Consideration of Comments

Project 2007-11 Disturbance Monitoring

The Project 2007-11 SDT thanks all commenters who submitted comments on the Standard Authorization Request (SAR). There were 44 sets of comments, including comments from approximately 145 different people from approximately 85 companies representing 7 of the 10 Industry Segments as shown in the table on the following pages.

All comments submitted may be reviewed in their original format on the project page.

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, Mark Lauby, at 404-446-2560 or at mark.lauby@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

Summary Consideration of all Comments Received

The main change in the Revised SAR was that the PRC-002-2 is to capture the appropriate data to analyze power system disturbances and not the type of equipment that should be used.

Several commenters made suggested wording changes for the Revised SAR. The Standard Drafting Team (SDT) did not intend to repost the Revised SAR so no changes will be made to the wording of the Revised SAR.

The Drafting Team understands there are misunderstandings and interest in how the MVA short circuit study was performed and how it is applied in the standard. In order to facilitate industry understanding, gather different industry viewpoints, and answer questions - the SDT is holding two technical conferences. The first conference is in Tempe, AZ July 30 and 31, 2013 and the second conference is in Atlanta, GA August 6 and 7, 2013. The conferences will allow attendees to have other questions concerning the standard answered, provide feedback, and it will provide the SDT with additional information to make needed revisions to the standards prior to the comment period and ballot posting.

Please see the summary responses for each question for detailed responses.

[1] The appeals process is in the Standard Processes Manual: http://www.nerc.com/pa/Stand/Resources/Documents/Appendix_3A_StandardsProcessesManual.pdf

Index to Questions, Comments, and Responses

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

	Group/Individual	Commenter	Organization	Registered Ballot Body Segment									
				1	2	3	4	5	6	7	8	9	10
1.	Group	Guy Zito	Northeast Power Coordinating Council										X

	Additional Member	Additional Organization	Region	Segment Selection
1.	Alan Adamson	New York State Reliability Council, LLC	NPCC	10
2.	Helen Lainis	Independent Electricity System Operator	NPCC	2
3.	Greg Campoli	New York Independent System Operator	NPCC	2
4.	Sylvain Clermont	Hydro-Quebec TransEnergie	NPCC	1
6.	Gerry Dunbar	Northeast Power Coordinating Council	NPCC	10
7.	Mike Garton	Dominion Resources Services, Inc.	NPCC	5
8.	Kathleen Goodman	ISO - New England	NPCC	2
9.	Michael Jones	National Grid	NPCC	1
10.	David Kiguel	Hydro One Networks Inc.	NPCC	1
11.	Christina Koncz	PSEG Power LLC	NPCC	5

Group/Individual		Commenter	Organization	Registered Ballot Body Segment									
				1	2	3	4	5	6	7	8	9	10

12.	Randy MacDonald	New Brunswick Power Transmission	NPCC	9
13.	Bruce Metruck	New York Power Authority	NPCC	6
14.	Silvia Parada Mitchell	NextEra Energy, LLC	NPCC	5
15.	Lee Pedowicz	Northeast Power Coordinating Council	NPCC	10
16.	Robert Pellegrini	The United Illuminating Company	NPCC	1
17.	Si-Truc Phan	Hydro-Quebec TransEnergie	NPCC	1
18.	David Ramkalawan	Ontario Power Generation, Inc.	NPCC	5
19.	Brian Robinson	Utility Services	NPCC	8
20.	Brian Shanahan	National Grid	NPCC	1
21.	Wayne Sipperly	New York Power Authority	NPCC	5
22.	Donald Weaver	New Brunswick System Operator	NPCC	2
23.	Ben Wu	Orange and Rockland Utilities	NPCC	1

2.	Group	David Thorne	Pepco Holdings Inc.	X		X							

	Additional Member	Additional Organization	Region	Segment Selection
1.	Carl Kinsley	Delmarva Power & Light Co.	RFC	1, 3
2.	Alvin Depew	Pepco Holdings Inc.	RFC	1, 3

3.	Group	Joseph DePoorter	Madison Gas and Electric Company	X	X	X	X	X	X				

	Additional Member	Additional Organization	Region	Segment Selection
1.	Mahmood Safi	OPPD	MRO	1, 3, 5, 6
2.	Chuck Lawrence	ATC	MRO	1
3.	Tom Breene	WPS	MRO	3, 4, 5, 6
4.	Jodi Jenson	WAPA	MRO	1, 6
5.	Ken Goldsmith	ALTW	MRO	4
6.	Alice Ireland	XCEL	MRO	1, 3, 5, 6
7.	Dave Rudolph	BEPC	MRO	1, 3, 5, 6
8.	Kayleigh Wilkerson	LES	MRO	1, 3, 5, 6
9.	Joe DePoorter	MGE	MRO	3, 4, 5, 6
10.	Scott Nickels	RPU	MRO	4
11.	Terry Harbour	MEC	MRO	1, 3, 5, 6
12.	Marie Knox	MISO	MRO	2
13.	Lee Kittelson	OTP	MRO	1, 3, 4, 5

Group/Individual		Commenter	Organization	Registered Ballot Body Segment									
				1	2	3	4	5	6	7	8	9	10

	Additional Member	Additional Organization	Region	Segment Selection
14.	Scott Bos	MPW	MRO	3, 4, 5
15.	Tony Eddleman	NPPD	MRO	1, 3, 5
16.	Mike Brytowski	GRE	MRO	1, 3, 5, 6
17.	Dan Inman	MPC	MRO	1, 3, 5, 6

	Group/Individual	Commenter	Organization	1	2	3	4	5	6	7	8	9	10
4.	Group	Patrick Brown	Essential Power, LLC					X					

	Additional Member	Additional Organization	Region	Segment Selection
1.	Allen Schriver	NextEra		5
2.	Steve Berger	PPL Susquehanna, LLC		5
3.	Joe Crispino	PSEG Fossil, LLC		5
4.	Pamela Dautel	IPR-GDF Suez Generation NA		5
5.	Dan Duff	Liberty Electric Power		5
6.	Mikhail Falkovich	PSEG		5
7.	Gary Kruempel	MidAmerican Energy Company		5
8.	Katie Legates	American Electric Power		5
9.	Don Lock	PPL Generation, LLC		5
10.	Joe O'Brien	NIPSCO		5
11.	Dana Showalter	e.on		5
12.	William Shultz	Southern Company		5
13.	Mark Young	Tenasks, Inc		5

	Group/Individual	Commenter	Organization	1	2	3	4	5	6	7	8	9	10
5.	Group	Mike Garton	Dominion Resources Services, Inc.	X		X		X	X				

	Additional Member	Additional Organization	Region	Segment Selection
1.	Louis Slade	Dominion Resources Services, Inc.	RFC	5, 6
2.	Randi Heise	Dominion Resources Services, Inc.	SERC	1, 3, 5, 6
3.	Connie Lowe	Dominion Resources Services, Inc.	NPCC	5, 6
4.	Michael Crowley	Virginia Electric and Power Company	SERC	1, 3, 5, 6

	Group/Individual	Commenter	Organization	1	2	3	4	5	6	7	8	9	10
6.	Group	Brandy Spraker	Transmission Reliability Engineering and Controls	X		X		X	X				

	Additional Member	Additional Organization	Region	Segment Selection
1.	George Pitts		SERC	1
2.	Marjorie Parsons		SERC	1

	Group/Individual	Commenter	Organization	1	2	3	4	5	6	7	8	9	10
7.	Group	Lloyd A. Linke	Western Area Power Administraton - Upper	X					X				

Group/Individual		Commenter	Organization	Registered Ballot Body Segment									
				1	2	3	4	5	6	7	8	9	10
			Great Plains Region										

	Additional Member	Additional Organization	Region	Segment Selection
1.	Upper Great Plains Region	Western Area Power Administration	MRO	1, 6
2.	Rocky Mountain Region	Western Area Power Administration	WECC	1, 6
3.	Desert Southwest Region	Western Area Power Administration	WECC	1, 6
4.	Sierra Nevada Region	Western Area Power Administration	WECC	1, 6
5.	Colorado River Storage Project	Western Area Power Administration	WECC	6

				1	2	3	4	5	6	7	8	9	10
8.	Group	Larry Raczkowski	FirstEnergy Corp	X		X	X	X	X				

	Additional Member	Additional Organization	Region	Segment Selection
1.	William Smith	FirstEnergy Corp	RFC	1
2.	Cindy Stewart	FirstEnergy Corp	RFC	3
3.	Doug Hohlbaugh	Ohio Edison	RFC	4
4.	Ken Dresner	FirstEnergy Solutions	RFC	5
5.	Kevin Querry	FirstEnergy Solutions	RFC	6

				1	2	3	4	5	6	7	8	9	10
9.	Group	Brent Ingebrigtson	LG&E and KU Services	X		X		X	X				

	Additional Member	Additional Organization	Region	Segment Selection
1.	Brenda Truhe	PPL Electric Utilities Corporation	RFC	1
2.	Annette Bannon	PPL Generation, LLC on behalf of Supply NERC Registred Affiliates	RFC	5
3.			WECC	5
4.	Elizabeth Davis	PPL EnergyPlus, LLC	MRO	6
5.			NPCC	6
6.			SERC	6
7.			SPP	6
8.			RFC	6
9.			WECC	6

				1	2	3	4	5	6	7	8	9	10
10.	Group	Michael Lowman	Duke Energy	X		X		X	X				

	Additional Member	Additional Organization	Region	Segment Selection
1.	Doug Hils		RFC	1
2.	Lee Schuster		FRCC	3
3.	Dale Goodwine		SERC	5
4.	Greg Cecil		RFC	6

Group/Individual		Commenter	Organization	Registered Ballot Body Segment									
				1	2	3	4	5	6	7	8	9	10
11.	Group	Jason Marshall	ACES						X				

	Additional Member	Additional Organization	Region	Segment Selection
1.	Paul Jackson	Buckeye Power	RFC	3, 4
2.	Scott Brame	North Carolina Electric Membership Corporation	SERC	1, 3, 4, 5
3.	Mark Ringhausen	Old Dominion Electric Cooperative	SERC	3, 4
4.	Michael Brytowski	Great River Energy	MRO	1, 3, 5, 6
5.	John Shaver	Arizona Electric Power Cooperative	WECC	4, 5
6.	John Shaver	Southwest Transmission Cooperative	WECC	1

				1	2	3	4	5	6	7	8	9	10
12.	Group	Terry Bilke	MISO		X								

	Additional Member	Additional Organization	Region	Segment Selection
1.	Stephanie Monzon	PJM	RFC	2
2.	Greg Campoli	NYISO	NPCC	2
3.	Ben Li	IESO	NPCC	2
4.	Ali Miremadi	CAISO	WECC	2
5.	Charles Yeung	SPP	SPP	2
6.	Kathleeen Goodman	ISO-NE	NPCC	2
7.	Matthew Morais	ERCOT	ERCOT	2

