

Resolution of Issues Assigned to Real-time Operations SDT (Project 2007-03)

Standard	Source	Language	Resolution
TOP-001			
TOP-001-1	FERC Order 693	1580 - Consider adding other measures and levels of non-compliance.	Measures and VSLs have been assigned to all requirements.
TOP-001-1	FERC Order 693	1585 - Clarify the definition of "emergency" and define the criteria for entering into the various states. Also define the authority for declaring these states.	The RTOSDT feels that the TOP-001 standard should be restricted to Transmission System operations and that definition of operating states more correctly belong in EOP-001 as pointed out in Order 693, paragraph 560. To make certain that the issue is handled there; the RTOSDT has entered an official item in the NERC database of project issues in this regard. This will require the SDT working on revisions to EOP-001 to formally address this concern. EOP-001 is listed in the Reliability Standards Development Plan under Project 2009-03 which has not yet started. The TOP standards have been re-written to specifically address what a Transmission Operator is responsible for. The proposed TOP requirements are no longer restricted to the undefined term 'operating emergency' and are now more inclusive and stringent than the previous requirement. Indeed, the undefined term 'operating emergency' is no longer utilized in the proposed revisions. Therefore, any delay in defining operating states in the EOP Project has no effect on the TOP standards.
TOP-001-1	FERC Order 693	1588 - Consider Santa Clara's comments to provide that the transmission operator may notify the reliability coordinator or the balancing authority that it is removing facilities from service as part of the standards development process.	This is covered in proposed TOP-001-2, Requirement R5.
TOP-001-1	Version 0 Team	What is 'clear decision making authority'?	Requirement using this term was deleted as not needed in a reliability standard. The standards already require the necessary actions.
TOP-001-1	Version 0 Team	Need to define single, central communications point during emergencies	This is an issue for COM standards.
TOP-001-1	Version 0 Team	Some emergencies will require follow up	Requirements have been re-written to eliminate confusion.

Standard	Source	Language	Resolution
		notification as opposed to immediate	
TOP-001-1	Version 0 Team	Define emergency	The RTOSDT feels that the TOP-001 standard should be restricted to Transmission System operations and that definition of operating states more correctly belong in EOP-001 as pointed out in Order 693, paragraph 560. To make certain that the issue is handled there; the RTOSDT has entered an official item in the NERC database of project issues in this regard. This will require the SDT working on revisions to EOP-001 to formally address this concern. EOP-001 is listed in the Reliability Standards Development Plan under Project 2009-03 which has not yet started.
TOP-001-1	Version 0 Team	Need to expand included entities	Applicability has been reviewed by the SDT and changed as required.
TOP-002			
TOP-002-2	FERC Order 693	1600 - Address critical energy infrastructure confidentiality as part of the routine standard development process.	Restrictions due to confidentiality have been eliminated by re-writing the data specification requirements in proposed TOP-003-2.
TOP-002-2	FERC Order 693	1601 – Require next day analysis for all IROLs to identify and communicate control actions to system operators	See proposed TOP-002-3, Requirements R1, R2, and R3.
TOP-002-2	FERC Order 693	1603 - Requires next-day analysis of minimum voltages at nuclear power plants auxiliary power buses.	Next day analysis is required in proposed TOP-002-3, R1. A specified minimum voltage limit is by definition an SOL which must be studied in proposed TOP-002-3, Requirement R1. Additionally, approved NUC-001-2, Requirements R3 & R4.1 require the transmission entity to incorporate NPIRs in their planning and operating analyses. Approved FAC-011-2 and approved FAC-014-2, Requirement R2 require the Transmission Operator to incorporate SOLs into their analyses. All data required for Operational Planning Analyses is stipulated in proposed TOP-003-2. Approved NUC-001-2, Requirements R3 & R8 covers the information flowing back to the nuclear plant operator.
TOP-002-2	FERC Order 693	1604/1608 - Requires simulation contingencies to match what will actually happen in the field.	This is covered in proposed TOP-002-3, Requirement R1 by the phrase "... represent projected System conditions".
TOP-002-2	FERC Order 693	1606 - Commenters did not take issue with the	Deliverability and limits are included in Operational Planning Analysis in

