Summary Consideration:

This document contains the comments that were submitted with both positive and negative ballots on FAC-010 and FAC-011 during the initial ballot conducted from March 21–30, 2006. While more than two thirds of the ballots that were submitted were affirmative, there weren't enough ballots returned to achieve a quorum, and many of the comments that were submitted with ballots asked the drafting team to modify the standards to require consideration of multiple contingencies in the determination of system operating limits. Rather than continue with a re-ballot, the drafting team revised the standards in attempt to improve consensus.

The clean and red-line versions of the revised standards (http://www.nerc.com/~filez/standards/Determine-Facility-Ratings.html) have been posted.

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 and 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.

The drafting team made the following four significant revisions to FAC-010 and FAC-011 following the initial ballot that was conducted from March 21-30, 2006:

1. **The drafting team changed the titles and numbers of the standards to separate the requirements for developing a SOL methodology for use in the planning horizon from the SOL methodology for use in the operations horizon.**

FAC-010 which had included the requirements for the Planning Authority to develop methodology for developing System Operating Limits used in the planning horizon **and** the requirements for the Reliability Coordinator to develop a methodology for developing System Operating Limits used in the operating horizon has been subdivided into two separate standards. The proposed set of standards is now:

FAC-010-1 — System Operating Limits Methodology for the Planning Horizon

FAC-011-1 — System Operating Limits Methodology for the Operations Horizon

FAC-014-1 — Establish and Communicate System Operating Limits (originally FAC-011-1)

The drafting team made these changes because many commenters seemed confused by the differences in approach to SOLs used in the planning and operating horizons. There were several commenters who indicated that the standards should require consideration of **all**

multiple contingencies in the development of system operating limits and referenced the approved standard TPL-003 — System Performance Following Loss of Two or More BES Elements.

The proposed standards need to coordinate with **both** operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

There is a significant difference in the purpose of operations and planning standards. Planning standards are developed to identify where there is a need for system expansion; Operating standards are developed to ensure reliable real-time operation of the BES.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, VAR-001, BAL-002, and COM-002 (See Attachment 1). It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

> R3. Each Transmission Operator shall, when practical, operate to protect against instability, uncontrolled separation, or cascading outages resulting from multiple outages, as specified by Regional Reliability Organization policy.

When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with the system intact, with single contingencies, and then with multiple contingencies.

2. The drafting team modified the requirements so that the SOL Methodology developed by the Planning Authority is consistent with, but does not duplicate the existing planning standard TPL-003.

There were several commenters who indicated that the standards should require consideration of all multiple contingencies in the development of system operating limits and referenced the approved standard TPL-003 — System Performance Following Loss of Two or More BES Elements. Here is TPL-003 Requirement 1:

R1. The Planning Authority and Transmission Planner shall each demonstrate through a valid assessment that its portion of the interconnected transmission systems is planned such that the network can be operated to supply projected customer demands and projected Firm (non-recallable reserved) Transmission Services, at all demand Levels over the range of forecast system demands, under the contingency conditions as defined in Category C of Table I (attached). The controlled interruption of customer Demand, the planned removal of generators, or the Curtailment of firm (non-recallable reserved) power transfers may be necessary to meet this standard.

Here is the revised requirement in FAC-010:

R2.4 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.

3. The drafting team added requirements to require consideration of stability-related multiple contingencies. These multiple contingencies could cause instability, cascading outages or uncontrolled separation.

The revised standards require the Planning Authority's SOL methodology (FAC-010 Requirement 2.4) to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority (FAC-014 Requirement 6) to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology (FAC-011 Requirement 3.3) to include a process for determining which of the stability limits are applicable for real-time use given the real-time system conditions – and requires a process to recalculate these stability limits and expand the list of stability-related multiple contingencies and limits.

In the state where the operating condition is 'all facilities in service' then the real-time operating state would be consistent with TPL-003 for stability limits. For most large systems, there is rarely a time in a year when this state exists. 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.

4. The modifications made to the SOL methodology developed by the Reliability Coordinator require modifications to existing operating standards that reference operating to a single contingency. The drafting team believes that some, but not all of these standards need to be modified as shown below:

Note that there is only one approved operating standard that requires consideration of specified multiple contingencies – and this requirement in TOP-004 is limited to contingencies that have been identified by the associated Regional Reliability Organization. All other approved operating standards require operating so as to withstand any single contingency. Here are the requirements from these operating standards:

TOP-002:

R6. Each Balancing Authority and Transmission Operator shall plan to meet unscheduled changes in system configuration and generation dispatch (at a minimum N-1 Contingency planning) in accordance with NERC, Regional Reliability Organization, subregional, and local reliability requirements.

R7. Each Balancing Authority shall plan to meet capacity and energy reserve requirements, including the deliverability/capability for any single Contingency and any stability-related multiple contingency identified by the Reliability Coordinator.

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R8. Each Balancing Authority shall plan to meet voltage and/or reactive limits, including the deliverability/capability for any single contingency and any stability-related multiple contingency identified by the Reliability Coordinator.

TOP-004:

Purpose: To ensure that the transmission system is operated so that instability, uncontrolled separation, or cascading outages will not occur as a result of the most severe single Contingency and specified multiple Contingencies.

R2. Each Transmission Operator shall operate so that instability, uncontrolled separation, or cascading outages will not occur as a result of the most severe single contingency.

R3. Each Transmission Operator shall~~, when practical,~~ operate to protect against instability, uncontrolled separation, or cascading outages resulting from multiple outages, as specified by ~~Regional Reliability Organization policy~~ its Reliability Coordinator.

VAR-001:

R2. Each Transmission Operator shall acquire sufficient reactive resources within its area to protect the voltage levels under normal and Contingency conditions. This includes the Transmission Operator's share of the reactive requirements of interconnecting transmission circuits.

R7. Each Transmission Operator shall maintain reactive resources to support its voltage under first Contingency conditions.

R7.1. Each Transmission Operator shall disperse and locate the reactive resources so that the resources can be applied effectively and quickly when Contingencies occur.

BAL-002:

R3.1 As a minimum, the Balancing Authority or Reserve Sharing Group shall carry at least enough Contingency Reserve to cover the most severe single contingency. All Balancing Authorities and Reserve Sharing Groups shall review, no less frequently than annually, their probable contingencies to determine their prospective most severe single contingencies.

The drafting team will post the revised standards and ask stakeholders for feedback on the changes made.

Company	Balloter	Vote	Comments
Carolina Power & Light Company CPL	Verne Ingersoll II	No	This standard incorrectly assigns responsibility for determining System Operting Limits (SOL) to the Reliability Coordinator. Industry practice and the NERC Functional Model assign this responsibility to the Transmission Operator who then provides this information to the Reliability Coordinator.
Carolina Power & Light Company CPL	James Eckelkamp	No	This standard incorrectly assigns responsibility for determining System Operating Limits (SOL) to the Reliability Coordinator. Industry practice and the NERC Functional Model assign this responsibility to the Transmission Operator who then provides this information to the Reliability Coordinator
Progress Energy - Carolinas	Wayne Lewis	No	This standard incorrectly assigns responsibility for determining System Operating Limits (SOL) to the Reliability Coordinator. Industry practice and and the NERC Functional Model assign this responsibility to the Transmission Operator who then provides this information to the Reliability Coordinator.
Duke Power DUKE	Greg Stone	No	This standard incorrectly assigns responsibility for determining System Operating Limits (SOL) to the Reliability Coordinator. Industry practice and the NERC Functional Model assign this responsibility to the Transmission Operator who then provides this information to the Reliability Coordinator.
Duke Power DUKE	Scott Henry	No	This standard incorrectly assigns responsibility for determining System Operating Limits (SOL) to the Reliability Coordinator. Industry practice and the NERC Functional Model assign this responsibility to the Transmission Operator who then provides this information to the Reliability Coordinator.
Response: Version 2 of the Functional Model is silent on the use of SOLs except for real-time operations and operations planning. The SDT recognized that SOLs are used for developing and analyzing transmission system plans. The SDT asked the Functional Model Review Task Group (FMRTG) to provide a formal interpretation of this omission, and received a response indicating that the Planning Authority does have responsibility for developing SOLs used in the planning horizon. To support this, the standard clearly indicates that the RC is responsible for having and sharing its methodology for developing SOLs used in the operating horizon and the PA is responsible for having and sharing its methodology for developing SOLs used in the planning horizon. Version 2 of the Functional Model is unclear as to which function is responsible for developing SOLs. The following conflict exists on page 25 of			

