” (SPLs) and “Interconnection Reliability Planning Limits” (IRPLs).

Response: Thank you for your comment. The PRT is recommending retirement of FAC-010-3 which requires a methodology for determining SOLs in the planning horizon. The justification is that TPL-001-4 and other standards provide the methodology for addressing reliability risks in the planning horizon. The PRT agrees that if reliability risks identified in the planning horizon are not communicated, then a gap could be created. However, communication of these risks are addressed in other standards including TPL-001-4 (Requirement R8) and FAC-014-2 (Requirement R5 and R6). Also, the PRT recommendation for FAC-014-2 addresses this issue by recommending that requirements be revised or created to facilitate the transfer of reliability information from the planning entities to operating entities.

Jennifer Losacco - NextEra Energy - Florida Power and Light Co. - 1 - FRCC

Selected Answer: Yes

David Bueche - CenterPoint Energy Houston Electric, LLC - NA - Not Applicable - TRE

Selected Answer: Yes

Thomas Foltz - AEP - 5 -

Selected Answer: Yes

Si Truc Phan - Hydro-Quebec TransEnergie - 1 - NPCC

Selected Answer: Yes

Answer Comment: HQT would like to thank the review team members for their effort and agrees with the proposal to retire FAC-010 without introducing any reliability gap. Having an SOL methodology for the planning horizon is neither practical nor an improvement to reliability. TPL standards already ensure reliability for the planning horizon with some considerations of operating conditions. FAC-010 is not only redundant with TPL standards, but with FAC-011. Dealing with both FAC-010 and FAC-011, applicable to different entities, is extremely confusing.

Response: Thank you for your comment.

Alshare Hughes - Luminant - Luminant Generation Company LLC - 5,6,7 - TRE

Selected Answer: Yes

Randi Heise - Dominion - Dominion Resources, Inc. - 5 -

Selected Answer: Yes

Tammy Porter - Oncor Electric Delivery - 1 - TRE

Selected Answer:

Jared Shakespeare - Peak Reliability - 1 -

Selected Answer: Yes

Answer Comment: Peak Reliability agrees with this recommendation assuming the recommendation of addressing the transferring and sharing of reliability information from PCs to RCs and

TOPs in FAC-014 is implemented.

Response: Thank you for your comment.

Richard Vine - California ISO - 2 -

Selected Answer: No

Answer Comment: The ISO's Planning Department has identified an issue with retirement of FAC-010-3. Sections 1.1.5 and 1.1.6 on page 8 (Regional Differences) are critical to our planning studies and currently are not covered under any WECC standards. WECC retired the relevant sections from its standard under the premise that it was covered in FAC-010. The retirement of Sections 1.1.5 and 1.1.6 will be a considerable relaxation of WECC planning standards and will allow for substantially increased WECC Path Ratings. Prior to the retirement of Sections 1.1.5 and 1.1.6, a process for increasing WECC Path Ratings triggered by this retirement needs to be established to ensure these ratings are coordinated, and reliability is maintained.

Response: Thank you for your comment. The proposed retirement of FAC-010-3 is based on its continent-wide applicability. The PRT recognizes that WECC exceptions are being addressed through the WECC standards process. The proposed project to retire FAC-010-3 should coordinate with entities to address reliability issues in all regions.

Molly Devine - IDACORP - Idaho Power Company - 1 -

Selected Answer: Yes

Andrew Gallo - Austin Energy - 6 -

Selected Answer: Yes

RoLynda Shumpert - SCANA - South Carolina Electric and Gas Co. - 1,3,5,6 - SERC

Selected Answer: Yes

Colby Bellville - Duke Energy - 1,3,5,6 - FRCC,SERC,RFC

Selected Answer: Yes

Answer Comment: Duke Energy requests further clarification from the PRT Team on the transfer of responsibilities from R4 of FAC-010-2.1 to other standards, possibly TPL-001-4. Currently, Requirement 4 of FAC-010-2.1 requires the Planning Authority to issue its SOL Methodology to adjacent PA(s), RC(s), TOP(s) and TP(s) in the Planning Authority Area. Is it the PRT's feeling that providing this methodology to others, the RC specifically, is not necessary, and would not create the possibility of a gap in reliability? We fail to clearly see if this responsibility is already covered in TPL-001-4, as it does not explicitly discuss the issuance of an SOL Methodology to the RC or any other functional entity.

Response: Thank you for your comment. The PRT is recommending retirement of FAC-010-3 which requires a methodology for determining SOLs in the planning horizon. The justification is that TPL-001-4 and other standards provide the methodology for addressing reliability risks in the planning horizon. A key understanding of the PRT is that SOLs are limits that already exist such as Facility Ratings and Stability Limits. The PRT's suggestion is that there is no need to have a separate methodology, but to simply ensure that all limits are respected. Also, the PRT recommendation for FAC-014-2 addresses transfer of reliability information from the planning entities to operating entities.

Joel Wise - Tennessee Valley Authority - 1,3,5,6 - SERC

Selected Answer: Yes

Michael Shaw - Lower Colorado River Authority - 6 -

Selected Answer: Yes

Kaleb Brimhall - Colorado Springs Utilities - 5 -

Selected Answer: Yes

Answer Comment: CSU agrees and CSU currently cites the RC Methodology and uses its TPL studies as evidence of compliance with FAC-010 which falls in line with the recommendations of the PRT.

If FAC-010 goes away then is it correct to assume that the PC will no longer establish SOLs but will utilize TPL-001-4 to correctly plan the system and SOLs will be left to the operations horizon?

Response: Thank you for your comment. The PRT is recommending retirement of FAC-010-3 which requires a methodology for determining SOLs in the planning horizon. The justification is that TPL-001-4 and other standards provide the methodology for addressing reliability risks in the planning horizon.

Lee Pedowicz - Northeast Power Coordinating Council - 10 - NPCC

Selected Answer: Yes

Answer Comment: We concur with the proposed retirement of FAC-010, and that its retirement will not introduce any reliability gap. Having an SOL methodology for the planning horizon is neither practical nor an improvement to reliability. TPL standards already ensure reliability for the planning horizon with some considerations of operating conditions. FAC-010 is not only redundant with TPL standards, but with FAC-011. Dealing with both FAC-010 and FAC-011, applicable to different entities, is extremely confusing.

Response: Thank you for your comment.

Anthony Jablonski - ReliabilityFirst - 10 -

Selected Answer: Yes

Answer Comment: 1. ReliabilityFirst agrees with the PRT recommendation to retire FAC-010-3 BES planning is covered under the new TPL-001-4 Standard which provides comprehensive requirements for a variety of contingencies.

Response: Thank you for your comment.

Steven Rueckert - Western Electricity Coordinating Council - 10 -

Selected Answer: No

Answer Comment: The purpose of FAC-010 is for the Planning Authorigty (Planning Coordinator) to have a documented SOL methodology that will be used for determining SOLs. The purpose of TP:-001-4 is for the Planning Authority and Tranmission Planner to conduct assessments to ensure that the system performance meets performance criteria and if it does not, to develop corrective action plans so that it will. TPL-001-4 does not require a methodology nor does it reference SOLs. Won't retirement of FAC-014 result in a reliability gap wherein there is no requirement for an SOL methodology to be followed in developing SOLs?

Response: Thank you for your comment. The PRT is recommending retirement of FAC-010-3 which requires a methodology for determining SOLs in the planning horizon. The justification is that TPL-001-4 and other standards provide the methodology for addressing reliability risks in the planning horizon. The PRT agrees that if reliability risks identified in the planning horizon are not communicated, then a gap could be created. However, communication of these risks are addressed in other standards including TPL-001-4 (Requirement R8) and FAC-014-2 (Requirement R5 and R6). Also, the PRT recommendation for FAC-014-2 addresses this

issue by recommending that requirements be revised or created to facilitate the transfer of reliability information from the planning entities to operating entities.

Ben Engelby - ACES Power Marketing - 6 -

Selected Answer: Yes

Answer Comment: We agree with the review team's recommendation to retire the entire standard because there is little reliability benefit to have SOLs in the planning horizon. No gap exists now that TPL-001-4 is approved.

Response: Thank you for your comment.

ISO/RTO Council Standards Review Committee

Gregory Campoli - New York Independent System Operator - 2 -

Christina Bigelow - Electric Reliability Council of Texas, Inc. - 2 -

Selected Answer: Yes

Answer Comment: note: CAISO did not support/join this response to Q1

Response:

Leonard Kula - Independent Electricity System Operator - 2 -

Selected Answer: Yes

David Jendras - Ameren - Ameren Services - 3 -

Selected Answer: Yes

Answer Comment: In our opinion, FAC-010 is no longer necessary due to the establishment of standard TPL-001-4.

