

Unofficial Comment Form for First Draft of PRC-002-2 — Disturbance Monitoring and Reporting Requirements (Project 2007-11)

Please **DO NOT** use this form to submit comments. Please use the electronic comment form located at the link below to submit comments on the proposed first draft of reliability standard PRC-002-2. Comments must be submitted by **8:00 p.m. EDT on March 18, 2009**. If you have questions please contact Stephanie Monzon at stephanie.monzon@nerc.net or by telephone at 610-608-8084.

http://www.nerc.com/filez/standards/Disturbance_Monitoring_Project_2007-11.html

Background Information

The purpose of this standard is to establish requirements for recording and reporting sequence of events (SOE) data, fault recording (FR) data, and dynamic disturbance recording (DDR) data to facilitate analysis of Disturbances. This standard will replace PRC-002-1 and PRC-018-1.

The purpose of revising the above standards is to:

1. Ensure each of the standards is complete and the requirements are set at an appropriate level to ensure reliability.
2. Ensure the revised standard is enforceable as a mandatory reliability standard with financial penalties; the applicability to bulk power system owners, operators, and users, and as appropriate particular classes of facilities is clearly defined; the purpose, requirements, and measures are results-focused and unambiguous; the consequences of violating the requirements are clear.
3. Incorporate other general improvements described in NERC's Reliability Standards Development Plan: 2007-2009 (summarized and outlined in the Reliability Standard Review Guidelines attached as Appendix A).
4. Consider the items mentioned in the Standard Review Forms (excerpted from NERC's Reliability Standards Development Plan: 2007-2009) attached as Appendix B, prepared by the NERC staff, which attempt to capture comments from the:
 - FERC NOPR (Docket # RM06-16-00 dated October 20, 2006) ,
 - FERC staff report dated May 11, 2006 concerning NERC standards submitted with ERO application,
 - Version 0 standards development (see note 1), and
 - Regional Reliability Standards Working Group (RRSWG — a NERC working group involved with regional standards development).

The standard drafting team (SDT) also considered the following additional issues that were not completely captured but were stated or referenced in the above materials.

1. Modify PRC-002-1 to remove the Regional Reliability Organization (RRO) in the applicability and eliminate the reference to the RRO in PRC-018-1.
2. Create continent wide requirements applicable to Transmission Owners and Generation Owners.
3. The new standard (PRC-002-2) is being proposed based on the requirements of the existing PRC-002-1 and PRC-018-1 standards and a recommendation for replacing both of these existing standards is being proposed. The requirements in PRC-018-1 are being incorporated into PRC-002-2 with the exception of the maintenance and testing requirements in PRC-018-1.
4. Satisfy the standards procedure requirement for five-year review of the standards.

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Key Issues Deliberated by the SDT:

In drafting the first version of this standard, the SDT considered the following issues:

1. The SDT decided to develop requirements for functionality for Disturbance data recording, rather than develop equipment requirements. The team focused on the “what” instead of the “how” i.e. not prescriptive.
2. The Disturbance data requirements are focused upon
 - a. Sequence of events
 - b. Faults
 - c. Dynamic disturbances

The requirements can be met by a variety of equipment.

3. In developing the Disturbance data requirements the SDT decided to focus on transmission voltage levels of 200 kV and above, generators 500 MVA and above, and generating stations 1500 MVA and above based on expected impact to the interconnected system. It is the team’s strong belief that application of requirements below these values will require significant additional resources, while adding little value. The team recommends that requirements, if any, below these thresholds should be based on local needs to be identified by Regional Entities or Regional Reliability Organizations, while working with respective Transmission Owners and Generator Owners.
4. For each type of data (sequence of events, faults, dynamic disturbances) the requirements are arranged as follows:
 - a. Locations for recording or having a process to derive: 1) sequence of events; 2) faults; and 3) dynamic disturbance recording data;
 - b. Equipment to be monitored at required locations;
 - c. Specific quantities to be monitored for required equipment; and
 - d. Technical parameters to ensure adequate data to analyze a Disturbance

5. The SDT recommends that the maintenance and testing requirements for disturbance monitoring equipment be excluded from this (PRC-002-2) standard, because PRC-002-2 focuses on recording of Disturbance data and does not focus on the equipment that is used to record the data. The parties responsible for recording the data, namely Transmission Owners (TOs) and Generator Owners (GOs), can use any equipment as long as the equipment can record the specific Disturbance data at the required locations. This provides flexibility to the TOs and GOs to use various types of equipment such as relays, digital fault recorders, phasor monitoring units, swing recorders, etc. Since a multitude of equipment can be used to meet the requirements contained in this standard, the DM SDT does not have the expertise to develop an all encompassing set of maintenance/testing requirements.