the Functional Model, under the TOP's list of tasks: 2. Defines operating limits, develops contingency plans, and monitors operations of the transmission facilities under the Transmission Operator's control and as directed by the Reliability Authority. 8. Operates or directs the operations of the transmission system within equipment and facility ratings established by the Transmission Owners and Generator Owners, and system ratings established by the Reliability Authority. For this standard, the SDT assumed that the RC is responsible for establishing all SOLs for its RA Area - but may delegate part of this activity to its TOPs. Without formal delegation, the TOP is not responsible for developing any SOLs – and the FMRTG endorsed this assumption in its response to the SDT's request for a formal interpretation of the Functional Model.			
Florida Power Corporation FPC	Lee G Schuster	No	This standard incorrectly assigns responsibility for determining System Operating Limits (SOL) to the Reliability Coordinator. Industry practice and and the NERC Functional Model assign this responsibility to the Transmission Operator who then provides this information to the Reliability Coordinator.
Response: Version 2 of the Functional Model is silent on the use of SOLs except for real-time operations and operations planning. The SDT recognized that SOLs are used for developing and analyzing transmission system plans. The SDT asked the Functional Model Review Task Group (FMRTG) to provide a formal interpretation of this omission, and received a response indicating that the Planning Authority does have responsibility for developing SOLs used in the planning horizon. To support this, the standard clearly indicates that the RC is responsible for having and sharing its methodology for developing SOLs used in the operating horizon and the PA is responsible for having and sharing its methodology for developing SOLs used in the planning horizon. Version 2 of the Functional Model is unclear as to which function is responsible for developing SOLs. The following conflict exists on page 25 of the Functional Model, under the TOP's list of tasks: 2. Defines operating limits, develops contingency plans, and monitors operations of the transmission facilities under the Transmission Operator's control and as directed by the Reliability Authority. 8. Operates or directs the operations of the transmission system within equipment and facility ratings established by the Transmission Owners and Generator Owners, and system ratings established by the Reliability Authority. For this standard, the SDT assumed that the RC is responsible for establishing all SOLs for its RA Area - but may delegate part of this activity to its TOPs. Without formal delegation, the TOP is not responsible for developing any SOLs – and the FMRTG endorsed this assumption in its response to the SDT's request for a formal interpretation of the Functional Model.			
International	Jim	No	ITCTransmission is voting No on this standard for the following reasons:

Transmission Company	Cyrulewski		1. The electric transmission system is a complex machine with many parts. Because of this complexity, it is not possible to accurately predict the universe of states in which the system would be expected to operate properly. Facilities and operating limits that are seemingly innocuous in most reasonably expected states, could become critical in some states. The entire system, not pre-selected subsets, needs to be monitored to ensure reliability 2. The definition of Interconnection Reliability Operating Limit (IROL) itself presents several issues: a) it implies that there are accurate methods to determine which System Operating Limits that, if violated, could lead to uncontrolled separation. As has been found in previous uncontrolled separations, these types of events are often the confluence of several factors (unexpected relay operation, vegetation interference) that could result in the unexpected loss of facilities even if the loading on that facility would not otherwise be expected to result in its loss. b) this also implies that SOLs that are not pre-selected as IROLs may somehow not be as important. This could be misinterpreted by some as ignoring these non-IROLs may be inconsequential. This is simply not true ALL limits must be observed. 3. The definition of Interconnection Reliability Operating Limit Tv (IROL Tv) implies that there may be some period of time for which it is acceptable to be above an IROL. If an IROL is being approached (even on a projected basis), let alone has already been exceeded, immediate action must be taken to get the system back into a state whereby it can survive the next possible credible event without severe consequences. As defined here by NERC itself, the NERC standard would endorse a situation which is likely to lead to a blackout. This is a total disregard for reliability. 4. In our view, the definition of IROL as defined here is what a definition of SOL should look like. Even if you made it an SOL definition, there is an implication in the Tv timing definition that you could sit with a flow exceeding SOL for 30 minutes. This is not necessarily true for an SOL let alone an IRO. 5. These limits must be set by the equipment owner who is most familiar with equipment capabilities. Requirement R2 of FAC-011-1 states that “The Transmission Operator shall establish SOLs (as redirected by is Reliability Coordinator)” consistent with the Reliability Coordinator’s SOL Methodology”. This is totally objectionable to us in that it gives the Transmission Operator authority to establish SOLs. The Transmission Operator should be obligated to use the SOLs established by the equipment owner (the Transmission Owner). Requirement R2, as written, gives the Transmission Operator authority to change what the equipment owner has given him. In addition, it gives the Reliability Coordinator authority to have its own SOL Methodology. 6. Comment on Requirement R4.5 of FAC-010-1. Local criteria should be considered in addition to Regional Reliability Organization criteria for credible multiple contingencies with the most stringent criteria prevailing. However, even the RRO requirements could be made much stronger. We are in

			general agreement with NPCC and the NYSRC in this regard as stated in letters to their members. (See NPPC letter from Guy V. Zito to NPCC Members of the NERC Registered Ballot Body, subject CP9..Facility Ratings FAC-010-1 and FAC-011-1, dated March 21, 2006. Also NYSRC letter from Bruce B. Ellsworth to Ballot Body Members Registered to Vote on NERC Standards FAC-010-1 for the Establishment of System Operating Limits) 7. We consider these draft standards as a step backwards in terms of strengthening reliability standards as recommended by various NERC Blackout investigation teams. To state that it is acceptable to exceed an IROL for a period of time is irresponsible. We are puzzled that it made it this far in the draft standards process.

Response:

1. The standard does not include any real-time requirements for monitoring and controlling the system to stay within SOLs and IROLs. These real-time requirements are included in other standards.

2. The drafting team agrees that all limits must be observed. The concept of having a subset of SOLs that are most critical is in existing operating standards and this standard has been drafted to support these existing standards.

3. During previous postings, stakeholders indicated that some Tv is needed to give system operators guidance on the length of time they have to make system adjustments. Tv can be as short as zero or as long as 30 minutes.

4. The standard does not include any real-time requirements for monitoring and controlling the system to stay within SOLs and IROLs. These real-time requirements are included in other standards.

5. The equipment owner is responsible6. for setting facility ratings. System operating limits are set to respect the facility ratings. In some cases SOLs are the same as the facility ratings, but not always.

6. Please see the summary consideration. RCs and TOPs operate to N-1 unless there is a region-identified multiple contingency. (See TOP-004 Requirement 3.)

7. The concept of having IROLs as a subset of all SOLs has been in existence for quite some time. This standard tries to force entities to document the methodologies used to establish these limits with an aim at ensuring that specified criteria are respected in all methodologies. Tv may be set at zero or 15 seconds or some other number. For a short Tv system operators can't be expected to respond quickly enough – so an SPS or some other automatic mechanism needs to be installed to respond within the Tv.

Nebraska Public Power District NPPD	Alan Boesch	No	FAC-010-1 R8 does not have a measure. Add a measure or incorporate R8 into R6 and R7.

