

Background

The Determine Facility Ratings Standard Drafting Team thanks all those who submitted comments with the last posting of these standards:

- FAC-010 — System Operating Limits Methodology for the Planning Horizon
- FAC-011 — System Operating Limits Methodology for the Operations Horizon
- FAC-014 — Establish and Communicate System Operating Limits

The above three Determine Facility Ratings Standards were posted for a public comment period from June 15 through July 14, 2006. The SDT asked industry participants to provide feedback on the standards through a special Comment Form. There were 23 sets of comments, including comments from 79 people representing 60 different entities from all NERC Regions and eight of the nine Industry Segments as shown in the table on the following pages.

In this document, the SDT's consideration of comments is provided in blue text immediately following each comment submitted for each question. A summary response to each question is highlighted in yellow following each question. Based on stakeholder comments, the SDT made only minor changes to the standards - primarily to improve consistency and format.

The following web page includes the stakeholder comments in their original format; a clean and red-line version of each of the standards; a justification for WECC's Interconnection-wide Regional Difference; and an Implementation Plan. The red-line versions of the standards and the Implementation Plan show the conforming changes that were made to the standards and the Implementation Plan following the last posting for comment.

<http://www.nerc.com/~filez/standards/Determine-Facility-Ratings.html>

Minority Views:

While there are still several entities that disagree with one or more aspects of the revised standards, there is a very strong minority view that remains unresolved. Stakeholders from the NPCC Region indicated a strong preference for having the same criteria apply to the determination of system operating limits used in the planning and operating horizons and indicated a preference for considering all multiple contingencies in the determination of system operating limits. The drafting team worked with representatives from the NPCC Region to draft alternate language for FAC-010 that would support this minority view, and asked stakeholders to indicate whether they would support these concepts. Most commenters indicated that the distinctions between developing system operating limits used for operations and planning should be retained – and most commenters indicated they did not support consideration of all multiple contingencies. Stakeholders challenged the technical basis for the NPCC proposal:

- Planning studies are done to make investment decisions and meet pre-set reliability criteria. Planning studies don't analyze the impact of every possible contingency under every possible condition – but in real time operations, the system must be operated with whatever contingencies and conditions are present.
- While the contingencies are generally the same for planning and operating, the studied conditions and the actual conditions rarely match when comparing planning studies and real-time operations. The 'starting point' for the conditions are typically quite different when comparing planning and operations. The starting point for planning is an intact system – the starting point for operations is whatever exists in real-time. As such, the allowable mitigating measures to meet the performance requirements also should be different.

- NPCC's proposed requirements do not distinguish between contingencies that may result in interconnection-wide impacts and those that may not.
- After the bulk electric system has suffered a multiple contingency, the next overlapping single (Category B) or multiple contingency (Category C) is deemed an Extreme Contingency in the current NERC Reliability Standard TPL-004, for which corrective transmission plans are not required. Strict adherence to NPCC's proposed requirements in setting real-time operating limits to protect against overlapping loss of any facilities or any combination of facilities could result in SOLs within local areas that would be overly restrictive.
- Overly restrictive operating limits indiscriminately applied could force entities to shed load or unnecessarily reduce economic transfers in anticipation of the next contingency or multiple contingencies, which may not occur or may not have regional impacts even if they did occur, resulting in reduced customer service.
- NPCC's proposed requirements are inconsistent with current operating philosophies, operating tools and would require significant investment in both infrastructure and contingency re-dispatch. These operating requirements are also inconsistent with well established planning design criteria.

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 Vice President, Director of Standards, Gerry Cauley at 609-452-8060 or at gerry.cauley@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.¹

Future Actions:

The SDT feels that additional postings of this standard for comment will not result in any additional significant changes to the standard and is asking the Standards Authorization Committee for approval to move the standards forward for ballot.

¹ The appeals process is in the Reliability Standards Process Manual: <http://www.nerc.com/standards/newstandardsprocess.html>.

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter "I" indicates a comment submitted by an individual "G" indicates a comment submitted by one of the groups listed at the end of the table	Organization	Industry Segment								
		1	2	3	4	5	6	7	8	9
Anita Lee (G1)	AESO		x							
Darrell Pace (G7)	Alabama Electric Coop	x								
William Smith	Allegheny Power	x								
Ken Goldsmith (G3)	ALT									
Bob McGarrah (G7)	Ameren	x								
John Sullivan	Ameren	x								
Phil Park	BC Transmission Corp		x							
Dave Rudolph (G3)	BEPC	x								
Brent Kingsford (G1)	CAISO		x							
Karl Kohlrus	City Water Light & Pwr	x								
Anal Gale (G2)	City of Tallahassee					x				
Ed Thompson (G5)	Con Ed	x								
Brian Moss (G7)	Duke	x								
Bob Pierce	Duke Energy	x								
Tom Pruitt	Duke Energy	x								
Shamir Ladhani (G4)	ENMAX Power Corporation	x								
Kham Vongkhamchanh (G7)	Entergy Services	x								
John Dumas (G1)	ERCOT		x							
Ron Szymczak	Exelon	x								
Waseem Arif (G4)	FortisBC Inc.	x								
Bob Birch (G2)	FP&L					x				
Eric Senkowicz (G2)	FRCC		x							
Linda Campbell (G2)	FRCC		x							
Dick Pursley (G3)	GRE	x								

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David Kiguel (G5) I	HydroOne Networks	x								
Ron Falsetti (G1) (G5) I	IESO		x							
Bill Shemley (G5)	ISO-NE		x							
Kathleen Goodman (G5) I	ISO-NE		x							
Peter Brandien (G1)	ISO-NE		x							
Jim Cyrulewski	ITC Transmission	x								
Dennis Florum (G3)	LES					x				
Donald Nelson (G5)	MA Dept of Tele. and Energy									x
Tom Mielnik (G3)	MEC			x						
Robert Coish (G3)	MEHB	x								
Bill Phillips (G1)	MISO		x							
Terry Bilke (G3)	MISO		x							
Joe Knight (G3)	MRO		x							
Ralph Rufrano (G5)	New York Power Authority	x								
Mike Gopinathan (G5)	Northeast Utilities	x								
Guy V. Zito (G5)	NPCC		x							
Al Boesch (G3)	NPPD	x								
Greg Campoli (G5)	NYISO		x							
Michael Calimano (G1)	NYISO		x							
Al Adamson (G5) I	NYSRC		x							
John Mayhan	OPPD	x								
Todd Gosnell (G3)	OPPD	x								
Ben Williams (G4)	Pacific Gas & Electric	x								
Chifong Thomas (G4)	Pacific Gas & Electric	x								
Richard Kafka	Pepco Holdings	x								

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Joe Willson	PJM		x							
Thomas Bowe (G1)	PJM		x							
Brian Keel (G4)	Salt River Project	x								
Sara Meinert	Salt River Project	x								
Art Brown (G7)	Santee Cooper	x								
C. V. Chung (G4)	Seattle City Light				x					
Pat Huntley (G7)	SERC		x							
Dilip Mahendra (G4)	SMUD	x								
Phil Kleckley (G7)	South Carolina Electric & Gas			x						
Dana Cabbell (G4)	Southern California Edison	x								
Neil Shockey	Southern California Edison	x								
Bob Jones (G6)	Southern Co. Transmission	x								
J.T. Wood (G6)	Southern Co. Transmission	x								
Jim Busbin (G6)	Southern Co. Transmission	x								
Keith Calhoun (G6)	Southern Co. Transmission	x								
Marc Butts (G6)	Southern Co. Transmission	x								
Raymond Vice (G6)	Southern Co. Transmission	x								
Roman Carter (G6)	Southern Co. Transmission	x								
Bob Jones (G7)	Southern Company Services	x								
Wayne Guttormson (G3)	SPC									
Charles Yeung (G1)	SPP		x							
José Quintas (G2)	Tampa Electric					x				
Roger Champagne (G5)	TransEnergie	x								
Ronald Belval	Tucson Electric	x								

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter "I" indicates a comment submitted by an individual "G" indicates a comment submitted by one of the groups listed at the end of the table	Organization	Industry Segment								
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Travis Sykes (G7)	TVA	x								
Peter Mackin (G4)	Utility System Efficiencies, Inc								x	
Darrick Moe (G3)	WAPA	x								
Mariam Mirzadeh	WAPA	x								
Jim Maenner (G3)	WPSC			x						
Pam Oreschnick (G3)	XEL									

Legend:

- G1 – ISO/RTO Council
- G2 – FRCC
- G3 – MRO
- G4 - WECC Technical Studies Subcommittee
- G5 – NPCC CP9, Reliability Standards Working
- G6 – Southern Company Transmission
- G7 - SERC EC Planning Standards Subcommittee (PSS)

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1. Do you agree with splitting FAC-010 into two standards?

Summary Consideration: Most stakeholders seemed to support the split of the standards, so the drafting team did not re-merge the standards. There were several suggestions for minor edits to improve grammar, formatting and consistency and these were adopted and are reflected in the revised standards.

Commenter		Comment
John Mayhan OPPD	-	<p>Splitting FAC-010 into two standards is acceptable. We do have the following questions and comments, however:</p> <ol style="list-style-type: none"> 1. Why do R2.3.2 of FAC-010 and R2.3.3 of FAC-011 have different wording? It seems that these two Requirements should have identical wording. 2. In R2.4 of FAC-010, did the drafting team intend to say "demonstrate transient, dynamic, and voltage stability" rather than "demonstrate dynamic and voltage stability"? 3. The following comments are grammatical in nature: <ol style="list-style-type: none"> a. In R2 of FAC-010, strike the word "each". b. R2.4 of FAC-010 does not make sense grammatically; one possible way of correcting this would be to insert the word "in" prior to the words "the system's response . . .". c. Near the end of M3 of FAC-010, change "In accordance" to "in accordance".
<p>Response:</p> <ol style="list-style-type: none"> 1. The drafting team made modifications so the same language is in both standards. 2. The drafting team made modifications so the same language is in both standards. 3. The grammar changes you identified were revised as follows: <ol style="list-style-type: none"> a. The word, 'each' was removed from R2 of FAC-010 as suggested. b. The sentence in R2.4 of FAC-010 was revised to eliminate the awkward phraseology. c. The capital 'I' was changed as suggested in M3 of FAC-010. 		
David Kiguel Hydro One Networks Inc.	no	<p>The standard to address SOL methodology should be one and the same, for usage in both the planning and operations horizons. The system should be operated according to how it is planned. While the SDT is correct in stating that the system is rarely in an operating condition with all elements in service, a restored state is a new starting point that is subject to the same contingencies considered in the planning studies with all elements in service. Considering only a subset of the contingencies at operations time compromises the reliability of the BES.</p>
<p>Response: Planning studies are done to make investment decisions and meet pre-set reliability criteria. Planning doesn't study the impact of every possible contingency under every possible condition – but in real time operations the system must be operated with whatever contingencies and conditions are present.</p> <p>The list of stability-related multiple contingencies to be considered is the same for both operating and planning horizons. In the operating horizon, the real-time conditions won't generally match the studied conditions, and the limits must be reviewed to see if they still make sense for the current operating conditions.</p>		
NPCC CP9, Reliability Standards Working Group	no	

