

**Comparison between NERC PRC-004-1 and Alberta PRC-004-AB-1
Analysis and Mitigation of Transmission and Generation Protection System Misoperation**

Section	NERC PRC-004-1	Alberta PRC-004-AB-1	Reason for Difference ¹
Purpose	Ensure all transmission and generation Protection System Misoperations affecting the reliability of the Bulk Electric System (BES) are analyzed and mitigated.	<u>The purpose of this reliability standard is to</u> e Ensure all transmission and generation P rotection S ystem M isoperations affecting the reliability of the Bulk Electric System (BES) are analyzed and mitigated.	
Applicability	<p>4.1. Transmission Owner.</p> <p>4.2. Distribution Provider that owns a transmission Protection System.</p> <p>4.3. Generator Owner.</p>	<p><u>This reliability standard applies to:</u></p> <ul style="list-style-type: none"> • Transmission Owner <u>TFOs</u> • Distribution Provider that owns a transmission Protection System. <u>4.3. Generator Owner</u> <u>GFOs with protection systems that directly affect the reliability of the BES. These protection systems include all those that measure voltage, current, or frequency from the generating unit to the AIES, but excludes the prime mover and associated control systems.</u> • <u>ISO</u> 	Provided clarification on what protection systems are being referred to for GFOs.
Effective	August 1, 2006	August 1, 2006 <u>Thirty calendar days after the</u>	Modified effective date from 10 days to 30

¹ The following revisions have been made throughout this proposed reliability standard:

- Identified the responsible entities in Alberta.
- Applied a consistent writing style and added clarity.
- Changed passive terms such as “shall” to “must”.
- Developed measures specific to the requirements.

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Date		<u>date of approval by the Commission.</u>	days after the date of approval by the Commission.
Definitions		Italicized terms used in this reliability standard have the same meanings as set out in the Alberta Reliability Standards Glossary of Terms and Part 1 of the ISO Rules. ²	Added definitions section to the Alberta reliability standard.
Requirement	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 Reliability Organization's procedures developed for Reliability Standard PRC-003 Requirement 1.	R1. Each The TFO's and GFO's must Transmission Owner and any Distribution Provider that owns a transmission Protection System shall each analyze its Pp protection Ssystem Mmisoperations and mustshall develop and implement a Ccorrective Aaction Pplan <u>in accordance with disturbance analysis recommendations</u> to avoid future Mmisoperations of a similar nature, according to the the Regional Reliability Organization's procedures developed for Reliability Standard PRC-003 Requirement 1.	Alberta Variance³: Reference to PRC-003 requirement R1 in the NERC standard was removed as Alberta is to manage analysis of protection system misoperations by existing OPPs and PRC-004-WECC-1. PRC-004-WECC-1 is a regional standard that addresses this NERC requirement and is included in this development cycle for application in Alberta.
Measure	M1. The Transmission Owner, and any	MR1. <u>Evidence exists and shows analysis was</u>	

² Defined terms are not italicized in this document, but will appear in the Alberta Reliability Standards document.

³ An Alberta variance is a change from the US Reliability Standard that the AESO has determined is material.

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	Distribution Provider that owns a transmission Protection System shall each have evidence it analyzed its Protection System Misoperations and developed and implemented Corrective Action Plans to avoid future Misoperations of a similar nature according to the Regional Reliability Organization procedures developed for PRC-003 R1.	completed and corrective action plans were implemented as specified in requirement R1. according to the Regional Reliability Organization (RRO) procedures developed for PRC-003 R1.	
Requirement	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 Reliability Organization's procedures developed for PRC-003 R1.	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 Reliability Organization's procedures developed for PRC-003 R1.	GFO requirement added to R1.

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Measure	M2. The Generator Owner shall have evidence it analyzed its Protection System Misoperations and developed and implemented Corrective Action Plans to avoid future Misoperations of a similar nature according to the Regional Reliability Organization's procedures developed for PRC-003 R1.	M2. The Generator Owner shall have evidence it analyzed its Protection System Misoperations and developed and implemented Corrective Action Plans to avoid future Misoperations of a similar nature according to the Regional Reliability Organization's procedures developed for PRC-003 R1.	
Procedures	None identified	None identified	
Requirement	R3. The Transmission Owner, any Distribution Provider that owns a transmission Protection System, and the Generator Owner shall each provide to its Regional Reliability Organization, documentation of its Misoperations analyses and Corrective Action Plans according to the Regional Reliability Organization's procedures developed for PRC-003 R1.	R23. <u>Each The TFO and GFO must Transmission Owner, any Distribution Provider that owns a transmission Protection System, and the Generator Owner shall each</u> provide to its Regional Reliability Organization <u>the ISO</u> documentation of its Mmisoperations analyses and Ccorrective Aaction Pplans <u>upon request by the ISO, according to the the Regional Reliability Organization's procedures developed for PRC-003 R1.</u> R3. <u>The ISO must shall provide to WECC documentation of the M</u>misoperations analyses and Ccorrective Aaction Pplans <u>upon request by WECC.</u>	Alberta Variance⁴: Reference to PRC-003 R1 removed as Alberta is to manage documentation of protection system misoperations by existing OPPs and PRC-004-WECC-1. Reporting to the ISO will be upon request. New requirement R3 for the ISO to report to WECC.

⁴ An Alberta variance is a change from the US Reliability Standard that the AESO has determined is material.

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Section	NERC PRC-004-1	Alberta PRC-004-AB-1	Reason for Difference¹
Measure	<p>M3. Each Transmission Owner, and any Distribution Provider that owns a transmission Protection System, and each Generator Owner shall have evidence it provided documentation of its Protection System Misoperations, analyses and Corrective Action Plans according to the Regional Reliability Organization procedures developed for PRC-003 R1.</p>	<p>MR23. <u>Evidence that analysis reports and corrective action plans were submitted as specified in requirement R2 (e.g. email confirmation).</u></p> <p>MR3. <u>Confirmation that documentation as specified in requirement R3 was received by the WECC or evidence that requests for confirmation were made.</u></p>	
Compliance	<p>To view the compliance section D of the NERC reliability standard follow this link: http://www.nerc.com/files/PRC-004-1.pdf</p>		<p>There is no compliance section currently proposed in the Alberta Reliability Standards.</p> <p>A compliance program will be developed at a later date for Alberta Reliability Standards that recognizes the compliance monitoring and enforcement structure in Alberta.</p> <p>This approach is deemed consistent with the existing ISO Rules.</p>
Regional Differences	None identified	None identified	Not applicable in Alberta



Proposed Terms for the ARS Glossary:

“corrective action plan” means a list of actions and an associated timetable for implementation to remedy a specific problem.

Defined Terms Used in this Standard:

(As included in the ISO Rules Definitions or Alberta Reliability Standards Glossary)

- bulk electric system (BES)
- generation facility owner (GFO)
- Independent System Operator (ISO)
- misoperation*
- protection system*
- reliability standard
- Western Electricity Coordinating Council (WECC)

* Term appears in the Alberta Reliability Standards Glossary of Terms – July 2009 rules cycle