Response: The drafting team revised the standard and merged the two requirements related to distribution as suggested.			
American Transmission Company LLC ATC	Peter Burke	No	ATC is voting negative on this standard because of the uncertainties and equity issues associated with not having clear guidance on minimum steps for SOL consideration in the planning horizon
Response: This standard addresses only reliability issues. The drafting team is subdividing the standard so there will be a set of requirements for use just by the Planning Authority for use in the Planning Horizon. There will be a separate set of requirements for the Reliability Coordinator to use in the Operations Horizon.			
Avista Corp. AVA	Scott James Kinney	No	Though I support maximizing the use of the transmission system, I feel this standard reduces system reliability and therefore I can't support it. I fully support the position of the New York State Reliability Council as written in there letter dated, March 20, 2006. There should not be a difference in the outage criteria used between planning and operating the transmission system. This standard as written does not require operating studies to use multiple contingencies to set SOLs and it allows for system readjustment after single contingencies. Recent blackouts have shown that multiple contingencies and single contingencies resulting in no time to readjust the system have played a significant role in the blackout events. When the system is operated to the edge, system operators do not have time to evaluate the system conditions and make necessary adjustments to avoid large are blackouts. In my opinion operating to this standard will ultimately lead to additional blackouts, which is in direct conflict with what the industry and governing bodies are trying to avoid.
Response: There is a significant difference between the operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states. In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states: **R3. Each Transmission Operator shall, when practical, operate to protect against instability, uncontrolled separation, or cascading outages resulting from multiple outages, as specified by Regional Reliability Organization policy.** When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with			

the system intact, with single contingencies, and then with multiple contingencies.

The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards.

If entities were operating to Category C contingencies, the blackout would not necessarily have been prevented, because the facility ratings were incorrect for the real-time conditions.

Con Edison Company of New York CEPD	Edwin Thompson	No	Adoption of these standards is inconsistent with TPL-003 and represents a weakening of the current standards. In summary, TPL-003 states that the Planning Authority and Transmission Planner shall plan their portions of the interconnected system to supply customer load under category C contingency conditions. FAC-010 and 011 is inconsistent with TPL-003.

Response: FAC-010 was subdivided into two separate standards – one that addresses requirements for the Planning Authority to develop a SOL methodology for use in the planning horizon and a separate standard that addresses requirements for the Reliability Coordinator to develop a SOL methodology for use in the operating horizon. As revised, the Planning Authority's SOL methodology does support TPL-003.

Dairyland Power Cooperative DPC	Robert Roddy	No	I concur with NYSRC's position regarding the need for consistency between planning and operating criteria. Category C contingencies need to be applied in bulk system operations, as well as planning.

Response: There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

R3. Each Transmission Operator shall, when practical, operate to protect against instability, uncontrolled separation, or cascading outages resulting from multiple outages, as specified by Regional Reliability Organization policy.

When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with the system intact, with single contingencies, and then with multiple contingencies.

The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology

			for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards. The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003.
Hydro One Networks Inc.	Ajay Garg	No	1. The approved Version 0 standards, specifically TPL-003-0, "System Performance Following the Loss of Two or More BES Elements (Category C)", includes Category C contingencies. Requirement R1. of TPL-003-0 states: R1. The Planning Authority and Transmission Planner shall each demonstrate through a valid assessment that its portion of the interconnected transmission systems is planned such that the network can be operated to supply projected customer demands and projected Firm (non-recallable reserved) Transmission Services, at all demand Levels over the range of forecast system demands, under the contingency conditions as defined in Category C of Table I (attached). The controlled interruption of customer Demand, the planned removal of generators, or the Curtailment of firm (non-recallable reserved) power transfers may be necessary to meet this standard. Table I, which is part of the standard, states that for events listed under Category C, the system must remain stable and both Thermal and Voltage Limits within applicable Ratings are respected, with no cascading outages. Adoption of the proposed FAC-010-1 and FAC-011-1 in their present form would be inconsistent with TPL-003-0 and would represent a weakening of the current standards. 2. Although requirement R4.5 in FAC-010-1 permits the Regional Reliability Organization to identify "credible multiple contingencies" and establish criteria to be met when such contingencies occur, this is not sufficient because the reliability of a given region would be negatively impacted if a neighboring region operates to the weaker NERC criteria. 3. Recommendation # 25 of the US-Canada Blackout Report states: "A strong transmission system designed and operated in accordance with weakened standards would be disastrous. Instead, a concerted effort should be undertaken to determine if existing reliability criteria should be strengthened.... Only through strong standards and careful engineering can unacceptable power failures like August 14, 2003 be avoided in the future." Hydro One believes the posted draft does not meet this principle. Based on a planning perspective, the design and construction of the BES requires it to be able to withstand Category C events. Compliance with this requirement is sometimes achieved at a significant incremental cost. Then, the operating standard permits to ignore these contingencies and the extra costs are not fully taken advantage of. NERC must strive to achieve consistency between planning and operating criteria to meet recognized reliability objectives. At their last meeting the NERC Planning Committee has acknowledged the issues we have raised here and has instructed a subcommittee to evaluate how many times the omitted contingencies have occurred in the past year to determine the amount of "exposure" that would be present upon adoption of these standards. The drafting team is aware of the concerns expressed by industry but continues to maintain that Category C contingencies need not be considered, and

			further, that not passing these standards will leave a gap in the NERC reliability standards set.

Response: 1, 3. There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

R3. Each Transmission Operator shall, when practical, operate to protect against instability, uncontrolled separation, or cascading outages resulting from multiple outages, as specified by Regional Reliability Organization policy.

When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with the system intact, with single contingencies, and then with multiple contingencies.

The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards, including TPL-003.

2. The revised standards do not include a requirement to develop a methodology that considers multiple contingencies identified by the RRO. The revised standards require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

Hydro-Quebec HQT	Michel Armstrong	No	I support NPCC position and comments From a Regional and reliability perspective, the standards are not acceptable for adoption. The reasons are: 1. The approved Version 0 standards, specifically TPL-003-0, "System Performance Following the Loss of Two or More BES Elements (Category C)", includes Category C contingencies. Requirement R1. of TPL-003-0 states: R1. The Planning Authority and Transmission Planner shall each demonstrate through a valid assessment that its portion of the interconnected transmission systems is planned such that the network can be operated to supply projected customer demands and projected Firm (non-recallable reserved) Transmission Services, at all demand Levels over the range of forecast system demands, under the contingency conditions as defined in Category C of Table I (attached). The controlled interruption of customer Demand, the planned removal of

			generators, or the Curtailment of firm (non-recallable reserved) power transfers may be necessary to meet this standard. Table I, which is part of the standard, states that for events listed under Category C, the system must remain stable and both Thermal and Voltage Limits within applicable Ratings are respected, with no cascading outages. Adoption of the proposed FAC-010-1 and FAC-011-1 in their present form would be inconsistent with TPL-003-0 and would represent a weakening of the current standards. 2. Although requirement R4.5 in FAC-010-1 permits the Regional Reliability Organization to identify "credible multiple contingencies" and establish criteria to be met when such contingencies occur, this is not sufficient because the reliability of a given region would be negatively impacted if a neighboring region operates to the weaker NERC criteria. 3. Recommendation # 25 of the US-Canada Blackout Report states: "A strong transmission system designed and operated in accordance with weakened standards would be disastrous. Instead, a concerted effort should be undertaken to determine if existing reliability criteria should be strengthened.... Only through strong standards and careful engineering can unacceptable power failures like August 14, 2003 be avoided in the future." CP9 believes the posted draft does not meet this principle. Based on a planning perspective, the design and construction of the BES requires it to be able to withstand Category C events. Compliance with this requirement is sometimes achieved at a significant incremental cost. Then, the operating standard permits to ignore these contingencies and the extra costs are not fully taken advantage of. NERC must strive to achieve consistency between planning and operating criteria to meet recognized reliability objectives. At their last meeting the NERC Planning Committee has acknowledged the issues we have raised here and has instructed a subcommittee to evaluate how many times the omitted contingencies have occurred in the past year to determine the amount of "exposure" that would be present upon adoption of these standards. The drafting team is aware of the concerns expressed by industry but continues to maintain that Category C contingencies need not be considered, and further, that not passing these standards will leave a gap in the NERC reliability standards set. NPCC participating members of CP9 believe that there is the opportunity to develop this standard into a strong interconnection wide standard.