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter		Comment
Kathleen Goodman ISO-New England	no	
Alan Adamson NYSRC	no	
Ronald Belval Tucson Electric Pwr Co	yes	The two standards however must be consistent to ensure that systems are planned and developed such that they may be operated in accordance with the operating standards.
<p>Response: The systems are planned according to the planning standards and operated according to the operating standards.</p> <p>Planning studies are done to make investment decisions and meet pre-set reliability criteria. Planning doesn't study the impact of every possible contingency under every possible condition – but in real time operations, the system must be operated with whatever contingencies and conditions are present.</p>		
John Sullivan Ameren	yes	<ol style="list-style-type: none"> 1. The SOL methodology may have application in long term planning, but it is not clear from the definition of SOL or the requirements of the standards what these applications are. 2. Definitions - A revised definition of a System Operating Limit needs to be included with the standard. The definition for System Operating Limit in the NERC glossary is too broad and needs to be clarified, particularly for the planning horizon. Similarly, the definition for an IROL (Interconnection Reliability Operating Limit) needs to be reconsidered. It is uncertain how an IROL would apply in the planning horizon. 3. It is not clear whether a System Operating Limit would be different from a local area limit. Local area limits may exist which would not impact the operation of the system as a whole. <p>Comments on specific items in standard FAC-010, Section A and Requirements Section 1:</p> <ol style="list-style-type: none"> 4. R1.2: Facility Ratings presently exist for normal and emergency conditions. It is not clear which ratings would be applicable for System Operating Limits. In addition, in the definition for System Operating Limit, the Facility rating is listed as one of the four types of System Operating Limits, which include not only Facility Ratings, bus Transient Stability Ratings, Voltage Stability Ratings, and System Voltage Limits. This is confusing. 5. Also, Level of Non-Compliance items 2.1.1, 2.3.1, and 2.3.2 only refer to Facility Ratings. This also seems to be inconsistent.
<p>Response:</p> <ol style="list-style-type: none"> 1. SOLs may be used in planning to determine future path ratings in the evaluation of transmission upgrade alternatives – in some companies, the limits are used to identify potential operating issues for possible future operating conditions with the caveat that the limits may not be applicable for real-time use because the studied conditions may not match the real-time conditions. 2. Trying to get consensus on a new definition at this point seems very challenging. You are 		

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Commenter		Comment
		<p>encouraged to write a SAR to undertake this effort.</p> <p>3. A system operating limit may take into consideration a wider area view than a local area limit and therefore they may be different.</p> <p>4. Facility ratings must be respected in the development of SOLs. The new Facility Ratings standards allow facility ratings be developed for use under all operating conditions, not just normal and emergency ratings.</p> <p>5. The levels of non-compliance reference facility ratings because requirement 1.2 states that SOLs must respect facility ratings – this gives facility owners some protection from equipment damage.</p>
FRCC	yes	This is good, thank you SDT.
Response: Thanks for your support.		
Jim Cyrulewski ITC Transmission	yes	The separation does help to refine time horizon issues. However the separation does not address fundamental problem with proposed standards which is failure to state the need to use the Transmission Owners ratings as the ceiling for any SOLs or IROLs. Such a clarification is needed in Requirement 3 of both FAC-010 and -011.
Response: R1.2 in both FAC-010 and FAC-011 does require that SOLs respect facility ratings which are set by the facility owners. The functional model does not support having the facility owner set system operating limits.		
Ron Falsetti IESO	yes	<p>The IESO strongly believes that the planning and operating standards for SOL determination should be the same such that the system is operated according to how it is planned despite the claimed starting point of all elements in service in the planning studies. From a system reliability standpoint, any steady state or restored state condition is a new starting point by itself, which can be subject to the same contingencies considered in planning studies for all elements in service. To consider less stringent contingencies when the system is not the same as it was studied is compromising reliability.</p> <p>For many years now, IESO and its fellow member Areas in NPCC have developed SOLs and operated to respecting the same contingency requirements as in the planning horizon. Our basic regional requirements in both the planning and operating horizon are the same. Our operating experiences has shown that while it may be costly to observe the multiple contingencies in the operating time frame, the assurance that we know we are operating under a reliable domain in real-time is far superior to having to second guess whether or not we could withstand multiple contingencies if we were to only operate to the single contingency requirements. The tornado events that took down multiple transmission towers and the icing event that shut down an entire 500 kV switching station in rapid succession, both occurred in the mid 1980s, demonstrated that multiple contingencies could and did actually occur. IESO was fortunate to survive both events without uncontrolled cascade tripping of other parts of the system, and was able to contain the disturbance without affecting neighboring systems. Much of that can be attributed to the observance of multiple contingencies in operating horizon, and the operation staff's understanding</p>

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter		Comment
		<p>and years of training and practices in establishing SOLs even under stressed situations.</p> <p>That said, the IESO agrees that a split of FAC-010 into two standards and make provision for considering at least some multiple contingencies in developing SOLs in FAC-011 is a step in the right direction, with the eventual goal to achieve total consistency in SOL development between the planning and operating horizons.</p>
<p>Response:</p> <p>Planning studies are done to make investment decisions and determine if the system is capable of meeting pre-set reliability criteria. Planning doesn't study the impact of every possible contingency under every possible condition – but in real time operations the system must be operated with whatever contingencies and conditions are present.</p> <p>While the contingencies are generally the same for planning and operating, the studied conditions and the actual conditions rarely match when comparing planning studies and real-time operations. The 'starting point' for the conditions are typically quite different when comparing planning and operations.</p> <p>As such, the allowable mitigating measures to meet the performance requirements also should be different.</p>		
MRO - NERC Standards Review Subcommittee	yes	<p>The MRO believes the Drafting Team clarified the differences between the operating and planning horizons, as well as, the differences between the responsibilities of the Reliability Coordinator and the Planning Authority by splitting FAC-010 into two standards. However, the MRO notes that Version 3 of the NERC Functional Model and certain existing NERC standards (for example, TOP-002 and TOP-004), provide that the IROLs are determined by the Reliability Coordinator and the SOLs are to be determined by the Transmission Operator (not the Reliability Coordinator). These standards should be corrected to be consistent with Version 3 of the NERC Functional Model and other existing NERC standards.</p>
<p>Response: Version 3 of the Functional Model has not been approved. During the development of these standards, the drafting team asked the Functional Model Working Group for advice on which functional entity should be assigned responsibility for developing SOLs and IROLs and the team was advised to assign these tasks to the Reliability Coordinator (Reliability Authority). The Functional Model V3 says the RC works with the TOPs to ensure SOLs are developed, but doesn't require that the RC be the entity that actual develops the SOLs.</p>		
Phil Park BC Transmission Corp	yes	<p>I agree that the standard can be split, but I do not necessarily agree that this is required - see my comments under item 3 below.</p>
<p>Response: Agree that the split may not be necessary, but it does seem to have helped make the standards more understandable.</p>		
Verne Ingersoll Progress Energy	yes	<p>Generally this standard makes no sense. SOL is an operating concept. There is no such thing in the planning area. Facility ratings and planning criteria are established and these are used to identify overload, stability or other problems and then upgrades to the system are developed to address those problems. If the point is to require the identification of line section limits using the facility ratings then this should be a simple addition to FAC-005 and require the info to be given to the TO who provides it to the RC. However I think this is not really needed as it is implicit</p>

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Commenter		Comment
		<p>in the process of doing transmission planning studies. There many other problems with FAC-10. Multiple contingencies are discussed in other questions. Requirement R3.1 assumes that the PA and RC cover the same footprint. This is only true for control areas that are also RCs. Control areas are typically the PA in the south and west. however, they often join together to sponsor a RC covering multiple control areas as was the intent of the original requirement for having an RC.FAC10 should be deleted for the reasons just stated.</p>
<p>Response: SOLs may be used in planning to determine path ratings – in some companies, the limits are used to identify potential operating issues with the caveat that the limits may not be applicable for real-time use because the studied conditions may not match the real-time conditions. The ‘new’ NERC standards are based on assignment of responsibilities to functional entities rather than to control areas. FAC-010 R3.1. was changed to state : “Study model (must include at least the entire Planning Authority Area as well as the critical modeling details from other Planning Authority Areas that would impact the Facility or Facilities under study,.” in response to your suggestion.</p>		
Mariam Mirzadeh WAPA	yes	
Tom Pruitt Bob Pierce Duke Energy	Yes	
Karl Kohlrus City Water, Light & Pwr	yes	
William J. Smith Allegheny Power	yes	
Sara Meinert Salt River Project	yes	
WECC Technical Studies Subcommittee	yes	
Ron Szymczak Exelon	yes	
Roman Carter Southern Co Transmission	yes	
SERC PSS	yes	
Richard Kafka Pepco Holdings	yes	
Neil Shockey Southern California Edison	yes	
Joe Willson PJM	yes	

2. Do you believe the modification to FAC-010, which requires the Planning Authority to identify stability-related multiple contingencies, is consistent with the intent of TPL-003?

Summary Consideration: While several commenters did agree that FAC-010 is consistent with the intent of TPL-003, several commenters indicated some misunderstanding and the drafting team modified R2.5 to state more clearly, “Starting with all facilities in service and following any of the multiple Contingencies identified in Reliability Standard TPL-003. . . “ rather than, “the system’s response to one of the multiple Contingencies identified in Reliability Standard TPL-003. . . ”

The drafting team also added another reference to TPL-003 in R2.5 by changing: “In determining the system’s response to multiple Contingencies. . .” to “In determining the system’s response to any of the multiple Contingencies, identified in Reliability Standard TPL-003. . . “

There is still a strong minority view that all Category C contingencies must be considered in the operating horizon.

Commenter		Comment
Tom Pruitt Bob Pierce Duke Energy	-	<p>This standard is being finalized at a time when the Assess Transmission Future Needs SDT has been charged with revising/clarifying TPL-001 thru 003. The TPL's are the basis for the FAC 010, 011 and 014 standards. It appears that it would be prudent to allow the AFTNSDT complete their work or decouple the MOD and TPL standards.</p> <p>This is especially true for FAC-010 which applies to the planning horizon. If TPL-001 and 002 are being properly administered in the planning horizon, then all potential SOL's identified should have a remediation plan that precludes them from being an SOL/IROL. Seems that FAC-010 is redundant to the TPL standards.</p>
<p>Response: The focus of this set of standards is very narrow and shouldn't have to wait for another standard to be developed. We expect that there will be quite a bit of industry debate on the issues surrounding revisions to the TPL standards and it can be an extended period of time before there is any clear consensus. When the TPL standards are revised, the implementation plan for that set of revisions can identify any conforming language needed to maintain the alignment with these FAC standards. The establishment of a methodology for setting SOLs and IROLs is critical to reliability and shouldn't be delayed. Proper implementation of transmission plans does not eliminate limits but should result in improved limits.</p>		
John Mayhan OPPD	no	<ol style="list-style-type: none"> 1. TPL-003-0 requires that there not be cascading outages for multiple contingencies. Cascading outages could be caused not only by stability-related phenomena but also by steady-state phenomena (e.g., thermal overloads). Therefore, the phrase "stability-related multiple contingencies" does not fully account for the particular requirement of TPL-003-0 regarding cascading outages. 2. Additionally, we believe that to be consistent with the intent of TPL-003, the requirements for consideration of Category C events, with the exception of C.3 events, should be identical between the planning and operating horizons. (See our comments in response to Question 3 for further discussion of this.) Because TPL-003-0 requires that thermal loadings and voltages be within Applicable Ratings following multiple contingencies, and because the drafting team's inserted language being discussed here does not mention Facility

