NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Consideration of Comments on 1st Draft of System Protection Coordination SAR (Project 2007-06)

The System Protection Coordination SAR requesters thank all commenters who submitted comments on the first draft of SAR. This SAR was posted for a 30-day public comment period from June 11 through July 10, 2007. The requesters asked stakeholders to provide feedback on the standard through a special SAR Comment Form. There were 17 sets of comments, including comments from 72 different people from more than 48 companies representing 8 of the 10 Industry Segments as shown in the table on the following pages.

The SAR drafting team made two changes to the SAR based on stakeholder comment:

- Added the Transmission Planner as a reliability function that may be assigned requirements in the revised standard
- Added a sentence to clarify that the monitoring requirements in PRC-001 will not be included in the scope of revisions addressed under this project as they are already being addressed under Project 2006-06 — Reliability Coordination.

Based on the comments received, the drafting team is recommending that the Standards Committee authorize moving the SAR forward to the standard drafting stage of the standards development process.

In this "Consideration of Comments" document stakeholder comments have been organized so that it is easier to see the responses associated with each question. All comments received on the standards can be viewed in their original format at:

http://www.nerc.com/~filez/standards/System_Protection_Project_2007-06.html

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Director of Standards, Gerry Adamski, at 609-452-8060 or at gerry.adamski@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

[1] The appeals process is in the Reliability Standards Development Procedures: http://www.nerc.com/standards/newstandardsprocess.html.

The Industry Segments are:

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

Commenter		Organization	Industry Segment									
			1	2	3	4	5	6	7	8	9	10
1.	Anita Lee (G6)	AESO		✓								
2.	Jay Farrington (G2)	Alabama Electric Coop., Inc.				✓	✓	✓				
3.	Ken Goldsmith (G4)	ALT										✓
4.	Robert Rauschenbach (G2)(I)	Ameren			✓			✓				
5.	Thad Kness	American Electric Power (AEP)	✓				✓	✓				
6.	Jason Shaver	American Transmission Co.	✓									
7.	Dave Rudolph (G4)	BEPC										✓
8.	Dean Bender	Bonneville Power Administration (BPA)	✓		✓		✓	✓				
9.	Brent Kingsford (G6)	CAISO		✓								
10.	Alan Gale (G5)	City of Tallahassee	✓		✓		✓	✓				
11.	Glen McCartney (G3)	Constellation Energy			✓		✓	✓				
12.	Michael Gildea (G3)	Constellation Energy			✓		✓	✓				
13.	Nancy C. Denton	Consumers Energy Company			✓	✓						
14.	Tom Seeley (G2)	E. ON-U.S.	✓									
15.	Charlie Fink (G2)	Entergy	✓		✓		✓	✓				
16.	Jammie Lee (G2)	Entergy	✓		✓		✓	✓				
17.	Steve Myers (G6)	ERCOT										✓
18.	Ken Dresner (G7)	FE, Fossil Generation	✓		✓		✓	✓				
19.	Bill Duge (G7)	FE, Nuclear Generation	✓		✓		✓	✓				
20.	Art Buanno (G7)	FE, Tranmission Planning & Protection	✓		✓		✓	✓				
21.	Bob McFeaters (G7)	FE, Tranmission Planning & Protection	✓		✓		✓	✓				