Response: 1, 3. There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

R3. Each Transmission Operator shall, when practical, operate to protect against instability, uncontrolled separation, or cascading

			outages resulting from multiple outages, as specified by Regional Reliability Organization policy. When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with the system intact, with single contingencies, and then with multiple contingencies. The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards, including TPL-003. 2. The revised standards do not include a requirement to develop a methodology that considers multiple contingencies identified by the RRO. The revised standards require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.
New Brunswick Power Transmission Corporation	Wayne Snowdon	No	FAC-010-1 and 011-1 have been posted for pre-ballot review and are currently being balloted until 8pm March 30th, 2006. Of particular concern in the posted standard is the continued omission of the requirement to evaluate all Category C contingencies in the standard when determining system operating limits. From a Regional and reliability perspective, the standards are not acceptable for adoption. The reasons are: 1. The approved Version 0 standards, specifically TPL-003-0, "System Performance Following the Loss of Two or More BES Elements (Category C)", includes Category C contingencies. Requirement R1. of TPL-003-0 states: R1. The Planning Authority and Transmission Planner shall each demonstrate through a valid assessment that its portion of the interconnected transmission systems is planned such that the network can be operated to supply projected customer demands and projected Firm (non-recallable reserved) Transmission Services, at all demand Levels over the range of forecast system demands, under the contingency conditions as defined in Category C of Table I (attached). The controlled interruption of customer Demand, the planned removal of generators, or the Curtailment of firm (non-recallable reserved) power transfers may be necessary to meet this standard. Table I, which is part of the standard, states that for events listed under Category C, the system must remain stable and both Thermal and Voltage Limits within applicable Ratings are respected, with no cascading outages. Adoption of the proposed FAC-010-1 and FAC-011-1 in their present form would be inconsistent with TPL-003-0 and would represent a weakening of the current standards. 2. Although requirement R4.5 in FAC-010-1 permits the Regional Reliability Organization to identify "credible multiple contingencies" and establish criteria to be met when such contingencies

			occur, this is not sufficient because the reliability of a given region would be negatively impacted if a neighboring region operates to the weaker NERC criteria. 3. Recommendation # 25 of the US-Canada Blackout Report states: "A strong transmission system designed and operated in accordance with weakened standards would be disastrous. Instead, a concerted effort should be undertaken to determine if existing reliability criteria should be strengthened.... Only through strong standards and careful engineering can unacceptable power failures like August 14, 2003 be avoided in the future."

Response: 1, 3. There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

R3. Each Transmission Operator shall, when practical, operate to protect against instability, uncontrolled separation, or cascading outages resulting from multiple outages, as specified by Regional Reliability Organization policy.

When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with the system intact, with single contingencies, and then with multiple contingencies.

The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards, including TPL-003.

2. The revised standards do not include a requirement to develop a methodology that considers multiple contingencies identified by the RRO. The revised standards require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

Nova Scotia Power NSPI	David D Little	No	NSPI believes there must be a requirement for inclusion of ALL Table 1 category C contingencies when determining System Operating Limits (SOL). All Category C contingencies ARE credible contingencies that must be evaluated when determining SOL. Recent information presented to the Planning Committee would support this position. We recognize that presently Reliability Coordinators (RC) have the authority to include any contingencies above and beyond those presently not required in the draft standard. This may represent exposure to a system condition originating outside of the local RC area. NERC Reliability Standards should not represent compromise on issues critical to the reliability of the Bulk Power System and adherance to "least common denominator" contingencies on an interconnection wide basis will ultimately have an adverse impact on reliability."

Response: There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

R3. Each Transmission Operator shall, when practical, operate to protect against instability, uncontrolled separation, or cascading outages resulting from multiple outages, as specified by Regional Reliability Organization policy.

When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with the system intact, with single contingencies, and then with multiple contingencies.

The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards.

The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

Note that the information presented during the last Planning Committee meeting addressed only stability-related contingencies. The changes made to this standard support the recommendations made at the Planning Committee.

ISO-NE	Kathleen Goodman	No	The current NERC Version 0 Reliability Standard TPL-003-0 defines the set of "Category C" contingencies as "Event(s) resulting in the loss of two or more (multiple) elements." These include the following nine contingencies: Single-Line-to-Ground Fault, with Normal Clearing: 1. Bus Section 2. Breaker (failure or internal Fault) Single-Line-to-Ground Fault or 3Ø Fault, with Normal Clearing, Manual System Adjustments, followed by another Single-Line-to-Ground Fault or 3Ø Fault, with Normal Clearing: 3. Category B (B1, B2, B3 or B4) contingency, manual system adjustments, followed by another Category B (B1, B2 B3, or B4) contingency Bipolar Block with Delayed Clearing: 4. Bipolar (dc) Line Fault (non-3Ø), with Normal Clearing: 5. Any two circuits of a multiple circuit towerline Single-Line-to-Ground Fault, with Delayed Clearing (stuck breaker or protection system failure): 6. Generator 7. Transformer 8. Transmission Circuit 9. Bus Section However, in the currently proposed draft for Standard FAC-010-1, "System Operating Limits Methodology," the imposition of multiple element "Category C" contingencies is not a requirement in establishing the operational System Operating Limit. ISO New England believes that the omission of such a requirement is a clear deterioration of reliable operating standards, and accordingly has cast a negative vote on the Standard.

Response: There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

R3. Each Transmission Operator shall, when practical, operate to protect against instability, uncontrolled separation, or cascading

outages resulting from multiple outages, as specified by Regional Reliability Organization policy.

When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with the system intact, with single contingencies, and then with multiple contingencies.

The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards.

The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

Potomac Electric Power Company PEPW	Richard Kafka	No	In section R2.1 of this standard it states that the standard's required methodology "shall be applicable to development of SOLs during the planning horizon." However, standard TPL-003-0, "System Performance Following Loss of Two or More BES Elements" includes a requirement to access Category C contingencies, i.e., events resulting in the loss of two or more (multiple) elements. Therefore, adoption of FAC-010-1 in its present form, without considering Category C contingencies, would be inconsistent with Standard TPL-003-0 and would thus result in a weakening of existing NERC standards. We recognize that the Standard has included a provision in Section R4.4 that allows a Region to establish criteria requiring consideration of credible multiple element contingencies. However, we believe that reliability standards recognizing this class of contingencies should be maintained in all of North America, not only certain Regions. A weakening of reliability standards in any Region could adversely affect the reliability in another Region, even if the other Region has adopted more stringent standards.

Response: The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports TPL-003.

The revised standards do not include a requirement to develop a methodology that considers multiple contingencies identified by the RRO. The revised standards require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to

include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.			
PP&L PAPL	Ray Mammarella	No	NERC Transmission Issues Subcommittee should conduct a Multiple Facility Trip (MFT) survey, similar to the table presented at the NERC PC 3/16/06 meeting. Also, a new item should be added to paragraph R4.2 of FAC-010 to include the following Category C events: R4.2.4 For a stability limited system condition, a single line to ground fault plus a failure of a single component, which is challenged to operate, shall not lead to cascading of system elements. Examples of "a failure of single component, which is challenged to operate," would include but not be limited to 1) a stuck circuit breaker, or 2) failure of a high speed protective relay, which when challenged fails to operate properly. Note: Jim Robinson's presentation to the NERC PC (in Arizona) on March 15, 2006 will be forwarded to NERC for review and consideration. Attaching the document using the file upload feature failed on the first attempt and generated the error message: "maximum request length exceeded"
Response: The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards. The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies. These changes support the recommendations made during Jim Robinson's presentation to the NERC PC.			
New Brunswick System Operator	Alden Briggs	No	NBSO strongly believes there must be a requirement for inclusion of ALL Table 1 category C contingencies when determining System Operating Limits (SOL). All Category C contingencies ARE credible contingencies that must be evaluated when determining SOL. We recognize that presently Reliability Coordinators (RC) have the authority to include any contingencies above and beyond those presently not required in the draft standard. This may represent exposure to a system condition originating outside of the local RC area. NERC Reliability Standards should not represent compromise on issues critical to the reliability of the Bulk Power System and adherance to "least common denominator" contingencies on an interconnection wide basis will ultimately have an adverse impact on reliability."