Commenter		Comment
		<p>Ratings, the drafting team's inserted language may not be consistent with the intent of TPL-003 regarding Facility Ratings. (There are ambiguities in the definition of Applicable Rating; these ambiguities may be rectified with the Version 1 revisions to TPL-001, TPL-002, and TPL-003.)</p> <p>3. We recommend not moving forward with balloting on FAC-010, FAC-011, and FAC-014 until the Version 1 revisions to TPL-001, TPL-002, and TPL-003 are far enough along to ensure that FAC-010-1, FAC-011-1, FAC-014-1, and the Version 1 revisions to TPL-001, TPL-002, and TPL-003 are consistent regarding multiple contingencies.</p>
<p>Response:</p> <p>1. Stakeholders selected all multiple contingencies in the development of the SOL methodology used in the planning horizon (FAC-010) to be consistent with TPL-003; and stakeholders selected only stability-related multiple contingencies for the SOL methodology used in the operating horizon (FAC-011) because these are the multiple contingencies that are associated with instability, cascading outages, or uncontrolled separation and typically have a very short response time. Other types of multiple contingencies can be studied using real-time tools.</p> <p>This is a step toward recognizing that there are multiple contingencies that may be addressed in the future because the operator needs more time to respond to these. Existing tools do not run fast enough to do real-time analyses of stability-related multiple contingencies.</p> <p>2. The drafting team isn't sure of the intent of your comment, but:</p> <p>The standard does require that SOLs must respect facility ratings.</p> <p>Tools to do the studies needed to identify stability-related multiple contingencies for constantly changing conditions for use in real-time do not exist. The tools that exist are not fast enough for use in real-time.</p> <p>The responses to contingencies are different when comparing the operating and planning horizon but this respects the fact that the 'starting point' for the planning studies is a system intact, and the 'starting point' for the operating horizon is the 'current system' which is rarely an intact system.</p> <p>3. The focus of this set of standards is very narrow and shouldn't have to wait for another standard to be developed. We expect that there will be quite a bit of industry debate on the issues surrounding revisions to the TPL standards and it can be an extended period of time before there is any clear consensus. When the TPL standards are revised, the implementation plan for that set of revisions can identify any conforming language needed to maintain the alignment with these FAC standards. The establishment of a methodology for setting SOLs and IROLs is critical to reliability and shouldn't be delayed.</p>		
John Sullivan Ameren	no	<p>Comments regarding specific sections of draft standard FAC-010, Requirements Section 2:</p> <p>1. R2.2: The terminology in requirements R2.2 and R2.3 should be consistent with requirement R2.1 with respect to the state of the system prior to application of contingency events.</p> <p>2. R2.3.3: It is not clear why a requirement for preparation for the next contingency be included as a requirement in this standard, which deals with the planning horizon.</p> <p>3. R2.4: This requirement appears to be a restatement of reliability standard TPL-003-0. This requirement only requires the</p>

Commenter		Comment
		<p>consideration of one of the multiple contingencies identified in TPL-003. The questions are: Why only one? Which one? Unless there is a good reason to consider only one multiple contingency, this requirement appears to be superfluous. In addition, R2.4 as written is not limited to a 'stability-related' multiple contingency. If this is the intent, R2.4 should be specifically stated in that manner.</p> <p>Additional comments regarding draft standard FAC-014-1:</p> <p>4. R6: This requirement needs clarification. One possible interpretation is that this would include multiple contingencies which would result in a stability limit. The second interpretation is to provide a stability limit which may exist post-multiple contingency (that is, for the next (single) contingency subsequent to the system reaching steady-state after the multiple contingency). We believe that the intent is the first interpretation.</p> <p>5. What if the stability limit is localized and does not impact a wide area?</p>
<p>Response:</p> <ol style="list-style-type: none"> The drafting team modified R2.1 as follows: In the pre-contingency state and with all Facilities in service Preparation for the next contingency can be a step in conducting a planning study and was translated from Table 1 of the TPL standards. R2.4 was revised to clarify what was intended. R2.4 is not limited to only stability-related multiple contingencies. R2.4 now starts, "Starting with all facilities in service and following any of the multiple Contingencies identified in Reliability Standard TPL-003. . . " The intent was the first interpretation – multiple contingencies that would result in a stability limit. TPL-003 starts with all facilities in service. If the limit is local, it should still be provided to the Reliability Coordinator and the Reliability Coordinator can determine whether the limit is valid for real-time use. 		
<p>Ron Szymczak Exelon</p>	<p>no</p>	<p>The intent to identify stability-related multiple contingencies is consistent with the intent of TPL-003. However, the intent of TPL-003 is also to reinforce the transmission system if instability or cascading is identified for Category C contingencies. If the transmission reinforcement is completed before the identified problem period, there is no need to inform operations as the identified problem has been corrected. Clarification is needed as to under what conditions operations should be notified of a potential concern regarding a Category C contingency. If no stability problems are identified in planning studies based on the assumed conditions studied, one could interpret the standard as presently proposed to require additional scenarios in an effort to identify stability limits. This would go beyond the intent of the planning standard. Exelon does agree that if a stability limit is identified and the required reinforcement will not be complete in time, then planning needs to inform operations of the results of the planning analysis.</p>
<p>Response: The objective is to give the Reliability Coordinator the limits it needs (some of these are stability-related limits and their associated stability-related multiple contingencies), according to the schedule set by the Reliability Coordinator. (FAC-014 R5) It is unlikely that the Reliability Coordinator will want to see limits that are identified as being applicable 5</p>		

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter		Comment
<p>years away. There is no language in the standards to require Planning Authorities to conduct additional studies beyond those already required under TPL-003.</p>		
Jim Cyrulewski ITC Transmission	no	The identification is done by the Transmission Owner. The Planning Authority honors what Transmission Owners have determined.
<p>Response: The standard requires that facility ratings be respected in both FAC-010 and FAC-011.</p>		
Verne Ingersoll Progress Energy	no	Again, TPL-003 is related to the planning environment. This does not translate to the operating environment. There are no existing tools for performing stability analysis in the operating arena. Once the system is built, stability is what it is. The system is built to withstand a certain type of fault as specified in the planning criteria and that is it.
<p>Response: Agreed.</p>		
Joe Willson PJM	no	The intent to identify stability-related multiple contingencies is consistent with the intent of TPL-003. However, the intent of TPL-003 is also to reinforce the transmission system if instability or cascading is identified for Category C contingencies.
<p>Response: Agreed – but operators need to know where that limit is.</p>		
David Kiguel Hydro One Networks Inc.	no	See our comments on Question # 1.
<p>Response: Please see the response to question 1.</p>		
NPCC CP9, Reliability Standards Working Group	no	
Kathleen Goodman ISO-New England	no	
Alan Adamson NYSRC	no	
Ronald Belval Tucson Electric Pwr Co	yes	TEP agrees with the WECC Technical Studies Subcommittee comment as follows: "FAC-010 requires that the Planning Authority determine the SOL such that "the system shall demonstrate dynamic and voltage stability; all Facilities shall be operating within their Facility Ratings and within their thermal, voltage and stability limits; and Cascading Outages or uncontrolled separation shall not occur". Requiring that all Facilities to be within their "thermal limits" is beyond the stated requirement in the question to identify "stability-related multiple contingencies".
<p>Response: Table I in the TPL standards requires that following a Category C contingency, the system response must be: "System Stable and both Thermal and Voltage Limits within Applicable Rating." This is consistent with the proposed standards.</p>		
Mariam Mirzadeh WAPA	yes	FAC-010 requires that the Planning Authority determine the SOL such that "the system shall demonstrate dynamic and voltage stability; all Facilities shall be operating within their Facility Ratings and within their thermal, voltage and stability limits; and Cascading Outages or uncontrolled separation shall not occur". Requiring that all Facilities to be within their within their "thermal limits" is beyond the stated requirement in the question to identify "stability-related multiple contingencies".
<p>Response: Table I in the TPL standards requires that following a Category C contingency, the system response must be: "System Stable and both Thermal and Voltage Limits within Applicable Rating." This is consistent with the proposed standards.</p>		

Commenter		Comment
Ron Falsetti IESO	yes	<p>1) While this meets the intent of TPL-003, we suggest that R3.3 in FAC-011 be modified to allow the RC to determine other multiple contingencies not already identified by the PA as the need arises due to expected or prevailing system conditions (which the PA normally does not have prior knowledge).</p> <p>(2) We again stress the importance to include the loss of any single bus or an inadvertent breaker opening that are stipulated in TOP-002 in this standard. These single contingencies can remove additional BES equipment or reconfigure the BES to the point where the BES could be in a cascading situation. While we agree the footnote indicates that the contingencies identified in R2.2.1 to R2.2.3 are the minimum set and are not the only ones that should be studied, lacking specificity it does not mandate the PA to study the two that are not listed. And this, in our view, is the kind of loose language that does not meet statutory requirements. We are unable to understand the continued exclusion of these contingencies given they are already specified in TOP-002 and FAC-010 now applies to the PA, who must also comply with the TOP-002 requirements. If the SDT strongly believes that these two contingencies are not required, we'd appreciate seeing the rationale.</p>
<p>Response:</p> <p>1. This was intended – the drafting team modified R3.3 to read as shown to clarify this intent.</p> <p>R3.3 A process for determining which of the stability limits associated with the list of multiple contingencies (provided by the Planning Authority in accordance with FAC-014 Requirement 6) are applicable for use in the operating horizon given the actual or expected system conditions.</p> <p>R3.3.1 This process shall address the need to modify these limits, to modify the list of limits, and to modify the list of associated multiple contingencies.</p> <p>2. We assume you are referencing TPL-003 Table I Category C – and the contingencies involving the loss of a bus section and a breaker failure involving a failure or internal fault. These are multiple contingencies and are addressed in the standard under the following requirement:</p> <p>R2.4 Starting with all facilities in service and following any of the multiple Contingencies identified in Reliability Standard TPL-003 the system shall demonstrate transient, dynamic and voltage stability; all Facilities shall be operating within their Facility Ratings and within their thermal, voltage and stability limits; and Cascading Outages or uncontrolled separation shall not occur.</p> <p>The drafting team didn't add a breaker to the list of elements in R2.2.2 because a breaker is a subset of the loss of the items already listed in R2.2.2 (generator, line, transformer, or shunt device) is already more severe than losing a breaker.</p>		
Neil Shockey Southern California Edison	yes	SCE supports the comments submitted by the WECC Technical Studies Subcommittee.
<p>Response: Table I in the TPL standards requires that following a Category C contingency, the system response must be: "System Stable and both Thermal and Voltage Limits within Applicable Rating." This is consistent with the proposed standards.</p>		
MRO - NERC Standards Review Subcommittee	yes	<p>The MRO supports the approach proposed by the Drafting Team although we believe that R2.3.2. should be clarified and that the standard unnecessarily repeats wording from TPL-003-0.</p> <p>R2.3.2 states that "System reconfiguration through automatic control or other preestablished methods." The MRO believes that the</p>

