

Project 2010-05.1 Protection Systems: Phase 1 (Misoperations) Mapping Document

Mapping Document Showing Translation of PRC-003-1 – Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems, and PRC-004-2a – Analysis and Mitigation of Transmission and Generation Protection System Misoperations into PRC-004-3 — Protection System Misoperation Identification and Correction.

Standard: PRC-003-1 - Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems

Requirement in Approved Standard	Translation to New Standard or Other Action	Proposed Language in PRC-004-3 – Protection System Misoperation Identification and Correction Or Comment
<p>R1. Each Regional Reliability Organization shall establish, document and maintain its procedures for, review, analysis, reporting and mitigation of transmission and generation Protection System Misoperations. These procedures shall include the following elements:</p>	<p>PRC-004-3 Applicability Section 4.1 Functional Entities - assigns the Transmission Owner, Generator Owner, and Distribution Provider as the responsible entity(s) replacing the Regional Reliability Organization. PRC-004-3 replaces the</p>	<p>4.1. Functional Entities:</p> <p>4.1.1 Transmission Owner</p> <p>4.1.2 Generator Owner</p> <p>4.1.3 Distribution Provider</p>

Standard: PRC-003-1 - Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems

Requirement in Approved Standard	Translation to New Standard or Other Action	Proposed Language in PRC-004-3 – Protection System Misoperation Identification and Correction Or Comment
<p>R1. Part 1.1. The Protection Systems to be reviewed and analyzed for Misoperations (due to their potential impact on BES reliability).</p>	<p>RRO procedures.</p> <p>PRC-004-3 Applicability Section 4.2 Facilities.</p>	<p>4.2. Facilities</p> <p>4.2.1 Protection Systems for Facilities that are part of the BES</p> <p>4.2.2 Facilities not included</p> <p>4.2.2.1 Special Protection Systems (SPS) or Remedial Action Schemes (RAS)</p> <p>4.2.2.2 Undervoltage Load Shedding (UVLS)</p> <p>4.2.3 Relay functions not included (these are non-protective functions that may be imbedded within a Protection System)</p> <p>4.2.3.1 Control (e.g. controlled shut down of generators or capacitor bank switching. Also see Guidelines and Technical Basis section for detailed examples)</p> <p>4.2.3.2 Automation (e.g. data collection)</p>
<p>R1. Part 1.2. Data reporting requirements (periodicity and format) for Misoperations.</p>	<p>PRC-004-3 Compliance Section C 1.4 Additional</p>	<p>C. 1.4. Additional Compliance Information</p> <p>Each Transmission Owner, Generator Owner, and Distribution Provider that owns BES protection Systems</p>

Standard: PRC-003-1 - Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems

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	Compliance Information	<p>will submit the data identified in PRC-004 - Attachment 1 to the CEA within two calendar months following the end of each calendar quarter.</p> <p>The CEA will report the Misoperation information provided by the responsible entities to NERC on a quarterly basis.</p>
<p>R1. Part 1.3. Process for review, analysis follow up, and documentation of Corrective Action Plans for Misoperations.</p>	<p>PRC-004-3 Requirement R1 Requirement R2 Requirement R3 Requirement R4</p>	<p>R1. Within 120 calendar days of an interrupting device operation in its Facility caused by a Protection System operation, each Transmission Owner, Generator Owner, and Distribution Provider shall:</p> <p>1.1 Identify and review each Protection System operation. If the entity suspects a Protection System component(s) owned by another entity contributed to a Misoperation, notify the owner of that Protection System component and provide any requested investigative information.</p> <p>1.2 Designate each Misoperation (if any).</p> <p>1.3 Investigate each Misoperation (if any) and document the findings including a cause for each Misoperation, if identified.</p> <p>R2. Within 60 calendar days of identifying the cause(s) of each Misoperation, the Transmission Owner,</p>

Standard: PRC-003-1 - Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems

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		<p>Generator Owner, or Distribution Provider shall:</p> <ul style="list-style-type: none"> ○ Develop and document a Corrective Action Plan (CAP) for the identified Protection System component(s) that includes an evaluation of the CAP’s applicability to the entity’s Protection Systems at other locations, or ○ Explain in a declaration why corrective actions are beyond the entity’s control or would reduce BES reliability. <p>R3. For each Misoperation without an identified cause(s), the Transmission Owner, Generator Owner, or Distribution Provider shall, within 180 calendar days of its associated interrupting device operation, complete:</p> <ul style="list-style-type: none"> ○ Development of an action plan that identifies any additional investigative actions and/or Protection System modifications, including a work timetable, or ○ A declaration explaining why no further actions will be taken.