Response: There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

R3. Each Transmission Operator shall, when practical, operate to protect against instability, uncontrolled separation, or cascading outages resulting from multiple outages, as specified by Regional Reliability Organization policy.

When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with the system intact, with single contingencies, and then with multiple contingencies.

The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards.

The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

New York Independent System Operator NYIS	Gregory Campoli	No	The NYISO would like to raise the following concern: 1. The approved Version 0 standards, specifically TPL-003-0, "System Performance Following the Loss of Two or More BES Elements (Category C)", includes Category C contingencies. Requirement R1. of TPL-003-0 states: R1. The Planning Authority and Transmission Planner shall each demonstrate through a valid assessment that its portion of the interconnected transmission systems is planned such that the network can be operated to supply projected customer demands and projected Firm (non-recallable reserved) Transmission Services, at all demand Levels over the range of forecast system demands, under the contingency conditions as defined in Category C of Table I (attached). The controlled interruption of customer Demand, the planned removal of generators, or the Curtailment of firm (non-recallable reserved) power transfers may be necessary to meet this standard. Table I, which is part of the standard, states that for events listed under Category C, the system must remain stable and both Thermal and Voltage Limits within applicable Ratings are respected, with no cascading outages. Adoption of the proposed FAC-010-1 and FAC-011-1 in their present form would be inconsistent with TPL-003-0 and would represent a weakening of the current standards. 2. Although requirement R4.5 in FAC-010-1 permits the Regional Reliability Organization to identify “credible multiple contingencies” and establish criteria to be met when such contingencies occur, this is not sufficient because the reliability of a given region would be negatively impacted if a neighboring region operates to the weaker NERC criteria.

Response:

1. There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

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When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with the system intact, with single contingencies, and then with multiple contingencies.

The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology

			for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards. The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies. 2. The revised standards do not include a requirement to develop a methodology that considers multiple contingencies identified by the RRO. The revised standards require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.
New York State Reliability Council	Alan Adamson	No	The New York State Reliability Council (NYSRC) has cast a NO vote for approval of Standards FAC-010-1 and 011-1 as presently drafted. As stated in our previous comments on these proposed standards, NYSRC remains concerned that the required methodology for determining System Operating Limits (SOLs) in this draft of FAC-010-1 continues to omit the requirement to consider credible multiple element contingencies, i.e., Category C contingency events. This concern was addressed in our comments on earlier drafts and during the previous balloting of this standard. The NYSRC is disappointed that these comments were not considered in the latest draft now being balloted. We are also troubled with the following Standard Drafting Team (SDT) statement, dated February 8, 2006, that addresses our concern as to the omission of Category C events in the proposed standard: "The language in the proposed FAC-010-1 represents a compromise aimed at reaching the best consensus." Compromise is not appropriate when developing reliability criteria, and in this case would result in a weakening of reliability. The NYSRC believes that the proposed standard is not consistent with a critical recommendation in the Final Report on the August 14, 2003 Blackout in the United States and Canada, prepared by the U.S.-Canada Power System Outage Task Force. Recommendation #25 states that the NERC process to reevaluate its standards should "not dilute the content of the existing standards." The report's support for this recommendation uses a quote from a commenter on the Interim Report as follows: "A strong transmission system designed and operated in accordance with weakened criteria would be disastrous. Instead, a concerted effort should be undertaken to determine if existing reliability criteria should be strengthened" Only through strong standards and careful engineering can unacceptable power failures like August 14, 2003 be avoided in the future." Standard FAC-010-1, because it does not require consideration of credible multiple element

			contingencies, does not meet this principle, for the following reasons: Issue 1: Section R2 of proposed standard FAC-010-1 states that the standard's required methodology "shall be applicable to development of SOLs during the planning horizon". However, the Version 0 transmission system planning standard TPL-003-0, "System Performance Following Loss of Two or More BES Elements", includes a requirement to assess Category C contingencies, i.e., events resulting in the loss of two or more (multiple) elements. Therefore, adoption of FAC-010-1 in its present form, without considering Category C contingencies, would be inconsistent with Standard TPL-003-0 and would thus result in a weakening of existing NERC standards. Furthermore, the extra costs of designing and contructing a bulk electric system to achieve standard TPL-003-0 Category C requirements would be wasted unless the FAC-010-1 standard also included recognition of Category C contingencies. Issue 2: Category C contingencies should be applied to the operation of the bulk electric system, as well as to planning. The SDT contended in its response to this concern that "the typical operating condition is to have one or more facilities out of service." We agree that frequently during the operation of the system one or more facilities are out of service, and as a result inclusion of Category C contingency criteria may at times result in overly stringent restrictions, especially if this may result in load not being served. Under such conditions, some may prefer not to use Category C contingencies, and an exception to meeting this requirement would then be permitted. However, evaluation of Category C contingencies should be required for all other operating conditions. Issue 3: We recognize that the SDT has included a provision in section R4.4 that allows a Region to establish criteria requiring consideration of credible multiple element contingencies. However, we believe that reliability standards recognizing this class of contingencies should be maintained in all of North America, not only certain Regions. A weakening of reliability standards in any Region could adversely affect the reliability in another Region, even if the other Region has adopted more stringent standards. The NYSRC does not believe that the SDT has satisfactorily addessed the above issues in its previous responses to our comments. In conclusion, the NYSRC continues to strongly believe that adoption of proposed standard FAC-010-1, as proposed in Draft #7, would weaken present NERC criteria, and in light of 2003 Blackout lessons-learned, would result in an unacceptable reliability impact for the North American bulk electric system. To avoid this concern, NERC must strive to achieve consistency between its planning and operating criteria to meet recognized reliability objectives and to make the necessary changes to make this standard acceptable.

Response:

1, 2. There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to

operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

R3. Each Transmission Operator shall, when practical, operate to protect against instability, uncontrolled separation, or cascading outages resulting from multiple outages, as specified by Regional Reliability Organization policy.

When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with the system intact, with single contingencies, and then with multiple contingencies.

The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards.

The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

3. The revised standards do not include a requirement to develop a methodology that considers multiple contingencies identified by the RRO. The revised standards require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

Northeast Power Coordinating Council	Edward Schwerdt	No	This standard must include a requirement for the analysis of all Table 1 category C contingencies when determining System Operating Limits. All Category C contingencies are credible contingencies that must be evaluated when determining SOL. NERC Reliability Standards should not represent a compromise on issues critical to the reliability of the Bulk Power System. Adherance to a set of "least common denominator" standards on an industry-wide basis will ultimately have an adverse impact on reliability.

Response: There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

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When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with the system intact, with single contingencies, and then with multiple contingencies.

The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards.

The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

Con Edison Company of New York CEPD	Norman Mah	No	Adoption of these standards is inconsistent with TPL-003 and represents a weakening of the current standards. In summary, TPL-003 states that the Planning Authority and Transmission Planner shall plan their portions of the interconnected system to supply customer load under category C contingency conditions. FAC-010 and 011 is inconsistent with TPL-003.
Response: The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports TPL-003.			
Hydro One	Mike	No	1. The approved Version 0 standards, specifically TPL-003-0, "System Performance Following the Loss of Two or More BES Elements (Category C)", includes Category C contingencies.