Commenter		Organization	Industry Segment									
			1	2	3	4	5	6	7	8	9	10
22.	Doug Hohlbaugh (G7)	FirstEnergy	✓		✓		✓	✓				
23.	Eric Senkowicz	FRCC										✓
24.	Phil Winston (G2)	Georgia Power Company			✓							
25.	Steve Waldrep (G2)	Georgia Power Company			✓							
26.	Hong-Ming Shuh (G2)	Georgia Transmission Corp.	✓		✓							
27.	Neal Jones (G2)	Georgia Transmission Corp.	✓		✓							
28.	David Kiguel (G3)	Hydro One Networks	✓		✓							
29.	Roger Champagne (G3)(I)	HydroQuebec TransEnergie (HQTE)	✓									
30.	Matt Goldberg (G6)	IESO		✓								
31.	Ron Falsetti (G3) (G6) (I)	IESO		✓								
32.	Charles Yeung (G6)	SPP		✓								
33.	Kathleen Goodman (G3)	ISO-New England		✓								
34.	William Shemley (G3)	ISO-New England		✓								
35.	Eric Ruskamp (G4)	LES	✓		✓		✓	✓				
36.	Donald Nelson (G3)	MADPC									✓	
37.	Robert Coish (G4)	Manitoba Hydro EB	✓		✓		✓	✓				
38.	Walter Marusenko	Manitoba Hydro EB	✓		✓		✓	✓				
39.	Tom Mielnik (G4)	MEC										✓
40.	Joe Knight (G4)	Midwest Reliability Organization										✓
41.	Mike Brytowski (G4)	Midwest Reliability Organization										✓
42.	Terry Bilke (G4)	MISO		✓								
43.	William Phillips (G6)	MISO		✓								
44.	Carol Gerou (G4)	MP	✓		✓		✓	✓				
45.	Ernesto Paon (G2)	Municipal Electric Authority of GA	✓		✓		✓					
46.	Michael Shiavone (G3)	National Grid US	✓									
47.	Greg Campoli (G3)	New York ISO		✓								
48.	Jim Castle (G6)	New York ISO		✓								
49.	Ralph Rufrano (G3)	New York Power Authority	✓		✓							
50.	Guy V. Zito (G3)	NPCC										✓
51.	Al Adamson (G3)	NY State Reliability										✓

Commenter		Organization	Industry Segment									
			1	2	3	4	5	6	7	8	9	10
		Council										
52.	Alicia Daugherty (G6)	PJM		✓								
53.	Jerry Blackley (G2)	Progress Energy Carolinas	✓		✓		✓	✓				
54.	C. Robert Moseley (G1)	PSC of South Carolina									✓	
55.	David A. Wright (G1)	PSC of South Carolina									✓	
56.	Elizabeth B. Fleming (G1)	PSC of South Carolina									✓	
57.	G. O'Neal Hamilton (G1)	PSC of South Carolina									✓	
58.	John E. Howard (G1)	PSC of South Carolina									✓	
59.	Mignon L. Clyburn (G1)	PSC of South Carolina									✓	
60.	Phil Riley (G1)	PSC of South Carolina									✓	
61.	Randy Mitchell (G1)	PSC of South Carolina									✓	
62.	Mike Gentry	Salt River Project	✓		✓		✓	✓				
63.	Bridget Coffman (G2)	SC Public Service Authority	✓									
64.	Pat Huntley (G2)	SERC Reliability Corp.										✓
65.	Marion Frick (G2)	South Carolina Electric & Gas Co.			✓		✓	✓				
66.	E. William Riley	Southwest Transmission Coop.	✓									
67.	Tom D. Spence	Southwest Transmission Coop.	✓									
68.	George Pitts (G2)	Tennessee Valley Authority	✓		✓		✓					
69.	Meyer Kao (G2)	Tennessee Valley Authority	✓		✓		✓					
70.	Jim Haigh (G4)	WAPA	✓					✓				
71.	Neal Balu (G4)	WPS			✓		✓	✓				
72.	Pam Oreschnick (G4)	XEL	✓		✓		✓	✓				

I – Indicates that individual comments were submitted in addition to comments submitted as part of a group
G1 – Public Service Commission of South Carolina (PSC SC)
G2 – SERC EC Protection & Control Subcommittee (SERC EC PCS)
G3 – CP9 Reliability Standards Working Group (CP9 RSWG)
G4 – Midwest Reliability Organization (MRO)
G5 – FRCC
G6 – IRC Standards Review Committee
G7 – FirstEnergy

Index to Questions, Comments, and Responses

1. **Do you agree that there is a reliability-related need to improve the requirements in this standard?**

Summary Consideration: Most commenters agreed that there is a reliability-related need for this SAR. There were no changes made in response to these comments.