Standard	Source	Language	Resolution
		proposed interpretation of the term “deliverability” as “the ability to deliver the output from generation resources to firm load without any reliability criteria violations for plausible generation dispatches.” ¹ The Commission adopts this proposed interpretation. In order to ensure the necessary clarity, the term as used in Requirement R7 of TOP-002-2 should be understood in this manner.	TOP-002-3, Requirement R1. Operational Planning Analysis contains deliverability and much more and is thus more stringent than the Order. Limit violations in the Operational Planning Analysis will show any deliverability problems regardless of type and proposed requirements mandate that these issues be resolved. In addition, the proposed requirements clearly state that an individual entity, the Transmission Operator, is wholly responsible for these concerns which is an improvement over the previous vaguely worded requirement that placed this responsibility with the Balancing Authority which has no control over the issues involved.
TOP-002-1	Fill in the Blank Team	Remove "in accordance with NERC, Regional Reliability Organization, sub-regional, and local reliability requirements" from R6 and "in accordance with filed tariffs and/or regional Total Transfer Capability and Available Transfer Capability calculation processes" from R12 .	Requirement R6 has been deleted. For the Balancing Authority – deleted as not applicable as the Balancing Authority needs only respond to CPS and DCS. For the Transmission Operator - replaced by proposed TOP-002-3, Requirement R1. Requirement R12 has been deleted as duplicative of MOD-030-2 (not yet approved).
TOP-002-2: R19	NERC Audit Observation Team	How do you address the term - verify “Accurate”	Requirement R19 was eliminated as unmeasurable.
TOP-002-2	NERC Standards DT Coordinators	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards. Consider putting R5 of PRC-001-1 in TOP-002 R1, R3, R4, or R5 or TOP-003 R1, R3, R4	See proposed TOP-003-2, Requirement R1.
TOP-002-1	Version 0 Team	Define N-1	Requirement R6 has been deleted. For the Balancing Authority – deleted as not applicable as the Balancing Authority needs only respond to CPS and DCS.

¹ Id. at P 974.

Standard	Source	Language	Resolution
			For the Transmission Operator - replaced by proposed TOP-002-3, Requirement R1. This term is no longer in use for this standard.
TOP-002-1	Version 0 Team	Define 'without intentional delay'	This term was considered unmeasurable and has been deleted from this standard.
TOP-002-1	Version 0 Team	Reliability should 'trump' confidentiality	The SDT has removed all references to confidentiality by re-writing the data specification requirements.
TOP-002-1	Version 0 Team	Coordination of planning required	The SDT has re-written and tightened up the requirements for distributing data and information.
TOP-002-1	Version 0 Team	Limit of 2 tests per year	This requirement has been deleted by the SDT as verification testing is not needed in this standard.
TOP-002-1	VRF Team	R9 – related to INT-003	Requirement R9 has been deleted as it is duplicative of approved INT-003-2
TOP-002-1	VRF Team	R14 & 14.1 – ambiguous	Deleted – duplicative of proposed TOP-003-2.
TOP-002-1	VRF Team	R2 – administrative in nature, not a real requirement	The SDT agreed and deleted this requirement.
TOP-003			
TOP-003-0	FERC Order 693	1620 & 1621 - Incorporate an appropriate lead time for planned outages using suggestions from the various commenters. We direct the ERO to modify the Reliability Standard to incorporate an appropriate lead time for planned outages.	The SDT posed a question on this issue as a fact finding exercise in the second posting of this project in order to assist them in making a decision on how to respond to the FERC directive as requested in Order 693 – “The ERO should utilize the information filed by commenters in the Reliability Standards development process.” The majority of respondents indicated that they do not feel that there is a reliability based need for such a North American requirement. Several respondents pointed out that such a requirement (if needed at all for reliability) would be better suited to a regional standard and several others stated that such requirements already exist in their particular regions. There are several regions that have existing rules for lead times but they are all different and are based on the requirements of their regional markets. Any attempt to impose a North American standard runs the risk of interfering with those FERC approved markets. While NERC Reliability Standards are intended to promote reliability, they must at the