Networks Inc	Penstone		Requirement R1. of TPL-003-0 states: R1. The Planning Authority and Transmission Planner shall each demonstrate through a valid assessment that its portion of the interconnected transmission systems is planned such that the network can be operated to supply projected customer demands and projected Firm (non-recallable reserved) Transmission Services, at all demand Levels over the range of forecast system demands, under the contingency conditions as defined in Category C of Table I (attached). The controlled interruption of customer Demand, the planned removal of generators, or the Curtailment of firm (non-recallable reserved) power transfers may be necessary to meet this standard. Table I, which is part of the standard, states that for events listed under Category C, the system must remain stable and both Thermal and Voltage Limits within applicable Ratings are respected, with no cascading outages. Adoption of the proposed FAC-010-1 and FAC-011-1 in their present form would be inconsistent with TPL-003-0 and would represent a weakening of the current standards. 2. Although requirement R4.5 in FAC-010-1 permits the Regional Reliability Organization to identify “credible multiple contingencies” and establish criteria to be met when such contingencies occur, this is not sufficient because the reliability of a given region would be negatively impacted if a neighboring region operates to the weaker NERC criteria. 3. Recommendation # 25 of the US-Canada Blackout Report states: "A strong transmission system designed and operated in accordance with weakened standards would be disastrous. Instead, a concerted effort should be undertaken to determine if existing reliability criteria should be strengthened.... Only through strong standards and careful engineering can unacceptable power failures like August 14, 2003 be avoided in the future." Hydro One believes the posted draft does not meet this principle. Based on a planning perspective, the design and construction of the BES requires it to be able to withstand Category C events. Compliance with this requirement is sometimes achieved at a significant incremental cost. Then, the operating standard permits to ignore these contingencies and the extra costs are not fully taken advantage of. NERC must strive to achieve consistency between planning and operating criteria to meet recognized reliability objectives. At their last meeting the NERC Planning Committee has acknowledged the issues we have raised here and has instructed a subcommittee to evaluate how many times the omitted contingencies have occurred in the past year to determine the amount of “exposure” that would be present upon adoption of these standards. The drafting team is aware of the concerns expressed by industry but continues to maintain that Category C contingencies need not be considered, and further, that not passing these standards will leave a gap in the NERC reliability standards set.

Response: 1, 2. There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages;

they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

R3. Each Transmission Operator shall, when practical, operate to protect against instability, uncontrolled separation, or cascading outages resulting from multiple outages, as specified by Regional Reliability Organization policy.

When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with the system intact, with single contingencies, and then with multiple contingencies.

The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards.

The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

The revised standards do not include a requirement to develop a methodology that considers multiple contingencies identified by the RRO. The revised standards require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

Niagara Mohawk NMPC	Michael Schiavone	No	The reasons for a negative vote are as follows: 1. The approved standards, specifically TPL-003-0, "System Performance Following the Loss of Two or More BES Elements (Category C)", includes Category C contingencies. Requirement R1. of TPL-003-0 states: R1. The Planning Authority and Transmission Planner shall each demonstrate through a valid assessment that its portion of the interconnected transmission systems is planned such that the network can be operated to supply projected customer demands and projected Firm (non-recallable reserved) Transmission Services, at all demand Levels over the range of forecast system demands, under the contingency conditions as defined in Category C of Table I (attached). The controlled interruption of customer Demand, the planned removal of generators, or the Curtailment of firm (non-recallable reserved) power transfers may be necessary to meet this standard. Table I, which is part of the standard, states that for events listed under Category C, the system must remain stable and both Thermal and Voltage Limits within applicable Ratings are respected, with no cascading outages. Adoption of the proposed FAC-010-1 and FAC-011-1 in their present form would be inconsistent with TPL-003-0 and would represent a weakening of the current standards. 2. Although requirement R4.5 in FAC-010-1 permits the Regional Reliability Organization to identify “credible multiple contingencies” and establish criteria to be met when such contingencies occur, this is not sufficient because the reliability of a given region would be negatively impacted if a neighboring region operates to the weaker NERC criteria. 3. Recommendation # 25 of the US-Canada Blackout Report states: "A strong transmission system designed and operated in accordance with weakened standards would be disastrous. Instead, a concerted effort should be undertaken to determine if existing reliability criteria should be strengthened.... Only through strong standards and careful engineering can unacceptable power failures like August 14, 2003 be avoided in the future."

Response: 1, 2. There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

R3. Each Transmission Operator shall, when practical, operate to protect against instability, uncontrolled separation, or cascading outages resulting from multiple outages, as specified by Regional Reliability Organization policy.

When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where

to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with the system intact, with single contingencies, and then with multiple contingencies.

The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards.

The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

The revised standards do not include a requirement to develop a methodology that considers multiple contingencies identified by the RRO. The revised standards require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

Avista Corp. Washington Water Power Division AVWP	Edward F. Groce	No	Though I support maximizing the use of the transmission system, I feel this standard reduces system reliability and therefore I can't support it. I fully support the position of the New York State Reliability Council as written in there letter dated, March 20, 2006. There should not be a difference in the outage criteria used between planning and operating the transmission system. This standard as written does not require operating studies to use multiple contingencies to set SOLs and it allows for system readjustment after single contingencies. Recent blackouts have shown that multiple contingencies and single contingencies resulting in no time to readjust the system have played a significant role in the blackout events. When the system is operated to the edge, system operators do not have time to evaluate the system conditions and make necessary adjustments to avoid large are blackouts. In my opinion operating to this standard will ultimately lead to additional blackouts, which is in direct conflict with what the industry and governing bodies are trying to avoid.

Response: The purpose of the planning standards (TPL-001 through TPL-004) is to determine system expansion, and the purpose of the operating standards ensure reliable operations during real-time conditions. Real-time conditions don't necessarily mimic the conditions assumed when the system was planned.

The modified standards provide a better link between the operations and planning standards with respect to consideration of multiple contingencies and SOL development methodologies. The revised standard requires the PA to establish a subset of multiple contingencies and

associated stability limits and provide the contingencies and limits to the RC for use in the RC's SOL methodology.			
City Water Light & Power CWLP	Karl Kohlrus	No	Agree with NYSRC concerns.
Response: Please see the response to the NYSRC concerns.			
Detroit Edison	Ronald Bauer	No	Would like to see response to concerns raised by the New York State Reliability Council, especially how the Standard is responsive to the DOE report on the Blackout.
Response: Please see the response to the NYSRC concerns.			
Iowa Office of Consumer Advocate	Larry Shi	No	The proposed standard is insufficient because it does not require the System Operating Limit (SOL) methodology to examine Category "C" faults. Such requirement already exists in some of the ERO's Regional Reliability Regions.

Response: There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

R3. Each Transmission Operator shall, when practical, operate to protect against instability, uncontrolled separation, or cascading outages resulting from multiple outages, as specified by Regional Reliability Organization policy.

When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with the system intact, with single contingencies, and then with multiple contingencies.

The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards.

The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to

include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

Michehl Gent	Michehl Gent	No	This is not a technically excellent standard. NERC should be striving for technical excellence, not a "compromise" just for obtaining approval. This is a key standard and the drafting team needs to start over paying particular attention to Jim Robinson's comments.

Response: This standard was posted for comment several times and the drafting team has given due consideration to the technical comments submitted during the comment periods.

Missouri Office of Public Counsel	Ryan Kind	No	The proposed standard could negatively impact reliability because the requirement in existing standards for the SOL methodology to examine Category "C" faults will become a regional exception and will only apply within the ERO's Regional Reliability Regions if those exceptions are approved at some future date after they have gone through the NERC standards approval process.

Response: There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

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The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised

standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

Pennsylvania Office of Consumer Advocate	Sonny Popowsky	No	We share the concerns raised by others that this standard should include the analysis of Category "C" events.

Response: There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

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National Association of Regulatory Utility Commissioners	Diane Jean Barney	No	The proposed standard continues to fall short in ensuring a process to operate the system reliably by failing to adequately address credible multiple-outage contingencies and by allowing individual regions to operate to a lower standard from what is currently required in the existing planning process.

Response: There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

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When the system is planned, the starting point is an intact system, with no facilities out of service and the analyses are used to determine where to make expansions. The planning standards TPL-001, TPL-002, and TPL-003 address the system under various operating conditions – with the system intact, with single contingencies, and then with multiple contingencies.

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New York State Public Service Commission	James T Gallagher	No	The proposed standard continues to fall short in ensuring a process to operate the system reliably by failing to adequately address credible multiple-outage contingencies and by allowing individual regions to operate to a lower standard from what is currently required in the existing planning process.

Response: There is a significant difference between operations and planning standards and practices. The proposed standards need to coordinate with both operations standards that address real-time operations, and planning standards that require analyses of the ability of the BES to operate under various theoretical states.

In real-time operations, most entities operate to N-1 starting from the real-time condition of the system including forced and scheduled outages; they operate so that they can withstand the next largest single contingency. This requirement is stated various ways in standards TOP-002, TOP-004, and VAR-001. It is extremely rare in real-time operations to have an intact system. There is only one requirement in existing approved standards that requires operation to multiple contingencies, and this requirement in TOP-004 states:

R3. Each Transmission Operator shall, when practical, operate to protect against instability, uncontrolled separation, or cascading outages resulting from multiple outages, as specified by Regional Reliability Organization policy.

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The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

The revised standards do not include a requirement to develop a methodology that considers multiple contingencies identified by the RRO. The revised standards require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.

Wisconsin Public Power Inc WPPI	Cole Price	Yes	The changes to the standard as proposed are appropriate and non-problematic. However, WPPI does have concerns with other language within this standard. Our concerns relate specifically to the following language: "R4.3. In determining the system's response to a single Contingency, the following shall be acceptable: R4.3.1. Planned or controlled interruption of electric supply to Radial customers or some local network customers connected to or supplied by the Faulted Facility or by the affected area." The standard appears to endorse dropping TDU load as an appropriate response to meeting single contingency requirements. We believe that such a language invites discriminatory application.
Response: The planned or controlled interruption identified in this phrase is normally done automatically, without manual intervention, to minimize the extent of the outage and to minimize equipment damage. This is not a 'TDU' issue – it is a design issue.			
Florida Municipal Power Agency FMPA	Bill May	Yes	The standard appears to endorse dropping load as an appropriate means to meet single contingency requirements We believe that such a language could invite discriminatory application. Additional protection needs to be included in the standard to ensure that all similarly-situated loads are treated the same with respect to service under single contingency outage conditions. We recommend that this additional protection be included in a new SAR.
Response: The planned or controlled interruption identified in this phrase is normally done automatically, without manual intervention, to minimize the extent of the outage and to minimize equipment damage. The drafting team believes that requiring all similarly-situated loads to be treated equitably is outside the scope of the work assigned to this team.			
Florida Municipal Power Agency FMPA	Joseph Krupar	Yes	The standard accepts dropping radial customers or local network customers to meet single contingency requirements. This language in R4.3 could invite discriminatory application. Additional protection needs to be included in the standard to ensure that all similarly- situated loads are treated the same with respect to service under single contingency outage conditions.
Response: The planned or controlled interruption identified in this phrase is normally done automatically, without manual intervention, to minimize the extent of the outage and to minimize equipment damage. The drafting team believes that requiring all similarly-situated loads to be treated equitably is outside the scope of the work assigned to this team.			

Lincoln Electric System LES	Bruce E Merrill	Yes	A) R8 does not note that it applies to both R6 and R7. The SDT either needs to add a measure for R8 or include in R6 and R7. B) Suggest that the SDT clarify the standard regarding the use of the term System Operating Limits in the Planning Horizon. C) Suggest that the SDT clarify roles of the Reliability Coordinator and the Planning Authority with regard to requirements in the Operating Horizon and Planning Horizon. D) Category C disturbances should also be examined under this standard, and when practical, the system shall be operated to ensure cascading outages, separation, and instability do not occur as a result of credible multiple contingencies. E) The language, as currently drafted in R4.3 and R4.3.1 pertaining to the system's response to a single contingency for Radial customers and some network customers affected by the faulted area has been used by some TO's to endorse dropping TDU load as an appropriate means to meet single contingency requirements. Such a standard invites discriminatory application.

Response:

A) The drafting team merged the requirements for distributing the SOL methodology so in the revised standards these are addressed with a single measure.

B) The term, 'System Operating Limits' is defined in the NERC Glossary of Terms Used in Reliability Standards. The term, 'Planning Horizon' is commonly used to refer to the time period that extends beyond a year.

C) The drafting team is unsure of what clarification you want with respect to the roles of the Reliability Coordinator and the Planning Authority. The Planning Authority is responsible for developing an SOL development methodology suitable for developing SOLs used in the Planning Horizon – these are SOLs used in running analyses to determine if the Bulk Electric System needs expansion. The Reliability Coordinator is responsible for developing an SOL methodology suitable for Reliability Coordinators to use in real-time operations.

D) The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards.

The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability

limits and the list of stability-related multiple contingencies. E) The drafting team is not responsible for addressing your concern about issues unrelated to this standard. It is not responsible to determine the design criteria used by individual transmission owners. NERC standards are concerned with overall bulk electric system reliability performance, not the design of specific local transmission systems.			
California Energy Commission	William Mitchell Chamberlain	Yes	Entities outside of WECC have voiced legitimate concerns that FAC-010-1 does not require consideration of credible multiple element contingencies. WECC has addressed this weakness in the Standard by submitting Interconnection Wide Regional Differences for inclusion in FAC-010-1 that identify the additional outages that are to be considered in the west when establishing System Operating Limits. These additional outages are taken from the approved NERC/WECC Planning Standards. These Interconnection Wide Regional Differences are not subject to the NERC ballot body, but are included in the standard to identify the additional, more stringent requirements for the Western Interconnection that have been approved using the WECC Standards Development Process. Nevertheless, in the remainder of the continent, this proposed standard continues to fall short in ensuring a process to operate the system reliably by failing to adequately address credible multiple-outage contingencies and by allowing individual regions to operate to a lower standard from what is currently required in the existing planning process. We are voting yes because this problem does not affect reliability in the West, but we urge future drafting teams to work further on this problem.
Response: The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards. The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.			
SaskPower SPC	Wayne Guttormson	Yes	SaskPower recommends that the SDT either add a Measure for FAC-010 R8 or else include R8 in R6 and R7. It's also unclear as to which standard takes precedence for the Planning Authority FAC-010 or TPL-003 when considering Category C disturbances. TPL-003 requires you to consider them FAC-010 does not.

Response: The drafting team modified the standard and merged the requirements that addressed the distribution of the SOL methodologies – so now one measure is all that is needed. The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports TPL-003.			
Alberta Electric System Operator AESO	Anita Lee	Yes	The AESO has concerns with the current proposed standard that leaves the requirement for consideration of multiple contingency to the regional reliability councils. While the WECC has included this requirement for the WECC region, other regional reliability councils have not. This may lead to inconsistent application of the multiple contingency requirements which may have negative reliability impact.
Response: The revised standards do not include a requirement to develop a methodology that considers multiple contingencies identified by the RRO. The revised standards require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.			
Midwest Independent Transmission System Operator, Inc.	Terry Bilke	Yes	While we are voting affirmative, we have concerns in that there is not a consensus in the industry on the role of the planning authority. Most of the V0 items that were passed just duplicated the tasks of the local planner. The role of the planning authority needs better definition. Two entities shouldn't be accountable for the same requirement.
Response: Refining the role of the planning authority is outside the scope of this drafting team.			
US Army Corp of Engineers Northwestern Division	Karl Bryan	Yes	Recommend metrics be attached to all of the requirements.
Response: As revised, all of the requirements do have measures.			