				1	2	3	4	5	6	7	8	9	10
13.	Group	Robert Rhodes	Southwest Power Pool		X								

	Additional Member	Additional Organization	Region	Segment Selection
1.	John Allen	City Utilities of Springfield	SPP	1, 4
2.	Shannon Bellinghausen	Xcel Energy	SPP	1, 3, 5, 6
3.	Andrew Evans	Westar Energy	SPP	1, 3, 5, 6
4.	Greg Hill	Nebraska Public Power District	MRO	1, 3, 5
5.	Shawn Jacobs	Oklahoma Gas & Electric	SPP	1, 3, 5
6.	Stephanie Johnson	Westar Energy	SPP	1, 3, 5, 6
7.	Bo Jones	Westar Energy	SPP	1, 3, 5, 6
8.	Tiffany Lake	Westar Energy	SPP	1, 3, 5, 6
9.	Frankie Smith	Kansas City Power & Light	SPP	1, 3, 5, 6
10.	Lynn Schroeder	Westar Energy	SPP	1, 3, 5,

				1	2	3	4	5	6	7	8	9	10
14.	Individual	test	test						X				
15.	Individual	Ed Croft	Puget Sound Energy	X		X		X					

Group/Individual		Commenter	Organization	Registered Ballot Body Segment									
				1	2	3	4	5	6	7	8	9	10
16.	Individual	Bill Middaugh	Bill Middaugh	X									
17.	Individual	Ryan Millard	PacifiCorp	X		X		X	X				
18.	Individual	Pamela R. Hunter	Southern Company Operations Compliance	X		X		X	X				
19.	Individual	Michael Moltane	ITC	X									
20.	Individual	Michael Falvo	Independent Electricity System Operator		X								
21.	Individual	Dale Fredrickson	Wisconsin Electric Power Company			X	X	X					
22.	Individual	Anthony Jablonski	ReliabilityFirst										X
23.	Individual	Gustavo Brunello	Gustavo Brunello										
24.	Individual	Nazra Gladu	Manitoba Hydro	X		X		X	X				
25.	Individual	Wryan Feil	Northeast Utilities	X									
26.	Individual	Don Schmit	Nebraska Public Power District	X		X		X					
27.	Individual	John Bee	Exeln and its affiliates	X		X							
28.	Individual	RoLynda Shumpert	South Carolina Electric and Gas	X		X		X	X				
29.	Individual	Jonathan Meyer	Idaho Power Company	X									
30.	Individual	Keith Morisette	Tacoma Power	X		X	X	X	X				
31.	Individual	David Jendras	Ameren	X		X		X	X				
32.	Individual	Michelle R. D'Antuono	Ingleside Cogeneration LP					X					
33.	Individual	Thomas Foltz	American Electric Power	X		X		X	X				
34.	Individual	Bill Fowler	City of Tallahassee			X							
35.	Individual	Karen Webb	City of Tallahassee					X					
36.	Individual	John Seelke	Public Service Enterprise Group	X		X		X	X				
37.	Individual	Chantal Mazza	Hydro QuÃ©bec TransÃ‰nergie	X									
38.	Individual	Andrew Z. Pusztai	american Transmission Company, LLC	X									
39.	Individual	Chris de Graffenried	Consolidated Edison Co. of NY, Inc.	X		X		X	X				
40.	Individual	Oliver Burke	Entergy Services, Inc.	X		X		X	X				
41.	Individual	Andrew Gallo	City of Austin dba Austin Energy	X		X	X	X	X				

Group/Individual		Commenter	Organization	Registered Ballot Body Segment									
				1	2	3	4	5	6	7	8	9	10
42.	Individual	Scott Langston	City of Tallahassee	X									
43.	Individual	Brett Holland	Kansas City Power & Light	X		X		X	X				
44.	Individual	Daniela Hammons	CenterPoint Energy Houston Electric, LLC	X									

1. Do you agree the scope of the revised SAR describes the work to be performed in this project? If not, please explain.

Summary Consideration: There were 42 responses to this question. Of these, 14 did not agree with the scope, and 28 did agree.

The common threads of the comments were:

1. Suggestions to clarify applicability to the BES rather than the BPS, power system, or some other designation.
2. Apparent misconception that the standard will be requiring specific equipment.
3. Some suggestions regarding maintenance of the recording capability.
4. Concerns with statements that the information may be used to verify system models.
5. Requests for clarification as to what events qualify as those for which recordings are to be available.
6. Concerns that it is not clear what the disposition of PRC-018 will be.
7. Some misunderstandings of the MVA short circuit study criteria and how it is to be used.
8. Suggestions for revisions to the “Need” statement and to the “Brief Description” section.
9. One entity is of the opinion that SOER is not needed for Transmission Owners.
10. One entity is of the opinion that the information can be gathered under the NERC Rules of Procedure rather than through a Reliability Standard.

The Standard SDT (SDT) appreciates the comments and believes that some clarifications are needed. The SDT believes several very important aspects of the SAR and intended standard have been misunderstood. The SDT is taking the approach to describe the technical parameters needed for the data recording capability to provide for the adequate gathering of sufficient data with accurate time stamping to provide for the analysis of wide-spread system disturbances. The SDT will clarify which categories of events, as described in the NERC Events Analysis Process documents, were considered in the drafting of the standard.

The SDT will clarify that the standard applies only to locations that are part of the BES. The SDT acknowledges that information other than this data, such as system topology and what generation is online, will be required to be used in combination with this disturbance monitoring data and allow for disturbance analyses.

The SDT is not planning to include a maintenance requirement. The SDT has deliberately not specified what equipment must be used, but described the type of information that is needed and the time-stamping and sampling parameters that will make the information usable in disturbance analyses. The SDT is of the opinion that it should not matter what equipment is used to provide for the recordings, only that the information is provided and meets the standard requirements. This will also provide for the use of any existing or future technology that can meet or exceed the requirements.

One entity questioned whether the loss of a GPS clock, which is normally functional at a given location, would automatically result in a violation of the standard. The SDT recognizes that all such systems have occasional failures or maintenance requirements. The SDT will address the availability and maintenance aspects in the standard, with the intent being that it is recognized that such failures do occur. There will be response requirements for such occurrences, but the SDT is of the opinion that it will be rare for such occurrences, and there will be other locations which will continue to function. The loss of a few locations should not make the information unusable.

The SDT agrees with commenters that state that requiring the use of disturbance monitoring information to verify system models goes beyond the scope of the project. The SDT intends to pursue the development of a guideline document to go along with the standard and may include statements that such practices as verification of system models is not required by the standard, but that it may be considered a good utility practice to do so insofar as the information is relevant and usable for the purpose.

The PRC-002-2 requirements will allow PRC-018-1 to be retired.

The SDT has discussed what events will require data recordings. The SDT has not included this issue in the SAR nor does the SDT plan to include requirements for it in the standard. Instead the SDT has focused on the entities - NERC, the Regions or RCs – that the standard authorizes to make requests for the data, after noting the typical situations in which these entities are most likely to request the data; for instance, Event Categories 3, 4, and 5 in NERC's Event Analysis Program. The SDT has made a significant change in approach since the posting of the first draft in 2009. The approach now will not be equipment centric and will instead address the identification of locations for which Sequence of Events Recording (SOER), Fault Recording (FR), and Dynamic Disturbance Recording (DDR) capability is to be required. Further, the standard will describe the technical methodology using the MVA short circuit level to determine the locations of Sequence of Events Recording (SOER) and Fault Recording (FR), and specify the functional entities that are responsible to either identify the locations or to provide the capability at those locations. The NERC Standards Committee has approved the use of a trial application in this project of the Cost Effectiveness Analysis Process (CEAP).

The Standard Drafting Team reviewed both the "Need" and the "Brief Description" Sections in response to comments. The STD does not feel that those Sections need revision.

NERC Legal Staff was consulted regarding the collection of disturbance monitoring data under the NERC Rules of Procedure, and with reference to the FERC rule for FAC-003-2 it was determined that the collection of data was enforceable.

As stipulated in the standard, the collecting of not only FR and DDR data, but SOER data is needed for event analysis. The Transmission Owner is in a position to capture this data.

Organization	Yes or No	Question 1 Comment
Ameren	No	(1)The slides from the May 22nd NERC webinar indicate considerable PRC-002-2 draft 1 development has already occurred. Based on our experience this draft appears to require a density of disturbance monitoring well in excess of what we believe is needed for disturbance analysis. The SDT has explained the difficulties of developing the August 2003 Blackout sequence of events. (a) Have NERC and its various entities experienced the same level of difficulty in determining a sequence of events since PRC-018-1 and regional criteria have been implemented? (b) For our understanding how many disturbances have NERC and Regional Entities analyzed since June 18th, 2007? (2) Based on our experience we believe that there is now sufficient information to determine the sequence of events, and that regional and NERC disturbance analyses are infrequent. Thankfully widespread disturbances are rare. We understand the importance of disturbance analysis and support an appropriate amount of the correct monitoring equipment, in the right locations, to capture what is necessary to determine sequence of events and system response to determine root cause. (3) We believe that the 1500MVA threshold is very low, too close to current load levels. If 1500MVA is retained, then 20% is too high.(4) We agree that short circuit MVA is a valid factor to consider, however, we also believe that topology is just as important to yield proper placement of disturbance monitors.(5) We request that if <200kV locations are to be included then a bifurcated criteria is warranted and should be used. Major generating sources should be captured, and a much lower percentage of buses are required below 200kV.
Response: The SDT thanks you for your comment.		
CenterPoint Energy Houston Electric, LLC	No	CenterPoint Energy believes a new standard is not needed at this time; therefore, the revised SAR is not needed. Please see response to

Organization	Yes or No	Question 1 Comment
		Questions 3 and 4 below.
Response: The SDT thanks you for your comment.		
Dominion Resources Services, Inc.	No	Dominion believes the scope needs to be more clearly defined to ensure the capturing and analysis of disturbances on the "Bulk Electric System" as opposed to the nebulous "power system."
Response: The SDT thanks you for your comment.		
Nebraska Public Power District	No	Focusing on data rather than equipment to provide the required recorded information has benefits however this creates some concerns. For example, assume we have a GPS clock and relay that can meet the 2ms criteria however prior to an event the clock loses time due to an internal error (these devices are not perfect) so the relay no longer has the correct time of the event. If this data is then requested by the RE would this be a compliance violation because the data is wrong even though the equipment is capable of meeting the criteria? Will this data be audited?Even though the focus is on data and equipment capabilities and not specifying stand alone or relaying equipment to record data it seems there should be some discussion on the maintenance differences. I recommend that protective relays used for DME type functions should not be in two maintenance plans.
Response: The SDT thanks you for your comment.		
Western Area Power Administraton - Upper Great Plains Region	No	Including the statement that "This information will also be used to verify system models" goes beyond the purpose of ensuring that the requisite data is captured. Adding requirements for verifying system models will likely over-complicate the standard and delay its ultimate industry approval.