Response:

Andrea Jessup - Bonneville Power Administration - 1,3,5,6 - WECC

Selected Answer: Yes

Teresa Czyz - Georgia Transmission Corporation - 1 - SERC

Selected Answer: Yes

Jason Snodgrass - Georgia Transmission Corporation - 1 -

Selected Answer: Yes

Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - SPP

Selected Answer: Yes

Answer Comment: We agree with the Periodic Review Team's recommendation to retire FAC-010-3. Additionally, we suggest the PRT to review the Rules of Procedure (RoP) and the Glossary of Terms as well as coordinating efforts with the Alignment of Terms Standards Drafting Team (Project 2015-04) to help ensure any defined term changes will properly align with these particular documents and other documentation that may

utilize this term and are applicable to the SOL process. As NERC has previously stated in their outreach process, the goal is to produce a Standards Development Process that is productive and efficient. With that being said, we feel the coordination of the two drafting teams will achieve that goal.

Response: Thank you for your comment. Any revisions to existing defined terms or creation of new defined terms will be developed by the Standard Drafting Team for the proposed project. Approval of those revisions or new terms as part of the balloting of the new or revised Standard will result in their inclusion in the Glossary or NERC Rules of Procedure as appropriate.

Dixie Wells - Lower Colorado River Authority - 5 -

Selected Answer: Yes

Rachel Coyne - Texas Reliability Entity, Inc. - 10 -

Selected Answer: No

Answer Comment:

Texas RE does not agree with the retirement of FAC-010. If FAC-010 is eliminated, there would be no requirement to create a methodology to be used in TPL-001-4. Without a methodology indicating expectations, an entity might not know if it had and SOL or IROL or if it exceeded an SOL or IROL. Without a methodology that supports what an SOL or IROL is, planners would not be able to coordinate efforts and could lead to inconsistent planning. If entities do not have consistent limits and know how the limits are derived, it would not be able to adequately plan well enough for operations and for the future. Limits might be arbitrarily decided upon and inconsistent. From a reliability and compliance perspective, issues are less likely to occur if entities have a plan. Additionally, without a requirement to have a SOL Methodology, entities may not be prepared for an event and thus runs the risk of losing all the load in an area instead of some of the load in the area. Texas RE agrees that some SOLs are determined in the real-time or near real-time, but some SOLs are also determined in the planning horizon. If FAC-010 were eliminated, entities might not determine SOLs in the planning horizon.

Texas RE recommends considering combining FAC-010 and FAC-011 into a single

standard. The process or methodology to determine SOLs should be the same for both the operations and planning horizon. Obviously, the actual limit for a specific element used in an assessment may be different between the operations and planning horizons, but the methodology on how the limit is determined should be consistent between planning and operations. This approach has worked in our region, as ERCOT, acting as both the RC and PC, issued a combined FAC methodology document that covers both the operations and planning horizons.

Response: Thank you for your comment. The PRT's recommendation to retire FAC-010-3 recognizes that SOLs are established in other requirements: Facility Ratings (determined per FAC-008-3), voltage limits (determined per TPL-001-4 R5), or transient stability limits (determined per TPL-001-4 R6).These requirements ensure that an entity will know it had an SOL or it exceeded an SOL, even in the absence of an SOL methodology specified by FAC-010-3.

Gene Henneberg - NV Energy - Sierra Pacific Power Co. - NA - Not Applicable - WECC

Selected Answer: Yes

Brad Ryan - Berkshire Hathaway - PacifiCorp - 6 - WECC

Selected Answer: Yes

Answer Comment:

Retirement of FAC-010 is acceptable, provided:

a. The SOL methodology described in FAC-011 and FAC-014 covers all reliability concerns of the TOPs and RCs.

b. There is an adequate mechanism for the Reliability Coordinator to address concerns with the SOL Methodology raised by TOPs, and documented (i.e. written) responses are provide by the RC to the TOPs addressing their concerns.

c. There is an adequate mechanism for the Reliability Coordinate to revise the SOL Methodology, when any entity, TOP or RC, raises an issue. The issue should be fully addressed to the entities concern.

Response: Thank you for your comment. The PRT believes these recommendations should be addressed in the proposed standards development effort.

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2. The PRT is recommending initiation of a FAC standards project to revise FAC-011 and FAC-014 and has provided justification in the Periodic Review Recommendations. Do you agree with this proposal? If you do not agree, or if you agree but have comments or suggestions for the justification please explain your recommendation.

Summary: The PRT thanks all commenters. Many commenters agree with the proposal to initiate a standards project to revise FAC-011-3 and FAC-014-2. The following is a summary of comment topics and responses:

- **Some commenters do not agree with the recommendation to require appropriate functional entities to establish and communicate voltage limits because they believe the requirement is addressed elsewhere (VAR-001-4 or the approved definition of System Operating Limit (SOL)).** The PRT does not agree that the requirement to establish voltage limits is adequately covered under existing standards and definitions. While VAR-001-4 addresses the establishment of voltage schedules, this standard does not address establishing the actual voltage limits, resulting in confusion with regard to what the voltage limits actually are and whose responsibility it is to establish and communicate them.
- **Some commenters do not agree with the proposal as written in the PRR to revise Requirements R2 and R3 of FAC-011-3 to more clearly indicate performance requirements for the operations time horizon.** The PRT has clarified the PRR to better indicate their intent. The PRT is proposing the replacement of the subparts in these requirements with a table similar to TPL-001-4 Table to clearly specify appropriate performance requirements for the operations time horizon.
- **Some commenters agree with the proposal to revise the standards and provide specific suggestions.** Comments will be provided to the Standard Drafting Team (SDT) in the subsequent standards development project.

Specific responses to all commenters are provided below.

John Fontenot - Bryan Texas Utilities - 1 -

Selected Answer: Yes

Robert Hirchak - Cleco Corporation - 6 -

Selected Answer:

Nick Vtyurin - Manitoba Hydro - 1,3,5,6 - MRO

Selected Answer: Yes

Emily Rousseau - MRO - 1,2,3,4,5,6 - MRO

Selected Answer: Yes

Answer Comment: Along the same lines, The NSRF proposes the concept of at FAC-011 and the operating horizon requirements in FAC-014-1 be consolidated in to a FAC-011-3 standard titled, “System Operating Limits for the Operating Horizon”, in order to have the operating horizon SOL requirements in one standard, rather than having some of these requirements mixed together with planning horizon requirements in the FAC-014 standard (especially R5).

Response: Thank you for your comment. The specific recommendation of how to revise the standard is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Andrew Pusztai - American Transmission Company, LLC - 1 -

Selected Answer: No

Answer Comment: Along the same lines as proposed in ATC’s responses to Question #1, **ATC proposes the concept of having a Standard specifically for operating horizon SOLs. In doing so, the *operating horizon requirements in FAC-014-1 should be moved into a FAC-011-3 standard entitled, “System Operating Limits for the Operating Horizon”.*** Thereby, the operating horizon SOL requirements are in one standard rather than having some of these requirements mixed together with planning horizon requirements in the FAC-014 standard (especially R5).

Response: Thank you for your comment. Based on the comments, ATC appears to be in support of modifying FAC-011-3 and FAC-014-2; however, there may be areas of disagreement with certain aspects of the PRT's recommendation. The specific recommendation of how to revise the standard is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Jennifer Losacco - NextEra Energy - Florida Power and Light Co. - 1 – FRCC

Selected Answer: Yes

David Bueche - CenterPoint Energy Houston Electric, LLC - NA - Not Applicable - TRE

Selected Answer: No

Answer Comment: While CenterPoint Energy agrees with the majority of recommendations for revisions to FAC-011 and FAC-014, the Company does not feel it is necessary for FAC Standards to address normal and emergency equipment voltage limits established in operations. As mentioned in the FAC-011 PRR, a process already exists for Transmission Operators to establish voltage schedules. These voltage schedules are based on IEEE documentation, historical system performance, as well as other criteria including best utility practices. The current SOL definition speaks to System Voltage Limits as one of the operating criteria, not individual equipment voltage limits. CenterPoint Energy feels this recommendation could lead to undue compliance and documentation burdens without providing a greater reliability benefit.