North Carolina Municipal Power Agency 1 NCMP	Clay A Norris	Yes	The language change proposed is appropriate and non-problematical. However, NCMPA1 believes that other language within this standard does present issues. While our vote on the proposed language change is "yes", we have concerns with respect to one portion of the standard. The specific provisions of the standard that present difficulty are the following: "R4.3. In determining the system's response to a single Contingency, the following shall be acceptable: R4.3.1. Planned or controlled interruption of electric supply to Radial customers or some local network customers connected to or supplied by the Faulted Facility or by the affected area." The standard appears to endorse dropping load as an appropriate means to meet single contingency requirements. We believe that such language could invite discriminatory application. Additional protection needs to be included in the standard to ensure that all similarly-situated loads are treated the same with respect to service under single contingency outage conditions. We would like to see this addressed in a future version of the standard.
Response: The planned or controlled interruption identified in this phrase is normally done automatically, without manual intervention, to minimize the extent of the outage and to minimize equipment damage. The drafting team believes that requiring all similarly-situated loads to be treated equitably is outside the scope of the work assigned to this team.			
Lincoln Electric System LES	Dennis Florom	Yes	R8 does not note that it applies to both R6 and R7. The SDT either needs to add a measure for R8 or include in R6 and R7. Suggest that the SDT clarify the standard regarding the use of the term System Operating Limits in the Planning Horizon. Suggest that the SDT clarify roles of the Reliability Coordinator and the Planning Authority with regard to requirements in the Operating Horizon and Planning Horizon. Category C disturbances should also be examined under this standard, and when practical, the system shall be operated to ensure cascading outages, separation, and instability do not occur as a result of credible multiple contingencies. The language, as currently drafted in R4.3 and R4.3.1 pertaining to the system's response to a single contingency for Radial customers and some network customers affected by the faulted area has been used by some TO's to endorse dropping TDU load as an appropriate means to meet single contingency requirements. Such a standard invites discriminatory application and should be changed in future revisions to the standard.
Response: The drafting team merged the requirements for distributing the SOL methodology so in the revised standards these are addressed with a single measure. The term, 'System Operating Limits' is defined in the NERC Glossary of Terms Used in Reliability Standards. The term, 'Planning Horizon' is			

			commonly used to refer to the time period that extends beyond a year. The drafting team is unsure of what clarification you want with respect to the roles of the Reliability Coordinator and the Planning Authority. The Planning Authority is responsible for developing an SOL development methodology suitable for developing SOLs used in the Planning Horizon – these are SOLs used in running analyses to determine if the Bulk Electric System needs expansion. The Reliability Coordinator is responsible for developing an SOL methodology suitable for Reliability Coordinators to use in real-time operations. The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards. The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies. The drafting team is not responsible for addressing your concern about issues unrelated to this standard. It is not responsible to determine the design criteria used by individual transmission owners. NERC standards are concerned with overall bulk electric system reliability performance, not the design of specific local transmission systems.
Great River Energy GRE	Gordon Pietsch	Yes	These commenst are in regards with FAC-010 The Midwest Relaibility Organization (MRO) previously commented that FAC-010-1 R8 does not have a Measure and suggested incorporation of R8 into R7. The SDT didn't make any changes noting that R8 applies to both R6 and R7. Therefore, the MRO recommends that the SDT either add a Measure for R8 or else include R8 in R6 and R7. The MRO previously commented that FAC-010-1 asked for clarification of using the term System Operating Limit in the Planning Horizon. The SDT did not clarify in the standard but clarified in the considerations that the intent is that the System Operating Limit is used in studies in the Planning Horizon by the Planning Authority. The MRO again recommends that the SDT clarify the standard. The MRO previously commented that FAC-010-1 R1 should be clarified to identify the roles of the reliability functions: Reliability Coordinator, Planning Authority, RRO, TSP, TOP, TO, and TP. The SDT said that stakeholders have agreed to the requirements with respect to accountability in previous commenting periods. The MRO recommends specifically in FAC-010 where both the Reliability Coordinator and Planning Authority are referred to with regard to requirements in the Operating Horizon and Planning Horizon that the requirements be clarified by indicating that the Reliability Coordinator is responsible for following the requirements in the Operating Horizon and the Planning Authority is responsible for following the requirements in the Planning Horizon.

			Further clarifications of roles of reliability functions would provide additional help to parties that must follow and implement these standards. Category C disturbances should also be examined under the standard, and when practical, the system shall be operated to ensure that cascading outages, separation, and instability do not occur as a result of credible multiple contingencies.
Response: The drafting team merged the requirements for distributing the SOL methodology so in the revised standards these are addressed with a single measure. The term, 'System Operating Limits' is defined in the NERC Glossary of Terms Used in Reliability Standards. The term, 'Planning Horizon' is commonly used to refer to the time period that extends beyond a year. The drafting team is unsure of what clarification you want with respect to the roles of the Reliability Coordinator and the Planning Authority. The Planning Authority is responsible for developing an SOL development methodology suitable for developing SOLs used in the Planning Horizon – these are SOLs used in running analyses to determine if the Bulk Electric System needs expansion. The Reliability Coordinator is responsible for developing an SOL methodology suitable for Reliability Coordinators to use in real-time operations. The standard has been subdivided and this should provide the clarification you requested. The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards. The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.			
Midwest Reliability Organization	William J. Head	Yes	The MRO previously commented that FAC-010-1 R8 does not have a Measure and suggested incorporation of R8 into R7. The SDT didn't make any changes noting that R8 applies to both R6 and R7. Therefore, the MRO recommends that the SDT either add a Measure for R8 or else include R8 in R6 and R7. The MRO previously commented that FAC-010-1 asked for clarification of using the term System Operating Limit in the Planning Horizon. The SDT did not clarify in the standard but clarified in the considerations that the intent is that the System Operating Limit is used in studies in the Planning Horizon by the Planning Authority. The MRO again recommends that the SDT clarify the standard.

			The MRO previously commented that FAC-010-1 R1 should be clarified to identify the roles of the reliability functions: Reliability Coordinator, Planning Authority, RRO, TSP, TOP, TO, and TP. The SDT said that stakeholders have agreed to the requirements with respect to accountability in previous commenting periods. The MRO recommends specifically in FAC-010 where both the Reliability Coordinator and Planning Authority are referred to with regard to requirements in the Operating Horizon and Planning Horizon that the requirements be clarified by indicating that the Reliability Coordinator is responsible for following the requirements in the Operating Horizon and the Planning Authority is responsible for following the requirements in the Planning Horizon. Further clarifications of roles of reliability functions would provide additional help to parties that must follow and implement these standards. Category C disturbances should also be examined under the standard, and when practical, the system shall be operated to ensure that cascading outages, separation, and instability do not occur as a result of credible multiple contingencies.

Response:

The drafting team merged the requirements for distributing the SOL methodology so in the revised standards these are addressed with a single measure.

The term, 'System Operating Limits' is defined in the NERC Glossary of Terms Used in Reliability Standards. The term, 'Planning Horizon' is commonly used to refer to the time period that extends beyond a year.

The drafting team is unsure of what clarification you want with respect to the roles of the Reliability Coordinator and the Planning Authority. The Planning Authority is responsible for developing an SOL development methodology suitable for developing SOLs used in the Planning Horizon – these are SOLs used in running analyses to determine if the Bulk Electric System needs expansion. The Reliability Coordinator is responsible for developing an SOL methodology suitable for Reliability Coordinators to use in real-time operations.

The drafting team subdivided FAC-010 so there is a set of requirements for the Planning Authority to follow in developing its SOL methodology for use in the planning horizon. There is a separate set of requirements for the Reliability Coordinator to following in developing its SOL methodology for use in the operations horizon. The operations methodology for developing SOLs supports existing operating standards. The planning methodology for developing SOLs supports existing planning standards.

The revised standards require the Planning Authority's methodology to address the multiple contingencies identified in TPL-003. The revised standards also require the Planning Authority to identify stability-related multiple contingencies and provide the Reliability Coordinator with a list of those contingencies and their associated stability limits. The revised standards require the Reliability Coordinator's SOL methodology to include a process for determining which of the stability limits associated with the list of multiple contingencies (are applicable for real-time use given the real-time system conditions – and requires the process to address recalculating these stability limits and expanding this list of stability limits and the list of stability-related multiple contingencies.