It is DM SDT’s belief that the type of equipment that will be used by TOs and GOs to record Disturbance data will be similar to the protection and control system equipment. Therefore, NERC should consider finding another project that is more suitable to capture these requirements or create a SAR for these requirements.

6. The SDT decided to post the first version of this standard without compliance elements (VRFs, VSLs, etc.) to focus attention on the alone.
7. The criterion used by the SDT in selecting locations for monitoring/recording Disturbance data is based on minimum number of elements (lines, transformers,

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etc.) or minimum amount of generation at a specific location. This approach facilitates the measurement of compliance to the requirements.

8. The SDT used the following IEEE definition in this standard: Substation - As defined by the IEEE C2-2002, (National Electric Safety Code) "An enclosed assemblage of equipment, e.g. switches, circuit breakers, buses and transformers, under control of qualified persons, through which electric energy is passed for the purpose of switching or modifying its characteristics." As an example, if at a given location, there are three (3) 500 kV lines and four (4) 230 kV lines along with a 500-230 kV transformer, this is one substation with 7 lines above 200 kV.

The comment form includes questions to help in finalizing the development of the standard prior to balloting. For questions where you agree with the SDT, please state that you agree and if available, please provide supporting documentation. If you disagree with the SDT, please explain why you disagree and provide data to support your position. To improve the standard, the SDT would encourage responses to as many of these questions as you can answer.

The Disturbance Monitoring Standard Drafting Team would like to receive industry comments on this group of standards. Accordingly, we request that you return this form by **March 18, 2009**

Requirements to be Included in the Revised Standard

1. The SDT has considered the "fill in the blank" items that are specified in the NERC Board approved standard PRC-002-1 that the Regional Reliability Organizations were required to develop "procedures and requirements" for the entities to meet. The SDT also considered all the directives specified in FERC approved PRC-018-1. The SDT is proposing to change the "fill in the blank" characteristics into entity specific requirements and merge them with the PRC-018-1 requirements. The new proposed standard PRC-002-2 contains all requirements related to disturbance monitoring with the exception of maintenance and testing (see Question #3 below). Do you agree with the SDT's proposal to develop and merge all disturbance monitoring requirements into a new PRC-002-2?

Yes

No

Comments:

2. The SDT has developed a mapping document showing the requirements in PRC-002-1 and PRC-018-1 and where, in proposed PRC-002-2, those requirements are reflected (except maintenance and testing – see Question #3 below). Do you agree that the SDT has reflected all the appropriate requirements of PRC-002-1 and PRC-018-1 in the proposed PRC-002-2?

Yes

No

Comments: In the proposed PRC-002-2 R8 (DDR), why did the SDT drop the requirement for single generators to be 500 MVA or higher as noted in the Applicability section 4.2

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Generating units having a single generating unit of 500 MVA or higher nameplate rating?

3. The SDT recommends that the maintenance and testing requirements for disturbance monitoring equipment belong in another standard. Do you agree with the SDT's proposal to exclude these requirements from PRC-002-2 and include them in another standard, either through the creation of a SAR or by assigning these requirements to an existing project?

Yes

No

Comments:

Having a separate maintenance and testing standard may be easier to administrate for most utilities.

4. The criteria used by the SDT in selecting locations for monitoring/recording Disturbance data is based on minimum number of elements (lines, transformers, etc.) or minimum amount of generation at a specific location. This approach facilitates the measurement of compliance to the requirements. Do you agree with the SDT's approach? Please provide specific comments, examples or recommendations.

Yes

No

Comments:

5. In developing the Disturbance data requirements the SDT decided to focus on transmission voltage levels of 200 kV and above, generators 500 MVA and above, and generating stations 1500 MVA and above based on expected impact to the interconnected system. It is the team's strong belief that application of requirements below these values to include the entire BES will require significant additional resources, while adding little value.

The proposed standard requires the following:

The status of GSU circuit breakers for generating plants connected at 200 kV and above shall be monitored on each generator with a nameplate capacity of 500 MVA or higher or an aggregate plant total of 1500 MVA or higher.