Organization	Yes or No	Question 1 Comment
Response: The SDT thanks you for your comment.		
Public Service Enterprise Group	No	The standard produced needs to clarify what events qualify as those for which registered entities are responsible to acquire, save and report SOE, FR and DDR data per the standard. The standard should clarify these events with reference to criteria already established and followed by NERC and/or others such as Regions or ISOs etc in their analysis programs/practices. For example, regarding data for NERC the standard could set out which of the Categories defined in NERC Events Analysis program the data would be required for. At the end of the day no entity wants or should be surprised with a request for data from any entity after any event. And requests for data via this standard need to be reasonable and justifiable by, for instance, the size and/or impact of the event.
Response: The SDT thanks you for your comment.		
Entergy Services, Inc.	No	There is no clear scope of the project presented in the SAR Brief Description. The scope should define what disturbance data needs to be collected and why it is important (objectives of what the standard is to accomplish). As presented, the SAR does not clearly define what the new standard is trying to accomplish and how the new standard will addresses industry needs is for improving the reliability of the BES. (See Q5 comments.)
Response: The SDT thanks you for your comment.		
Northeast Power Coordinating Council	No	There is no specific mention of the removal of the PRC-018 R6 Maintenance requirement in the SAR. The original SDT was moving it to PRC-005. R6 is ambiguous, and if included needs to be revised or else should be removed. It should be stipulated that DFR/DDR should be verified semi-annually to ensure that the device is receiving analog signals.

Organization	Yes or No	Question 1 Comment
		The Need Section should be revised to limit the applicability to the BES, and to exclude the verification of system models as a specific need for this standard. Suggest the following wording for the Need Section:PRC-002 is being revised to ensure adequate BES data is captured to enable effective post event analysis following a BES disturbance. (Note that the development of PRC-002-2 under Project 2007-11 was made informal in 2011.) The emphasis will not be on what equipment may be used to capture this data, but on ensuring that the requisite data is captured. PRC-002-2 will also include the pertinent requirements of PRC-018-1 that will allow that Standard to be retired. Utilization of this data will allow the entity to improve system reliability through BES system improvement. The wording under Brief Description of Proposed Standard Modifications/Actions should also be revised to the following for consistency:By this Standard the SDT will establish the requirements for capturing BES disturbance data to enable effective post event analysis following a BES disturbance. The Standard SDT (SDT) will review PRC-002 and any NERC approved Regional Disturbance Monitoring Standard.
Response: The SDT thanks you for your comment.		
Tacoma Power	No	Under the Detailed Description section, it is noted that "the Planning Coordinators and Reliability Coordinators will be responsible for specifying locations requiring Dynamic Disturbance data." However, under the Technical Analysis Performed to Support Justification section, it is noted that "a study of multiple systems across the continent was done to determine the locations needed to record sufficient power system data for Sequence of Events, Faults, and Dynamic Disturbances based on three phase bolted short circuit MVA thresholds." These two statements appear to be contradictory. In one case, Planning Coordinators and Reliability Coordinators are to specify locations. In the other case, it can be inferred that sufficient research has been conducted already to propose criteria for

Organization	Yes or No	Question 1 Comment
		specifying locations that would be applicable to the standard. If Planning Coordinators and Reliability Coordinators will be responsible to specify locations, there should be clear division of authority between these two functional entities. Furthermore, there should be some responsibility for Planning Coordinators and Reliability Coordinators to justify on a technical and financial basis the locations that they specify since Generator Owners and Transmission Owners will bear the direct cost of any new infrastructure to comply with the standard.
Response: The SDT thanks you for your comment.		
Kansas City Power & Light	No	We are concerned with the comment regarding the use of this data to verify system models. The primary intent of the data is to analyze system events including assisting in determining proper relay operation. We feel that any additional evaluation of the data would not be very helpful. To use the data as discussed, the configuration of the system would be needed including what generation was operating.
Response: The SDT thanks you for your comment.		
Southwest Power Pool	No	We are concerned with the comment regarding the use of this data to verify system models. The primary intent of the data is to analyze system events. The SAR, and subsequent standard, should restrict itself to just that. Model validation is another issue for another SDT and should be covered in a separate project.
Response: The SDT thanks you for your comment.		
Northeast Utilities	No	We propose that the “Need Statement” be revised for the following two reasons:a. to limit the applicability to the BES,b. to exclude the verification of system models as a specific need for this standardWe

Organization	Yes or No	Question 1 Comment
		propose the following wording be considered:"PRC-002 is being revised to ensure adequate BES data is captured to enable effective post event analysis following a BES disturbance. (Note that the development of PRC-002-2 under Project 2007-11 was made informal in 2011.) The emphasis will not be on what equipment may be used to capture this data, but on ensuring that the requisite data is captured. PRC-002-2 will also include the pertinent requirements of PRC-018-1 that will allow that Standard to be retired. Utilization of this data will allow the entity to improve system reliability through BES system improvement." And the wording under Brief Description should also be changed to the following for consistency:"By this Standard the SDT will establish the requirements for capturing BES disturbance data to enable effective post event analysis following a BES disturbance. The standard SDT (SDT) will review PRC-002 and any NERC approved Regional Standard PRC-002." Under Goals we recommend the following wording: "Sufficient Adequate (limited redundancy) Sequence of Events, Fault, and Dynamic Disturbance recordings to analyze power system disturbances must be captured and accessible." Where meansAdequate means: (lawfully and reasonably sufficient)Sufficient means: (enough to meet the needs of a situation or condition)
Response: The SDT thanks you for your comment.		
Consolidated Edison Co. of NY, Inc.	No	We propose that the "Need Statement" be revised for the following two reasons:a. to limit the applicability to the BES,b. to exclude the verification of system models as a specific need for this standard.We propose the following wording be considered:"PRC-002 is being revised to ensure adequate BES data is captured to enable effective post event analysis following a BES disturbance. (Note that the development of PRC-002-2 under Project 2007-11 was made informal in 2011.) The emphasis will not be on what equipment may be used to capture this data, but on ensuring

Organization	Yes or No	Question 1 Comment
		that the requisite data is captured. PRC-002-2 will also include the pertinent requirements of PRC-018-1 that will allow that Standard to be retired. Utilization of this data will allow the entity to improve system reliability through BES system improvement." And the wording under Brief Description should also be changed to the following for consistency:"By this Standard the SDT will establish the requirements for capturing BES disturbance data to enable effective post event analysis following a BES disturbance. The standard SDT (SDT) will review PRC-002 and any NERC approved Regional Standard PRC-002."
Response: The SDT thanks you for your comment.		
MISO	No	While we agree that the SAR describes the work the team plans to undertake, we don't agree with the proposed approach.
Response: The SDT thanks you for your comment.		
Madison Gas and Electric Company	Yes	Although the NSRF agrees with capturing BES event data, there are entities who currently have devices installed which gather DME data. The issue is how can a Standard (such as PRC-002) mandate the purchasing of such equipment? The cost could be substantial for both large and small applicable entities.
Response: The SDT thanks you for your comment.		
City of Austin dba Austin Energy	Yes	Austin Energy (AE) suggests the SDT consider type of equipment as well as required data. Doing so will ensure checks and balances. That is, the requirements should not specify data without considering the technological capability of the equipment commonly used in the industry.
Response: The SDT thanks you for your comment.		

Organization	Yes or No	Question 1 Comment
Exeln and its affiliates	Yes	ComEd believes that fault recording equipment and dynamic disturbance recording equipment that is time synchronized by a GPS Satellite clock are sufficient to analyze disturbances. Although separate sequence of event recording may be useful for Generator Owners/Operators, it should not be required for Transmission Owners. Modern microprocessor relays already include a great deal of built-in sequence of event recording capability. A requirement for SOE capability is thus not needed in a standard and would only be burdensome. Additionally, experience at Exelon has shown that investigation of power system events very rarely requires the use of this built-in sequence of event records capability to determine the root cause of an event.
Response: The SDT thanks you for your comment.		
FirstEnergy Corp	Yes	FirstEnergy (FE) prefers this scope for this SAR as opposed to a more prescriptive methodof previous standard, ie, this standard will not specify what equipment must be used to capture this data.
Response: The SDT thanks you for your comment.		
Duke Energy	Yes	However, we don’t believe that this work necessarily must be accomplished in a reliability standard, but could instead be accomplished under the authority of NERC’s Rules of Procedure for data collection and Events Analysis Program. See our responses to questions 3 and 4 below.
Response: The SDT thanks you for your comment.		
Ingleside Cogeneration LP	Yes	Ingleside Cogeneration (“ICLP”) agrees that the DME standard should focus on the data desired, not the equipment type. The technology is changing rapidly and PRC-002-2 should not inhibit the use of the latest

Organization	Yes or No	Question 1 Comment
		recorder capabilities.
Response: The SDT thanks you for your comment.		
ReliabilityFirst	Yes	ReliabilityFirst agrees that the scope of the revised SAR adequately describes the necessary work to be performed in this project. ReliabilityFirst agrees that the shift in focus of the SAR to ensure that the requisite disturbance data is captured (rather than prescribing the equipment which must be used to capture disturbance data) is an appropriate course of action.
ACES	Yes	We agree that SAR clearly identifies the scope of work to be performed.
Pepco Holdings Inc.	Yes	
Essential Power, LLC	Yes	
Transmission Reliability Engineering and Controls	Yes	
LG&E and KU Services	Yes	
Puget Sound Energy	Yes	
Bill Middaugh	Yes	
PacifiCorp	Yes	
Southern Company Operations Compliance	Yes	
Independent Electricity System	Yes	

Organization	Yes or No	Question 1 Comment
Operator		
Wisconsin Electric Power Company	Yes	
Gustavo Brunello	Yes	
Manitoba Hydro	Yes	
South Carolina Electric and Gas	Yes	
Idaho Power Company	Yes	
American Electric Power	Yes	
City of Tallahassee	Yes	
City of Tallahassee	Yes	
Hydro QuÃ©bec TransÃ‰nergie	Yes	
american Transmission Company, LLC	Yes	
City of Tallahassee	Yes	

2. **The revised SAR identifies a list of functional entities that may be assigned responsibility for requirements in the set of standards addressed by this SAR. Do you agree with the list of proposed applicable functional entities? If no, please explain.**

Summary Consideration:

The Standard SDT (SDT) appreciates industry comments pertaining to the list and responsibilities of proposed functional entities addressed in this SAR. Overall, 23 commenters replied 'Yes' to this question while 15 replied 'No'. Of the respondents who provided additional comments, many were in consensus regarding specific areas. These areas, and the SDT's response to these concerns, are provided below:

•*The Transmission Owner (TO) and Generator Owner (GO) are the primary applicable entities for this Standard.* The SDT agrees that the TO and GO play a critical role in ensuring the capability of Disturbance Monitoring recording since they are the ultimate owners of the equipment. Specifically, TOs generally perform system fault studies and have the most direct involvement with Fault Recording (FR) and Sequence of Events Recording (SOE) and its placement. As the SAR addresses, the TOs and GOs will be responsible for the bulk of Requirements in this Standard. However, the Planning Coordinator and Reliability Coordinator have a wide-area view pertaining to location placement of Dynamic Disturbance Recording (DDR).