Response: Thank you for your comment. The PRT believes normal and emergency equipment voltage limits should be considered for reliable operations. Both the current and PRT-proposed definition of System Operating Limit (SOL) include voltage limits; however, there is no reliability standard requiring an entity to establish and communicate voltage limits for use in operations, whether equipment voltage limits or system voltage limits. The PRT views the absence of a reliability standard requiring the appropriate entity to establish and communicate voltage limits as being a reliability gap in the standards and believes that gap should be closed. While VAR-001-4 addresses the establishment of voltage schedules, this standard does not adequately address establishing the actual voltage limits, resulting in confusion with regard to what the voltage limits actually are and whose responsibility it is to establish and communicate them.

Thomas Foltz - AEP - 5 -

Selected Answer: Yes

Si Truc Phan - Hydro-Quebec TransEnergie - 1 - NPCC

Selected Answer: Yes

Answer Comment: Considering the approach of other NERC standard projects to reduce the number of standards and the review team recommendations, HQT proposes that the review team recommend merging FAC-011 and FAC-014 into one standard to address every aspect of SOLs covered in the current FAC-011 and FAC-014. HQT highly supports the effort made to narrow the gap between the planning and operating horizon through a revised FAC-011 standard aligned with the TPL-001-4 table structure.

Response: Thank you for your comment. The specific recommendation of how to revise the standard is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Alshare Hughes - Luminant - Luminant Generation Company LLC - 5,6,7 - TRE

Selected Answer:

Randi Heise - Dominion - Dominion Resources, Inc. - 5 -

Selected Answer: Yes

Answer Comment: Dominion also notes that currently FAC-011-3 and FAC-014-2 do not have a corresponding Measure for each Requirement. Also, FAC-011-3 includes Measures for R1 and R2 whereas there are no Measures for R4 or R5 and FAC-014-2 includes

Measures for R1, R2 and R3 whereas there are no Measures for R5 or R6.

Response: Thank you for your comment. The PRT agrees and has identified this issue for resolution in the proposed standards development project.

Tammy Porter - Oncor Electric Delivery - 1 - TRE

Selected Answer: Yes

Jared Shakespeare - Peak Reliability - 1 -

Selected Answer: Yes

Molly Devine - IDACORP - Idaho Power Company - 1 -

Selected Answer: Yes

Andrew Gallo - Austin Energy - 6 -

Selected Answer: Yes

RoLynda Shumpert - SCANA - South Carolina Electric and Gas Co. - 1,3,5,6 - SERC

Selected Answer: Yes

Colby Bellville - Duke Energy - 1,3,5,6 - FRCC,SERC,RFC

Selected Answer: Yes

Joel Wise - Tennessee Valley Authority - 1,3,5,6 - SERC

Selected Answer: No

Answer Comment: For FAC-011-3, TVA recommends that the IROL definition not be revised to address the extent and degree of instability that warrants an IROL. Having the RC determine and document this in the methodology is the best approach.

Response: Thank you for your comment. The PRT recommendation indicates that revising the definition of IROL represents one potential solution to address the issue associated with IROLs. Other potential solutions include having the RC determine and document the extent and degree of instability that warrants an IROL in its SOL Methodology. TVA's comments will be provided as input to the proposed standards development project.

Michael Shaw - Lower Colorado River Authority - 6 -

Dixie Wells - Lower Colorado River Authority - 5 -

Selected Answer: Yes

Answer Comment: FAC-011 and FAC-014 should be revised to clarify that the Transmission Owner is the entity required to provide facility ratings for the facilities that it owns and to clarify the roles of the Reliability Coordinator, Planning Coordinator, Transmission Planner, and Transmission Operator with respect to receiving, communicating, and applying facility ratings to determine and apply an SOL in the planning and operations time horizon.

Response: Thank you for your comment. The specific recommendation of how to revise the standard is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Kaleb Brimhall - Colorado Springs Utilities - 5 -

Selected Answer: Yes

Answer Comment: CSU agrees that if revisions are made correctly that enhancements can be achieved.

Response: Thank you for your comment.

Lee Pedowicz - Northeast Power Coordinating Council - 10 - NPCC

Selected Answer: No

Answer Comment: Regarding FAC-011:

We agree that some parts in R2 may not fully align with the Purpose, and we agree with the assessed ambiguity in Part R2.3. However, we do not agree with the proposal to include a list of planning events from TPL-001-4 in Part R3.3 that is to be considered in operations. Since the planning studies are performed under a specific set of system conditions, there is no assurance that the power system could be operated to respect a particular planning event under all the possible conditions that are encountered in operations.

Furthermore, if a list of multiple events is included in Part R3.3, then FAC-014-2 R6 would no longer be required. The proposal to revise FAC-014-2 indicated suggested changes to R6, but not the deletion of R6. This proposal is not consistent with the proposed scope of update to R6 in FAC-014-2. Having the same information in multiple standards allows for multiple compliance violations for the same transgression.

Regarding FAC-014:

We agree with the general direction to revise FAC-014.

We concur with the need to revise R6, so that the reference to TPL-003 is replaced with TPL-001-4, and to clarify which of the planning events in Table 1 are to be

considered for this requirement.

Considering the approach of other NERC standard projects to reduce the number of standards and the review team recommendations, we propose that the review team recommend merging FAC-011 and FAC-014 into one standard. This will allow the aspects of the SOLs covered in the current FAC-011 and FAC-014 to be addressed. We are supportive of the effort being made, and support the effort made to narrow the gap between the planning and operating horizon through a revised FAC-011 standard aligned with the way TPL-001-4 Table 1 defines acceptable performance requirements for the planning horizon.

Response: Thank you for your comment. The PRT is not suggesting that all P3 through P7 Contingencies from TPL-001-4 Table-1 are applicable to the operations horizon. Rather, that the revised standard should provide better clarity on which of the Contingencies in TPL-001-4 Table 1 are applicable to operations. The PRT recommendation for FAC-011-3 requirement R3.3 has been revised to more clearly describe the intent.

The PRT agrees with the comment that FAC-014-2 requirement R6 would no longer be needed, given the recommendation for FAC-011-3 requirement R3.3 and the PRT's proposal to develop requirements for the exchange of reliability information between the planning and operating entities. The recommendation for requirement R6 has been revised to recommend its retirement.

The PRT will provide NPCC's recommendation to merge FAC-011-3 and FAC-014-2 into a single Reliability Standard as input to the proposed standards development project.

Leonard Kula - Independent Electricity System Operator - 2 -

Selected Answer: No

Answer Comment: FAC-011

We agree that some parts in R2 may not fully align with the purpose, and we agree with the assessed ambiguity in R2.3. However, we do not agree with the proposal to include in R3.3 a list of planning events in TPL-001-4 to be considered in operations. Since the planning studies are performed under a confined set of system conditions,

there is no assurance that the power system could be operated to respect a particular planning event under all possible conditions to be encountered in operations.

Furthermore, if a list of multiple events is included in R3.3, then FAC-014-2 R6 would not be required anymore, and the proposal to revise FAC-014-2 indicated suggested changes to R6, but not deletion of R6, thus this proposal is not consistent with the proposed scope of update to R6 in FAC-014-2.

FAC-014

We agree with the general direction to revise FAC-014.

We concur with the need to revise R6, so that the reference to TPL-003 is replaced with TPL-001-4, and to clarify which of the planning events in table 1 are considered for this requirement.

Response: Thank you for your comment. The PRT is not suggesting that all P3 through P7 Contingencies from TPL-001-4 Table-1 are applicable to the operations horizon. Rather, that the revised standard should provide better clarity on which of the Contingencies in TPL-001-4 Table 1 are applicable to operations. The PRT recommendation for FAC-011-3 requirement R3.3 has been revised to more clearly describe the intent.

The PRT agrees with the comment that FAC-014-2 requirement R6 would no longer be needed, given the recommendation for FAC-011-3 requirement R3.3. The recommendation for requirement R6 has been revised to recommend its retirement.

Steven Rueckert - Western Electricity Coordinating Council - 10 -

Selected Answer: No

Answer Comment: See response to Question #3

Response:

Ben Engelby - ACES Power Marketing - 6 -

Selected Answer: Yes

Answer Comment: We agree with the review team's recommendation to revise the FAC-011 and FAC-014 standards and agree with the approach of combining the two standards.

Response: Thank you for your comment. The specific recommendation of how to revise the standard is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

ISO/RTO Council Standards Review Committee

Gregory Campoli - New York Independent System Operator - 2 -

Richard Vine - California ISO - 2 -

Christina Bigelow - Electric Reliability Council of Texas, Inc. - 2 -

Selected Answer: Yes

Answer Comment: The SRC supports some revisions to the standards, but will reserve the detailed comments for the posted red line of the standards.

