

**Individual or group. (44 Responses)**  
**Name (26 Responses)**  
**Organization (26 Responses)**  
**Group Name (18 Responses)**  
**Lead Contact (18 Responses)**

**IF YOU WISH TO EXPRESS SUPPORT FOR ANOTHER ENTITY'S COMMENTS WITHOUT ENTERING ANY ADDITIONAL COMMENTS, YOU MAY DO SO HERE. (1 Responses)**

**Comments (44 Responses)**  
**Question 1 (42 Responses)**  
**Question 1 Comments (43 Responses)**  
**Question 2 (38 Responses)**  
**Question 2 Comments (43 Responses)**  
**Question 3 (41 Responses)**  
**Question 3 Comments (43 Responses)**  
**Question 4 (13 Responses)**  
**Question 4 Comments (43 Responses)**  
**Question 5 (0 Responses)**  
**Question 5 Comments (43 Responses)**

Group
test
test
Agree
Group
Northeast Power Coordinating Council
Guy Zito
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. 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 Drafting Team will establish the requirements for capturing BES disturbance data to enable effective post event analysis following a BES disturbance. The Standard Drafting Team (SDT)

will review PRC-002 and any NERC approved Regional Disturbance Monitoring Standard.

Yes

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.

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.

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 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 Drafting Team 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.

Group

Operational Compliance

Ed Croft

Yes

Yes

Yes

Individual

Michael Moltane

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 way to correct this issue.

Individual

Michael Falvo

Independent Electricity System Operator

Yes

Yes
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.
Yes
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.
Group
Pepco Holdings Inc. & Affiliates
David Thorne
Yes
Yes
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.
Individual
Dale Fredrickson
Wisconsin Electric Power Company
Yes
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.

Yes
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).
Individual
Anthony Jablonski
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.
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.
Individual
Gustavo Brunello
Gustavo Brunello
Yes
Yes
Yes

Yes
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 Disturbance D_Compliance_ 1.3.1 Each Transmission Owner and Generator Owner shall retain all data provided to the Regional Entity, Reliability Coordinator or NERC for at least three years following the event.
Individual
Nazra Gladu
Manitoba Hydro
Yes
Yes
(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 "drafting team" 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".
Individual
Wryan Feil
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 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 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 Drafting Team will establish the requirements for capturing BES disturbance data to enable effective post event analysis following a BES disturbance. The standard drafting team (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 means Adequate means: (lawfully and reasonably sufficient) Sufficient means: (enough to meet the needs of a situation or condition)

Yes

Yes

Yes

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.”

Group

Tri-State Generation & Transmission

Bill Middaugh

Yes

No

We believe that the drafting team 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.

Yes

No other comments.

Individual

Don Schmit
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.
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.
Yes
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 drafting team 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.
Individual



John Bee
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.
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 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.
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.

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.

Individual

RoLynda Shumpert

South Carolina Electric and Gas

Yes

Yes

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.

Group

MRO NERC Standards Review Forum

Joseph DePoorter

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.

Yes

No
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.
Group
PacifiCorp
Ryan Millard
Yes
Yes
Yes
No
Group
North American Generator Forum Standards Review Team
Patrick Brown
Yes
Yes
The SRT believes it may be necessary to add the Distribution Provider depending on what requirements are eventually developed.
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 drafting team to avoid repeating the mistakes of the past.

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.

Individual

Jonathan Meyer

Idaho Power Company

Yes

Yes

Yes

Consistent requirements should assist and facilitate entities with post fault analysis for wide area disturbances and monitoring practices.

Individual

Keith Morissette

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 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.

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.

Tacoma Power appreciates this opportunity to provide comments.

Individual

David Jendras

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.

Yes

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.

(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.

Individual

Michelle R. D'Antuono

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 recorder capabilities.

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 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.

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.