•*The Generator Owner (GO) should not be included as an applicable functional entity.* Generator Owners (GOs) play a critical role in providing FR, SOE, and DDR capability. Generator Owners (GOs) are responsible to provide Fault Recording (FR) and Sequence of Events Recording (SOE) at generation interconnection facilities at sites selected by the TO using the MVA criteria, and Dynamic Disturbance Recording (DDR) at generating plants above a given MVA level.

•*Further explanation and clarity should be provided for the role of the Planning Coordinator (PC) or Reliability Coordinator (RC) in the applicable functional entities.* The requirements for Dynamic Disturbance Recording locations incorporate wide-area (Regional or Interconnection-wide) perspective of the Bulk Electric System (BES). The PC or RC has the responsibility of determining the locations for DDR, maintaining a list of those locations, and coordinating that information with the TOs and GOs in its footprint. Their authority on placement set forth in this Standard. Many PCs and RCs, or their staffs, have already worked in conjunction with their TOs and GOs to perform analyses of DDR placement. Furthermore, in some Regions the RC, or its staff is better suited, to be the applicable functional entity rather than the PC.

•*The Transmission Operator (TOP) and Generator Operator (GOP) should be removed from applicability of this Standard.* The SDT agrees with this statement and has removed the TOP and GOP from any applicability pertaining to this Standard.

•*Distribution Provider should also be included depending on the specific requirements developed.* The SDT has considered this comment. The Requirements being developed pertain to Disturbance Monitoring for the Bulk Electric System (BES). For this purpose, the Transmission Owner (TO) and Generator Owner (GO) are best suited to accomplish adequate coverage for capturing BES Disturbances.

•*Continent-wide standard and addressing the "fill in the blank" issue for Planning Coordinator (PC) and Reliability Coordinator (RC).* The intent of this Standard is to provide a continent-wide standard that provides adequate coverage for Disturbance Monitoring. Regional differences have minimally been addressed in certain Requirements in this Standard based on system dynamic performance; however, regional variances have been minimized. The SDT would like to again clarify that the PC and RC are included as applicable functional entities in this Standard for the location Requirements pertaining to Dynamic Disturbance Recording (DDR). However, the location Requirements are no longer "fill in the blank" requirements and it is the responsibility of the PC and RC to determine where these locations and Elements are to be monitored based on the Standards' Requirements. The PC and RC have a wide-area view, and including both allows for regional variances, filling in potential gaps or variances between Regions.

Organization	Yes or No	Question 2 Comment
American Electric Power	No	AEP agrees overall with the functional entities as specified, however it might be necessary to also include Distribution Provider, depending on what specific requirements are eventually developed.
Response: The SDT thanks you for your comment.		
CenterPoint Energy Houston Electric, LLC	No	CenterPoint Energy believes a new standard is not needed at this time; therefore, the revised SAR is not needed. Please see response to Questions 3 and 4 below.
Response: The SDT thanks you for your comment.		
Exeln and its affiliates	No	ComEd does not believe that it is necessary that a disturbance monitoring standard apply to the planning coordinator or reliability coordinator. ComEd is rapidly installing modern protection equipment such that eventually all HV & EHV transmission lines and transformers will be protected by equipment with built-in oscillographic and sequence of events capabilities. By the end of 2015, with or without

Organization	Yes or No	Question 2 Comment
		a standard, all of ComEd’s EHV lines will have built-in oscillographic and sequence of events capabilities. Currently, the majority of both HV and EHV line relaying are microprocessor based. Thus, there is no need for any involvement of the planning coordinator or reliability coordinator to determine requirements or locations for oscillographic or sequence of events capabilities. For long term disturbance monitors, ComEd believes the standard would be better served by providing a short list of important circuits that would require stored synchrophasor data or long term disturbance monitoring, i.e. all generators greater than X MW or at the tie point of generating stations greater than Y MW aggregate capacity, stability limited lines or IROLS, etc. This would eliminate the need for involving the planning coordinator or reliability coordinator and target required recording data to the most important circuits only. Also, the minimum amount of useful data should be required to be stored for long term disturbance monitors (positive sequence voltage and current (or one phase of voltage and current) and frequency). MW and MVAR can always be calculated. Including the Reliability Coordinator and/or Planning Coordinator is like creating a fill in the blank standard just with a different entity filling in the blank.
Response: The SDT thanks you for your comment.		
LG&E and KU Services	No	Disturbance Monitoring Equipment (DME) should be required of GOs/GOPs only if the TO determines that this equipment is necessary. Generally, GO/GOPs generally have little or no role in analyzing Disturbances.It may be necessary to add Distribution Providers to the list of Responsible Entities depending on what requirements are eventually developed
Response: The SDT thanks you for your comment.		
Ingleside Cogeneration LP	No	ICLP is not sure what role Planning Coordinators and Reliability Coordinators will play in the updated standard. We believe some caution is in order if the intent is to identify additional locations where DME should be deployed beyond those established through the application of PRC-002-2’s criteria. Since the RC and PC decisions will have a cost

Organization	Yes or No	Question 2 Comment
		impact on a Generator Owner, it is important that limits to their authority are established up front - with an allowance for an appeal to NERC if a dispute arises.
Response: The SDT thanks you for your comment.		
Nebraska Public Power District	No	In the past there was desire to have a continent wide standards that did not vary based on regions so the requirements were uniform across the continent. Is it now the goal to accept differences in the requirements by regions? Perhaps clarify if this uniformity is not desired.
Response: The SDT thanks you for your comment.		
Tacoma Power	No	It is not clear what direct role Generator Operators and Transmission Operators would have in the implementation of PRC-002-2. Furthermore, the other functional entities (Reliability Coordinator, Planning Coordinator, Transmission Owner, and Generator Owner) are mentioned elsewhere in the SAR form while Transmission Operator and Generator Operator are not.
Response: The SDT thanks you for your comment.		
FirstEnergy Corp	No	On page 4 of the SAR, Transmission Operator and Generation Operator are included. FE believes that the respective Owner (Transmission and Generation) should be applicable, not the Operator. FE agrees that the applicable entities are the Transmission Owner, Generation Owner, Planning Coordinator and Reliability Coordinator.
Response: The SDT thanks you for your comment.		
Southern Company Operations Compliance	No	The GO should not be included - see comments under Question 3.

Organization	Yes or No	Question 2 Comment
Response: The SDT thanks you for your comment.		
MISO	No	The project background page outlines that the need for the change is to address the "fill in the blank" issue where there are differences among regions. The proposed SAR makes matters significant worse in that rather than 7 regions, there will be over 100 RCs and PCs involved. In fact, NERC has acknowledged that there are areas where there are no PCs. What is planned for the gaps and overlaps?
Response: The SDT thanks you for your comment.		
City of Austin dba Austin Energy	No	The SAR indicates there may be a role for the Transmission Operator and Generator Operator. The NERC Functional Model Version 5 demonstrates that designing, installing and maintaining facilities is more appropriate to the Transmission Owner and Generator Owner functions.
Response: The SDT thanks you for your comment.		
Wisconsin Electric Power Company	No	We are of the opinion that Transmission Owners are the primary applicable entities, with Generator Owner applicability being limited to specific cases (see #5 below). The Transmission Operator and Generator Operator should be removed from applicability to this standard.
Response: The SDT thanks you for your comment.		
Bill Middaugh	No	We believe that the SDT should develop requirements for specifying which locations require Dynamic Disturbance data. That would eliminate the need for including the Planning Coordinator and the Reliability Coordinator. If a coordinating entity is retained in the Applicability, it should only be the Planning Coordinator because the Functional Model does not provide for assigning this type responsibility to the Reliability Coordinator.

Organization	Yes or No	Question 2 Comment
Response: The SDT thanks you for your comment.		
Southwest Power Pool	No	While we see a need for consistency at least across an interconnection for the specification and collection of disturbance data, that consistency is probably best provided by a minimum of oversight. Pulling the RCs and PCs into this may compartmentalize the requirements even more than was originally thought in the regional standard set-up. Additionally, there are concerns as to just what the role of the RC and PC will be in determining locations for the recording equipment. If the locations are to be specified within an RC footprint that's one item but if the RC is to be actively involved in making the determinations then it may be outside the normal operating horizon associated with the RC function.
Response: The SDT thanks you for your comment.		
Kansas City Power & Light	No	While we see a need for consistency at least across an interconnection for the specification and collection of disturbance data, that consistency is probably best provided by a minimum of oversight. Pulling the Reliability Coordinator and Planning Coordinator into this may compartmentalize the requirements even more than was originally thought in the regional standard set-up. Additionally, there are concerns as to just what the role the Reliability Coordinator and Planning Coordinator will be in determining locations for the recording equipment. If the locations are to be specified within an Reliability Coordinator footprint that's one item but if the Reliability Coordinator is to be actively involved in making the determinations then it may be outside the normal operating horizon associated with the Reliability Coordinator function.
Response: The SDT thanks you for your comment.		
Duke Energy	Yes	However, the Transmission Planner and the Transmission Operator should also be included to work in conjunction with the Reliability Coordinator and the Planning

Organization	Yes or No	Question 2 Comment
		Coordinator to identify locations for collecting Dynamic Disturbance Data.
Response: The SDT thanks you for your comment.		
Essential Power, LLC	Yes	The SRT believes it may be necessary to add the Distribution Provider depending on what requirements are eventually developed.
Response: The SDT thanks you for your comment.		
ACES	Yes	We agree that the Transmission Owner and Generator Owner are the correct applicable entities that will be required to provide sequence of event, dynamic disturbance and fault event data as they will be the owners of the event recording assets. If the standard is developed, we also agree that the planning coordinator and/or reliability coordinator should be considered in the standards development process as the entity that could replace the regional reliability organization and that identifies locations for the installation of event recorders.
Response: The SDT thanks you for your comment.		
Northeast Power Coordinating Council	Yes	
Pepco Holdings Inc.	Yes	
Madison Gas and Electric Company	Yes	
Dominion Resources Services, Inc.	Yes	
Transmission Reliability	Yes	

Organization	Yes or No	Question 2 Comment
Engineering and Controls		
Western Area Power Administraton - Upper Great Plains Region	Yes	
Puget Sound Energy	Yes	
PacifiCorp	Yes	
Independent Electricity System Operator	Yes	
Gustavo Brunello	Yes	
Manitoba Hydro	Yes	
Northeast Utilities	Yes	
South Carolina Electric and Gas	Yes	
Idaho Power Company	Yes	
Ameren	Yes	
Public Service Enterprise Group	Yes	
Hydro QuÃ©bec TransÃ‰nergie	Yes	
american Transmission	Yes	

Organization	Yes or No	Question 2 Comment
Company, LLC		
Consolidated Edison Co. of NY, Inc.	Yes	
Entergy Services, Inc.	Yes	

3. Do you agree there is a need for a standard? Please explain your response.

Summary Consideration:

The Standard SDT (SDT) appreciates industry comments regarding the need for a standard. Overall, 30 commenters replied 'Yes' to this question while 9 replied 'No', thus the consensus of responses was an agreement that there is a need for a standard.