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter		Comment
		<p>meaning of "other preestablished methods" would include manual control that has been preestablished through the development of an operating guide which provides a plan for manual action. The MRO believes it would be better to clarify this language particularly when compared to R2.3.3 of new FAC-11 which includes the wording "System reconfiguration through manual or automatic control or protection actions." To parallel the FAC-11 language and provide for the "preestablished" qualification, the MRO recommends that R2.3.2 in FAC-10 be revised to say, "System reconfiguration through manual control using preestablished methods, automatic control, or protection actions."</p> <p>Draft FAC-010-1 unnecessarily repeats wording from TPL-003-0. For example, in R2.2, there is a recapitulation of the Category B events with R2.2.1, R2.2.2, and R2.2.3. The MRO believes that the Drafting Team should simplify the standard to refer to TPL-003-0 so that the standard is less complicated and easier to understand. Besides changes that would be required later to these standards due to changes to TPL-003 could be more easily incorporated.</p>
<p>Response: FAC-010 R2.3.2 was modified as shown below: System reconfiguration through manual or automatic control or protection actions.</p> <p>TPL-003 addresses multiple contingencies - the drafting tried to clarify what was included in the TPL standards and in some cases used alternate language. The TPL standards are undergoing an update.</p>		
William J. Smith Allegheny Power	yes	Yes, but only for feasible multiple contingencies. Identifying all stability-related multiple contingencies could result in unnecessary system additions where a derate could assure reliability.
<p>Response: The standard doesn't propose changing the existing planning criteria – so there is nothing in the proposed standards that would require system additions beyond those that may be identified as needed to meet the criteria in the TPL standards.</p>		
WECC Technical Studies Subcommittee	yes	FAC-010 requires that the Planning Authority determine the SOL such that "the system shall demonstrate dynamic and voltage stability; all Facilities shall be operating within their Facility Ratings and within their thermal, voltage and stability limits; and Cascading Outages or uncontrolled separation shall not occur". Requiring that all Facilities to be within their within their "thermal limits" is beyond the stated requirement in the question to identify "stability-related multiple contingencies".
<p>Response: Table I in the TPL standards requires that following a Category C contingency, the system response must be: "System Stable and both Thermal and Voltage Limits within Applicable Rating." This is consistent with the proposed standards.</p>		
Phil Park BC Transmission Corp	yes	The modification is consistent. However, I am confused by the wording of the above clause - which requires the PA to identify stability related multiple contingencies. The Requirement addresses the system response, not PA process.
<p>Response: The wording of the question could have been clearer.</p>		
Sara Meinert Salt River Project	yes	
Roman Carter Southern Co Transmission	yes	

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter		Comment
SERC PSS	yes	
Karl Kohlrus City Water, Light & Pwr	yes	
FRCC	yes	
Richard Kafka Pepco Holdings	yes	

3. Are the above modifications (to address Category C contingencies) to the set of proposed standards acceptable?

Summary Consideration: There was no clear consensus in the response of the commenters. Several commenters indicated that they disagreed with the inclusion of stability-related multiple contingencies in the SOL methodology for use in real-time operations. The intent was not to require that a stability analysis be conducted in real-time, but that the Reliability Coordinator use its process for determining whether the stability-related multiple contingencies provided by the Planning Authority, are applicable for use in the operating horizon. The drafting team modified the language in FAC-011 R3.3 to clarify that the intent is to use this process in the 'operating horizon' rather than in 'real-time'. With this change, the drafting team feels as though most commenters support the modifications made to address Category C contingencies. There is still a strong minority view that all Category C contingencies must be considered in the operating horizon.

Commenter		Comment
John Mayhan OPPD	no	<p>1. The requirements for consideration of Category C events, with the exception of C.3 events, should be identical between the planning and operating horizons.</p> <p>We do not agree with the reason provided by the drafting team for having different requirements for consideration of Category C events other than C.3 events between the planning and operating horizons.</p> <p>The drafting team's reason for the different requirements is that when a system is planned, the starting point is an intact system, while an intact system is rare in real-time operations.</p> <p>However, all of the Category C events with the exception of C.3 events are either common-mode or dependent multiple contingencies, and, as such, are completely unrelated to prior outages. Furthermore, while it may be true, strictly speaking, that an intact system is rare in real-time operations, most prior outages will have a negligible impact on a given SOL, and the system is effectively in an intact state the majority of the time in real-time operations as far as a given SOL is concerned. (C.3 events (Category B contingency, manual system adjustments, followed by another Category B contingency) do not need to be considered in the development of SOLs for the operating horizon because they consist of two independent contingencies; they essentially consist of a prior outage followed by another single-element contingency.)</p> <p>2. The drafting team added requirements to require consideration of stability-related multiple contingencies and mentioned that these multiple contingencies could cause instability, cascading outages, or uncontrolled separation. However, cascading outages could be caused not only by stability-related phenomena but also by steady-state phenomena (e.g., thermal overloads). If the intent of the standard is to prevent cascading outages for multiple contingencies, then all multiple contingencies that could cause cascading outages, not just stability-related multiple contingencies, should be required to be considered.</p> <p>3. Because it is essential that the requirements for determining SOLs be consistent with the requirements of TPL-001, TPL-002, TPL-</p>

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter		Comment
		003, we recommend not moving forward with balloting on FAC-010, FAC-011, and FAC-014 until the Version 1 revisions to TPL-001, TPL-002, and TPL-003 are far enough along to ensure that FAC-010-1, FAC-011-1, FAC-014-1, and the Version 1 revisions to TPL-001, TPL-002, and TPL-003 will all have identical requirements for consideration of common-mode and dependent multiple contingencies.

Response:

1. The drafting team does not agree with the assumption that most prior outages will have a negligible impact on a given SOL, and the system is effectively in an intact state the majority of the time in real-time operations as far as a given SOL is concerned. System condition variables include elements beyond known outages – things such as different generation or load levels are just two elements that can make a significant difference with an SOL. A sufficient number of outages could have an impact and in real-time these all need to be considered.

2. The drafting team selected just the stability-related multiple contingencies because these are the multiple contingencies that are associated with instability, cascading outages, or uncontrolled separation and typically have a very short response time. Other types of multiple contingencies can be studied using real-time tools.

This is a step toward recognizing that there are multiple contingencies that may be addressed in the future because the operator needs more time to respond to these. Existing tools do not run fast enough to do real-time analyses of stability-related multiple contingencies.

Tools to do the studies needed to identify stability-related multiple contingencies for constantly changing conditions for use in real-time do not exist. The tools that exist are not fast enough for use in real-time.

3. The focus of this set of standards is very narrow and shouldn't have to wait for another standard to be developed. We expect that there will be quite a bit of industry debate on the issues surrounding revisions to the TPL standards and it can be an extended period of time before there is any clear consensus. When the TPL standards are revised, the implementation plan for that set of revisions can identify any conforming language needed to maintain the alignment with these FAC standards.

The establishment of a methodology for setting SOLs and IROLs is critical to reliability and shouldn't be delayed.

John Sullivan Ameren	no	We agree with the intent or direction of the drafting team. However, we believe that this intent is not clearly conveyed in the requirements, measurements, and compliance items of the draft standard.
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Response: The drafting team did make some clarifications – hopefully these modifications will make it easier to understand. Please see the summary consideration.

Ron Szymczak Exelon	no	Although this proposed change would ultimately enhance reliability, there are practical issues as to the availability of real-time analysis tools and study frequency that must be addressed first. The standard needs to provide some guidance as to the frequency (i.e. hourly, daily, weekly, monthly) of the stability studies to be performed in operations and how far into the future the analysis should extend. Finally, the standard needs to be clear as to what type (i.e. voltage, angular or all) of stability studies are being required to be studied in the operations horizon.
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Response: The new requirement doesn't require the use of a real-time analysis tool. The requirement in

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter		Comment
<p>FAC-010 R3.3 only requires that you have a process for determining if the stability-related multiple contingencies provided by the Planning Authority are applicable for use given the real-time conditions. The standard was revised and the following phrase is used instead: ... for use in the operating horizon given the actual or expected system conditions. The process can identify the type of stability-related limits. Note that there may be different regional requirements in place that will dictate what type of stability limits must be considered.</p>		
Jim Cyrulewski ITC Transmission	no	Not restrictive enough. Transmission Owners provide limits for all contingencies and Planning Authorities and Reliability Coordinators honor such limits.
<p>Response: Transmission owners do provide facility ratings but are not responsible for establishing system operating limits.</p>		
Phil Park BC Transmission Corp	no	Regardless of the original intent of Table 1, it should be applied for all system operating limits. FAC-011 R3.3 should address both stability and thermal limits. I do not understand the explanation on page 5 above - Therefore, strictly operating to Category C could cause entities to operate in an overly restrictive state, perhaps leading to load shedding in anticipation of a Category C event. For this reason, the drafting team limited the inclusion of multiple contingencies to those that could cause instability, cascading outages, or uncontrolled separation. - Entities should set limits and load shedding for Category C events based on operating conditions at the time. In this way the shedding would be right for the conditions. If thermal limits are protected by overcurrent protection, thermal limits also need to be considered in establishing operating limits. FAC-010 and -011 should have the same requirements and language regarding multiple contingency events.
<p>Response: The drafting team selected just the stability-related multiple contingencies for FAC-011 because these are the multiple contingencies that are associated with instability, cascading outages, or uncontrolled separation and typically have a very short response time. Other types of multiple contingencies can be studied using real-time tools. This is a step toward recognizing that there are multiple contingencies that may be addressed in the future because the operator needs more time to respond to these. Existing tools do not run fast enough to do real-time analyses of stability-related multiple contingencies. Tools to do the studies needed to identify stability-related multiple contingencies for constantly changing conditions for use in real-time do not exist. The tools that exist are not fast enough for use in real-time. The responses to contingencies are different when comparing the operating and planning horizon but this respects the fact that the 'starting point' for the planning studies is a system intact, and the 'starting point' for the operating horizon is the 'current system' which is rarely an intact system. Most stakeholders indicated they have not designed their systems to be operated to SOLs that consider all multiple contingencies except in a system intact starting point.</p>		
Alan Adamson NYSRC	no	See our response to Question #8.
<p>Response: Please see the response to question 8.</p>		
Verne Ingersoll Progress Energy	no	See answer to #2.
<p>Response: Please see the response to question 2.</p>		

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter		Comment
MRO - NERC Standards Review Subcommittee	no	<p>The MRO supports most of the modifications with the exception of R3.3 in new FAC-11. The MRO does not think there are tools available that can properly test for stability issues in real-time. Further, it is impractical to use proxy flowgates to represent stability limits in real-time for all possible real-time conditions when the real-time conditions may vary greatly from the conditions that are used in the studies to develop the proxy flowgates, for example, the real-time conditions could involve many prior outages. The Transmission Operator and the Reliability Coordinator must still perform their functions to protect for the next contingency. Therefore, it is impractical to always provide for protection for multiple element stability limits in the real-time. Most of the MRO companies have conducted operational planning in the operating horizon to multiple contingencies "where practical", while they have not monitored continuously on a real-time basis except through proxy flowgates. Also, it may not be realistic to protect for multiple element contingencies when the system is already potentially in a state with a number of elements on outage. We recommend that the last sentence of the requirement be revised to add "where practical" as follows: "The process shall address where practical, recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies."</p>
<p>Response: The drafting team did not intend to imply that a real-time stability analysis needed to be conducted and modified R3.3 as follows:</p> <p>R3.3 A process for determining which of the stability limits associated with the list of multiple contingencies (provided by the Planning Authority in accordance with FAC-014 Requirement 6) are applicable for use in the operating horizon given the actual or expected system conditions.</p> <p>R3.3.1 This process shall address the need to modify these limits, to modify the list of limits, and to modify the list of associated multiple contingencies.</p> <p>Note that there are no real-time operating requirements in this standard. FAC-011 R3.3 requires the Reliability Coordinator to have a process for determining which of the stability limits associated with the list of multiple contingencies (provided by the Planning Authority in accordance with FAC-014 Requirement 6) are applicable for use in the operating horizon. The process can be use of engineering experience to determine whether the limits are applicable. No real-time stability analysis tool is required. The rephrasing of the requirement clarifies that the analysis can be done a day or more ahead of real time.</p>		
Joe Willson PJM	no	<p>The analysis performed in the planning environment is significantly different than the tools available for real-time operations. Short term or Dynamic stability problems detected in planning may not be observed using the available real-time tools. Also the impact and likelihood of a Category C contingency must be evaluated. Operation for multiple contingencies will not only be costly, it may result in needless issuances of emergency procedures and load shedding. Significant High Risk with High Probability multiple-contingency operation needs to be better evaluated.</p>
<p>Response: FAC-011 R3.3 was revised to clarify the intent – this allows the Reliability Coordinator to use engineering experience or other tools to determine whether the limits are applicable. No real-time stability analysis tool is required. The rephrasing of the requirement clarifies that the analysis can be done a day or more ahead of real time.</p>		
Richard Kafka Pepco Holdings	no	

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter		Comment
NPCC CP9, Reliability Standards Working Group	no	
Kathleen Goodman ISO-New England	no	
David Kiguel Hydro One Networks Inc.	no	
Ron Falsetti IESO	yes	Please also see our response to Q2 for the added capability for RC to specify other multiple contingencies.
Response: Please see the response to your comments on Q2.		
Ronald Belval Tucson Electric Pwr Co	yes	Note that "future" revisions may be necessary depending actual experience.
Response: Agreed. This is true for all standards.		
FRCC	yes	
William J. Smith Allegheny Power	yes	
Sara Meinert Salt River Project	yes	
Roman Carter Southern Co Transmission	yes	
SERC PSS	yes	
Karl Kohlrus City Water, Light & Pwr	yes	

4. Do you believe the modifications to link the requirements between the Planning Authority (requiring the Planning Authority in FAC-014 to provide a list of stability-related multiple contingencies and associated limits to the Reliability Coordinator) and the Reliability Coordinator (requiring the Reliability Coordinator in FAC-011 to include a process in its SOL methodology to address this list of stability-related multiple contingencies and associated limits based on real-time conditions) provide the appropriate linkage between operations and planning standards?

Summary Consideration: There was no clear consensus in the response of the commenters. Several commenters indicated that they disagreed with the inclusion of stability-related multiple contingencies in the SOL methodology for use in real-time operations (similar to the responses for question 3). The intent was not to require that a stability analysis be conducted in real-time, but that the Reliability Coordinator use its process for determining whether the stability-related multiple contingencies provided by the Planning Authority, are applicable for use in the operating horizon. The drafting team modified the language in FAC-011 R3.3 to clarify that the intent is to use this process in the 'operating horizon' rather than in 'real-time'. With this change, the drafting team feels as though most commenters support the modifications made to address Category C contingencies. There is still a strong minority view that all Category C contingencies must be considered in the operating horizon.

Commenter		Comment
John Mayhan OPPD	no	See our comments in response to Questions 2 and 3.
Response: Please see the response to your comments on Questions 2 and 3.		
Joe Willson PJM	no	My concern is that the study assumptions, the generation and transmission configurations and other possible mitigating information is not included in the standard. Concern that in order to cover any possible situation, the Planning Authority will define all possible multiple contingencies or potential stability problems and the system operator will be required to analyze all these contingencies without appropriate tools.
Response: TPL-003 and FAC-010 both require the Planning Authority to document the study assumptions. This standard does not require any new studies that aren't already being done by the Planning Authority. FAC-011 R3.3 allows the Reliability Coordinator to use engineering experience or other tools to determine whether the limits are applicable. No real-time stability analysis tool is required. The rephrasing of the requirement clarifies that the analysis can be done a day or more ahead of real time.		
ISO/RTO Council	no	As stated above, there is still considerable confusion regarding development of a System Operating Limits methodology and its application in the planning horizon.
Response: SOLs may be used in planning to determine future path ratings in the evaluation of transmission upgrade alternatives – in some companies, the limits are used to identify potential operating issues for possible future operating conditions with the caveat that the limits may not be applicable for real-time use because the studied conditions may not match the real-time conditions.		
Jim Cyrulewski ITC Transmission	no	Again the Transmission Owners ratings are the ceiling. Role of the Planning Authority should be clarified that it provided a list based on Transmission Owners ratings.
Response: Transmission Owners set facility ratings, but do not have responsibility for setting system operating limits. The methodology for setting system operating limits must respect facility ratings – this is included in FAC-010 R1.2 and FAC-011 R1.2		
MRO - NERC Standards Review Subcommittee	no	The MRO supports the linkage with the exception of the comments made in response to 2. and 3.

Commenter		Comment
<p>Response: The drafting team modified language in the standards in response to the MRO's comments on questions 2 and 3. The revised standards clarify that the Reliability Coordinator must have a process for determining if the stability-related limits provided by the Planning Authority are applicable for use in the 'operating horizon' rather than in 'real-time'. This clarifies that the analysis does not need to be done using a real-time stability analysis tool (which doesn't exist).</p>		
Ron Szymczak Exelon	no	As stated earlier in this comment form, Table I was developed to determine if the BES system needs expansion for future conditions. Studying multiple contingencies in the operating time frame could only be practical if the appropriate real-time tools are available and studies can be performed in the time available (see comments from question 3). Until real-time tools, frequency of studies and time horizon to be studied are identified the linkage between operations and planning standards appears to be inappropriate.
<p>Response: The revised standards clarify that the Reliability Coordinator must have a process for determining if the stability-related limits provided by the Planning Authority are applicable for use in the 'operating horizon' rather than in 'real-time'. This clarifies that the analysis does not need to be done using a real-time stability analysis tool (which doesn't exist).</p>		
Verne Ingersoll Progress Energy	no	These studies are not done in the operations or operations planning horizon and the studies done in the planning horizon are for the purpose of determining necessary upgrades. To the extent they apply to planning they are already covered in TPL-004.
<p>Response: This standard (FAC-014) requires that the studies done as required by TPL-003 be used to identify the stability-related multiple contingencies. These studies are not done in TPL-004. While the purpose may be to identify necessary upgrades, the stability-related multiple contingencies that are identified during these studies may be useful when provided to the Reliability Coordinator. The Reliability Coordinator must make a determination of whether the limits associated with these stability-related multiple contingencies are applicable for use in the operating horizon.</p>		
Alan Adamson NYSRC	no	
NPCC CP9, Reliability Standards Working Group	no	
Kathleen Goodman ISO-New England	no	
David Kiguel Hydro One Networks Inc.	no	
FRCC	yes/no	We agree with this proposed more formal link between Planning and Operations but by no means is it the ONLY appropriate link between the two worlds.
<p>Response: Agree.</p>		
Ron Falsetti IESO	yes	Again, providing the RC the capability to determine other multiple contingencies for SOL development in the operating horizon would be a necessary supplement that further strengthens the linkage.
<p>Response: This was the intention of R3.3 – the drafting team modified R3.3 to read as follows to clarify this intent:</p> <p>R3.3 A process for determining which of the stability limits associated with the list of multiple contingencies (provided by the Planning Authority in accordance with FAC-014 Requirement 6) are applicable for use in the operating horizon given the actual or expected system conditions.</p> <p>R3.3.1 This process shall address the need to modify these limits, to modify the list of limits, and</p>		

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter		Comment
to modify the list of associated multiple contingencies.		
Sara Meinert Salt River Project	yes	As long as enough detail and explanation is provided by each Planning Authority for the Reliability Coordinator to appropriately analyze the impacts.
Response: This is required. The Reliability Coordinator can specify what it needs and how often it must be provided.		
Richard Kafka Pepco Holdings	yes	
Ronald Belval Tucson Electric Pwr Co	yes	
Mariam Mirzadeh WAPA	yes	
Neil Shockey Southern California Edison	yes	
William J. Smith Allegheny Power	yes	
WECC Technical Studies Subcommittee	yes	
Roman Carter Southern Co Transmission	yes	
SERC PSS	yes	
Karl Kohlrus City Water, Light & Pwr	yes	

5. Do you agree with conforming changes to the Version 0 standards (TOP-002, TOP-004, COM-002) highlighted in the revised implementation plan?

Summary Consideration: The comments indicated that the changes to TOP-002 were not appropriate and the changes to TOP-002 will be removed from the set of standards moving forward with FAC-010, FAC-011 and FAC-014.

Commenter		Comment
John Sullivan Ameren	-	No comments on this item from a long term planning perspective.
Phil Park BC Transmission Corp	-	Have not reviewed pending resolution of issues in FAC-010 and -011
John Mayhan OPPD	no	See our comments in response to Questions 2 and 3. As stated in those comments, we believe that it is inappropriate to address only stability-related multiple contingencies rather than all multiple contingencies that could cause instability, cascading outages, or uncontrolled separation.
Response: While there is a strong minority view that all multiple contingencies must be considered in the operating horizon, most stakeholders do not support this concept.		
Jim Cyrulewski ITC Transmission	no	Not the Reliability Coordinators responsibility. Needs to be identified as Transmission Owner responsibility.
Response: The response does not address the question that was asked.		
MRO - NERC Standards Review Subcommittee	no	<p>The MRO does not support the revisions to R7 and R8 in TOP-002 that would require the Balancing Authority to take such stability-related multiple contingencies into account in determining capacity and energy reserve requirements.</p> <p>The MRO does not support the revision to R3.1 in BAL-002 that would require the Balancing Authority to take such stability-related multiple contingencies into account in determining first Contingency conditions. Typically operating reserves only protect for single element transmission contingencies. The requirements for multiple element outages may logically be included in planning reserve requirements but it is inappropriate to determine operating reserves on this basis. Otherwise, the MRO supports the conforming changes provided that it is qualified that the multiple contingencies are to be considered only "where practical". This has been the standard we believe historically has been followed by MRO companies and the industry in general.</p>
Response: Several commenters indicated that the modifications to TOP-002 were inappropriate and the drafting team is removing these from the implementation plan.		
The drafting team did not recommend any change to BAL-002.		

