

The following pages contain all comments submitted with the 1st ballot of Phase III & IV generator protection standards. The comments are organized with Company Name in alphabetical order within each Industry Segment. All but two of the comments were submitted with an affirmative ballot and most comments appear to be suggestions for future enhancements.

Based on the comments received, the drafting team did not make any changes to the content of the standards.

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

¹ The appeals process is in the Reliability Standards Process Manual: <http://www.nerc.com/standards/newstandardsprocess.html>.

PRC-003 - Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems

PRC-004 – Analysis and Mitigation of Transmission and Generation Protection System Misoperations

PRC-005 – Transmission and Generation Protection System Maintenance and Testing

Summary Consideration: Most stakeholders approved of these standards as proposed. The drafting team did not make any changes to the standards. Note that only two comments were submitted with a 'negative' ballot. All other comments were submitted with an affirmative ballot.

Company	Industry Segment	Balloter	Comment
American Transmission Company LLC ATC	1	Peter Burke	<p>Affirmative: These standards require identifying which operations are misoperations but don't require all operations to be reviewed. Wouldn't it be necessary to review all operations in order to determine which ones are misoperations? If so, the standard may as well expressly require a review of all operations.</p>
<p>Response: Misoperations is a subset of all operations. In today's world, entities identify misoperations by reviewing all operations.</p>			
Bonneville Power Administration Transmission BPAT	1	Donald Stephen Watkins	<p>Affirmative: We agree that that there should be requirements for identifying and correcting protection system misoperations. However, as the WECC formulates requirements for PRC-003 we request that they be carefully focused on the most impacting situations. Several thousand relay operations occur yearly on the bulk grid. Requirements for immediate analysis and identification, let alone correction of all possible relaying issues for every device on the bulk grid is untenable and would distract from more important reliability issues. Many misoperations can take weeks or months to analyze and correct.</p>
<p>Response: As envisioned, the RRO's requirements should focus on those systems that have the greatest potential impact on BES reliability (See Requirement 1.1). We encourage you to try to work with WECC when it develops its procedures for, review, analysis, reporting and mitigation of transmission and generation Protection System Misoperations. Note that this cluster of standards does not require 'immediate analysis and identification' nor does this cluster of standards require 'correction of all possible relaying issues for every device on the bulk electric system'.</p>			

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Manitoba Hydro	1	Robert George Coish	<p>Manitoba Hydro votes affirmative on this set of standards in the interest of the industry to get these reliability standards in place. However MH would like to make the following comments:</p> <ol style="list-style-type: none"> 1. Concern was expressed by staff responsible for these standards that they are being asked to vote when the Regional requirements outlined in R1 of PRC-003-1 are not known and it is not clear how much input they would have in the development of these Regional requirements. 2. Non-compliance Level 1 in PRC-005-1 appears to us to weaken the standard. For example, an entity that is not maintaining several classes of relays, potentially representing a serious reliability risk to the system, could simply leave these classes of relays out of their documentation of their maintenance and testing program in order to limit their non-compliance to Level 1. A proper standard should assess a higher level of non-compliance to this behaviour. MH would consider supporting a SAR if necessary to fix this.
<p>Response:</p> <ol style="list-style-type: none"> 1. There are many Version 0 standards that require the RRO to develop requirements for other entities to follow. We encourage you to try to work with your Region when it develops its procedures for, review, analysis, reporting and mitigation of transmission and generation Protection System Misoperations. 2. The levels of non-compliance were adopted from Version 0 and making modifications to change the already accepted levels of non-compliance is outside the scope of the drafting team. 			
Southern Company Services SOCO	1	Horace Stephen Williamson	<p>Affirmative:</p> <p>On the Misoperation definition on page two of PRC-003-1, we suggest it be modified as follows: In the first bullet, remove the word “element”</p> <p>Our position is that the word element offers too much granularity. A protection system contains many elements. In the first bullet, replace the word “specified” with “designed”</p> <p>The PCS position is that the word “designed” is more appropriate in the context of this sentence.</p> <p>Misoperation Definition (Markup): - Any failure of a Protection System element to operate within the specified designed time when a fault or abnormal condition occurs within a zone of protection. - Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone). - Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity.</p>