Response: Thank you for your comment.

David Jendras - Ameren - Ameren Services - 3 -

Selected Answer: Yes

Andrea Jessup - Bonneville Power Administration - 1,3,5,6 - WECC

Selected Answer: Yes

Answer Comment: BPA supports the PRT's recommendation that these standards be revised.

Response: Thank you for your comment.

Teresa Czyz - Georgia Transmission Corporation - 1 - SERC

Selected Answer: Yes

Jason Snodgrass - Georgia Transmission Corporation - 1 -

Selected Answer: Yes

Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - SPP

Selected Answer: Yes

Answer Comment: The review group agrees with the PRT's recommendation in reference to developing requirements associated with FAC-011-3 and FAC-014-2 to providing clarity on determining and communicating each type of SOL(s). Additionally, we would suggest including within the Standard's rationale section clear and concise examples for each type of SOL. We feel this will help provide clarity and close the interpretation gap between the auditor and the industry.

We also suggest that the Standards Committee continue ensuring that there is a good mix of both Planning and Operations individuals on the eventual Standard Drafting Team.

Response: Thank you for your comment. The specific recommendation of how to revise the standard is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Rachel Coyne - Texas Reliability Entity, Inc. - 10 -

Selected Answer: No

Answer Comment:

Texas RE does not agree with the reasoning for a FAC-011 and FAC-014 project.

1. Texas RE does not agree that the existing requirements and the SOL definition contributes to confusion and a lack of consistency. The PRT provides no evidence or examples of its claims of confusion and inconsistencies. The PRT is trying to promote consistency and lessen confusion but it is unclear why "consistency" in "acceptable system performance requirements" discussed in FAC-011 R2 between Interconnections or even Regions would enable better reliability. Uniformity in BES implementation does not exist between different regions, and usually not even within a region. A uniform list of performance requirements is useful in numerous ways, however, it would be very difficult to capture every risk to reliability in each RC area. The PRT indicates that the "Purpose" and the Requirements should be consistent. In fact they are consistent in terms of what is discussed in R2. In like manner, the methodology must have a targeted result and R2 describes a target. This is not inconsistent.

2. Texas RE is concerned the proposed definition of an SOL Exceedance provides more confusion then clarification. Texas RE recommends the following in order to provide clarification:

- Define "unacceptable time duration"
- Identify the "highest available Facility Rating"
- Explain the bullet regarding transient or voltage instability. Does the PRT mean that the entire Interconnection must have transient or voltage instability?

3. Texas RE requests the PRT clarify the difference between Facility Rating

exceedance and SOL exceedance as it appears the terms are used interchangeably in the discussion document "System Operating Limit Definition and Exceedance Clarification". Please clarify whether or not Facility Rating exceedences only apply to power flows and SOL exceedences apply to all 4 potential operating limits.

4. The dynamic nature of the system changes should be accounted for in the determination of SOLs. If you do not have a limit to compare to actual or post-contingency flows you are in an unknown state which is a reliability concern. The methodology for Operating SOLs should not be different than the Planning SOLs. Planning is done on a very finite set of contingencies (done independently and relatively singular in nature) while operating has to consider what conditions are present (which could be in the neighborhood of N-several hundred). There has never been an issue where an SOL could not be determined (if there was that should be an "unknown state".)

Response: Thank you for your comment.

1. Industry confusion with regard to SOLs and SOL exceedance was discussed and documented from the two technical conferences held in March of 2014 in Saint Louis, MO and Washington DC. The information from these technical conferences was provided as input to the Project 2014-03 Standard Drafting Team (SDT), who in response, created the NERC SOL Whitepaper, the purpose of which was to "bring clarity and consistency to the notion of establishing SOLs, exceeding SOLs, and implementing Operating Plans to mitigate SOL exceedances". Technical conference notes are posted on the Project 2014-03 Project Page: http://www.nerc.com/pa/Stand/Prjct201403RvsnstoTOPandIROStndrds/top_iro_technical_conference_notes_03102014.pdf

The PRT believes that while reliability entities may vary in how they achieve BES reliability, there remains a critical reliability need to establish a level of consistency and commonality of understanding with fundamental concepts such as what SOLs are and what it means to exceed them.

2. While it is outside the PRT's scope to address the specifics of the SOL redefinition, TRE's comments will be provided as input to the proposed standards development project.

3. The PRT views a Facility Rating exceedance as one type of SOL exceedance.

4. While it is outside the PRT's scope to address the specifics of the SOL redefinition, TRE's comments will be provided as input to the proposed standards development project.

Gene Henneberg - NV Energy - Sierra Pacific Power Co. - NA - Not Applicable - WECC

Selected Answer: Yes

Answer Comment:

My only concern with retiring the FAC-010 and modifying FAC-011 standards is that the recommendation includes retirement of WECC variance E1.1.4 in both standards regarding failure of a RAS-associated circuit breaker to operate when the RAS calls for it to operate. The existing variance probably adds nothing useful to FAC-010, which I have no problem with retiring. The existing variance probably is misplaced in FAC-011, because it really describes a Planning issue, rather than an operating issue.

I recognize that WECC Reliability Subcommittee issued a recent white paper saying that this variance isn't needed because the problem is covered by PRC-012_R1.3 and by TPL-001-4 Table 1, P4 and P5. WECC also has an on-going effort to address these provisions within WECC. But my concern is that PRC-012 and TPL-001-4 standards actually cover less than what was claimed by the WECC RS white paper. For example, PRC-012 does talk about SPS [RAS] single component failure, but the WECC RS discussion, to be correct, has to assume that the circuit breaker is a RAS "component," which does not fit very well with the Protection System Glossary definition, that ends at the breaker trip coil. There is no Glossary definition of RAS components, and the NERC standards and Glossary are not consistent as to whether a RAS is a subset of Protection System.

TPL-001-4 Table 1, P4 and P5 do not cover this particular case either. All of Table 1 is pretty focused on clearing Faults. P4 addresses the case where a stuck breaker results in a multiple contingency because additional elements must trip to clear a SLG fault (Fault plus stuck breaker). P5 addresses a multiple contingency resulting from delayed fault clearing due to a failed non-redundant relay (Fault plus relay failure to operate). The RS claim at least implies that the failure of a RAS-associated breaker to operate is the next, i.e. multiple contingency within the context of Table 1, which is not supported by the language of the TPL-001-4 standard. In any case, neither P4 nor P5 can apply to RAS because RAS are not intended for fault clearing, according to both the existing SPS and proposed new RAS Glossary definitions.

In addition, P4 would not apply because the failure of a breaker associated with a RAS to operate will seldom or never result in removing an element from service unintentionally. P5 applies to certain relay failures, but would also not apply here because the cause of the breaker failing to operate may be a mechanical problem, rather than a relay problem. There is also a concern for P5 applicability whether the

RAS-associated breaker (function 52) would be part of the specific relay function numbers identified in note 13 (52 isn't in there).

Without an appropriate requirement to replace the function of this WECC variance requirement, System performance within WECC when a RAS is triggered is very likely be worse following failure of a RAS-associated breaker to operate if that failure is no longer required to be mitigated. PRC-012_R1.3 and TPL-001-4 Table 1 do not address this issue.

Response: Thank you for your comment. The proposed retirement of FAC-010-3 and revision of FAC-011-3 is based on the continent-wide applicability of the standards. The PRT recognizes that WECC exceptions are being addressed through the WECC standards process. The proposed project to retire FAC-010-3 and revise other FAC standards should develop an appropriate implementation plan to avoid any potential reliability gap which may be caused by retirement of the regional differences section.

The specific recommendation of how to revise the standard is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Brad Ryan - Berkshire Hathaway - PacifiCorp - 6 - WECC

Selected Answer: Yes

Answer Comment: FAC-011 R5 should be unretired, so there is an obligation for the RC to address concerns raised by TOPs about the SOL methodology.

Response: Thank you for your comment. The specific recommendation of how to revise the standard is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

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3. The PRT is recommending that the proposed FAC standards project develop revisions to the definition of System Operating Limit and develop a new defined term for SOL Exceedance. Justification is provided in FAC-011 and FAC-014 Periodic Review Recommendations and supporting white paper. Do you agree with this recommendation? If you do not agree, or if you agree but have comments or suggestions for the justification please provide your recommendation and explanation.