Of the commenters that provided a 'No' response with an explanation, many were in consensus regarding specific areas. These areas, and the SDT's response to these concerns, are provided below:

• '*The standard is better suited to be a guideline and, in effect, will indirectly require transmission owners and generator owners to install new equipment. …the same goal can be accomplished by voluntary efforts.'* The SDT has worked to draft a standard which requires applicable functional entities to record sufficient information to capture the data needed at identified locations to enable post-disturbance analyses. The SDT has deliberately avoided specifying equipment to be installed. The SDT has taken this approach because it recognized the unintended consequences of precluding the use of new technology or other adaptations of other available or, possibly, already existing equipment. The standard is a performance based standard. Further, the capture of the information or data is very important for post-disturbance analysis. A guideline which will indirectly require TO and GO to install new DME equipment or which relies on voluntary efforts may not result in the actual provision of the information that is needed.

•*General requirement for providing DME data for events analysis and modeling purposes that could be put in the Rules of Procedure as opposed to a standard.* The industry approved SAR indicates that this data should be provided as specified in a Reliability Standard. For further discussion on the Rules of Procedure and Section 1600 please refer to the response to Question 4.

Organization	Yes or No	Question 3 Comment
ACES	No	(1) No, we do not agree that there is a need for this standard. This standard is better suited to be a guideline and, in effect, will indirectly require transmission owners and generator owners to install new equipment. It is our understanding that the Energy Policy Act of 2005 specifically excluded the authority to order the installation of additional equipment. Can a regulator indirectly require a registered entity to perform an action such as installing new equipment that it cannot compel directly? (2) The requirements in the last version of PRC-002-2 are administrative in nature and SAR

Organization	Yes or No	Question 3 Comment
		appears to focus on developing administrative requirements. While the data itself will be valuable to perform post event analysis, the collection of data itself is actually administrative. The real value obtained is in performing the event analysis and model verification. Thus, it would make more sense to require entities to perform post-event analysis and model verification rather than to collect data. The entity would then be responsible for determining what type of data it would need and how to obtain that data. Furthermore, NERC already has an event analysis process and is developing or has recently developed a number of model verification standards such as MOD-026-1 and MOD-027-1. (3) The NERC event analysis process has been very successful. We are unaware of any recent event since this standard was first proposed in 2009 that NERC has not been able to evaluate for lack of data. Before this standard is developed, we suggest that the SDT review the need for the standard with NERC's Reliability Risk Management department. (4) Many companies are already installing a tremendous number of phasor measurement units (PMU). These units are capable of recording all the necessary data for events analysis. The joint FERC-NERC event report from the Arizona-Southern California outage of September 2011 highlighted the proliferation of the PMUs which facilitate the event analysis. The PMU has become so ubiquitous because DOE has employed a carrot approach of providing funding for their installation. This approach is much more effective than a penalty approach established in an enforcement regime. (5) In the end, we think the directives issued by FERC in the spring of 2007 have been overcome by six plus years of events. The world has changed tremendously. Furthermore, we believe PRC-018 should be retired rather than developing any standard.
Response: The SDT thanks you for your comment.		
CenterPoint Energy Houston Electric, LLC	No	CenterPoint Energy does not believe there is a need for a new standard at this time. Please see response to Question 4.
Response: The SDT thanks you for your comment.		

Organization	Yes or No	Question 3 Comment
Southern Company Operations Compliance	No	From the GO perspective, post events analysis typically is able to be performed using relay operation records stored within the protective relaying coupled with unit control system historical data. The need for additional high speed data capture equipment, to date, has not been justified from a GO/GOP perspective. The benefit/cost value has not been sufficient to drive the widespread installation of such equipment. The cost for GO/GOP to add DME to each generating facility can be significant due to the design, equipment, and installation costs.
Response: The SDT thanks you for your comment.		
Northeast Power Coordinating Council	No	Once the Standard becomes effective, it will provide continent-wide consistency and clarity for capturing the data needed to analyze various power system disturbances, and validate some of the models used in planning or operational studies. It will decrease the number of standards for this topic. We don't agree with the need for a standard as proposed. There could be a general requirement for providing DME data for events analysis and modeling purposes that could be put in the Rules of Procedure as opposed to a standard.
Response: The SDT thanks you for your comment.		
City of Tallahassee	No	TAL believes the same goal could be accomplished by voluntary efforts.
Response: The SDT thanks you for your comment.		
City of Tallahassee	No	TAL believes the same goal could be accomplished by voluntary efforts.
Response: The SDT thanks you for your comment.		
City of Tallahassee	No	TAL believes the same goal could be accomplished by voluntary efforts.
Response: The SDT thanks you for your comment.		

Organization	Yes or No	Question 3 Comment
Duke Energy	No	The Standard SDT should consider that, as an alternative to a reliability standard, these provisions for collecting and providing data could be made in NERC's Rules of Procedure. As the Commission recognized in Order No. 693 paragraph 1550 approving PRC-018-1, "the procedures specified in PRC-002-1 will be provided pursuant to the data gathering provisions of the ERO's Rules of Procedure and the Commission's ability to obtain information pursuant to section 215 of the FPA and Part 39 of the Commission's regulations".There is precedent for handling this type of data collection activity in the Rules of Procedure. Reliability standards TPL-005-0 and TPL-006-0 likewise dealt with Regional Entity reliability assessments and data to be provided to NERC. In NERC's Oct. 19, 2011 Petition in Docket No. RM12-1 to approve TPL-001-2, NERC requested to withdraw the two pending Reliability Standards: TPL-005-0 "Regional and Interregional Self-Assessment Reliability Reports", and TPL-006-0.1 "Data From the Regional Reliability Organization Needed to Assess Reliability". NERC stated that the requirements from these two Reliability Standards not approved in FERC Order No. 693 have been moved to Sections 803 and 804 of the NERC Rules of Procedure.
Response: The SDT thanks you for your comment.		
MISO	No	We don't agree with the need as proposed. There could be a general requirement for providing DME data for events analysis and modeling purposes. We would suggest the SDT investigate the ability to put this in the Rules of Procedure or as a standing Section 1600 data request as opposed to a standard.
Response: The SDT thanks you for your comment.		
Madison Gas and Electric Company	No	
Dominion Resources Services,	No	

Organization	Yes or No	Question 3 Comment
Inc.		
Ameren	Yes	(1) The SERC Regional Criteria has worked well for SERC and its members. Please consider it as input to your PRC-002-2 development. Each region's present criteria are valid input to the standard. As you are aware the BES topology varies considerably depending on load density, so regional variance and even intra-region differences should be considered.
Response: The SDT thanks you for your comment.		
american Transmission Company, LLC	Yes	ATC believes the standard is necessary to insure consistency of data across the North American Grid.
Response: The SDT thanks you for your comment.		
City of Austin dba Austin Energy	Yes	Austin Energy (AE) supports a standard that increases clarity, especially regarding responsibilities.
Response: The SDT thanks you for your comment.		
Idaho Power Company	Yes	Consistent requirements should assist and facilitate entities with post fault analysis for wide area disturbances and monitoring practices.
Response: The SDT thanks you for your comment.		
FirstEnergy Corp	Yes	FE supports NERC's project to develop a continent-wide standard for disturbance monitoring equipment (DME). Installations of DME devices provide valuable insight for post-event analysis and diagnostics. The DME standard must allow for efficient use of equipment sharing for a TO/GO interface location and not force each owner to separately maintain its own equipment. Additionally, an appropriate balance of required locations must be considered in the reliability cost-benefit.

Organization	Yes or No	Question 3 Comment
Response: The SDT thanks you for your comment.		
Entergy Services, Inc.	Yes	However, the SAR is not clear in that it is not clearly define what “power system” data needs to be collected and why it is important for post event analyses and verification of system models. The specific “Power system” data that would be beneficial needs to be listed along with a justification why the collection of this data is important for improving the reliability of the Bulk Electrical System (BES).
Response: The SDT thanks you for your comment.		
Hydro QuÃ©bec TransÃ‰nergie	Yes	Hydro-QuÃ©bec TransÃ‰nergie supports this initiative as it will bring clarity and consistency in the industry regarding disturbance monitoring while decreasing the number of standards on this topic.
Response: The SDT thanks you for your comment.		
Ingleside Cogeneration LP	Yes	ICLP sees this project as an opportunity to correct Issues with PRC-018-1 which we believe serves no reliability purpose. In particular, the existing requirements to perform regular DME maintenance are unnecessarily burdensome - as data recorders are not directly tied to BES real time reliability. We have no problem performing the maintenance, but the record keeping - and the zero compliance approach in the intervals is excessive for a data gathering function.
Response: The SDT thanks you for your comment.		
Independent Electricity System Operator	Yes	Once the standard becomes effective, it will provide similar continent wide conditions for capturing data needed in analyzing various power system disturbances and validating some of the models used in planning or operational studies.
Response: The SDT thanks you for your comment.		