Consideration of Comments on FAC-010, FAC-011, FAC-014

Sara Meinert Salt River Project	no	<p>Agree with most of them, but offer the following suggestions for revisions: (A.) TOP-002; R8. should be completed to read {...and any stability-related multiple contingency identified by the Reliability Coordinator.}</p> <p>(B.) TOP-004; R3. should be revised to read {...resulting from multiple outages identified by the Reliability Coordinator.}</p> <p>(C.) VAR-001; R7. revise the phrase {first Contingency} to be {single Contingency}.</p> <p>(D.) COM-002; R2.1. The word purchase should be removed. A Balancing Authority is not a Purchasing-Selling Entity. Rewrite the sentence to: The Balancing Authority is unable to have resources available to provide capacity or energy to meet its demand and reserve requirements on a day-ahead or hour-by-hour basis. (not our standard)</p> <p>(E.) COM-002; R2.2. The last sentence should read {...multiple Contingency identified by the Reliability Coordinator occurs, the Transmission Operator ...}</p>
<p>Response: Several commenters indicated that the modifications to TOP-002 were inappropriate and the drafting team is removing these from the implementation plan. The change you recommended to TOP-004 R3 was adopted and is reflected in the revised standard. The drafting team cannot make changes to VAR-001 that are unrelated to the modifications needed to support FAC-010, FAC-011 and FAC-014. Changing 'first Contingency' to 'single Contingency' is outside the scope of changes needed to support FAC-010, FAC-011 and FAC-014. The drafting team should not have included its references to COM-002 R2.1 and R2.2 since these will be retired in November, 2006.</p>		
Ron Szymczak Exelon	no	<p>Until the intent of this standard is clarified the corrections needed in the referenced standards cannot be determined.</p>
<p>Response: The drafting team cannot modify the basis of the requirements in Version 0 beyond those changes needed to conform to FAC-010, FAC-011 and FAC-014.</p>		
Verne Ingersoll Progress Energy	no	<p>The effect to to require operations to multiple and stability contingencies which is not appropriate. The accepted level of operational reliability is to operate to the next contingency. There is no way to know how many contingencies will occur but operations must adjust after each one. There are not real time tools for operation to multiple contingencies. To impose the requirement would drastically reduce ATC. If there are areas of the country that have failed to plan and build a system that can withstand the requirements of TPL-004 then they should be found non-compliant with that standard.</p>
<p>Response: The drafting team removed the changes to TOP-002 from the implementation plan. The methodology for determining if the stability-related multiple contingencies are appropriate for use in the operating horizon can be as simple as engineering experience. Entities are not required to have a tool to conduct stability analyses in real-time.</p>		
Joe Willson PJM	no	<p>We do not support the revisions in TOP-002 that would require the Balancing Authority to take such stability-related multiple contingencies into account in determining capacity and energy reserve requirements. There also seems to be some inconsistency: TOP-004 says when practical, while the other changes would indicate all the time. Who determines when practical?</p>
<p>Response: Other commenters indicated the change to TOP-002 was inappropriate and it has been removed.</p>		

Consideration of Comments on FAC-010, FAC-011, FAC-014

The 'when practical' was in the original TOP-004 and the drafting team cannot change this.		
FRCC	yes	Is the responsibility link between the "Planning Authority" and the "Transmission Planner" clearly reflected in the proposed standard FAC-014-1? Requirement R6 of the new standard applies to PAs yet the requirements of TPL-003 apply to both PAs and TPs. The new list should reflect stability limits developed by both PAs and TPs to be complete and consistent with existing standard requirements.
Response: The Transmission Planner may give the limits to the Planning Authority and have the Planning Authority give the limits to the Reliability Coordinator. It seems as though having a single set of limits to analyze will be easier than having multiple sets of limits.		
Ron Falsetti IESO	yes	Further clarification on the term "stability-related" may be necessary in these standards such that it includes not only transient and dynamic stability, but also voltage stability that could shut down the system in seconds and/or in minutes.
Response: The drafting team does not believe there is a need to distinguish between the various types of stability-related limits. They can all have serious adverse consequences. Note the drafting team did modify the language for consistency between FAC-010 and FAC-011. Now the both require that the system demonstrate, ". . . transient, dynamic and voltage stability."		
William J. Smith Allegheny Power	yes	I agree with the proposed conforming changes to TOP-002 and TOP-004, however I'm not aware of changes necessary for COM-002, nor are there any identified in the revised implementation plan.
Response: The drafting team received several comments suggesting that the changes to TOP-002 should not move forward, and these have been removed. COM-002-1 will become effective in November, 2006 and the requirements that reference 'contingencies' will be retired, so the drafting team is not including COM-002 in its implementation plan. Only changes to TOP-004 will move forward.		
SERC PSS	yes	Please ensure that the SDT has made the proposed changes to the correct version of COM-002-1.
Response: Agree. COM-002-1 will become effective in November, 2006 and will result in the retirement of the requirements that reference, 'contingencies'. The drafting team will not recommend any changes to COM-002 as part of its implementation plan.		
Richard Kafka Pepco Holdings	yes	
Karl Kohlrus City Water, Light & Pwr	yes	
Roman Carter Southern Co Transmission	yes	

6. Do you agree with the revised effective dates in the implementation plan?

Summary Consideration: Most commenters supported the effective dates that were proposed so they were not changed.

Commenter		Comment
Jim Cyrulewski ITC Transmission	no	Not the Planning Authority or Reliability Coordinator responsibility. Do not need that much time to follow Transmission Owner limits.
Response: The Transmission Owner does set facility limits, but not system operating limits.		
NPCC CP9, Reliability Standards Working Group	no	This is far too long to develop SOL methodologies and operate to the appropriate limits.
Response: Most commenters supported the proposed effective dates and they were not changed.		
Kathleen Goodman ISO-New England	no	This is far too long to develop SOL methodologies and operate to the appropriate limits.
Response: Most commenters supported the proposed effective dates and they were not changed.		
MRO - NERC Standards Review Subcommittee	no	The MRO believes that the effective dates give the most optimistic times for implementation of these significant changes. The MRO recommends that each of the three implementation time periods be doubled in length. In other words, the MRO recommends that the Planning Authority, the Reliability Coordinator, and then other entities be given 12 months, 6 months, and 6 months, respectively.
Response: Most commenters supported the proposed effective dates and they were not changed. Entities should already have a methodology in place for developing SOLs, and the proposed effective dates reflect time for entities to review and update that methodology to ensure it is compliant with the new requirements.		
Sara Meinert Salt River Project	no	I believe it should be longer to allow time for the study work to be completed, reviewed, coordinated, and implemented.
Response: The study work should already be completed under the TPL series of standards which are in effect now.		
David Kiguel Hydro One Networks Inc.	Yes/no	Most entities should have no problems with shorter times. These are methodologies that in most cases are already in place.
Response: Agree.		
John Sullivan Ameren	yes	We agree, assuming that the standard would be approved for implementation.
Response: Agree. If the standards are not approved, then the effective dates have no meaning.		
Ronald Belval Tucson Electric Pwr Co	yes	
Mariam Mirzadeh WAPA	yes	
FRCC	yes	
Richard Kafka Pepco Holdings	yes	
Ron Falsetti IESO	yes	
Neil Shockey Southern California	yes	

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter		Comment
Edison		
William J. Smith Allegheny Power	yes	
WECC Technical Studies Subcommittee	yes	
Ron Szymczak Exelon	yes	
Roman Carter Southern Co Transmission	yes	
SERC PSS	yes	
Joe Willson PJM	yes	
Karl Kohlrus City Water, Light & Pwr	yes	

7. Do you agree with NPCC’s three recommended changes?

NPCC proposes the following changes for FAC-011 and TOP-004. These changes require operation to all Category C Contingencies rather than to the stability-related subset of Category C Contingencies.

A. Add the following sub-requirement to FAC-011 Requirement 2:

Following the Category C Contingencies identified in TPL-003 Table 1, the system shall demonstrate transient, dynamic and voltage stability; all Facilities shall be operating within their Facility Ratings and within their thermal, voltage and stability limits; and Cascading Outages or uncontrolled separation shall not occur.

B. Modify FAC-011 Requirement R 2.3 as follows:

In determining the system’s response to a single or Category C Contingency, the following shall be acceptable:

C. Add the following requirement to TOP-004:

Following a Category C Contingency (TPL-003 Table 1), the Transmission Operator shall adjust the system, if necessary, to withstand the next single contingency within 30 minutes and the Transmission Operator shall prepare for the next Category C Contingency within XX minutes. (This time requirement, presumably longer than 30 minutes, needs to be defined by the industry.)

Summary Consideration: Most commenters did not support the proposed changes so they will not be included. The comments opposed to this change represented a diverse set of entities in multiple regions and cited a number of reasons for not adopting the suggested change. The entities that do support these changes supported a response time of 30 minutes. This shall serve as an answer to all comments provided to support a yes/no response to this question.

Commenter		Comment
Mariam Mirzadeh WAPA	no	NPCC’s proposed requirements do not distinguish between contingencies that may results in interconnection-wide impacts and those that may not. In addition, after the system has already suffered a multiple contingency, the next overlapping single (Category B) or multiple contingency (Category C) is deemed an Extreme Contingency in the current NERC Reliability Standard TPL-004, for which corrective transmission plans are not required. Strict adherence to NPCC’s proposed requirements in setting real-time operating limits to protect against overlapping loss of any facilities or any combination of facilities could result SOLs within local areas that would be overly restrictive. Overly restrictive operating limits indiscriminately applied could force entities to shed load in anticipation of the next contingency or multiple contingencies, which may not occur, resulting in reduced customer service.
FRCC	no	These requirements are inconsistent with current operating philosophies, operating tools and would require significant investment in both infrastructure and contingency re-dispatch. These operating requirements are also inconsistent with well established planning design criteria.
Richard Kafka Pepco Holdings	no	The latest versions of FAC-010- and FAC-011 do a lot to address these concerns.
Neil Shockey Southern California Edison	no	SCE supports the comments submitted by the WECC Technical Studies Subcommittee.
MRO – NERC	no	The MRO does not support the NPCC recommendations because they

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter		Comment
Standards Review Subcommittee		are beyond the present level at which systems can be operated in the Midwest especially considering that multiple elements could well be out of service at the time that the Transmission Operator must prepare for the next contingency. For that very reason, we believe the MRO has operated in real time to a lesser requirement to protect for multiple element contingencies, where practical. It is not practical to protect for the next multiple contingency outage when a number of prior outages have already occurred on the system.
William J. Smith Allegheny Power	no	These additions would require the Bulk Electric System to be operated in a highly conservative and restrictive manner.
WECC Technical Studies Subcommittee	no	NPCC's proposed requirements do not distinguish between contingencies that may results in interconnection-wide impacts and those that may not. In addition, after the system has already suffered a multiple contingency, the next overlapping single (Category B) or multiple contingency (Category C) is deemed an Extreme Contingency in the current NERC Reliability Standard TPL-004, for which corrective transmission plans are not required. Strict adherence to NPCC's proposed requirements in setting real-time operating limits to protect against overlapping loss of any facilities or any combination of facilities could result SOLs within local areas that would be overly restrictive. Overly restrictive operating limits indiscriminately applied could force entities to shed load or unnecessarily reduce economic transfers in anticipation of the next contingency or multiple contingencies, which may not occur or may not have regional impacts even if they did occur, resulting in reduced customer service.
Roman Carter Southern Co Transmission	no	This change goes too far. Operators have historically operated the system to withstand the next single contingency, and this has worked well. Adding a requirement to operate within stability limits determined by the Planning Authority is a reasonable step. Adding all Category C contingencies is not reasonable. If someone disagrees with the Reliability Coordinater's list of SOLs/IROLs and associated methodology, they can submit technical questions to the Reliability Corrdinator and that Reliability Coordinator must respond. Again, adding all Category C contingencies is not reasonable. The described process just explained is an appropriate mechanism for parties to disagree and to address the concerns with their neighbor's methodology.
Karl Kohlrus City Water, Light & Pwr	no	Planning for more than N-1 in real-time is not feasible.
Verne Ingersoll Progress Energy	no	See response to #5.
Joe Willson PJM	no	
Ron Szymczak Exelon	no	
SERC PSS	no	
Tom Pruitt Bob Pierce Duke Energy	no	
John Sullivan Ameren	no	