Summary: The PRT thanks all commenters. Many commenters agree with the proposal to develop new and revised definitions as outlined in the PRR. The following is a summary of comment topics and responses:

- **Some commenters believe the current definition of SOL is adequate, or that a definition for SOL Exceedance is not necessary.** The PRT notes that Industry confusion with regard to SOLs and SOL exceedance was discussed and documented from the two technical conferences held in March 2014 as part of Project 2014-03 Revisions to TOP and IRO Standards. Technical conference notes are posted on the Project 2014-03 Project Page: http://www.nerc.com/pa/Stand/Prjct201403RvsnstoTOPandIROStndrds/top_iro_technical_conference_notes_03102014.pdf
- **Some commenters agree with the proposal to develop new and revised definitions but do not agree with the PRT's proposed definition. Some commenters provide specific suggestions.** Comments will be provided to the Standard Drafting Team (SDT) in the subsequent standards development project.

Specific responses to all commenters are provided below.

John Fontenot - Bryan Texas Utilities - 1 -

Selected Answer: Yes

Robert Hirchak - Cleco Corporation - 6 -

Selected Answer:

Nick Vtyurin - Manitoba Hydro - 1,3,5,6 - MRO

Selected Answer: Yes

Emily Rousseau - MRO - 1,2,3,4,5,6 - MRO

Andrew Pusztai - American Transmission Company, LLC - 1 -

Selected Answer:	No
Answer Comment:	The NSRF agrees with much of proposed definitions and FAC-011 and FAC-014 recommendations. However, we have a number of comments and suggestion related to the definitions and recommendations. For the SOL Definition: • Replace the terse terms of “Voltage Limits”, “Transient Stability Limits”, and “Voltage Stability Limits” with more explanatory terms like, “Steady State Voltage Level Limits”, “Transient Voltage and Angular Stability Limits”, and “Steady State Voltage Stability Limits” to provide more readily convey the nature of each limit. • As noted in the comments for Question 1, we proposed that separate terminology be established for the planning horizon and planning assessments, namely “System Planning Limits” (SPLs) and “Interconnection Reliability Planning Limits” (IRPLs). This differentiation is important since a System Operating Limit is best defined for the Operating Horizon and actual “exceedances” of SOLs occur only in real-time, not post-Contingency systems or future plausible systems. For the SOL Exceedance Definition: • If the term, “SOL Exceedance” is only meant to apply to actual (Real-Time) and not calculated (Planning) SOL exceedance, then change the term to “Actual SOL Exceedance” or “Real-Time SOL Exceedance.” However, to properly represent what an SOL exceedance actually is, the definition should be revised to something as simple as, “When a Real-time parameter exceeds an applicable System Operating Limit for a continuous period longer than the applicable duration of the System Operating Limit.” The focus of this definition is that exceedances of SOLs can only occur in real-time operation and every SOL has a time limit associated with it. • If the above recommendation is rejected, the PRT must strike bullet #2, #4 and “post-Contingency” from bullet #5 of the proposed SOL Exceedance definition. The PRT has confused potential next contingency exceedances of an SOL with actual SOL exceedances in real-time. There are two reasons that the PRT must strike “post-Contingency” from the proposed definition: • An SOL Exceedance is only possible in real-time because currents, voltages and flows only exceed a limit when they are actually above the limit, not when they are currently below the limit but could be above the limit if something else happens. If the next contingency analysis identifies that the flow on a transmission line is projected to

be greater than the thermal rating SOL of the line, the TOP has a potential SOL exceedance, not a real-time SOL exceedance. The definition confuses these two very different situations and the future SOL Exceedance definition should be reserved to real-time only.

The new NERC standard TOP-001-3 uses the SOL exceedance terminology as part of requirements R10 and R14. These requirements drive significant documentation requirements that are unreasonable for potential SOL exceedances. If potential SOL exceedances identified during real-time contingency analysis were pulled into the future SOL Exceedances definition, TOPs will be required to document initiation of their Operating Plans (TOP-001-3 R14) every time the real-time contingency analysis solved and identified a potential next contingency SOL exceedance. Since real-time contingency analysis solves every 2-3 minutes, this is an unreasonable burden for an event that is not a real-time SOL exceedance. By focusing the SOL exceedance on real-time SOL exceedances, emphasis is appropriately placed on the real-time reliability risk under the relevant TOP-001-3 requirements and the associated administrative burden is reasonably limited to documenting the conditions that warrant evidence under the standards as well as occasions for reviewing lessons learned.

Response: Thank you for your comments. The PRT agrees with MRO that the definition of SOL should be revised. The specific recommendation of how to revise the definition and standard is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Jennifer Losacco - NextEra Energy - Florida Power and Light Co. - 1 - FRCC

Selected Answer: Yes

David Bueche - CenterPoint Energy Houston Electric, LLC - NA - Not Applicable - TRE

Selected Answer:

Answer Comment: CenterPoint Energy does not agree with the proposed SOL definition. It is understood the proposed SOL definition considers all four operating criteria to be SOLs. The Company feels a SOL label should only be attached to the most limiting of the four operating criteria. The Company feels the proposed SOL definition could bring an

unintended compliance burden for other Standards and Requirements that use SOLs and IROLs as benchmarks for further action. For example, a Facility could have a Voltage Stability Limit which is considered a SOL and IROL by the Methodology established in FAC-011; however, the Entity's studies show the Facility Rating is the most limiting operating criteria and only meets the threshold for a SOL. The Company agrees each operating criteria needs to be analyzed for determining the most limiting but does not agree with labeling all four operating criteria as SOLs or potentially IROLs due to unintended implications existing for other Standards/Requirements. Furthermore, confusion exists with the language 'where applicable'. At what level does a Transmission Operator need to stress its system to determine which of the four operating criteria are 'applicable'? Also, the Company does not agree with changing the operating criteria, System Voltage Limits, to simply Voltage Limits. Overall, the Company feels no reliability benefit will be gained by the proposed definition. The Company does agree with simplifying the language of the current definition and proposes the following alternative definition:

System Operating Limit: The value that satisfies the most limiting among the following types of operating criteria:

- Facility Ratings
- System Voltage Limits
- Voltage Stability Ratings
- Transient Stability Ratings

CenterPoint Energy agrees with the need for a better interpretation of SOL Exceedance. While the Company agrees with the industry accepted SOL White Paper, the Company recognizes it is challenging to capture those concepts in a definition format. Limiting the conceptual approach for a SOL Exceedance to a definition creates confusion between exceeding a SOL in Real Time as opposed to a study environment, both of which carry completely different actions and responses and should not be referred to using the same terminology (SOL Exceedance). The Company agrees with the recommendation approach for IROL criteria and determination to be part of the SOL Methodology as mentioned in the FAC-011 PRR, and believes the SOL Exceedance concept could be approached in the same manner. The Company recommends the SOL Exceedance criteria to be captured as a Requirement in the SOL Methodology and not by a definition.

Response: Thank you for your comment. It appears that CenterPoint agrees that some clarification is needed for SOL definition. While CenterPoint does not agree with the specific proposed definition at this time, it provides alternative definition. The specific recommendation of how to revise the definition is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Thomas Foltz - AEP - 5 -

Selected Answer: Yes

Si Truc Phan - Hydro-Quebec TransEnergie - 1 - NPCC

Selected Answer: Yes

Answer Comment: Although it is not yet completely clear how the term SOL Exceedance would be used in the revised standards, HQT supports any improvement made in clarifying the SOL standards. The review team should put more emphasis on the importance of revising the IROL definition and having clearer guidelines on the determination and real-time application of SOLs/IROLs, especially for the “impact-based” criteria related to the establishment of IROLs.

Response: Thank you for your comment. The specific recommendation of how to revise the definition and standard is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Alshare Hughes - Luminant - Luminant Generation Company LLC - 5,6,7 - TRE

Selected Answer: No

Answer Comment: The proposed SOL definition is too broad. As written, it includes all types of equipment regardless of its potential impact on reliability. This broad definition could introduce unnecessary administrative and compliance burden with no impact on reliability.