Organization	Yes or No	Question 3 Comment
Essential Power, LLC	Yes	Previously proposed Disturbance Monitoring standards were often vague on who was responsible for requirements and it was difficult for entities to determine exactly the scope of the standard. We see the benefit of this project and encourage the standard SDT to avoid repeating the mistakes of the past.
Response: The SDT thanks you for your comment.		
LG&E and KU Services	Yes	Previously proposed Disturbance Monitoring standards were often vague on who was responsible for requirements, and it was difficult for entities to determine exactly the scope of the standard. We see the benefit of this project and encourage the standard SDT to avoid repeating the mistakes of the past.
Response: The SDT thanks you for your comment.		
ReliabilityFirst	Yes	ReliabilityFirst believes there is definitely a need for this standard. ReliabilityFirst offers the following reasons in support of this standard's development. This proposed standard will improve system reliability by providing personnel with necessary data to enable the industry to more effectively analyze system events that affect the Bulk Electric System and Bulk Power System. The new version of the standard will remove the "fill-in-the-blank" requirements currently assigned to the Regional Reliability Organization within the current PRC-018-1 and PRC-002-1 standards. And finally, with the events data system models can be reviewed and verified for better accuracy. Each of which will enhance overall system reliability.
Response: The SDT thanks you for your comment.		
ITC	Yes	The post 2003 blackout recommendations included the need for synchronized recording devices in power plants and substations to aid in the analysis of wide area events. The industry is faced with a conflict where PRC-002-1 is a fill in the blank standard, thus not FERC approved, but PRC-018-1 is FERC approved. Combining PRC-018-1 into the new PRC-002-2 which will be a continent wide standard is the only

Organization	Yes or No	Question 3 Comment
		way to correct this issue.
Response: The SDT thanks you for your comment.		
South Carolina Electric and Gas	Yes	The standard is needed in order to ensure that sufficient information is collected during a system disturbance to properly evaluate and simulate the disturbance.
Response: The SDT thanks you for your comment.		
Southwest Power Pool	Yes	Utilizing a standard ensures consistency in establishing the requirements for DME across North America. Perhaps some consideration could be given to letting the standard provide overview or generic requirements associated with DME but then the details be provided in a guideline or best practices document. However, given this there may then be a tendency for the regions to add additional details in regional standards which are more in-depth than the NERC standard.
Response: The SDT thanks you for your comment.		
Kansas City Power & Light	Yes	Utilizing a standard ensures consistency in establishing the requirements for DME across North America. Perhaps some consideration could be given to letting the standard provide overview or generic requirements associated with DME but then the details be provided in a guideline or best practices document. However, given this there may then be a tendency for the regions to add additional details in regional standards which are more in-depth than the NERC standard.
Response: The SDT thanks you for your comment.		
Pepco Holdings Inc.	Yes	When determining the selection criteria for where this equipment is to be located, the SDT should be mindful of the significant dollars and resources already expended over the last several years to add DME equipment to specific sites specified by the Regional Reliability Organizations in accordance with PRC-002.

Organization	Yes or No	Question 3 Comment
Response: The SDT thanks you for your comment.		
Exeln and its affiliates	Yes	Yes, however, this standard should be very low burden as a good argument could also be made that a standard is not needed at all. Since the 2003 Blackout, the proliferation of microprocessor relays with ever increasing oscillographic recording and sequence of event recording capabilities has increased the amount of data available to a high level and this increase will continue over time with or without a standard. Many entities, including ComEd, include GPS Satellite clocks in the standard design of their transmission relay schemes, etc. Many entities are voluntarily installing equipment that records and stores synchrophasor data on important generator connections and circuits. This is evidenced by comments by NERC related to investigations of more recent disturbances versus disturbances in the past. We recommend that the only things that need to be in a standard for disturbance monitoring equipment is that a simple list of fault recording equipment needs to be kept, whatever type is used (i.e. relay type (e.g. SEL321), DFR type). Also, a list of long term disturbance monitoring equipment needs to be kept, whatever type is used (long term disturbance monitors or stored phasor data) including that the equipment is connected to a GPS Satellite clocks. Additionally, the standard could require continuous recording for any long term disturbance monitoring, although this is already industry standard, with data retention at least a certain time (e.g. 10 days) and connection of all new monitoring equipment to a GPS Satellite clock. Anything else is just a significant record keeping burden that ComEd does not believe adds anything to reliability and therefore is not justifiable. With modern equipment it is not necessary for NERC to specify things like sample rates, tolerance/accuracy of GPS clocks, etc.
Response: The SDT thanks you for your comment.		
Transmission Reliability Engineering and Controls	Yes	You cannot manage what you do not measure. Much of the data required by this SAR will give utilities better insight into their BES areas.

Organization	Yes or No	Question 3 Comment
Response: The SDT thanks you for your comment.		
Western Area Power Administraton - Upper Great Plains Region	Yes	
Puget Sound Energy	Yes	
Bill Middaugh	Yes	
PacifiCorp	Yes	
Wisconsin Electric Power Company	Yes	
Gustavo Brunello	Yes	
Northeast Utilities	Yes	
Nebraska Public Power District	Yes	
American Electric Power	Yes	
Public Service Enterprise Group	Yes	
Consolidated Edison Co. of NY, Inc.	Yes	

4. If you do not believe a standard is needed - what other method could be used to achieve the results stated in the revised SAR.

Summary Consideration:

The SDT appreciates all comments provided and alternatives that have been suggested. The team responds to the common themes in the comments, as follows.

1. The end deliverable of the SAR will be the development of revised NERC standard PRC-002-2. Reasons for this include:

- Some commenters suggested that the standard's purpose could be achieved on a non-mandatory basis, potentially assisted by guidelines or education. The SDT notes that, at the time of the 2003 Northeast Blackout, NERC Planning Committee Standards/Guidelines were in place. Each of the then-10 RROs also had DME requirements for their then-voluntary members to follow. However, the blackout investigations found inadequate DME implemented or operational, with the result that their final reports included the recommendations that are driving the present NERC development effort of PRC-002-2 as a mandatory and enforceable reliability standard.
- Some commenters suggest achieving PRC-002-2's purpose through the NERC RoPs. The SDT notes that:

  If RoP changes are needed, they will be made using the ROP change process (RoP Section 1400), versus the Standard Development Process. The SDT believes the Standard Development Process provides registered entities more influence and control of the development of the reliability requirements that they may become subject to.

  If the RoPs are not changed, data requests will be under RoP Section 1600. A lot more time and process will be required to issue requests per Section 1600 compared to the 10 days request period proposed in PRC-002-2. This may lead to longer recorded data retention periods for registered entities.

  Nothing in current NERC reliability standards or the RoPs compels a registered entity to collect or retain the SOER, FR or DDR data sought by PRC-002-2. RoP Section 1600 can be used to compel an entity to provide data, but only if they already have it or have the means to get it. If an entity did not have SOE, FR or DDR at the time of a system incident or disturbance, the present NERC reliability standards and RoPs could not be used to hold the entity liable for not having the data because they lacked means to record it at the time. Nor could they compel the entity to acquire the means for a potential future incident/disturbance. Inadequate bodies of data to do event analyses could again result.

  RoP violations are enforceable, in the US, only by FERC, versus by Regions or NERC via the ERO CMEP.

If the purpose of PRC-002-2 was to be implemented through the RoPs the SDT anticipates that ROP changes would be required. Also, to effectively meet PRC-002-2's purpose the ROPs would have to somehow implement the same or similar requirements to those that would be in PRC-002-2 as a reliability standard. Compliance would be enforced by FERC. The SDT believes that the purpose of PRC-002-2 should be achieved via development as per the Standards Process Manual, followed by implementation, execution, and compliance monitoring and enforcement of PRC-002-2 as a NERC reliability standard.

2. The SDT anticipates limited ways in which PRC-002-2 could be enforced as a "zero-defect" standard.

- An entity that inadequately implements SOER, FR, or DDR to meet the locational requirements and the (approved) standard implementation plan.
- An entity's data submittal does not meet requirements; e.g.: data synchronization to UTC (+/- 2 ms); timeliness (30 days); data required (currents, voltages, etc).

An entity is not otherwise in violation of the standard in other circumstances. For example, finding DME recording facilities with time synch out more than +/- 2 ms of UTC is not a violation; a violation is only incurred if data is reported with time synch out more than +/- 2 ms of UTC. Also, the DMSDT is not planning to include maintenance requirements from PRC-002-2.

3. When completed, PRC-002-2 will lay out the requirements for SOER, FR and DDR data needed from registered entities. By following the Standard Development Process, this data will be the minimum that industry and other stakeholders accept as required in order to facilitate the event analyses indicated in the standard's Purpose. The SDT does not agree with "grandfathering" of existing facilities that would be inadequate for an entity to meet the reporting obligations it will have under PRC-002-2.

Organization	Yes or No	Question 4 Comment
City of Tallahassee	No	TAL believes voluntary efforts on the part of each entity could be used to provide disturbance monitoring, or an alternative is to leave it up to each region to decide what is needed.
Response: The SDT thanks you for your comment.		
City of Tallahassee	No	TAL believes voluntary efforts on the part of each entity could be used to provide disturbance monitoring, or an alternative is to leave it up to each region to decide

Organization	Yes or No	Question 4 Comment
		what is needed.
Response: The SDT thanks you for your comment.		
City of Tallahassee	No	TAL believes voluntary efforts on the part of each entity could be used to provide disturbance monitoring, or an alternative is to leave it up to each region to decide what is needed.
Response: The SDT thanks you for your comment.		
ACES	No	We believe a guideline that supports the existing events analysis process along with a significant industry educational outreach explaining the benefits of collecting the data would yield better results. Registered entities will pursue projects with reliability benefits if the benefits clearly exist and are well understood. Unfortunately, this standard has the potential to become a zero defect standard that provides little reliability benefit. For example, we can see the proposed synchronization requirement PRC-002 R12 becoming a zero defect requirement that provides little value with paper compliance violations similar to those experienced with PRC-005. Registered entities will be forced to prove they have synchronized equipment because these kinds of maintenance records are easy to misplace and will likely lead to violations of the requirement. Even if they can show the equipment is currently within tolerances, they will have no paperwork showing they synchronized it and will still be in violation even though the end result, synchronized equipment, is the desired result.
Response: The SDT thanks you for your comment.		
PacifiCorp	No	
Dominion Resources Services, Inc.	Yes	Dominion believes the NERC Rules of Procedure can be amended to facilitate analysis of disturbances.

Organization	Yes or No	Question 4 Comment
Response: The SDT thanks you for your comment.		
Southern Company Operations Compliance	Yes	If the information is needed to verify system models, those entities that create and use the models should make the investment to install equipment needed for those studies.
Response: The SDT thanks you for your comment.		
Madison Gas and Electric Company	Yes	The cost associated with a 20% bus implementation could be great for both large and small entities (even though the NSRF believes this is being discussed within the SDT). Perhaps NERC should capture what is currently installed within each interconnection as a starting point prior to new installs or relocation of current devices. The Standard should have a foot note (as in PRC-024-1, foot note 1) that states applicable entities are not required to have DME installed or activated on their assets, or words to that effect. This will allow applicable entities to follow the direction of their RC or PC in where they should place DMEs. It will also allow applicable entities understand the importance of installing DMEs and allow the future budgeting of DME’s.
Response: The SDT thanks you for your comment.		
Northeast Power Coordinating Council	Yes	We are in favor of having disturbance monitoring equipment (DM) data capture with common capabilities in the field, but we have concerns with the SAR’s approach. There could be a general requirement for providing DME data for events analysis and modeling purposes that could be put in the Rules of Procedure as opposed to a standard. We would recommend that the NERC Planning Committee develop a common specification and approach to be used for all North America. If the goal of PRC-002 is to enable a data stream for modeling and disturbance analysis, there should be a single standard for provision of such data or a provision included in the Rules of Procedure.