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		<p>R4. For each CAP or action plan, the Transmission Owner, Generator Owner, or Distribution Provider shall:</p> <p>4.1 Implement the CAP or action plan</p> <p>4.2 Maintain detailed implementation records of each CAP or action plan including dated information surrounding any revision(s) and completion</p>
<p>R1. Part 1.4. Identification of the Regional Reliability Organization group responsible for the procedures and the process for approval of the procedures.</p>	<p>PRC-004-3 Applicability Section 4.1 Functional Entities - assigns the Transmission Owner, Generator Owner, and Distribution Provider as the responsible entity(s) replacing the Regional Reliability Organization. PRC-004-3 replaces the RRO procedures.</p>	<p>4.1. Functional Entities:</p> <p>4.1.1 Transmission Owner</p> <p>4.1.2 Generator Owner</p> <p>4.1.3 Distribution Provider</p>

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<p>R2. Each Regional Reliability Organization shall maintain and periodically update documentation of its procedures for review, analysis, reporting, and mitigation of transmission and generation Protection System Misoperations.</p>	<p>PRC-004-3 Applicability Section 4.1 Functional Entities - assigns the Transmission Owner, Generator Owner, and Distribution Provider as the responsible entity(s) replacing the Regional Reliability Organization. PRC-004-3 replaces the RRO procedures.</p>	<p>PRC-004-3 is a results-based standard that achieves the reliability objectives of PRC-003-1. The requirements in the standard define the process for the responsible entities to follow. The standards development process mandates the standards be reviewed once every five years.</p> <p>4.1. Functional Entities:</p> <p>4.1.1 Transmission Owner 4.1.2 Generator Owner 4.1.3 Distribution Provider</p> <p>See PRC-004-3</p>
<p>R3. Each Regional Reliability Organization shall distribute procedures in Requirement 1 and any changes to those procedures, to the affected Transmission Owners, Distribution Providers that own transmission Protection Systems, and Generator Owners within 30 calendar days of approval of those procedures.</p>	<p>PRC-004-3 Applicability Section 4.1 Functional Entities - assigns the Transmission Owner, Generator Owner, and Distribution Provider as the responsible entity(s) replacing the</p>	<p>PRC-004-3 is a results-based standard that achieves the reliability objectives of PRC-003-1. The requirements in the standard define the process for the responsible entities to follow.</p> <p>4.1. Functional Entities:</p> <p>4.1.1 Transmission Owner 4.1.2 Generator Owner</p>

Standard: PRC-003-1 - Regional Procedure for Analysis of Misoperations of Transmission and Generation Protection Systems

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	Regional Reliability Organization. PRC-004-3 replaces the RRO procedures.	4.1.3 Distribution Provider See PRC-004-3

Standard: PRC-004-2a - Analysis and Mitigation of Transmission and Generation Protection System Misoperations

Requirement in Approved Standard	Translation to New Standard or Other Action	Proposed Language in PRC-004-3 – Protection System Misoperation Identification and Correction or Comment
<p>R1. The Transmission Owner and any Distribution Provider that owns a transmission Protection System shall each analyze its transmission Protection System Misoperations and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature according to the Regional Entity’s procedures.</p>	<p>PRC-004-3 Requirement R1 Requirement R2 Requirement R3 Requirement R4</p>	<p>R1. Within 120 calendar days of an interrupting device operation in its Facility caused by a Protection System operation, each Transmission Owner, Generator Owner, and Distribution Provider shall:</p> <ul style="list-style-type: none"> 1.1 Identify and review each Protection System operation. If the entity suspects a Protection System component(s) owned by another entity contributed to a Misoperation, notify the owner of that Protection System component and provide any requested investigative information. 1.2 Designate each Misoperation (if any). 1.3 Investigate each Misoperation (if any) and document the findings including a cause for each Misoperation, if identified. <p>R2. Within 60 calendar days of identifying the cause(s) of each Misoperation, the Transmission Owner, Generator Owner, or Distribution Provider shall:</p> <ul style="list-style-type: none"> ○ Develop a Corrective Action Plan (CAP) for the identified Protection System component(s) that includes an evaluation of the CAP’s applicability to the entity’s Protection Systems at other