Response: Thank you for your comment. At this stage, the PRT is currently recommending that the proposed FAC standards project develop revisions to the definition of System Operating Limit and develop a new defined term for SOL Exceedance. The specific recommendation of how to revise the definition and standard is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Randi Heise - Dominion - Dominion Resources, Inc. - 5 -

Selected Answer: Yes

Tammy Porter - Oncor Electric Delivery - 1 - TRE

Selected Answer: Yes

Jared Shakespeare - Peak Reliability - 1 -

Selected Answer: Yes

Richard Vine - California ISO - 2 -

Selected Answer:

Answer Comment: The California ISO supports comments provided by the ISO/RTO Standards Review Committee

Response: Thank you for your comment. The specific recommendation of how to revise the definition is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Molly Devine - IDACORP - Idaho Power Company - 1 -

Selected Answer: Yes

Andrew Gallo - Austin Energy - 6 -

Selected Answer: No

Answer Comment: City of Austin dba Austin Energy (AE) is amenable to revising the definition of "System Operating Limit" (SOL) but does not agree with the proposed definition from the Periodic Review Team (PRT). For clarity, AE proposes defining an SOL as the most limiting of the four types of reliability limits (Facility Ratings, Voltage Limits, Transient Stability Limits and Voltage Stability Limits) not "any applicable limit among" the four types. Further, AE believes "Voltage Limits" should remain "System Voltage Limits" to avoid confusion.

Response: Thank you for your comment. It appears that Austin Energy agrees that some clarification is needed for SOL definition. While Austin Energy does not agree with the specific proposed definition at this time, it provides alternative definition. The specific recommendation of how to revise the definition is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

RoLynda Shumpert - SCANA - South Carolina Electric and Gas Co. - 1,3,5,6 – SERC

Selected Answer: Yes

Colby Bellville - Duke Energy - 1,3,5,6 - FRCC,SERC,RFC

Selected Answer: Yes

Joel Wise - Tennessee Valley Authority - 1,3,5,6 - SERC

Selected Answer: Yes

Michael Shaw - Lower Colorado River Authority - 6 -

Selected Answer: Yes

Kaleb Brimhall - Colorado Springs Utilities - 5 -

Selected Answer: Yes

Answer Comment: CSU believes that review and revision of the definitions would be beneficial to reduce confusion and ambiguity. Concerning the proposed definition of "SOL Exceedance" is it being proposed by the drafting team that "SOL Exceedance" would equal an SOL Violation based on this new definition?

Response: Thank you for your comment. The specific recommendation of how to revise the definition is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Lee Pedowicz - Northeast Power Coordinating Council - 10 - NPCC

Selected Answer: No

Answer Comment: We agree with the recommendation to revise the definitions of SOL and IROL. When developing the revised definition of IROL, suggest that the SDT consider introducing the concept of "impacts on interconnected systems" to distinguish between what might be a relatively local instability (SOLs), and instability having a wider area impact (IROLs).

We do not agree with the proposed SOL Exceedance definition. For example, we do not agree with the second bullet which says: "highest available Facility Rating". Instead it should be the "applicable rating" which in fact may not be the highest.

We also disagree with the fifth bullet. A SOL determination based on transient or voltage stability concerns are either a MW flow level on a line or defined interface, or the applicable pre or post-contingency bus voltages. This proposed bullet ties the SOL

Exceedance to stability or voltage performance (not a value or level), which should have been observed in the SOL/IROL calculations. We suggest deleting the bullet.

Although it is not yet clear how the term SOL Exceedance would be used in the revised standards, the PRT should emphasize the importance of revising the IROL definition and having clearer guidelines on the determination and Real-time application of SOLs/IROLs, especially for the "impact-based" criteria related to the establishment of IROLs.

Response: Thank you for your comment. It appears that NPCC agrees the recommendation to revise the definitions of SOL and IROL. While NPCC does not agree with the specific proposed definition at this time, it provides alternative definition. The specific recommendation of how to revise the definition is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Leonard Kula - Independent Electricity System Operator - 2 -

Selected Answer: Yes

Answer Comment:

We agree with this recommendation to revise the definitions of SOL and IROL. Further, when developing the revised definition to IROL, we suggest the SDT to consider introducing the concept of "impacts on interconnected systems" to distinguish between instability of local nature (SOLs) and instability having a wider area impact (IROLs).

That said, we do not agree with the proposed SOL Exceedance definition. For example, we do not agree with the second bullet which says: "highest available Facility Rating", which in our view should be the "applicable rating", which may not be the highest (e.g. 5-minute rating > 15-minute rating, but the applicable rating could be the latter). We also disagree with the fifth bullet. An SOL determined based on transient or voltage stability concerns are either a MW flow level on a line or defined interface, or the applicable pre or post-contingency bus voltages. The proposed definition (the bullet) ties the SOL exceedance to stability or voltage performance (not a value or level), which should have been observed in the SOL/IROL calculation state. We suggest the SDT to consider rewording it accordingly.

Response: Thank you for your comment. The specific recommendation of how to revise the definition is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Anthony Jablonski - ReliabilityFirst - 10 -

Selected Answer:

Answer Comment:

ReliabilityFIrst has the following comments related to the proposed definiton of SOL Exceedance.

1.

i. Is there a time limit for an SOL exceedance? For example, is it justified to operate one contingency away from voltage collapse for an extended period of time?

ii. The SOL Exceedance states “Actual flow on a Facility is above the Facility Rating for an unacceptable time duration.” ReliabilityFirst requests clarification on the term “unacceptable?”

Response: Thank you for your comment. The specific details of revised definitions should be addressed in the standards development effort.

Steven Rueckert - Western Electricity Coordinating Council - 10 -

Selected Answer: No

Answer Comment:

SOL is already sufficiently defined as “the most limiting of the prescribed operating criteria”. It is a single value; the most limiting of the set of values determined for the various criteria and durations. SOL requires no further definition.

The PRT statement that “Operating Plan(s) must include the appropriate time element to return the system to within acceptable Normal and Emergency (short-term) Ratings and/or operating limits identified above” is not supported by the requirements. The TOP

standards require “immediate action” and any Tv related to SOLs are defined in the applicable standards.

The SOL is the single value to which system operators operate, pre- or post-contingency. The Standard Requirements and the NERC Glossary should not be designating what mitigating actions are required, or may take place, based on time parameters. The RC is required to have a SOL Methodology, and it is this methodology that addresses the issues the PRT appears to be attempting to address through definitions.

Further, the term “exceed” also already has a definition and when a (the) SOL, as determined by the entity using the RC methodology, is exceeded, system operators must take “immediate action”, regardless of any duration associated with the limit.

Response: Thank you for your comment. The PRT believes that SOL should not be thought of as a single value. Proposed TOP and IRO standards from Project 2014-03 require entities to have Operating Plans to prevent or mitigate SOL exceedances, where the Facility Ratings, voltage limits, transient Stability Limits, and voltage Stability Limits are the SOLs which are to be operated within pre- and post-Contingency. The PRT is proposing a revised definition to convey the concept that an SOL is not a single value.

Ben Engelby - ACES Power Marketing - 6 -

Selected Answer: No

Answer Comment:

We are not opposed to the recommendation to modify the definition of SOL but are concerned with the definition as proposed. The proposed definition fundamentally alters the way SOLs are determined and calculated. Today, the existing definition of SOL does not require every Facility to have a SOL only that an SOL cannot exceed a Facility rating for the given Facility. With the proposed changes, every Facility will have an SOL because every Facility must have a rating per FAC-008-3 R6.
For consistency with language used surrounding IROLs, we recommend using the term SOL violation rather than SOL exceedance. Excursions above IROL limits for a time duration less than Tv are called exceedances rather than violations. If the excursion lasts longer than Tv, then it becomes a violation. An excursion above an SOL based on a Facility rating for time less than the time constant (i.e. less than 12 hours for a 12-hour rating) associated with the rating should be viewed as a temporary

exceedance. Whereas an excursion above the same SOL for longer than the associated time constant should be viewed as an SOL violation.

Response: Thank you for your comment. While ACES does not agree with the specific proposed definition at this time, it provides alternative definition. The specific recommendation of how to revise the definition is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

ISO/RTO Council Standards Review Committee

Gregory Campoli - New York Independent System Operator - 2 -

Christina Bigelow - Electric Reliability Council of Texas, Inc. - 2 -

Selected Answer:

Answer Comment: : The SRC supports improvement to the definition, but will reserve the detailed comments for the posted red line of the definition. The SDT should ensure that any modifications to the definition will not affect existing standards, policies, or procedures that registered entities have already established to ensure that the most appropriate System Operating Limit for a Facility is respected during real-time operations.

Response: Thank you for your comment. The specific recommendation of how to revise the definition is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

David Jendras - Ameren - Ameren Services - 3 -

Selected Answer: No

Answer Comment: We do not believe a new term “SOL Exceedance” is necessary, particularly for the planning horizon, and ask the PRT to provide justification.

Response: Thank you for your comment. The PRT is not proposing application of the definition in the planning horizon and agrees that “SOL Exceedance" may not be useful for the planning horizon.