Standard	Source	Language	Resolution
			<p>same time accommodate competitive electricity markets.</p> <p>After reviewing the industry comments, the SDT concluded that proposed TOP-001-2, Requirements R5 & R6 adequately cover this issue. The SDT bases this position on the requirement which includes the Operations Planning Time Horizon that covers the period from one day to one year. The requirement mandates that actions are coordinated. The SDT interprets this to include planned outages when they are known.</p> <p>Therefore, the SDT has not included a standard lead time in the revised requirements.</p>
TOP-003-0	FERC Order 693	1622 - Consider TVA's suggestion for including breaker outages within the meaning of facilities that are subject to advance notice for planned outages.	New data specifications in proposed TOP-003-2 handle this concern.
TOP-003-0	FERC Order 693	1624 - Require any facility, that in the opinion of the reliability coordinator, balancing authority, or transmission operator, will have a direct impact on the reliability of the bulk power system be subject to the requirement R1 for planned outage coordination.	New data specifications in proposed TOP-003-2, Requirement R1 (and bullets) handle this concern.
TOP-003-0	NERC Standards DT Coordinators	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards. Consider putting R5 of PRC-001-1 in TOP-002 R1, R3, R4, or R5 or TOP-003 R1, R3, R4	See proposed TOP-003-2, Requirement R1
TOP-003-0	Version 0 Team	Outage information needed sooner than 1 day prior	New data specifications in proposed TOP-003-2 handle this concern.
TOP-003-0	Version 0 Team	RA can't request outage cancellation	Deleted – now covered in Project 2006-06.
TOP-003-0	Version 0 Team	Submit outage data ASAP but no later than noon day ahead	New data specifications in proposed TOP-003-2 handle this concern.
TOP-003-0	VRF Team	R4 – poorly written	Deleted – now covered in Project 2006-06.
TOP-003-1	FMPA – Frank	With respect to requirement R1.2, why is the TOP	Requirement deleted as duplicative of proposed TOP-003-2, R1.

Standard	Source	Language	Resolution
	Gaffney	responsible for providing generator outage information? Isn't that the BA's or GOP's responsibility and isn't this redundant with IRO-010-1?	
TOP-004			
TOP-004-1	FERC Order 693	1636 - Modify requirement R4 to state that the system should be restored to respect proven limits as soon as possible taking no more than 30 minutes.	Replaced by proposed TOP-001-2, R7 through R11. T _v is more stringent than the existing 30 minute requirement for IROLs and 30 minutes is retained for selected SOLs. Unknown states, in this context, cannot exist because valid operating limits have been determined for all Facilities in a TOP's footprint. The SDT feels that proposed EOP-001-2 dealing with emergency operations planning covers the general intent of being prepared to react to Emergencies.
TOP-004-1	FERC Order 693	1637 - Reliability coordinators should report any IROL violations to NERC on a monthly basis for one year beginning August 2, 2007.	Not within the scope of the SDT.
TOP-004-1	FERC Order 693	1638 - Defines high risk conditions under which the system must be operated to respect multiple outages in requirement R3. We direct the ERO to develop a modification to the Reliability Standard that explicitly incorporates this interpretation with the details identified in the Reliability Standards development process (. . .the Commission proposed to interpret "multiple outages" in the context of Requirement R3 to include multiple element outages resulting from high risk conditions such as hurricanes, wild fires, ice storms or periods of high solar magnetic disturbances during which the probability of multiple outages approaches that of a single element outage. This is not an exhaustive list but is meant to contain illustrative examples, and the Reliability Standards development process should	The SDT feels that proposed EOP-001-2 dealing with emergency operations planning covers the general intent of being prepared to react to the cited situations. The method chosen to respond to a given catastrophic challenge to a localized portion of the bulk power system cannot be predetermined by science; rather, it is an art. Reliability entities develop their response mechanisms based on experience in their local areas to achieve the maximum societal benefit during these periods. In addition, FAC-011-2 and FAC-014-2 deal with specific requirements for dealing with multiple contingencies.