Question #1			
Commenter	**Yes**	**No**	**Comment**
AEP		☑	There might not be a directly reliability driver for improving this standard, but the standard should be improved to better clarify responsibilities.
Response: The SAR DT agrees with the comment that the standard should be improved to better clarify responsibilities, but the drafting team also believes that clarifying responsibilities is reliability related.			
SWTC	☑		We agree that there is a need to improve the requirements of Standard PRC-001-0 and Standard MOD-011-0 as described in the supplemental document "NERC SPCTF Assessment of Standard PRC-001-0 – System Protection Coordination". It is important to modify ambiguous statements such as "...corrective action needs to be taken..." and "must be done...as soon as possible...". By making the improvements described in the SAR, the standard will provide the applicable entities with more definitive requirements that will allow entities to provide specific responsibilities to internal work groups within the standard utility organization.
Response: The SAR DT thanks you for your support.			
ATC	☑		Standard has much room for improvement.
Response: The SAR DT agrees with the comment.			
PSC SC	☑		
SERC EC PCS	☑		
BPA	☑		
Consumers Energy	☑		
IESO	☑		
SRP	☑		
Manitoba Hydro	☑		
CP9 RSWG	☑		
Ameren	☑		
MRO	☑		

Question #1			
Commenter	**Yes**	**No**	**Comment**
HQTE	☑		
FRCC	☑		
IRC SRC	☑		
FirstEnergy	☑		

2. **Do you agree with the proposed scope of this SAR?**

Summary Consideration: Most commenters agreed with the proposed scope of the SAR. The SAR DT modified the SAR to clarify that it will coordinate with other DTs to ensure that all requirements in PRC-001will be addressed by one and only one drafting team. The monitoring requirements will be transferred to the DT working on Project 2006-06 for Reliability Coordination.

Question #2			
Commenter	**Yes**	**No**	**Comment**
SERC EC PCS		☑	Consideration should be given to splitting this effort among 2 or 3 standards to address the operating, operations planning, and planning horizons. Consideration should also be given to moving the operating training requirements to another standard (if not already covered by an existing standard).
Response: The SDT will coordinate with the Reliability Coordination standard drafting team working on Project 2006-06 to address these issues. The SAR DT believes that the monitoring requirements should be addressed by the Reliability Coordination SDT, however for coordination and understanding, the SAR DT believes the remaining requirements should be in one standard.			
FirstEnergy		☑	Under the section of Detailed Description it is stated: "This project will address the issues identified by the System Protection and Control Task Force for the planning-related requirements in PRC-001 as well as any planning-related concerns identified in FERC Order 693. (The operations-related requirements in PRC-001 are being addressed under Project 2006-06.) A detailed listing of the areas of the existing standard that need improvement is provided in Attachment B titled "NERC SPCTF Assessment of Standard PRC-001-0 – System Protection Coordination" It seems that it would be more effective to pull the PRC-001 standard from the scope of of the 2006-06 project which deals with mulitple standards and allow this SDT to focus on all aspects of the PRC-001. The SPCTF raised concerns with PRC-001 in both the planning and operations time-frame and it does not appear that the 2006-06 project is scoped to address the SPCTF items.
Response: The SAR DT modified the SAR to clarify that it will coordinate with other drafting teams to ensure that all requirements in PRC-001 will be addressed by one and only one drafting team. The monitoring requirements will be transferred to the DT working on project 2006-06 Reliability Coordination)			
FRCC	☑	☑	Incorporating assessments by subject matter experts such as this NERC SPCTF / Planning Committee assessment into the NERC Standards revision SAR project is an efficient way to supplement project SARs and allows for valuable input at the front-end of the standards process.