Andrea Jessup - Bonneville Power Administration - 1,3,5,6 - WECC

Selected Answer: Yes

Teresa Czyz - Georgia Transmission Corporation - 1 - SERC

Selected Answer: Yes

Answer Comment: GTC does not recommend for the SOL definition simply be defined as facility ratings, voltage limits, transient stability limits, or voltage stability limits as proposed. The SOL definition should be related to corrective action for certain system configurations/conditions (as specified in TPL-001-4) where curtailment of firm service is necessary to avoid exceeding applicable reliability ratings. For example, an event specified by TPL-001-4 results in a generator’s output being curtailed to avoid violating an applicable reliability limit, the amount the generator is being curtailed would be classified as an SOL. For this example, the SOL could occur in the operations or planning horizon.

Response: Thank you for your comment. The specific recommendation of how to revise the definition is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Jason Snodgrass - Georgia Transmission Corporation - 1 -

Selected Answer: Yes

Answer Comment: GTC does not recommend for the SOL definition simply be defined as facility ratings, voltage limits, transient stability limits, or voltage stability limits as proposed. The SOL definition should be related to corrective action for certain system configurations/conditions (as specified in TPL-001-4) where curtailment of firm service

is necessary to avoid exceeding applicable reliability ratings. For example, an event specified by TPL-001-4 results in a generator's output being curtailed to avoid violating an applicable reliability limit, the amount the generator is being curtailed would be classified as an SOL. For this example, the SOL could occur in the operations or planning horizon.

Response: Thank you for your comment. The specific recommendation of how to revise the definition is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - SPP

Selected Answer: Yes

Answer Comment:

We agree with the PRT that the definition of the term 'System Operating Limit-(SOL)' has created confusion in the industry and needs to be revised for clarity on how the term should be defined and used in the Standard process . We suggest the PRT continue coordinating efforts with Alignment of Terms (Project 2015-04). This SDT is working on efforts to address terms and their definitions like (SOL) and to ensure that they're properly aligned with documents such as the Glossary of Terms and the Rules of Procedure (RoP).

We also caution the PRT that the stability components of the definition and/or Standard revisions need to capture that stability limit determinations are largely done in offline studies. The prevalence of online or near-real time stability analysis is not widespread. The definition changes or requirements need to reflect that there is not an expectation or requirement to determine these voltage and transient stability limits in real-time.

Response: Thank you for your comment. The specific recommendation of how to revise the definition is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Dixie Wells - Lower Colorado River Authority - 5 -

Selected Answer: Yes

Rachel Coyne - Texas Reliability Entity, Inc. - 10 -

Selected Answer: No

Answer Comment: Texas RE requests clarification regarding what the "implication of a compliance obligation" is in FAC-014 R1.

Response: Thank you for your comment. The referenced recommendation from the PRR means that the RC should not have compliance implications for a TOP's non-adherence to FAC-014-2 R2. As currently written, if a TOP does not establish SOLs consistent with its RC's SOL Methodology (as required by R2), the RC could be held non-compliant with R1 for not "ensuring SOLs are established consistent with its SOL Methodology."

Gene Henneberg - NV Energy - Sierra Pacific Power Co. - NA - Not Applicable - WECC

Selected Answer: Yes

Brad Ryan - Berkshire Hathaway - PacifiCorp - 6 - WECC

Selected Answer: Yes

4. Provide any additional comments for the PRT to consider that were not addressed in the preceding questions, if desired.

John Fontenot - Bryan Texas Utilities - 1 -

Selected Answer:

Robert Hirchak - Cleco Corporation - 6 -

Selected Answer:

Nick Vtyurin - Manitoba Hydro - 1,3,5,6 - MRO

Selected Answer:

Answer Comment: Manitoba Hydro is supportive of retiring requirements R3, R4, R5.3 and R5.4 from FAC-014. Rather than update the reference in R6 in FAC-014, consideration should be given to including this requirement in TPL-001-4, as part of the annual assessment report, if it is needed. If all of these changes are made then Transmission Planning and Planning Coordinator can be removed from the Applicability section.

Response: Thank you for your comment. The specific recommendation of how to revise the standard is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Emily Rousseau - MRO - 1,2,3,4,5,6 - MRO

Andrew Pusztai - American Transmission Company, LLC - 1 -

Selected Answer:

Answer Comment: For FAC-011-4 Recommendations

- The NSRF disagrees with the PRT's recommendation that voltage limits must be specifically addressed within the standard. FAC-011-3 currently uses the defined term System Operating Limit, which clearly incorporates voltage limits by definition.

For FAC-014-3 Recommendations

- As noted above, The NSRF proposes that R3, R4, R6, and the planning horizon portions of R5 in FAC-014-2 be moved to a FAC-010-4 standard.
- As noted above, The NSRF proposes that R1, R2, and the operating horizon

portions of R5 in FAC-014-2 be moved to a FAC-011-4 standard.

- The NSRF disagrees with the recommendation that R3 and R4 should be retired. The application of planning SOL and IROL criteria and methodology, which may be duplicated in part by R5 and R6 of TPL-001-4, results in specific SOLs for specific elements and these element-specific must continue to be established by PCs and TPs.

Response: Thank you for your comment. Both the current and PRT-proposed definition of System Operating Limit (SOL) include voltage limits; however, there is no reliability standard requiring an entity to establish and communicate voltage limits for use in operations, whether equipment voltage limits or system voltage limits. The PRT views the absence of a reliability standard requiring the appropriate entity to establish and communicate voltage limits as being a reliability gap in the standards and believes that gap should be closed.

The proposed retirement of requirements R3 and R4 are predicated on the development of requirements that facilitate transfer or sharing of reliability information from the planning entities to the operating entities.

The specific recommendations for revising the standards will be provided as input to the proposed standards development project.

Jennifer Losacco - NextEra Energy - Florida Power and Light Co. - 1 - FRCC

Selected Answer:

David Bueche - CenterPoint Energy Houston Electric, LLC - NA - Not Applicable - TRE

Selected Answer:

Thomas Foltz - AEP - 5 -

Selected Answer:

Si Truc Phan - Hydro-Quebec TransEnergie - 1 - NPCC

Selected Answer:

Alshare Hughes - Luminant - Luminant Generation Company LLC - 5,6,7 - TRE

Selected Answer:

Randi Heise - Dominion - Dominion Resources, Inc. - 5 -

Selected Answer:

Tammy Porter - Oncor Electric Delivery - 1 - TRE

Selected Answer:

Response:

Jared Shakespeare - Peak Reliability - 1 -

Selected Answer:

Richard Vine - California ISO - 2 -

Selected Answer:

Answer Comment: The California ISO supports comments provided by the ISO/RTO Standards Review Committee

Response: Thank you for your comment.

Molly Devine - IDACORP - Idaho Power Company - 1 -

Selected Answer:

Andrew Gallo - Austin Energy - 6 -

Selected Answer:

Answer Comment: None.

RoLynda Shumpert - SCANA - South Carolina Electric and Gas Co. - 1,3,5,6 - SERC

Selected Answer:

Colby Bellville - Duke Energy - 1,3,5,6 - FRCC,SERC,RFC

Selected Answer:

Joel Wise - Tennessee Valley Authority - 1,3,5,6 - SERC

Selected Answer:

Michael Shaw - Lower Colorado River Authority - 6 -

Selected Answer:

Kaleb Brimhall - Colorado Springs Utilities - 5 -

Selected Answer:

Answer Comment: Thank you for PRT team, this is one of the best reviews CSU has seen for a periodic review - it looked like the focus was not reliability!

Response: Thank you for your comment.

Lee Pedowicz - Northeast Power Coordinating Council - 10 - NPCC

Selected Answer:

Answer Comment:

1. Is it intended to retire the existing IROL definition and replace it with the proposed SOL Exceedance definition?

The existing IROL definition should be revised for the clarifications and additions recognized by the PRT. It is not necessary to develop a new definition.

2. The phrase “SOL Exceedance” or “exceed a SOL” are self-explanatory and do not present a problem being used in TOP and IRO standards.

3. The TOP is not required to develop a SOL calculation methodology, but it is required to calculate SOLs and IROLs. With the proposal to retire FAC-010, leaving the RC as the sole authority to develop the SOL calculation methodology (per FAC-011), we propose that the TOP should be required to use the RC developed SOL methodology when it develops SOLs for its portion of the Reliability Coordinator area.