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		<p>locations, or</p> <ul style="list-style-type: none"> ○ Explain in a declaration why corrective actions are beyond the entity’s control or would reduce BES reliability. <p>R3. For each Misoperation without an identified cause(s), the Transmission Owner, Generator Owner, or Distribution Provider shall, within 180 calendar days of its associated interrupting device operation, complete:</p> <ul style="list-style-type: none"> ○ Development of an action plan that identifies any additional investigative actions and/or Protection System modifications, including a work timetable, or ○ A declaration explaining why no further actions will be taken. <p>R4. For each CAP or action plan, the Transmission Owner, Generator Owner, or Distribution Provider shall:</p> <ul style="list-style-type: none"> 4.1 Implement the CAP or action plan 4.2 Maintain detailed implementation records of

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		each CAP or action plan including dated information surrounding any revision(s) and completion
<p>R2. The Generator Owner shall analyze its generator Protection System Misoperations, and shall develop and implement a Corrective Action Plan to avoid future Misoperations of a similar nature according to the Regional Entity’s procedures.</p>	<p>PRC-004-3 Requirement R1 Requirement R2 Requirement R3 Requirement R4</p>	<p>R1. Within 120 calendar days of an interrupting device operation in its Facility caused by a Protection System operation, each Transmission Owner, Generator Owner, and Distribution Provider shall:</p> <p>1.1 Identify and review each Protection System operation. If the entity suspects a Protection System component(s) owned by another entity contributed to a Misoperation, notify the owner of that Protection System component and provide any requested investigative information.</p> <p>1.2 Designate each Misoperation (if any).</p> <p>1.3 Investigate each Misoperation (if any) and document the findings including a cause for each Misoperation, if identified.</p> <p>R2. Within 60 calendar days of identifying the cause(s) of each Misoperation, the Transmission Owner, Generator Owner, or Distribution Provider shall:</p> <ul style="list-style-type: none"> o Develop a Corrective Action Plan (CAP) for the

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		<p>identified Protection System component(s) that includes an evaluation of the CAP’s applicability to the entity’s Protection Systems at other locations, or</p> <ul style="list-style-type: none"> ○ Explain in a declaration why corrective actions are beyond the entity’s control or would reduce BES reliability. <p>R3. For each Misoperation without an identified cause(s), the Transmission Owner, Generator Owner, or Distribution Provider shall, within 180 calendar days of its associated interrupting device operation, complete:</p> <ul style="list-style-type: none"> ○ Development of an action plan that identifies any additional investigative actions and/or Protection System modifications, including a work timetable, or ○ A declaration explaining why no further actions will be taken. <p>R4. For each CAP or action plan, the Transmission Owner, Generator Owner, or Distribution Provider</p>

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		<p>shall:</p> <p>4.1 Implement the CAP or action plan</p> <p>4.2 Maintain detailed implementation records of each CAP or action plan including dated information surrounding any revision(s) and completion</p>
<p>R3. The Transmission Owner, any Distribution Provider that owns a transmission Protection System, and the Generator Owner shall each provide to its Regional Entity, documentation of its Misoperations analyses and Corrective Action Plans according to the Regional Entity’s procedures.</p>	<p>PRC-004-3 Requirement 4</p> <p>Compliance Section C 1.4 Additional Compliance Information</p>	<p>R4. For each CAP or action plan, the Transmission Owner, Generator Owner, or Distribution Provider shall:</p> <p>4.1 Implement the CAP or action plan</p> <p>4.2 Maintain detailed implementation records of each CAP or action plan including dated information surrounding any revision(s) and completion</p> <p>C. 1.4. Additional Compliance Information</p> <p>Each Transmission Owner, Generator Owner, and Distribution Provider that owns BES protection Systems will submit the data identified in PRC-004 - Attachment 1 to the CEA within two calendar months following the end of each calendar quarter.</p>

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		The CEA will report the Misoperation information provided by the responsible entities to NERC on a quarterly basis.