			Attachments A and C are not included in the SAR and Attachment B is identified as "Supporting Material". It may be clearer to include all applicable documents within the SAR including relevant excerpts from any FERC assessments and requested changes to the standard.
Response: The SAR DT will ensure that all attachments are clearly labeled and all pertinent documents are included in the final posting.			
SWTC	☑		Another important change described in this SAR is the requirement to have an up-to-date accurate model of the transmission system for protection studies. It is extremely important to develop these accurate models to allow enhance the reliability of the bulk-electric system. There are efforts underway in the southwest that apply directly to the development of this type of model by late 2007.
Response: The SAR DT agrees with your observation- please note the SPCTF's proposed changes for modeling are not addressed in this SAR – they are expected to be addressed in a separate SAR to revise MOD-011.			
ATC	☑		Moving R6 regarding SPS monitoring and status notification to more appropriate PRC SPS section makes sense. Have concern about NERC SPCTF recommendation of merging system short-circuit databases for perfoming wide-area fault studies. See additional comments below.
Response: The SAR DT agrees that R6 should be addressed in another standard; however, the SAR DT believes it belongs in a standard that addresses a broader range of monitoring activities. Please see the summary consideration of comments			
PSC SC	☑		
AEP	☑		
BPA	☑		
Consumers Energy	☑		
IESO	☑		
SRP	☑		
Manitoba Hydro	☑		
CP9 RSWG	☑		
Ameren	☑		
MRO	☑		
HQTE	☑		

IRC SRC	☑		

3. **Do you agree with the applicability of the proposed SAR (Reliability Coordinators, Balancing Authorities, Planning Coordinators, Transmission Operators, Transmission Owners, Generator Owners, Generator Operators and Distribution Providers)?**

Summary Consideration: Based on stakeholder comments, Transmission Planners have been added to the list of applicable entities.

Question #3			
Commenter	**Yes**	**No**	**Comment**
FRCC			This question may be better addressed as the standard is drafted.
Response: The SAR DT is required to identify the proposed applicability. The applicability will be finalized during standard drafting			
CP9 RSWG		☑	recommend that Transmission Planners be added
Response: The SAR DT agrees and Transmission Planners have been added to the applicability list.			
HQTE		☑	recommend that Transmission Planners be added
Response: The SAR DT agrees and Transmission Planners have been added to the applicability list.			
FirstEnergy		☑	FE agrees with the SPCTF that the TO, GO and DP should be added to the applicability section of this standard as many of the requirements will originate from these entities. However, it may be necessary to add the Transmission Planner (TP) entity for "planning" related requirements. For example, the existing R3 requires coordination of new or revised protections systems. It may be short-sighted to assume that the TO is the entity who would coordinate this work; there may be situations where a Transmission Planner performs this work and is best suited to share the information with neighboring system owners/planners as well as the Planning Coordinator.
Response: The SAR DT agrees and Transmission Planners have been added to the applicability list.			
IESO	☑	☑	It is not clear based on the information presented how all the functional entities are involved. As an example, no reference is noted in the documents for PC responsibility. Is it inferred that if a coordination model is developed on a wide area basis, the PC will be the responsible entity? Functional Model entity definitions, tasks, and obligations must be followed while developing applicability of the requirements.
Response: the SAR DT checked all the functional entities that are currently assigned responsibility for requirements in PRC-001 and also checked those functional entities that are expected to be assigned requirements based on the SPTCF analysis of PRC-001. Please see the SPTCF report posted as a supporting document on the website.			