Organization	Yes or No	Question 4 Comment
Response: The SDT thanks you for your comment.		
Duke Energy	Yes	We do not believe a standard is necessary to accomplish the stated goal. This data collection activity could be handled with appropriate revisions to NERC's Rules of Procedure.
Response: The SDT thanks you for your comment.		
Independent Electricity System Operator	Yes	
Gustavo Brunello	Yes	
Northeast Utilities	Yes	
CenterPoint Energy Houston Electric, LLC		CenterPoint Energy believes there are already regional requirements in place in ERCOT that address many of the items identified in the draft SAR, namely fault and sequence of events data. For example, ERCOT Nodal Operating Guide requirements presently specify the following disturbance monitoring equipment requirements: o Equipment types o Triggering requirements o Location requirements o Data recording requirements o Data retention/reporting requirements (format, elements reported, three-year retention period) o Maintenance requirements o Annual equipment reporting o Review process for DME equipment locationAdditionally, PRC-018-1 already requires entities to follow RRO requirements, and it includes requirements for: o Time sync and data availability o Maintenance program o Data retentionFERC and NERC prepared a report dated April 2012 for the Arizona-Southern California outages of September 2011 indicating that disturbance monitoring data was available in this region for facilitating a quick turnaround of a complex event analysis. Similarly, FERC and NERC prepared a report dated August 2011 for the Southwest cold weather event of February 2011. Furthermore, PRC-004 requires analysis and mitigation of transmission protection system

Organization	Yes or No	Question 4 Comment
		misoperations. Event data assists Entities in recreating the sequence of events needed for cause analysis and mitigation development; therefore, Entities already have un-written requirements to install sufficient recorders to meet PRC-004.
Response: The SDT thanks you for your comment.		
Southwest Power Pool		One way to minimize the oversight of the specification would be for the PC to take an active role is developing the requirements in either the guideline or best practices document which would serve as the source for this type of information.
Response: The SDT thanks you for your comment.		
MISO		We are in favor of having disturbance monitoring equipment (DME) with common capabilities in the field, but we have concerns with the SAR's approach. The SAR proposes to fix a "fill in the blank" problem (where each Region has a specification for DME and a process to collect information) by handing off the responsibility to the Planning Coordinator and Reliability Coordinator. This will exacerbate the problem in that there are more Planning Coordinators (80 according to the NERC Registry) than there are Regions and there is no direct alignment or mapping of transmission owners, transmission planners, generator owners and their respective Planning Coordinator (if they even have one). This will increase the balkanization and add gaps.We would recommend that the NERC Planning Committee develop a common specification and approach to be used for all North America. If the goal of PRC-002 is to enable a data stream for modeling and disturbance analysis, there should be a single standard for provision of such data or a provision included in the Rules of Procedure or a standing Section 1600 data request.

5. If you have any other comments on this SAR that you haven't already mentioned above, please provide them here:

Summary Consideration:

The SDT appreciates the comments and has the provided summary responses below:

- *How will the Planning Coordinators and Reliability Coordinators fulfill their obligation?* The PC's and RC's have mandate, experience, and expertise related to assuring reliability of wide areas of the BES. The SDT believes the PC and RC have the wide area perspective necessary to determine BES locations where collection of DDR data would be of the most value for wide area disturbance analysis. *Concern was noted for using MVA short circuit levels for determining DDR locations.* The current draft of PRC-002-2 proposes a short circuit MVA criteria for determination of Sequence of Events and Fault Recording locations not DDR locations.

- *What are the details on the methodology for determining DM locations?* The details for determining the DM recording locations will be included in the standard itself. The details for describing the methodology go beyond the scope of the SAR.

- *How will duplication for DM data collection for GO and TO responsibilities be handled?* The methodology for determining the DM recording location will be designed to avoid the collection of duplicate data.

- *What will happen to Regional Disturbance Monitoring standards?* Regional standards are not in the scope of the SDT. Currently, NPCC is the only region with a FERC approved regional disturbance monitoring standard. The region will decide the status of its Regional Disturbance Monitoring standard.

- *The determination method might be more suitable if it used the FERC 754 data request bus determination method. The FERC 754 method identifies the more strategic elements in the BES.* The FERC Order 754 method refers to the specific steps for the collection of data for the identification of "the buses at which a protection system single point of failure could result in an adverse impact to reliability of the bulk power system." (Quote from NERC's Request for Data or Information Order No. 754 Single Point of Failure on Protection Systems, August 16, 2012, page 7). To ensure complete BES coverage for fault recording, the bus selection screening method to be used has to be more encompassing. The method used will ensure the capturing of BES system wide data.

- *A comment was made concerning grandfathering of the existing equipment.* The team has discussed the option of grandfathering the existing DM equipment that does not meet data quality requirements of the Standard and determined such option would not be justified. The Standard will be applicable to a limited number of locations critical to BES reliability where the specified data quality will be required. Nonetheless, in recognition of the fact that certain existing DME devices with limited capabilities would still provide acceptable data for Disturbance Analysis, the SDT added clauses with relaxed requirements for FR and DDR data quality.

- *Will there be a cost/benefit evaluation, economic impact of the standard?* The NERC Standards Committee has approved the use of a Cost Effectiveness Analysis Process (CEAP) trial application for this project of the Cost Effectiveness Analysis Process (CEAP).

- *Several questions were requirements on equipment maintenance*. The SDT is not planning to specify maintenance requirements.

Organization	Question 5 Comment
Nebraska Public Power District	I have concerns that at stations that have recording equipment already in place that they may not meet the data capabilities required. This may be a significant # of locations for some TOs. Will there be a way to grandfather in existing locations that will be specified in the standard? Some of the statements from the webinar were to use the fault study and then select 20% of buses using the MVA criteria. This kind of analysis seems straight forward but can create complexity with how it is audited by enforcement in order to prove that 20% was achieved. In general does the SDT consider how the standard may be audited? Some aspects of the standard may be difficult to audit so one recommendation is to try and consider if there will be difficulties with auditing as requirements are written.I think that if protective relays are acceptable for performing certain DME functions at certain locations they should not have a maintenance requirement under PRC-002 if they are maintained under PRC-005. The SDT may already agree with this but if not please take this under consideration. PRC-005 is a stringent standard that already aims to make sure relaying is operable for protection which is more critical to the BES then data recording in comparison and it has much longer intervals than quarterly.Many relays could meet the 50 cycles recording length but they are not perfect devices. If a relay does not capture at least 2 cycles of pre trigger and 50 cycles of a fault lasting longer than 50 cycles is this a compliance violation? This requirement is logical but I have concern about compliance and overwriting relay data with extending record length.The need for monitoring tie lines needs to be clear. From the webinar it may not have been.

Organization	Question 5 Comment
Response: The SDT thanks you for your comment.	
Manitoba Hydro	(1) General - de-capitalize the word “standard” throughout the SAR. Alternatively, replace the word “standard” with the words “Reliability Standard”. (2) Need - add a “-” between the words bulk power for consistency with other instances of these words. (3) Objectives and/or Potential Future Metrics - rewrite “BES” as Bulk Electric System (BES) because it is the first instance of these words in the SAR. Also, for clarity, consider adding the words “North American” before Bulk Electric System. (4) Detailed Description - replace Bulk Electric System with its acronym “BES”. (5) General - de-capitalize all instances of “Requirements” because it is not defined in the NERC Glossary of Terms. (6) Detailed Description - capitalize the words “SDT” in the last paragraph in this section for consistency with the rest of the document. (7) OPTIONAL: Technical Analysis Performed to Support Justification - for clarity, “continent” should be referred to as “North American continent”.
Response: The SDT thanks you for your comment.	
Ameren	(1) At present, our Planning Coordinator (MISO) is nearing completion on a 3-year project to install Phasor Measurement Units (PMUs) across the MISO controlled transmission system. These PMUs fall into the category of Dynamic Disturbance Recording (DDR) equipment. It is expected across the industry that this type of equipment will be useful in determining the details of system disturbances. (2) According to the Detailed Description of the SAR, on page 3, “The Planning Coordinators and Reliability Coordinators will be responsible for specifying locations requiring Dynamic Disturbance data.” We request clarification on how the Planning Coordinator and Reliability Coordinator will be able to fulfill their obligations of locating this monitoring equipment.(3) In addition, we have concerns that revisions to PRC-002, depending on the specifics of the requirements, could be burdensome to Transmission and Generator Owners who may find they have a vastly increased deployment of this type monitoring equipment in order to be compliant.

Organization	Question 5 Comment
Response: The SDT thanks you for your comment.	
Essential Power, LLC	1. The PRC-002/018 SDT should keep cost justification in mind, especially as regards TO-vs-GO duplication of DME. This project should be included in the CEAP Pilot Program.2. We have been installing this equipment in accordance with our RRO's requirements, but it seems unlikely that anyone will ever ask for data, since the TO has DME on their side of the fence at each plant. The role of GO-collected data in Disturbance analysis may be minimal to nonexistent, in which case it would make sense to require GO's to have DME only under very limited circumstances.3.The revised PRC-002/018 standard should also define the target settings required. The NERC Glossary definition of a Disturbance is of no use, and the criteria in Att. 2 of EOP-004 are written solely for the use of TOs.
Response: The SDT thanks you for your comment.	
LG&E and KU Services	1. The PRC-002-1/PRC-018 SDT should keep cost justification in mind, especially as regards TO-vs-GO duplication of DME. We have been installing this equipment in accordance with our RRO's requirements. However, based on our experience, because TOs have DME on their side of the fence at each plant, the role of GO-collected data in Disturbance analysis may be minimal to nonexistent. Therefore, GOs should be required to have DME only if the applicable TO determines GO DME is necessary.2. This standard may prove difficult for GOs to comply with in terms of disturbance data retrieval because it is dependent upon being aware that a disturbance is occurring somewhere on the transmission system. The GO is not the primary responsible entity for detecting and reporting a disturbance on the BES. On occasion, there may be information about a disturbance that is available to a TO and may not be available to the GO/GOP, therefore, the GO/GOP should not held accountable for the analysis of the disturbance. It should be clear in the standard that the GO/GOP is accountable only for information that is available to them at the time of the disturbance.The revised PRC-002-1/PRC-018-1 standard should also define