Standard	Source	Language	Resolution
		develop a procedure to identify applicable high risk conditions. Under . . . high-risk conditions, the Commission understands that systems are normally operated in a more secure manner so that the Bulk-Power System can withstand multiple outages. These multiple outages exceed the normal N-1 criterion because the probability of multiple outages during high risk conditions approaches that of a single outage during normal conditions.)	
TOP-004-1	FERC Order 693	1639 - Consider Santa Clara's comments regarding changes to requirement R2 in the standards development process. (Santa Clara states that Requirement R2 of the Reliability Standard should be revised to include frequency monitoring in addition to the monitoring of voltage, real and reactive power flows.)	This is covered as part of the new data specification requirements in proposed TOP-003-2 for the Transmission Operator & Balancing Authority. The Reliability Coordinator is covered by proposed IRO-010-1, Requirement R3.
TOP-004-1	FERC Order 693	1641 - NERC should report the results of the survey to the Commission within 18 months of the effective date of this rule.	Not within the scope of the SDT.
TOP-004-1	Fill in the Blank Team	No action required	No action required.
TOP-004-1	Version 0 Team	Operations should conform to planning standards	Operations and planning are different timeframes with different problems and solutions
TOP-004-1	Version 0 Team	Vagueness in application of IROL limits	Requirement moved to proposed TOP-001-2, Requirement R5 and clarified.
TOP-004-1	Version 0 Team	Define SOL & IROL	These are defined terms in the NERC Glossary.
TOP-004-1	Version 0 Team	Clarify roles	Applicability has been reviewed and updated as necessary.
TOP-004-1	Version 0 Team	Define (or remove) practical	The term has been removed.
TOP-004-1	Version 0 Team	Specify disconnection as acceptable in R5	The requirement has been deleted. Relationships between the Reliability Coordinator and Transmission Operator as described in the revised standards cover these actions.

Standard	Source	Language	Resolution
TOP-005			
TOP-005-1	FERC Order 693	1648 - Include information about the operational status of special protection systems and power system stabilizers in Attachment 1.	Attachment 1 has been deleted and replaced by the new data specification requirement in proposed TOP-003-2.
TOP-005-1	FERC Order 693	1649 - Delete references to confidentiality agreements but ensure critical energy infrastructure confidentiality is addressed in the standards development process.	New data specifications in proposed TOP-003-2 handle this concern.
TOP-005-1	FERC Order 693	1650 - Consider FirstEnergy's modifications to Attachment 1 and ISO-NE's recommended revision to requirement R4 in the standards development process. ISO-NE recommends that the reference to "purchasing-selling entity" in Requirement R4 should be replaced with "generator owner, transmission owner, and LSE.	Attachment 1 has been deleted and replaced by the new data specification requirement in proposed TOP-003-2. Requirement R4 has been superseded by proposed TOP-003-2 which does include the indicated entities.
TOP-005-1	NERC Standards DT Coordinators	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards. Consider putting R2 of PRC-001-1 in TOP-005. Note: These requirements are being removed from PRC.	See proposed TOP-003-2, Requirement R1
TOP-005-1	Version 0 Team	Need to include GO & LSE	New data specifications in proposed TOP-003-2 handle this concern.
TOP-005-1	Version 0 Team	Data update is too slow	New data specifications in proposed TOP-003-2 handle this concern.
TOP-005-1	Version 0 Team	Generator data should include voltage control & stabilizers	New data specifications in proposed TOP-003-2 handle this concern.
TOP-005-1	Version 0 Team	GO needs to supply data to BA & TO	New data specifications in proposed TOP-003-2 handle this concern
TOP-005-1	Received for the November 4, 2009 Technical Conference on Interpretations of	NERC staff believes that the interpretation does not support the stated purpose of IRO-005-1: "The Reliability Coordinator must be continuously aware of conditions within its Reliability Coordinator Area and include this information in its reliability	While this issue was entered against the Transmission Operator as the interpretation request was primarily for TOP-005-1, the emphasis on such informative actions has shifted in current revision projects. The proposed IRO-010-1, Requirement R1 gives the Reliability Coordinator the right to ask for any reliability related data that they need to perform their