Please note the SPCTF's proposed changes for modeling are not addressed in this SAR – they are expected to be addressed in another SAR for modifications to MOD-011. As envisioned, a new requirement may need to be developed to support the orignial R1 which says: R1. Each Transmission Operator, Balancing Authority, and Generator Operator shall be familiar with the purpose and limitations of protection system schemes applied in its area. Although the original R1 is not written in a format that is easy to measure, the SAR DT believes the intent of R1 is to ensure that real-time operating personnel have information about protection schemes so they will know what actions to take when the protection schemes are not in service. The SAR DT believes the Planning Coordinator may be the best functional entity to provide this data to the real-time operating personnel. As envisioned, this discussion will take place with stakeholders during standard drafting. The standards process requires that DTs consider the Functional Model elements when developing standards.			
IRC SRC	☑	☑	It is not clear based on the information presented if all the functional entities involved are identified in the scope of the standard. As an example, no reference is noted in the documents for TP responsibility. It is inferred that if a coordination model is developed on a wide area basis, the PC will be the only responsible entity. However there may be requirements for the TP as well.
Response: The SAR DT agrees and Transmission Planners have been added to the applicability list.			
SERC EC PCS	☑		The requirements for the PC, TO, GO, and DP (planning horizon) should be in a separate standard than those for the RC, BA, TOP, and GOP (operating and operations planning horizons).
Response: While the SAR DT agrees that some requirements for entities providing real time operations should be transferred to other standards, for coordination and understanding the SAR DT believes the remaining requirements should be in one standard.			
SWTC	☑		We agree that the applicable entities for this standard be modified to include the various "Owner" entities as described in the NERC Functional Model Version 3.
Response: The SAR DT agrees - thank you for your comments.			
PSC SC	☑		
AEP	☑		
BPA	☑		
Consumers Energy	☑		
SRP	☑		
ATC	☑		

Manitoba Hydro	☑		
Ameren	☑		
MRO	☑		

4. **If you know of a Regional Variance that should be developed as part of this SAR, please identify that for us. If not, please explain in the comment area.**

Summary Consideration: The stakeholders who submitted comments did not identify any regional variances.

Question #4		
Commenter	**Regional Variance**	**Comment**
PSC SC	N/A	
SERC EC PCS	None.	
AEP	None.	None.
BPA		No known variance.
Consumers Energy	N/A	
SWTC	N/A	Not aware of any Regional Variance requirements.
ATC	N/A	
Manitoba Hydro	None	No variance necessary.
CP9 RSWG	N/A	No Regional Variance
Ameren	None	
MRO	None	
HQTE		No Regional Variance
FRCC	N/A	
FirstEnergy		Aware of none

5. **If you are aware of a Business Practice that needs to be developed to support the proposed SAR, please identify that for us.**

Summary Consideration: The stakeholders who submitted comments did not identify any specific business practice that need to be developed to support the modifications to PRC-001 proposed with this SAR.

Question #5		
Commenter	**Business Practice**	**Comment**
AEP	Possibly	AEP and other utilities, with many years of experience serving customers and supporting the electric grid, have voluntarily integrated protection coordination processes into the core of their work practices . AEP fully supports improvements if they truly foster reliability and availability benefits to bulk power transfers. More Standards, Requirements, and Business Practices are not always better. If Standards create burdens on a utility's physical resources and budgets, then some mechanism must be available to allow for the needed changes.
Response: Please monitor the work of the SDT and advise us if added burdens are created and advise us of the need for any business practice or other mechanism necessary.		
ATC	Data entry and maintenance procedures for proposed wide-area short circuit model would need to be developed.	Creating and maintaining the proposed wide-area short-circuit database, although useful, might prove quite difficult to implement. Among our concerns: Impedance units- Ohms or per unit? If per unit, using what common base? CAPE to ASPEN & ASPEN to CAPE conversion issues? Need for unique and consistent bus numbers for all busses in combined database. If using CAPE, coordination and application of database categories. Who would be responsible for merging the databases and then maintaining the common database? How often would the databases be remerged to reflect system changes?
Response: Please note the SPCTF's proposed changes for modeling are not addressed in this SAR – they are expected to be addressed in a SAR proposing changes to MOD-011.		
PSC SC		N/A
SERC EC PCS	None.	
Consumers Energy	N/A	
SWTC	N/A	Not aware of any Business Practice needs.
Manitoba Hydro	None	No comments
CP9 RSWG		No Business Practice

Question #5		
Commenter	**Business Practice**	**Comment**
Ameren	No	
MRO	None	
HQTE		No Business Practice
FirstEnergy		Aware of none

6. **If you have any other comments on this SAR that you haven't provided above, please provide them here.**

Summary Consideration: The SAR DT did not make any changes to the SAR based on modifications proposed by stakeholders in response to this question.