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<p>Response: Most commenters seemed to accept the definition of misoperation. If 'element' is removed, it changes the level of reliability addressed in this standard. The words, 'specified' and 'designed' mean almost the same thing in the context of this definition.</p>			
<p>Alberta Electric System Operator AESO</p>	<p>2</p>	<p>Anita Lee</p>	<p>Affirmative: PRC-003-1 R3 requires the RRO to distribute its procedures to TOs, DPs and GOs. We recommend that the procedures be also distributed to the TOPs. PRC-004-1 R3 requires each TO, DP and GO to provide the RRO documentation of its misoperations analyses and corrective action plans. We note that this is different from the current practice in Alberta where we, as the ISO of Alberta, report this information to the WECC.</p>
<p>Response: The standard does not preclude the responsible entity from delegating a task to another entity. This is the arrangement you've described where some entities have delegated their tasks to the ISO. The TOs, DPs, and GOs are still responsible for ensuring that the task is accomplished.</p>			
<p>Alabama Power Company</p>	<p>3</p>	<p>Robin Hurst</p>	<p>Affirmative: On the Misoperation definition on page two of PRC-003-1, we suggest it be modified as follows: In the first bullet, remove the word "element" Our position is that the word element offers too much granularity. A "protection system" contains many elements. In the first bullet, replace the word "specified" with "designed" Our position is that the word "designed" is more appropriate in the context of this sentence. Misoperation Definition (Markup): - Any failure of a Protection System element to operate within the specified designed time when a fault or abnormal condition occurs within a zone of protection. - Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone). - Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity.</p>
<p>Response: Most commenters seemed to accept the definition of misoperation. If 'element' is removed, it changes the level of reliability addressed in this standard. The words, 'specified' and 'designed' mean almost the same thing in the context of this definition.</p>			
<p>Georgia Power Company</p>	<p>3</p>	<p>Leslie Sibert</p>	<p>Affirmative: On the Misoperation definition on page two of PRC-003-1, we suggest it be modified as follows: In the first bullet, remove the word "element" Our position is that the word element offers too much granularity. A "protection system" contains many elements. In the first bullet, replace the word "specified" with "designed" Our position is that the word "designed" is more appropriate in the context of this sentence. Misoperation Definition (Markup): - Any failure of a Protection System element to operate within the specified designed time when a fault or abnormal condition occurs within a zone of protection. - Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone). - Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-</p>

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			site maintenance and testing activity.
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Mississippi Power Company	3	James David Cochran	<p>Affirmative: In the first bullet, remove the word "element"- Our position is that the word element offers too much granularity. A "protection system" contains many elements. In the first bullet, replace the word "specified" with "designed"- Our position is that the word "designed" is more appropriate in the context of this sentence -Any failure of a Protection System to operate within the defined time when a fault or abnormal condition occurs within a zone of protection. -Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone). -Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity.</p>
<p>Response: Most commenters seemed to accept the definition of misoperation. If 'element' is removed, it changes the level of reliability addressed in this standard. The words, 'specified' and 'designed' mean almost the same thing in the context of this definition.</p>			
Savannah Electric and Power	3	Thomas Harris	<p>Affirmative: On the Misoperation definition on page two of PRC-003-1, we suggest it be modified as follows: In the first bullet, remove the word "element". Our position is that the word element offers too much granularity. A "protection system" contains many elements. In the first bullet, replace the word "specified" with "designed". Our position is that the word "designed" is more appropriate in the context of this sentence. Misoperation Definition (Markup): - Any failure of a Protection System to operate within the designed time when a fault or abnormal condition occurs within a zone of protection. - Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone). - Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity.</p>
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Madison Gas and Electric Company MGE	4	Joe Buch	<p>Affirmative: PRC-004-1 section 1.3 Data Retention indicates that the data on misoperations and the Corrective Action Plan shall be kept for 12 months. If a generic problem is part of the misoperation, one years worth of data may not be enough to bring this to the attention of the protection specialists. I would recommend that consideration be given to changing this to three calendar years plus the current year.</p>