Standard	Source	Language	Resolution
	Standards from Manitoba Hydro	<p>assessments. The Reliability Coordinator must monitor BES parameters that may have significant impacts upon the Reliability Coordinator Area and neighboring Reliability Coordinator Areas.” Given that Requirement R12 pre-supposes that the SPS is armed to address inter-Balancing Authority or inter-Transmission Operator impacts (e.g., could potentially affect transmission flows resulting in a SOL or IROL violation), the argument not discussed in the interpretation is that the SPS itself with one communication channel in service can be viewed for advance planning or reliability assessment purposes as a single contingency (loss of the communication channel). The question asked by the requestor indicates that the operation of the SPS on a single channel is known ahead of the timeframe for which the SPS may be armed and that the condition was not first identified when the SPS was called to operate.</p> <p>In this regard, the Reliability Coordinator must be aware of the less dependable state of the SPS in order to properly assess the impact and plan for the next single contingency that it conceivably could experience. In this case, the Reliability Coordinator may wish to consider the loss of an armed SPS when performing its reliability assessments. While the Reliability Coordinator may not elect to proactively position the system to withstand the loss of the SPS that is operating on a single communication channel, the Reliability Coordinator may elect to develop a contingency plan in the event the SPS does fail to operate as designed or if the remaining communication channel is lost. The importance of the SPS relative to current or anticipated system conditions would be considerations for the</p>	Reliability Coordinator task. And it also mandates the Transmission Operator to provide said data in Requirement R3. (Note – This standard has been approved by the BOT but has not yet been approved by FERC.)

Standard	Source	Language	Resolution
		<p>Reliability Coordinator. This consideration only becomes possible if the Transmission Operator notifies the Reliability Coordinator that the SPS is operating on a single communication channel. Therefore, Transmission Operator notification to the Reliability Coordinator of this condition raises the Reliability Coordinator's situational awareness that may influence current or future operating conditions or decisions in a preventive rather than reactive manner. NERC staff does agree that the SPS is still mission capable with only one communication channel in service, but degraded in terms of its dependability due to the unavailability of redundant communications channels. The fact that a second communications channel was part of the original design of the SPS suggests that both channels were important to the dependability of the system, and that the unavailability of either channel causes some degradation in the overall dependability of the SPS. Additionally, the team equated "any degradation" with "potential failure to operate as expected" in IRO-005. The use of the term "or" connecting these two phrases in the standard indicates these were not intended to be equivalent. Therefore, NERC staff believes the conclusion reached by the team that the two terms are synonymous is incorrect. Further, the specific circumstances contemplated in the interpretation request are not likely to occur often and the additional burden to Transmission Operators to notify the Reliability Coordinator is de minimis when compared to the improved situational awareness that would result. On this basis, NERC staff believes the interpretation is not serving the best interests of reliability and should be remanded</p>	