Question #6	
Commenter	**Comment**
AEP	For clarifying protective systems, the standard should not use the term Bulk Electric System, but should instead specify a voltage threshold for impacts to bulk system transfers - specifically; 'Facilites operated 200 kV and above and Regionally-defined, Operationally Significant facilities operated greater than 100 kv, but less than 199 kV'. The term 'affects' also needs to be clarified. Inclusion of all facilities greater than 100 kV does not benefit the reliability of national bulk power transfers. For example, the loss or misoperation of a 138 kV line serving a localized load center would not be detremental to bulk power transfers multiple busses away.
Response: The comment will be referred to the SDT when convened for consideration when drafting the standard.	
FRCC	The Drafting team should coordinate any system protection terminology introduced or re-defined within this standard with other system protection related SARs (i.e. Disturbance monitoring, System Protection Maintenance and Testing) to ensure common terminology is appropriately defined in the standards glossary.
Response: This coordination is required by the standards process. The comment will be referred to the SDT when convened for consideration when drafting the standard.	
SRP	I am concerned with the language proposed by FERC and the comparison to reactions to IROL's. Will FERC's requirement apply to a single protection system that has a redundant protection system? Will FERC's requirement apply to a system that is in an "overexposed" state? Will FERC's requirement apply to a system that may be exposed to slow 30 cycle of less tripping. These conditions must be identified in detail as to what will need to meet the "returning the system to a stable state that respects system requirements as soon as possible and no longer than 30 minutes." FERC requirement
Response: The comment will be referred to the SDT when convened for consideration when drafting the standard.	
ATC	Background Information Section on this comment sheet should read: Please e-mail your comments on this form to sarcomm@nerc.net with subject "Protection Coordination SAR" in subject line, not "Protection Maintenance SAR" as stated.
Response: Thank you for your comment	
Ameren	Development of inter-company short circuit modeling should be cover in a separate MOD standard. Maintaining one large overall regional short circuit model is neither practical nor necessary. Standard methods to exchange short circuit data of tie-line plus one breakered bus into the neighboring systems should be adequate and be developed. Otherwise Ameren agrees with SPCTF recommendations.
Response: Please note the SPCTF's proposed changes for modeling are not addressed in this SAR – they are expected to be addressed in a SAR proposing changes to MOD-011.	
MRO	The MRO commends NERC and the SDT for taking the necessary steps to remove the vagueness and ambiguity

	in the requirements; as well as the need to have clarity and measurability now that the industry has transitioned to mandatory and enforceable standards. The SPCTF Assessment of PRC-001-1 did not mention how they would address "Corrective Actions" listed in R2. The MRO requests that the SDT expand on what the scope of these "Corrective Actions" is meant to be (e.g. real-time, or after the fact repair or replacement of defective equipment).
Response: These issues are discussed in FERC Order 693 and will be considered by the SDT	
IESO	The IESO commends NERC, the SDT and the SPCTF (White Paper) for providing clarifications and improvements in the system protection areas.
Response: Thank you	
IRC SRC	The SRC commends NERC, the SDT and the SPCTF for providing this clarification and improvements in the system protection areas.
Response: Thank you	
PSC SC	N/A
SERC EC PCS	None.
Consumers Energy	None.
SWTC	N/A
Manitoba Hydro	No comments
CP9 RSWG	None
HQTE	None
FirstEnergy	none