Organization	Question 5 Comment
	the target settings for DME.
Response: The SDT thanks you for your comment.	
Hydro QuÃ©bec TransÃ‰nergie	A sentence should be added in the "Need" section to indicate that the Standard SDT will review the need for having a regional Disturbance Monitoring standard (PRC-002-NPCC-01).The location where disturbance monitoring devices will be required must be clearly identified by the SDT using clear equipment description (generating station, unit, bus, lines, transformers...) and clear MVA and/or kV thresholds.In reference to the fourth paragraph of the "Detailed Description" section, consideration should be taken in scenarios where the physical location of the disturbance monitoring equipment is shared between the Generator Operator and the Transmission Operator. Addressing this scenario would prevent duplication of equipment at nearby locations or at the same location.
Response: The SDT thanks you for your comment.	
Northeast Power Coordinating Council	A thoughtful approach must be considered to the possibility of fill-in-the-blank requirements in the standards that apply to the Regional Reliability Organization. Many of these things are no longer done and should be removed from the standards. Some are procedural processes that need not be in the standards, but rather enforced through regional agreements. A few of the items should be codified in the Rules of Procedure. Three phase bolted short circuit MVA thresholds don't appear as appropriate criteria to determine the locations needed to record sufficient power system data for Dynamic Disturbances as stated in SAR (Technical Analysis Performed to Support Justification). Instead of three phase short circuit thresholds, the Planning Coordinator (PC) / Reliability Coordinator (RC) should consider other criteria such as large generation stations with a combined capability above a certain MW level, major load centers, regional and interregional transmission interfaces (flow gates), substations with large tap-changing and phase-shifting transformers, key substations in major load centers. Only Principle number 7 applies. The proposed standard

Organization	Question 5 Comment
	purpose is to collect information to facilitate analysis of a BES disturbance. DDR/DFR do not control, operate, or monitor the BES system. Compliance to this Standard may require Owners to install new equipment. The Implementation Plan when developed should consider the need to budget, engineer, procure and install new DME. Referring to the fourth paragraph of the Detailed Description, it is not appropriate to assign the responsibility of the functional entities. Recommend the fourth paragraph be changed as follows: It is envisioned that the Transmission Owners and Generator Owners will be responsible for the bulk of the Requirements in this Standard and that the Planning Coordinators or Reliability Coordinators will be responsible for specifying locations requiring Dynamic Disturbance data. A sentence should be added in the "Need" section to indicate that the Standard SDT will review the need for having a regional Disturbance Monitoring standard (PRC-002-NPCC-01). The location where disturbance monitoring devices will be required must be clearly identified by the SDT using clear equipment description (generating station, unit, bus, lines, transformers…) and clear MVA and/or kV thresholds. In reference to the fourth paragraph of the "Detailed Description" section, consideration should be taken in scenarios where the physical location of the disturbance monitoring equipment is shared between the Generator Operator and the Transmission Operator. Addressing this scenario would prevent duplication of equipment at nearby locations or at the same location.
Response: The SDT thanks you for your comment.	
american Transmission Company, LLC	ATC supports the objective to not specify the required technology.
Response: The SDT thanks you for your comment.	
City of Austin dba Austin Energy	Austin Energy (AE) supports revision of the Disturbance Monitoring standards to close out some “fill-in-the-blank” issues.
Response: The SDT thanks you for your comment.	

Organization	Question 5 Comment
CenterPoint Energy Houston Electric, LLC	CenterPoint Energy believes existing requirements in PRC-018-1 should be reviewed by the team for inclusion in Phase 2 of the Paragraph 81 project, for example, requirements R3 and R5. The VRF for each requirement is “Lower” and the requirements have not been identified as Tier 1, 2, or 3 in the 2013 Actively Monitored List. Furthermore, PRC-018-1 is not a performance-based standard but rather a standard for analytical purposes. This information can be gathered through other existing means, such as NERC Section 400 of the NERC Rules of Procedure.
Response: The SDT thanks you for your comment.	
FirstEnergy Corp	FE is wondering why the reference to a Regional standard is being implied as a relatedstandard in the development of a NERC standard? It is our understanding that the team will begin its work from the draft PRC-002-2 that was started during an informal project development stage. While products from Regional Entity organizations (NPCC, RFC, etc) may be useful for the team's reference, this NERC SDT should not be editing/revising a Regional Entity standard. We suggest the SAR reference to "PRC-002-NPCC-01... Redundant requirements to be removed from this Standard" as found on the top of page 6 be deleted from the SAR. Additionally the "Related Standards" table should be further edited to insert a row for PRC-002-1 with an explanation of "Revise to create PRC-002-2" and edit the explanation statement on PRC-018-1 to say "..after PRC-002-2 approved" for version clarity.
City of Tallahassee	no comment
City of Tallahassee	No comment
Bill Middaugh	No other comments.
Tacoma Power	Tacoma Power appreciates this opportunity to provide comments.
Transmission Reliability Engineering and	The determination method might be more suitable if it used the FERC 754 data

Organization	Question 5 Comment
Controls	request bus determination method. The FERC 754 method identifies the more strategic elements in the BES.
Response: The SDT thanks you for your comment.	
Exeln and its affiliates	The Exelon business units have been using the RFC criteria PRC-002 and have spent time and money to implement the methodology for capturing and reporting data to align with the RFC criteria. The concern is that there are intentions to move away from the Regional Criteria which would cause a reevaluation and possible rework to the methodology currently used.
Response: The SDT thanks you for your comment.	
Public Service Enterprise Group	The need for this standard is driven by recommendations 12A and 12B in the NERC and US-Canada reports on the August 2003 Blackout. The recommendations were made with and in the context of the SOE record produced for and included in the reports. The standard produced via this SAR must improve but be limited to the ability to produce SOE records like those provided in the NERC and US-Canada reports. The standard must be careful not to overshoot with, for instance, requirements designed to acquire data beyond that needed to do SOE records to the extent and granularity included in the NERC and US-Canada blackout reports, which will happen if the standard requires too much data from too many sources (e.g. extensive and unnecessary SOE or FR from small generators or switching stations.
Response: The SDT thanks you for your comment.	
American Electric Power	The proposed standards developed in earlier phases of this project were often vague on stating specifically who was responsible for the requirements. In addition, it was often difficult for entities to determine which devices were in or out of scope. AEP supports the work of this project team, and would encourage them to avoid those earlier missteps as they develop and propose future revisions.

Organization	Question 5 Comment
Response: The SDT thanks you for your comment.	
Entergy Services, Inc.	The purpose section is totally deleted, so the SAR does not contain a proper purpose. The Detailed Description is not clear as to what are the objectives of the standard. Information provided are items that need to be considered when drafting the standard, however there are no clear details as to what objectives are (and their basis) nor the equipment that should be within the scope of the standard (e.g., generating unit size, line voltage, etc.). The SAR is not clear the use of the vague term "power system" in the brief description is unclear. Does "power system" imply the Bulk Power System, Bulk Electric System, or generating equipment?
Response: The SDT thanks you for your comment.	
Wisconsin Electric Power Company	The requirement for generator Dynamic Disturbance Recording (DDR) should be reserved for areas having critical density of generation or load, or for generation near critical flowgates, or for other areas which are recognized as having potential generator stability issues. It should not simply be applied to all generators above a given size. Also for generators, the requirement for DDR should be able to be sufficiently satisfied by using data from plant Distributed Control Systems (DCS).
Response: The SDT thanks you for your comment.	
Independent Electricity System Operator	We advise the SDT to be mindful of the varied system characteristics among different regions and areas. Hence, the standards should not stipulate a one-size fit all type of installation requirements - may that be locational, geographical or voltage based. The locations for installing DMEs, especially the dynamic disturbance recorders, need to consider the relevance, value and type of the recorded data that can contribute to accomplishing the purpose of having useful information for event analysis.
Response: The SDT thanks you for your comment.	

Organization	Question 5 Comment
MISO	We recommend a thoughtful approach to the disposition of requirements in the standards that apply to the Regional Reliability Organization. Many of these things are no longer done and should be removed from the standards. Some are procedural processes that need not be in the standards, but rather enforced through regional agreements. A few of the items should be codified in the Rules of Procedure. If some of requirements have been taken over by Reliability Coordinators, the applicable function in the standard should change. Finally, NERC needs to address who is the Planning Coordinator in an area where none is defined. We also need to realize that if the goal is to eliminate a "fill in the blank" issue, the solution is not to just move the blanks.
Response: The SDT thanks you for your comment.	
Northeast Utilities	We think it is not appropriate to assign under the Detailed Description the responsibility of the functional entities. We recommend the fourth paragraph be changed as follows: "It is envisioned that the Transmission Owners and Generator Owners will be responsible for the bulk of the Requirements in this Standard and that the Planning Coordinators or Reliability Coordinators will be responsible for specifying locations requiring Dynamic Disturbance data."
Response: The SDT thanks you for your comment.	
Consolidated Edison Co. of NY, Inc.	We think it is not appropriate to assign under the Detailed Description the responsibility of the functional entities. We recommend the fourth paragraph be changed as follows: "It is envisioned that the Transmission Owners and Generator Owners will be responsible for the bulk of the Requirements in this Standard and that the Planning Coordinators or Reliability Coordinators will be responsible for specifying locations requiring Dynamic Disturbance data."
Response: The SDT thanks you for your comment.	

Organization	Question 5 Comment
Kansas City Power & Light	We would suggest that the SDT give consideration to grandfathering existing Disturbance Monitoring Equipment installations in the new standard. Several entities have invested significant funds in this equipment and some sort of consideration for this equipment is definitely well deserved.The standard needs to clearly specify that any maintenance plans for relays associated with Disturbance Monitoring Equipment would be covered in PRC-005 rather than in PRC-002. Stand-alone Disturbance Monitoring Equipment would be covered in PRC-002. There was additional information that was made available during the webinar held on May 22, 2013 which was beneficial to understanding just where the standard is going. It would have been helpful for all if that information could have been made available earlier in the comment period.
Response: The SDT thanks you for your comment.	
Southwest Power Pool	We would suggest that the SDT give consideration to grandfathering existing DME installations in the new standard. Several entities have invested significant funds in this equipment and some sort of consideration for this equipment is definitely well deserved.The standard needs to clearly specify that any maintenance plans for relays associated with DME would be covered in PRC-005 rather than in PRC-002. Stand-alone DME would be covered in PRC-002.There was additional information that was made available during the webinar held on May 22, 2013 which was beneficial to understanding just where the standard is going. It would have been helpful for all if that information could have been made available earlier in the comment period, especially for those who could not participate in the webinar.
Response: The SDT thanks you for your comment.	
Gustavo Brunello	what is the difference between "Disturbance" and "Event" in the following 2 clauses:R13. Each Transmission Owner and Generator Owner shall have all recorded Sequence of Event, Fault Recording, and DDR data available (locally or remotely) for 10 calendar days after a DisturbanceD_Compliance_ 1.3.1 Each Transmission Owner

Organization	Question 5 Comment
	and Generator Owner shall retain all data provided to the Regional Entity, Reliability Coordinator or NERC for at least three years following the event.
Response: The SDT thanks you for your comment.	

END OF REPORT