Standard	Source	Language	Resolution
		to the team for further consideration of the NERC staff opinion.	
TOP-006			
TOP-006-1	FERC Order 693	1660 & 1661 - Add requirement related to the provision of minimum capabilities that are necessary to enable operators to deal with real-time situations and to ensure reliable operation of the bulk power system.	Minimum capabilities for Transmission Operators are being handled in project 2009-02, Real-time Monitoring and Analysis Capabilities. Requirement for phase angle information is covered by proposed TOP-003-2.
TOP-006-1	FERC Order 693	1663 - Clarify the meaning of “appropriate technical information” concerning protective relays. To provide more clarity, criteria that define what “appropriate technical information” is necessary should be specified so that operators can make better informed decisions.	This term is no longer used. Requirement R3 deleted as duplicative of proposed PER-005-1 (training) and TOP-003-2 (data).
TOP-006-1	FERC Order 693	1664 - Consider APPA’s comments regarding missing measures in the standards development process.	Measures have been assigned to all requirements.
TOP-006-1	NERC Standards DT Coordinators	Requirements R2, R5, and R6 (for coordination in real-time) of PRC-001-1 System Protection Coordination are better addressed in the TOP family of standards. Consider putting R6 of PRC-001-1 in TOP-003 R5 or TOP-006. Note: These requirements are being retired in PRC-001-1.	See proposed TOP-003-2, Requirement R1
TOP-006-1	Version 0 Team	Need to match roles with FM	Applicability has been reviewed by the SDT and changed as required in accordance with the FM and the Compliance Registry.
TOP-006-1	Version 0 Team	Monitor frequency at multiple points	New data specifications in proposed TOP-003-2 handle this concern.
TOP-006-1	Version 0 Team	Load forecasting data required	New data specifications in proposed TOP-003-2 handle this concern.
TOP-006-1	Version 0 Team	GO needs to provide normal & emergency data	New data specifications in proposed TOP-003-2 handle this concern.
TOP-006-1	VRFs Team	R1, 1.1, 1.2 – ‘available in emergency situation’ may be needed	New data specifications in proposed TOP-003-2 handle this concern.

Standard	Source	Language	Resolution
TOP-006-1	VRFs Team	R3 – define appropriate	This requirement was deleted as duplicative of approved PRC-001-1, Requirement R1.
TOP-006-1	VRFs Team	R4 – What information is required and what is a load pattern?	New data specifications in proposed TOP-003-2 handle this concern.
TOP-006-2	FMPA – Frank Gaffney	With respect to requirements R1 and R1.2, why are BAs responsible for information regarding transmission resources available for use? Isn't that the role of the TOP?	Deleted – covered as part of the new data specification requirements in proposed TOP-003-2.
TOP-006-2	FMPA – Frank Gaffney	With respect to requirement R2, why is the BA responsible for monitoring transmission line status, voltage, load tap changer settings, and reactive power in general? Monitoring and managing reactive resources, voltage and tap settings is clearly made the responsibility of the TOP in VAR-001-1a.	Deleted – SDT agrees.
TOP-006-2	FMPA – Frank Gaffney	With respect to requirement R3 why does the BA need to understand protective relaying? Isn't that the role of the TOP and GOP?	Requirement R3 deleted as duplicative of proposed PER-005-1 (training) and proposed TOP-003-2 (data).
TOP-007			
TOP-007-0	FERC Order 693	1673 - Consider the NRC's comments on voltage requirements as part of the standards development process.	Next day analysis is required in proposed TOP-002-3, R1. A specified minimum voltage limit is by definition an SOL which must be studied in proposed TOP-002-3, Requirement R1. Additionally, approved NUC-001-2, Requirements R3 & R4.1 require the transmission entity to incorporate NPIRs in their planning and operating analyses. Approved FAC-011-2 and approved FAC-014-2, Requirement R2 require the Transmission Operator to incorporate SOLs into their analyses. All data required for Operational Planning Analyses is stipulated in proposed TOP-003-2. Approved NUC-001-2, Requirements R3 & R8 covers the information flowing back to the nuclear plant operator.
TOP-007-0	Version 0 Team	Need to define evidence of evaluation	This term isn't used in the requirements – no action required.
TOP-007-0	Version 0 Team	Need to tighten the non-compliance terms	Measures and VSL have been assigned to all requirements.

Standard	Source	Language	Resolution
TOP-007-0	Version 0 Team	Not enforceable with current criteria	Not enough information provided to address concern.
TOP-007-0	Version 0 Team	RA should be included	Reliability Coordinator is now covered in Project 2006-06.
TOP-007-0	Version 0 Team	More of a compliance issue than a true standard	Not enough information provided to address concern.
TOP-008			
TOP-008-1	FERC Order 693	1681 - Consider APPA's comments regarding missing measures in the standards development process.	Measures have been assigned to all requirements.
PER-001			
PER-001-0	Version 0 Team	Data retention should be 1 year	This standard will be retired.