4. We disagree with the statement made in the first bullet on page 7 of the Periodic Review Template for FAC-011, which says:

- In current FAC-011-3, SOLs are established to meet defined pre- and post-Contingency reliability criteria (Requirement R2). Operating within these SOLs in Real-time operations is intended to ensure acceptable pre- and post-Contingency system performance. This approach is flawed because it does not adequately account for the changing nature of the system in Real-time, which impacts the system limits.

Most RCs and TOPs (if not all) develop SOLs respecting defined pre and post-

Contingency reliability criteria not only for a single snap-shot condition, but for a variety of conditions, such as different load levels, BES facility outage conditions, various levels of loading on critical interfaces, etc. The scope of coverage of these SOLs is thus valid for a wide range of system conditions, either predicted in operations planning or encountered in Real-time operations. If, and when, the predicted or actual conditions should go outside of a SOL's initial scope of coverage, by virtue of the requirements in the related IRO and TOP standards the RC and TOP will reconfirm or re-establish a set of SOLs to ensure reliability for these newly identified system conditions. We therefore suggest the SDT to remove this incorrect statement from the Template.

5. A results-based standard would require the RC to develop SOLs and IROLs for use in Real-time, communicate the IROL and associated contingencies to the TO and GO to satisfy compliance obligations, as is done in CIP and FAC-003 standards.

There should be a link between the operating criteria the Planner develops in TPL-001-4 and the RC's development of SOLs and IROLs in FAC-011-3. There should be consistency between the Planning Horizon and Operating Horizon, recognizing that Real-time Operations will oftentimes differ from a Planning Horizon study.

6. On page 10 of the Periodic Review Recommendation FAC-011-3 - System Operating Limits Methodology for the Operations Horizon, the first sentence of the last paragraph of Item 6 (from page 9) refers to FAC-010. Shouldn't that be FAC-011?

Response: Thank you for your comment.

1. The PRT does not recommend retiring the current definition of IROL and replacing it with the proposed definition of SOL. The PRT's recommendation contains two potential approaches to address the identified issues with regard to IROLs: 1) to revise FAC-011-3 to require the Reliability Coordinator (RC) to describe in the RC's SOL Methodology the extent and degree of instability that warrants establishment of an IROL, or 2) consider revising the IROL definition.

2. Industry confusion with regard to SOLs and SOL exceedance was discussed and documented from the two technical conferences held in March of 2014 in Saint Louis, MO and Washington DC. The information from these technical conferences was provided as input to the Project 2014-03 Standard Drafting Team (SDT), who in response, created the NERC SOL Whitepaper, the purpose of which was to "bring clarity and consistency to the notion of establishing SOLs, exceeding SOLs, and implementing Operating Plans to mitigate SOL exceedances".

The PRT believes that while reliability entities may vary in how they achieve BES reliability, there remains a critical reliability need to establish as baseline level of consistency and commonality of understanding with fundamental concepts such as what SOLs are and what it means to exceed them.

3. Per FAC-014-2 R2, TOPs are currently required to establish SOLs according to the RC's SOL Methodology.

4. The PRT believes that not all entities consistently account for the range of system conditions, either predicted in operations planning or encountered in Real-time operations in establishing SOLs. Accordingly, the PRR has been revised as follows:

In current FAC-011-3, SOLs are established to meet defined pre- and post-Contingency reliability criteria (Requirement R2). Operating within these SOLs in Real-time operations is intended to ensure acceptable pre- and post-Contingency system performance. This approach may not adequately account for the changing nature of the system in Real-time.

5. These comments will be provided as input to the proposed standards development project.

6. Yes. The referenced sentence in the PRT recommendation has been corrected.

Leonard Kula - Independent Electricity System Operator - 2 -

Selected Answer:

Answer Comment:

We disagree with the statement made in the first bullet on P. 7 of the Periodic Review Template for FAC-011, which says:

In current FAC-011-3, SOLs are established to meet defined pre- and post-Contingency reliability criteria (Requirement R2). Operating within these SOLs in Real-time operations is intended to ensure acceptable pre- and post-Contingency system performance. This approach is flawed because it does not adequately account for the changing nature of the system in Real-Time, which impacts the system limits.

We disagree with this statement since we believe most RCs and TOPs (if not all) develop SOLs respecting defined pre- and post-contingency reliability criteria not only for a single snap shot condition, but for a variety of conditions such as different load levels, BES facility outage conditions, various levels of loading on critical interfaces, etc. The scope of coverage of these SOLs is thus valid for a wide range of system

conditions - either predicted in operations planning or encountered in real time operations. If and when the predicted or actual conditions should go outside of the SOL's initial scope of coverage, by virtue of the requirements in the related IRO and TOP standards the RC and TOP will re-confirm or re-establish a set of SOLs to ensure reliability for these newly identified system conditions. We therefore suggest the SDT to remove this incorrect statement from the Template.

Response: Thank you for your comment. The PRT believes that not all entities consistently account for the range of system conditions, either predicted in operations planning or encountered in Real-time operations in establishing SOLs. Accordingly, the PRR has been revised as follows:

In current FAC-011-3, SOLs are established to meet defined pre- and post-Contingency reliability criteria (Requirement R2). Operating within these SOLs in Real-time operations is intended to ensure acceptable pre- and post-Contingency system performance. This approach may not adequately account for the changing nature of the system in Real-time.

Anthony Jablonski - ReliabilityFirst - 10 -

Selected Answer:

Steven Rueckert - Western Electricity Coordinating Council - 10 -

Selected Answer:

Answer Comment: While it is legitimate to view the FAC standards in terms of their value to or burden on the planning process, it should be recognized that the terms and definitions, as well as the required planning output of the FAC requirement are inputs to the TOP and IRO Standards, and impact real-time operations.

Response: Thank you for your comment. The specific recommendation of how to revise the standard is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Ben Engelby - ACES Power Marketing - 6 -

Selected Answer:

ISO Council Standards Review Committee

Gregory Campoli - New York Independent System Operator - 2 -

Richard Vine - California ISO - 2 -

Christina Bigelow - Electric Reliability Council of Texas, Inc. - 2 -

Selected Answer:

Answer Comment:

1. The Periodic Review Team recommends that the SDT be convened to revise FAC-011 to specify system performance standards rather than leaving it solely on the Reliability Coordinator to determine an appropriate methodology. While the SRC is not opposed to the provision of additional guidance or criteria to better ensure system reliability, such revisions should not be overly prescriptive such that the reliability standard determines how SOLs are determined and does not allow Reliability Coordinators to exercise their engineering judgment and operating experience when defining SOLs.

2. The SRC supports the retirement or revision of Requirement R1 in FAC-014.

3. The SRC supports the review and revision of FAC-014 generally, but requests that the SDT strongly consider consolidation of FAC-011 and FAC-014 and, further, consider placement of additional RC data requirements into existing data specification standards such as IRO-010.

Response: Thank you for your comment. The specific recommendation of how to revise the standard is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

David Jendras - Ameren - Ameren Services - 3 -

Selected Answer:

Andrea Jessup - Bonneville Power Administration - 1,3,5,6 - WECC

Selected Answer:

Answer Comment: None.

Teresa Czyz - Georgia Transmission Corporation - 1 - SERC

Selected Answer:

Answer Comment: GTC agrees that the SOL definition as it stands is ambiguous and can lead to confusion. However, the proposed definition seems to equate reliability limits with SOLs which would make identification of SOLs unnecessary. SOLs should be identified as a necessary means to remain within applicable reliability limits for certain events specified by TPL-001-4.

Response: Thank you for your comment. The specific recommendation of how to revise the definition is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Jason Snodgrass - Georgia Transmission Corporation - 1 -

Selected Answer:

Answer Comment: GTC agrees that the SOL definition as it stands is ambiguous and can lead to confusion. However, the proposed definition seems to equate reliability limits with SOLs which would make identification of SOLs unnecessary. SOLs should be

identified as a necessary means to remain within applicable reliability limits for certain events specified by TPL-001-4.

Response: Thank you for your comment. The specific recommendation of how to revise the standard is beyond the scope of the periodic review but will be provided as input to the proposed standards development project.

Shannon Mickens - Southwest Power Pool, Inc. (RTO) - 2 - SPP

Selected Answer:

Dixie Wells - Lower Colorado River Authority - 5 -

Selected Answer:

Rachel Coyne - Texas Reliability Entity, Inc. - 10 -

Selected Answer:

Gene Henneberg - NV Energy - Sierra Pacific Power Co. - NA - Not Applicable - WECC

Selected Answer:

Brad Ryan - Berkshire Hathaway - PacifiCorp - 6 - WECC

Selected Answer:

End of Report