Individual

Thomas Foltz

American Electric Power
Yes
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.
Yes
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.
Group
Dominion
Mike Garton
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."
Yes
No
Yes
Dominion believes the NERC Rules of Procedure can be amended to facilitate analysis of disturbances.
Group
Tennessee Valley Authority
Brandy Spraker
Yes
Yes

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.
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.
Individual
Bill Fowler
City of Tallahassee
Yes
No
TAL believes the same goal could be accomplished by voluntary efforts.
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.
no comment
Individual
Karen Webb
City of Tallahassee
Yes
No
TAL believes the same goal could be accomplished by voluntary efforts.
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.
Group
Western Area Power Administration
Lloyd A. Linke



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.
Yes
Yes
Group
FirstEnergy
Larry Raczkowski
Yes
FirstEnergy (FE) prefers this scope for this SAR as opposed to a more prescriptive method of previous standard, ie, this standard will not specify what equipment must be used to capture this data.
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.
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.
FE is wondering why the reference to a Regional standard is being implied as a related standard 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 drafting team 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.

Individual

John Seelke

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.

Yes

Yes

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).

Individual

Chantal Mazza

Hydro Québec TransÉnergie

Yes

Yes

Yes

Hydro-Québec TransÉnergie 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.

A sentence should be added in the "Need" section to indicate that the Standard Drafting Team 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.

Individual

Andrew Z. Pusztai

American Transmission Company, LLC

Yes

Yes

Yes

ATC believes the standard is necessary to insure consistency of data across the North American Grid.

ATC supports the objective to not specify the required technology.

Group

PPL NERC Registered Affiliates

Brent Ingebrigtsen

Yes

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

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 drafting team to

avoid repeating the mistakes of the past.

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 the target settings for DME.

Group

Duke Energy

Michael Lowman

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.

Yes

However, the Transmission Planner and the Transmission Operator should also be included to work in conjunction with the Reliability Coordinator and the Planning Coordinator to identify locations for collecting Dynamic Disturbance Data.

No

The Standard Drafting Team 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.

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.

Individual

Chris de Graffenried

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 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 Drafting Team will establish the requirements for capturing BES disturbance data to enable effective post event analysis following a BES disturbance. The standard drafting team (SDT) will review PRC-002 and any NERC approved Regional Standard PRC-002.”

Yes

Yes

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.”

Group

ACES Standards Collaborators

Jason Marshall

Yes

We agree that SAR clearly identifies the scope of work to be performed.

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.

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 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 drafting team 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.

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.

Individual

Oliver Burke

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.)

Yes

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).

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?

Individual

Andrew Gallo

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.

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.

Yes

Austin Energy (AE) supports a standard that increases clarity, especially regarding responsibilities.

Austin Energy (AE) supports revision of the Disturbance Monitoring standards to close out some "fill-in-the-blank" issues.

Group

Southern Company: Southern Company Services, Inc.; Alabama Power Company; Georgia Power Company; Gulf Power Company; Mississippi Power Company; Southern Company Generation; Southern Company Generation and Energy Marketing

Pamela R. Hunter

Yes

No

The GO should not be included – see comments under Question 3.

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.

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.

Individual

Scott Langston

City of Tallahassee

Yes



No
TAL believes the same goal could be accomplished by voluntary efforts.
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.
No comment
Group
IRC-SRC
Terry Bilke
No
While we agree that the SAR describes the work the team plans to undertake, we don't agree with the proposed approach.
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?
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 drafting team investigate the ability to put this in the Rules of Procedure or as a standing Section 1600 data request as opposed to a standard.
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.
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.

Individual

Brett Holland

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.

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.

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.

We would suggest that the drafting team 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.

Individual

Daniela Hammons

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.

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.

No

CenterPoint Energy does not believe there is a need for a new standard at this time. Please see response to Question 4.

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: • Equipment types • Triggering requirements • Location requirements • Data recording requirements • Data retention/reporting requirements (format, elements reported, three-year retention period) • Maintenance requirements • Annual equipment reporting • Review process for DME equipment location Additionally, PRC-018-1 already requires entities to follow RRO requirements, and it includes requirements for: • Time sync and data availability • Maintenance program • Data retention FERC 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 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.

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.

Group

SPP Standards Review Group

Robert Rhodes

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 drafting team and should be covered in a separate project.

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.

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.

One way to minimize the oversight of the specification would be for the PC to take an active role in developing the requirements in either the guideline or best practices document which would serve as the source for this type of information.

We would suggest that the drafting team 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.