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<p>Response: The standard does not preclude an entity from keeping the data for longer than 12 months. The standard only specifies the minimum acceptable retention period to ensure there is data for the Compliance Monitor to review.</p>			
Southeastern Power Administration SEPA	4	Carter B. Edge	<p>Negative: Implementation plan too aggressive. There is not enough time to develop robust Regional processes based on the Standards. There must be time between the Regions to respond and the entities to respond.</p>
<p>Response: The implementation plan was posted for comment and most commenters agreed with the implementation plan. The RRO is already responsible for meeting the requirements applied to Transmission Protection – and has about 3 months to comply by adding the generator protection requirements. The Generator then has an additional 3 months to meet the RRO's requirements.</p>			
Wisconsin Energy Corporation - PM WEC	4	Anthony Jankowski	<p>Affirmative: PRC-005: Section B, R2 requires a Generator Owner response within 30 days to an RRO request for documentation of protection system maintenance and testing. Depending on the scope of the request, the data required could be very significant. We propose that a period of 45 days would be more appropriate for such a data intensive requirement.</p>
<p>Response: The intent is to provide documentation that has already been developed, not provide time to develop documentation.</p>			
Southern Company Services SOCO	5	Roger Green	<p>Affirmative: On the Misoperation definition on page two of PRC-003-1, we suggest it be modified as follows: In the first bullet, remove the word “element”. Our position is that the word element offers too much granularity. A “protection system” contains many elements. In the first bullet, replace the word “specified” with “designed”. Our position is that the word “designed” is more appropriate in the context of this sentence. Misoperation Definition (Markup): - Any failure of a Protection System element to operate within the specified designed time when a fault or abnormal condition occurs within a zone of protection. - Any operation for a fault not within a zone of protection (other than operation as backup protection for a fault in an adjacent zone that is not cleared within a specified time for the protection for that zone). - Any unintentional Protection System operation when no fault or other abnormal condition has occurred unrelated to on-site maintenance and testing activity.</p>
<p>Response: Most commenters seemed to accept the definition of misoperation. If ‘element’ is removed, it changes the level of reliability addressed in this standard. The words, ‘specified’ and ‘designed’ mean almost the same thing in the context of this definition.</p>			

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Siemens Power Generation	7	Benjamin Wiant	<p>Negative: 1. PRC 003 to 005 only address generator (and transmission) protective systems, without defining this term. The generator protective system is likely to be understood to be limited to the the generator protective relaying system. The standards totally ignore the turbine and generator controls and automatic voltage regulator, which have many protective features and should be explicitly included in any standard that purports to impose requirements on protection systems. For example, abnormal frequency protection is normally provided by the turbine controls. The generator protective relays may provide backup, but the fundamental protection is provided in the controls. Similarly, stator temperature protection as well as other generator thermal and mechanical limits are normally provided in the generator controls. Many protective and limiting features relating to the excitation system are included in the AVR, sometimes with a backup in the protective relay panel, sometimes not. Good standards would address protective functions, not specific systems with restricted capability. These standards are likely to be misinterpreted by users.</p>
<p>Response: The drafting team has been discouraged from defining terms that are already understood and to focus only on defining terms that have a unique definition when used in NERC reliability standards. The interpretation of the generator protective system is limited to the generator protective relaying system. There are other standards that address the other topics you've identified such as PRC-019 which addresses AVRs.</p>			
Public Service Commission of South Carolina	9	Philip D. Riley	<p>Affirmative: The PSCSC must reiterate its view that the approach appears to be compliance-based rather than performance-based. Is the objective having procedures on hand, or a reliable system? The PSCSC maintains that the real objective is reliability, and not readily available procedures. The real measure of success is effective implementation of the procedures such that reliability is not compromised.</p>
<p>Response: Having the documentation is a first step in providing consistency in designing the Bulk Electric System.</p>			