Commenter		Comment
Jim Cyrulewski ITC Transmission	yes	<p>For single contingency should be As Soon as Possible but no longer than 30 minutes.</p> <p>We also have a major problem with the definition of IROL Tv . Please consider the following explanation and redefinition: Need to redefine Interconnection Reliability Operating Limit Tv (IROL Tv)</p> <p>Here are the current definitions of IROL and IROL Tv::</p> <p>Interconnection Reliability Operating Limit (IROL): A System Operating Limit that, if violated, could lead to instability, uncontrolled separation, or Cascading Outages that adversely impact the reliability of the Bulk Electric System.</p> <p>Interconnection Reliability Operating Limit Tv (IROL Tv): The maximum time that an Interconnection Reliability Operating Limit can be violated before the risk to the interconnection or other Reliability Coordinator Area(s) becomes greater than acceptable. Each Interconnection Reliability Operating Limit's Tv shall be less than or equal to 30 minutes.</p> <p>Based on the definition of IROL, there is no room for violation. It says if the IROL is violated it could lead to system cascade. However, in IROL Tv, it says the IROL can be violated for up to 30 minutes. How can there be any time tolerance to a cascade limit? You may want to allow up to 30 minutes if the next contingency will cause IROL violation. It should only be on a "projected" basis, not an actual basis. Our suggested new definition would be:</p> <p>Interconnection Reliability Operating Limit Tv (IROL Tv): IROL Tv is the maximum time allowed for system corrections to be made to reduce flows such that the next single contingency would result in an Interconnection Reliability Operating Limit violation. Each Interconnection Reliability Operating Limit's Tv shall be less than or equal to 30 minutes</p>
<p>Response: The definitions of IROL and IROL Tv have already achieved consensus and additional changes to the definitions don't seem necessary.</p>		
Alan Adamson NYSRC	yes	See our response to Question #8.
Ron Falsetti IESO	yes	<p>ASAP but no longer than 30 minutes. Note that this (and Tv fo SOL violation as claimed by some) is NOT intended as a grace period to allow the TOPs and any other operating entities to use and take advantage to achieve whatever objectives other than returning the system to a reliable state. This time period must be viewed as a constraint to "leave the premise" as opposed to the time that "one can wander into the premise" for other reasons.</p> <p>That said, we feel that the proposed requirements need some flexibility. For example, if the system cannot be adjusted within 30 minutes to withstand the next Category C contingency without firm load shedding,</p>

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter		Comment
		the requirement may be relaxed to (not necessarily the exact wording) by adding "If firm load must be shed to met this requirement, then the system should be adjusted to withstand the next Category B contingency within 30 minutes, and to withstand the next Category C contingency within 90 minutes." To allow more time to adjust the system without shedding firm load. The 90 minutes (from inception of contingency) is recommended as it ties in with the BAL standard which requires the system to replenish its reserve in the same time period.
NPCC CP9, Reliability Standards Working Group	yes	NPCC recognizes that an issue exists here and that should this be adopted we would allow some flexibility beyond the 30 mins that NPCC RCs operate to.
Kathleen Goodman ISO-New England	yes	Should this be adopted we would allow some flexibility beyond the 30 mins that NPCC RCs, such as ISO New England, operate to.
David Kiguel Hydro One Networks Inc.	yes	The NPCC proposal represents an acceptable compromise to resolve the issue of operation to withstand Category C contingencies. The time permitted to prepare for the next Category C contingency should be the same 30 minutes as for the next single contingency, except in the case where preparing for the next Category C contingency would require load shedding, in which case, the time could be extended to 60 minutes.
Sara Meinert Salt River Project	yes	another 30 minutes (or 60 minutes total from the contingency occurrence) Suggested revision to A.: change it to read {Following any of the Category C Contingencies identified.....}
Phil Park BC Transmission Corp	yes	same as single contingency, I agree with A and C. B is probably also acceptable, but I am not clear why it is necessary.

8. Which version of the standards do you prefer — the version that was balloted in March or the version that is currently posted or a version that would include NPCC’s recommended changes?

Summary Consideration: While there was no clear consensus, the June version seemed to be the version that was most favored and the drafting team will make conforming changes to the June versions of the standards and will ask that they move forward in the standard development process to balloting. This shall serve as an answer to all comments provided to support the selection of a ‘version’ in response to this question.

Commenter		Comment
Tom Pruitt Bob Pierce Duke Energy	-	<p>This standard is being finalized at a time when the Assess Transmission Future Needs SDT has been charged with revising/clarifying TPL-001 thru 003. The TPL’s are the basis for the FAC 010, 011 and 014 standards. It appears that it would be prudent to allow the AFTNSDT complete their work or decouple the MOD and TPL standards.</p> <p>This is especially true for FAC-010 which applies to the planning horizon. If TPL-001 and 002 are being properly administered in the planning horizon, then all potential SOL’s identified should have a remediation plan that precludes them from being an SOL/IROL. Seems that FAC-010 is redundant to the TPL standards.</p>
<p>Response: The focus of this set of standards is very narrow and shouldn’t have to wait for another standard to be developed. We expect that there will be quite a bit of industry debate on the issues surrounding revisions to the TPL standards and it can be an extended period of time before there is any clear consensus. When the TPL standards are revised, the implementation plan for that set of revisions can identify any conforming language needed to maintain the alignment with these FAC standards. The establishment of a methodology for setting SOLs and IROLs is critical to reliability and shouldn’t be delayed.</p>		
Ron Szymczak Exelon	march	
Joe Willson PJM	march	
Mariam Mirzadeh WAPA	March June	
Neil Shockey Southern California Edison	March/june	
WECC Technical Studies Subcommittee	March/june	
John Sullivan Ameren	March/june	We would prefer either the March or June version, provided that our comments and concerns are adequately addressed
FRCC	June	We support the June version with the split of Planning and Operating methodology requirements into two standards and thank the drafting team for their continued efforts on the development of these standards.
Richard Kafka Pepco Holdings	June	Work needs to be done on TPL-003 to more properly address the more probable multiple contingencies.
<p>Response: Agree. There is a drafting team that is working on revisions to the TPL-001 through TPL-</p>		

Committer		Comment
<p>MRO - NERC Standards Review Subcommittee</p>	<p>june</p>	<p>We do urge the Drafting Team to make the changes that the MRO has recommended before balloting these standards including revising the R2.3.2 of FAC-10 to clarify that manual actions that are preestablished are also acceptable system reconfiguration actions, adding "where practical" to R3.3 of FAC-11 and to other conforming changes in related NERC Standards, not making the conforming changes to the Balancing Authority requirements, doubling the implementation periods before balloting these standards, and eliminating the language repeated from the TPL standards.</p> <p>General Comments: FAC-010-1 On page 3 under Definition of Terms used in Standard, Capitalize Interconnection in the second sentence under definition of Interconnection Reliability Operating Limit Tv (IROL Tv). At the bottom of page 5 after requirement R5 remove leftover symbol.</p> <p>FAC-014-1 On page 6 under Levels of Non-Compliance, does it make sense to have no Level 1 but have levels 2-4? The MRO suggests changing this to levels 1-3.</p>
<p>Response: The drafting team did make changes to FAC-010 R2.3.2 in support of the MRO's comments. The drafting team did not add the phrase, 'where practical' as this is not measurable – however the drafting team did make change to FAC-011 R3.3 to clarify that the Reliability Coordinator's process for determining if the stability-related multiple contingencies are applicable is for use in the 'operating horizon' rather than in 'real-time'. In addition, the drafting team removed the modifications to TOP-002 from the implementation plan. The word, 'interconnection' is only capitalized when it refers to a specific interconnection. The limits are so important that the drafting team felt these should be at a higher level of non-compliance.</p>		
<p>Roman Carter Southern Co Transmission</p>	<p>june</p>	<ol style="list-style-type: none"> 1. Under FAC-011, R2.2, it states that following a single contingency all facilities shall be within their Facility Ratings and within their thermal, voltage, and stability limits. How does one interpret the use of post contingency operating guides? A literal interpretation might be that you can't have an N-1 result in loading above 100%. Is the assumption that we are within a short-term emergency rating post contingency, so that, technically we are within the Facility Rating? If so, would we be required to document these emergency ratings or just define a methodology? It is preferred to go with a methodology since the actual capability depends upon ambient conditions. Should the SDT include a post contingency operating guide? 2. Under FAC-014, R5, requires each to provide its SOLs and IROLs to those entities that have a reliability-related need for those limits. A clarification would be helpful where limits are case specific, meaning that a particular contingency/constraint pair may be a limit under one set of system conditions, but not under another. <p>Also</p>

Commenter	Comment
	<p>3. FAC-010, R2.3.3 - This requirement is not appropriate at this point. It is a Category C event and is therefore already included in R2.4.</p> <p>4. FAC-010, R2.4 - This requirement has excess words which make it confusing. Suggest deleting the words "the system" so that it reads "the system's response to one of the multiple Contingencies identified in Reliability Standard TPL-003 shall demonstrate ..."</p> <p>5. FAC-010, R3.1 - This requirement says that the area of study must include at least the entire Reliability Coordinator Area. This should say the Planning Authority's Area rather than the RC's area. Change Reliability Coordinator to Planning Authority in two places.</p> <p>6. FAC-010, paragraph 3.3.1 - This gives non-compliance if the SOL methodology did not include evaluation of system response. The methodology does not evaluate. Change the words to be requirement for evaluation.</p> <p>7. FAC-010, paragraph 3.3.1 - The reference to R4.2 is in error. It should be R2.2.</p> <p>8. FAC-010, paragraph 3.3.3 - The reference to R5 is in error. Perhaps it should be R3</p> <p>9. FAC-014, R6 - This requirement is written as if there will always be stability limits. There may be systems for which there are no stability limits for Category C events. Suggest changing R6 to be "The Planning Authority shall identify the subset of multiple contingencies from Reliability Standard TPL-003 which result in stability limits if there are any". Suggest changing R6.1 to be "If any stability limits are found, the Planning Authority shall provide this list....."</p> <p>10. FAC-014, M3 - M3 needs to be changed along with the suggested R6 changes. M3 should be changed to "The Planning Authority shall have evidence that if it identified a list of multiple contingencies that resulted in stability limits, it provided the list and the limits to its Reliability Coordinators in accordance with Requirement 6."</p> <p>11. FAC-014, item 2.4.2 - This item needs to be changed along with the suggested R6 and M3 changes. Item 2.4.2 should be changed to "No evidence the Planning Authority delivered a set of stability-related multiple contingencies and their associated limits, which such stability limits were found, to Reliability Coordinators in accordance with R6."</p>

Response:

1. The drafting team is not in a position to interpret the use of post contingency operating guides since the standard does not require the use of these guides and does not reference these guides in FAC-011.
2. While the parameters associated with a limit vary from limit to limit, the entities that receive the limits are either those entities that need to operate to those limits or those entities that need the limits for planning studies. The list of recipients shouldn't change.
3. R2 is describing the acceptable responses to a single contingency – which is a Category B event.
4. The drafting team did revise FAC-010 R2.4 to read as follows:
 Starting with all facilities in service and following any of the multiple Contingencies identified in Reliability Standard TPL-003 the system shall demonstrate transient, dynamic and voltage

Commenter		Comment
<p>stability; all Facilities shall be operating within their Facility Ratings and within their thermal, voltage and stability limits; and Cascading Outages or uncontrolled separation shall not occur.</p> <p>5. Agree. This was not translated properly when the standard was subdivided – this error has been corrected to state the Planning Authority’s Area.</p> <p>6. FAC-010 Requirement 2 includes language to indicate that the methodology must include the system’s response identified in R2.1, R2.2, R2.3 and R2.4.</p> <p>7. The cross reference in FAC-010 3.3.1 has been corrected.</p> <p>8. The cross reference in FAC-010 3.3.3 has been corrected.</p> <p>9-11 Stakeholders support an increased focus on consideration of stability-related multiple contingencies. The drafting team modified the requirement and measure to address your concern so that there should not be any sanction if there are no stability-related multiple contingencies identified from the required studies.</p>		
Karl Kohlrus City Water, Light & Pwr	june	Standard FAC-010-1, R2.4 begins with, "Starting with all facilities in service," Although this has been standard industry practice for decades, if a violation occurs, all the entity has to do is find one facility on his system (transmission line, transformer or generator) which was of service in the model at the time of the violation. Since there are nearly always some facilities out of service (normally open switches, peaking units, etc.) you may want to consider rewording this to avoid a big loophole.
<p>Response: FAC-010 is for use in the planning horizon, not in the operating horizon.</p>		
Verne Ingersoll Progress Energy	june	<p>1. FAC-11 and 14 continue to erroneously assign the responsibility for determining SOL to the RC when the functional model, industry practice and legal/regulatory requirements make this a responsibility of the Transmission Operator/Owner.</p> <p>2. These proposed standards do not blend well with existing requirements. I find it difficult to understand and comment on these new standards from the planning perspective and how they integrate with many other approved standards and regional supplements that are closely related, such as:</p> <p>TPL-001 to -004 : (Trans Planner/Planning Authority) System Performance under Normal, Single Element Loss, Two or more Elements, Extreme losses. FAC-004 : (Trans Owner/Gen Owner) Methodologies for Determining Electrical Facility Ratings FAC-005 : (Trans Owner/Gen Owner) Electric Facility Ratings for System Modeling SERC supplements exist for each of these.</p> <p>3. Is the intent of FAC-010 to make the Planning Authority's justify/document/confirm that the ratings they use are consistent with those provided by the Transmission Owner? Actually the TPL-001 to-004 standards in Table I, specifically indicates the PA is assessing scenario performance against "applicable ratings". Further note (a) in Table I states: "All Ratings must be established consistent with applicable NERC Reliability Standards addressing Facility Ratings." So there is already a link requiring ratings used by the PA to respect the</p>

Commenter		Comment
		<p>ratings requirement standards for TOs.</p> <p>4. How is an SOL relate to a Facility Rating? FAC-004 requires the Transmission Owner to establish Methodologies for Determining Electrical Facility Ratings and that they are compliant with Regional Requirements. In R1.2 requires: "R1.2. The Rating of a facility shall not exceed the Rating(s) of the most Limiting Element(s) in the circuit, including terminal connections and associated equipment." Existing FAC-005 requires the TO/GO to provide facility ratings that are consistent with their Methodology</p>
<p>Response:</p> <p>1. During the development of these standards, the drafting team asked the Functional Model Working Group for advice on which functional entity should be assigned responsibility for developing SOLs and IROLs and the team was advised to assign these tasks to the Reliability Coordinator (Reliability Authority). The Functional Model V3 says the RC works with the TOPs to ensure SOLs are developed, but doesn't require that the RC be the entity that actual develops the SOLs.</p> <p>2. The proposed standards align with TPL-001, TPL-002 and TPL-003 in that the proposed FAC-010 requires that SOLs be set to the same planning criteria established for TPL-001 through TPL-003. TPL-004 addresses extreme operating contingencies and the proposed standards do not require consideration of these extreme (Category D) contingencies in setting SOLs.. FAC-004 has been approved for retirement on August 7, 2006 when FAC-008 becomes effective on FAC-005 has been approved for retirement on October 7, 2006 when FAC-009 becomes effective on</p> <p>3. The intent is to provide the facility owner with assurance that SOLs will be established such that the facility ratings set by the owners will be respected.</p> <p>4. Note that FAC-004 will be retired on August 7, 2006 and replaced with FAC-008 and FAC-005 will be replaced on October 7 with FAC-009. The facility ratings set by the facility owners must be respected when SOLs are established.</p>		
SERC PSS	june	<p>SERC PSS Additional Comments on the proposed Determine Facility Ratings Standards (FAC-010, 011, & 014)</p> <p>1. FAC-010, R2.3.3 - This requirement is not appropriate at this point. It is a Category C event and is therefore already included in R2.4.</p> <p>2. FAC-010, R2.4 - This requirement has excess words which make it confusing. Suggest deleting the words "the system" so that it reads as follows: "Starting with all facilities in service, the system's response to one of the multiple Contingencies identified in Reliability Standard TPL-003, the system shall demonstrate dynamic and voltage stability; all Facilities shall be operating within their Facility Ratings and within their thermal, voltage and stability limits; and Cascading Outages or uncontrolled separation shall not occur."</p> <p>3. FAC-010, R2. Delete the word "each" from the following: "The Planning Authority's SOL Methodology shall each include a requirement that SOLs provide BES performance consistent with the following:"</p>

Commenter	Comment
	<p>4. FAC-010, R2.4 – In the first sentence delete the phrase “one of.”</p> <p>5. FAC-010, R2.5 – Revise the first sentence to read: “In determining the system’s response to multiple Contingencies identified in Reliability Standard TPL-003,…”</p> <p>6. FAC-010, R3.1 - This requirement says that the area of study must include at least the entire Reliability Coordinator Area. This should say the Planning Authority's Area rather than the RC's area. Change “Reliability Coordinator” to “Planning Authority” in two places.</p> <p>7. FAC-010, paragraph 3.3.1 - This gives non-compliance if the SOL methodology did not include evaluation of system response. The methodology does not evaluate. Change the words to be requirement for evaluation.</p> <p>8. FAC-010, paragraph 3.3.1 - The reference to R4.2 is in error. It should be R2.2.</p> <p>9. FAC-010, paragraph 3.3.3 - The reference to R5 is in error. Perhaps it should be R3</p> <p>10. FAC-014, R6 - This requirement is written as if there will always be stability limits. There may be systems for which there are no stability limits for Category C events. Suggest changing R6 to be "The Planning Authority shall identify the subset of multiple contingencies from Reliability Standard TPL-003 which result in stability limits if there are any". Suggest changing R6.1 to be "If any stability limits are found, the Planning Authority shall provide this list....."</p> <p>11. FAC-014, M3 - M3 needs to be changed along with the suggested R6 changes. M3 should be changed to "The Planning Authority shall have evidence that if it identified a list of multiple contingencies that resulted in stability limits, it provided the list and the limits to its Reliability Coordinators in accordance with Requirement 6."</p> <p>12. FAC-014, item 2.4.2 - This item needs to be changed along with the suggested R6 and M3 changes. Item 2.4.2 should be changed to "No evidence the Planning Authority delivered a set of stability-related multiple contingencies and their associated limits, when such stability limits were found, to Reliability Coordinators in accordance with R6."</p>
<p>Response:</p>	<p>1. R2 is describing the acceptable responses to a single contingency – which is a Category B event.</p> <p>2. The drafting team did revise FAC-010 R2.4 to read as follows: Starting with all facilities in service and following any of the multiple Contingencies identified in</p>

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter		Comment
		<p>Reliability Standard TPL-003 the system shall demonstrate transient, dynamic and voltage stability; all Facilities shall be operating within their Facility Ratings and within their thermal, voltage and stability limits; and Cascading Outages or uncontrolled separation shall not occur.</p> <ol style="list-style-type: none"> 3. The word, 'each' was removed from FAC-010 R2 as suggested. 4. FAC-010 R2.4 was revised as noted in response to your second comment above. 5. The drafting team adopted your suggestion and modified the language in the standard. 6. Agree. This was not translated properly when the standard was subdivided – this error has been corrected to state the Planning Authority's Area. 7. FAC-010 Requirement 2 includes language to indicate that the methodology must include the system's response identified in R2.1, R2.2, R2.3 and R2.4. 8. The cross reference in FAC-010 3.3.1 has been corrected. 9. The cross reference in FAC-010 3.3.3 has been corrected. <p>10-12 Stakeholders support an increased focus on consideration of stability-related multiple contingencies. The drafting team modified the requirement and measure to address your concern so that there should not be any sanction if there are no stability-related multiple contingencies identified from the required studies.</p>
William J. Smith Allegheny Power	june	
Jim Cyrulewski ITC Transmission	New	Also changes cited in responses 1-7.
<p>Response: Please see the responses to your comments in 1-7.</p>		
Alan Adamson NYSRC	New	<p>The New York State Reliability Council (NYSRC) submitted comments to the drafting team on numerous previous versions, including the version of FAC-010-1 and FAC-011-1 that was balloted in March 2006. A new version with the NPCC recommended changes is the only version that would adequately address the concerns included in these previous comments. The changes that would be acceptable to the NYSRC include NPCC's recommended revisions as stated in Question #7.</p>
<p>Response: The drafting team has responded to every comment submitted by the NYSRC. Most stakeholders indicated that they do not support NPCC's recommended changes as proposed in question #7.</p>		
Ron Falsetti IESO	New	<p>We strongly support a version that would include NPCC's recommended changes as that version would provide the assurance that operating within the SOLs and IROLs should protect the system from collapsing or cascade tripping if and when a C Category contingency occurs, which they do occur. However, we recognize that many in the industry may require some time to adjust to this approach; we would, from a pragmatic viewpoint, also support the June version as a first step toward achieving the NPCC recommended changes as our eventual goal. In either version, we would expect to see the additions suggested in our responses to Q2, Q3, Q4, Q5 and Q7, above, implemented.</p> <p>Please note that in FAC-010, Footnote #3 makes references to R4.3.1 and R4.2, which appears inappropriate.</p>
<p>Response: Most stakeholders indicated that they do not support NPCC's recommended changes as proposed in question #7. Please see the drafting team's responses to your comments on Q2, -5, and Q7. Correct – footnote 3 was deleted from the 'clean' version that was posted and should not have appeared</p>		

Consideration of Comments on FAC-010, FAC-011, FAC-014

Commenter		Comment
in the red line version. This will be corrected.		
NPCC CP9, Reliability Standards Working Group	new	Adoption of a version that includes NPCC's recommended changes would satisfy the concerns included in CP-9 comments that were submitted to the drafting team on the March 2006 version, as well as on earlier FAC-010-1 drafts.
Response: Most stakeholders indicated that they do not support NPCC's recommended changes as proposed in question #7.		
Kathleen Goodman ISO-New England	new	Adoption of a version that includes NPCC's recommended changes would satisfy the concerns included in previous comments submitted to the drafting team on the March 2006 version, as well as on earlier FAC-010-1 drafts.
Response: Most stakeholders indicated that they do not support NPCC's recommended changes as proposed in question #7.		
David Kiguel Hydro One Networks Inc.	new	See our answer to question # 7. As comments to previous versions have indicated, NERC must strive to achieve consistency between planning and operating criteria to meet recognized reliability objectives.
Response: Most stakeholders indicated that they do not support NPCC's recommended changes as proposed in question #7.		
Phil Park BC Transmission Corp	new	The June version is an improvement. I am concerned that with the cross referencing the requirements are not clear. A person reading this in a hurry may miss the point. Also, we may spend a great deal of time debating the meaning. I encourage the drafting team to simplify and clarify as much as possible. The NPCC recommended changes are fairly consistent with my comments, so I prefer this version, although the above comments regarding the June version also apply.
Response: The drafting team made a couple of modifications to clarify the intent of FAC-010 R2.5 and FAC-011 R3.3. Most stakeholders indicated that they do not support NPCC's recommended changes as proposed in question #7.		
Sara Meinert Salt River Project	new	