- 5.1. Do you agree with these nameplate values? Please provide supporting documentation for these values. If not, please propose alternate values and their technical basis.

Yes

No

Comments: While the MRO NSRS does not disagree with the levels mentioned above, what is the technical basis for selecting those levels?

- 5.2. In part, Requirement R5 states that Fault Recording data shall be recorded at generating plants connected at 200 kV and above when a generator has a nameplate capacity of 500 MVA or higher or when there is an aggregate plant total of 1500 MVA or higher. Do you agree with these values? Please provide

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supporting documentation for these values. If not, please propose alternate values and their technical basis.

Yes

No

Comments: Why do the TOP with Frequency Recorders need to record Voltage line to neutral (R4 or R5.4) but the GO can read Voltage line neutral or Voltage line to line. (R5)?

5.3. Requirement R7 states that DDR data shall be recorded or derivable for all substations having a total of seven or more transmission lines connected at 200 kV or above. Do you agree with these values? Please provide supporting documentation for these values. If not, please propose alternate values and their technical basis.

Yes

No

Comments:

Requirements related to Sequence of Events

6. Requirement R3 states that Transmission Owners and Generator Owners shall record the time stamp or have a process in place to derive the time stamp to within four milliseconds of input received for the change in circuit breaker position (open/close) Do you agree with this value? If no, propose an alternate value and please provide technical basis.

Yes

No

Comments:

7. Do you agree with the other Sequence of Events requirements under R1 through R3 of the proposed standard? If no, provide specific suggestions that would make the requirements acceptable to you.

Yes

No

Comments:

Requirements related to Fault Recording

8. Requirement R6 states that Fault Recording data shall include a pre trigger record length of at least two cycles and: a post trigger length of at least 50 cycles, or the first three cycles and the final cycle of an event. Do you agree with the requirement? If not, please propose alternate values or requirements and provide rationale.

Yes

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No

Comments: (MP) The phrase "At least two cycles of the pre-trigger event; the first three cycles of an event; and the final cycle of an event" doesn't seem adequate compared to the sampling described before this phrase. What value does this sampling get you?

9. Do you agree with the other Fault Recording requirements in R4 through R6 of this proposed standard? If no, provide specific suggestions that would make the requirements acceptable to you.

Yes

No

Comments: ** Aski (MP) Why do the GO GSU's get to collect phase to phase voltage and no other facilities are allowed to do this (R5)? Plus, table 5-1 has a type-o - Row 2, Column 2, bullet 1 extra 'd'.

Requirements related to Dynamic Disturbance Recording

10. Requirement R7 states that a DDR which is required at a substation meeting the location requirement shall be considered optional if a DDR meeting all of the requirements of R7.1, R7.2, R7.3 and R7.4 is found to be located one or two substations away. Do you agree with this option found in Requirement R7? If no, provide rationale.

Yes

No

Comments:

11. Requirement R8 states that Generator Owners shall record or have a process in place to derive DDR data for generating plants with an aggregate of 1500 MVA nameplate rating or higher. Do you agree with these values? Please provide supporting documentation for these values or (if you disagree with the values) alternate values and their technical basis.

Yes

No

Comments:

12. Do you agree with the other Dynamic Disturbance Recorder requirements in R7 through R11 of this proposed standard? If no, provide specific suggestions that would make the requirements acceptable to you.

Yes

No

Comments:

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General Questions

13. Do you agree with the Other Disturbance Monitoring Requirements R12 and R13 of this proposed standard? If no, provide specific suggestions that would make the requirements acceptable to you.

Yes

No

Comments:

14. Are you aware of any regional variances that would be required as a result of the proposed standard?

Yes

No

Comments:

15. Are you aware of any conflicts between the proposed standard and any regulatory function, rule, order, tariff, rate schedule, legislative requirement, or agreement?

Yes

No

Comments:

16. Do you have any other questions or concerns with the proposed standard that have not been addressed? If yes, please explain.

Yes

No

Comments: ** ASK (MP) R12 and R13 should stay in PRC-002.

17. Do you agree with the implementation plan as proposed by the SDT? If no, provide a plan that would be acceptable to you and provide rationale.

Yes

No

Comments:

18. The standard is proposing a definition for "Substation" based on the IEEE definition. Do you agree that there is sufficient misunderstanding of this term to warrant a definition? If so, do you agree that the IEEE definition is the most appropriate definition?

Yes

No

Comments:

