

ARC Technical Work Group Assessment and Conversion of NERC PRC-005-1 Transmission and Generation Protection System Maintenance and Testing to Alberta PRC-005-AB-1 Transmission and Generation Protection System Maintenance and Testing

| Section | NERC PRC-005-1 | Alberta PRC-005-AB-1 | Reason for Difference ¹ |
|-----------------------|---|---|--|
| Purpose | To ensure all transmission and generation Protection Systems affecting the reliability of the Bulk Electric System (BES) are maintained and tested. | The purpose of this reliability standard is to ensure all transmission and generation protection systems affecting the reliability of the BES are maintained and tested. | |
| Applicability | <p>4.1. Transmission Owner.</p> <p>4.2. Generator Owner.</p> <p>4.3. Distribution Provider that owns a transmission Protection System.</p> | <p>This reliability standard applies to:</p> <p>- TFO's</p> <p>- GFO's</p> | |
| Effective Date | May 1, 2006 | 180 calendar days after the date of approval by the Commission. | <p>180 days required to complete documentation of maintenance and testing programs.</p> <p>NOTE: NERC PRC-005-2 is presently under development by NERC. The present proposal substantially changes all requirements and will be reviewed for applicability in Alberta once approved by the NERC BOT.</p> |
| Definitions | | Italicized terms used in this reliability standard have the same meanings as set out in the Alberta | Added definitions section to the Alberta reliability standard. |

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- Deleted: Transmission Owner.
- Deleted: 4.2.
- Deleted: Generator Owner.
- Deleted: 4.3. Distribution Provider that owns a transmission Protection System.

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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| | | Reliability Standards Glossary of Terms and Part 1 of the ISO Rules. ² | |
| Requirement | R1. Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System shall have a Protection System maintenance and testing program for Protection Systems that affect the reliability of the BES. The program shall include: | <p>R1. TFOs and GFOs must each have a protection system maintenance and testing program for protection systems that directly affect the reliability of the BES.</p> <p>For GFO's, protection systems that directly affect the reliability of the BES, 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.</p> <p>Each program must include the following:</p> | |
| Measure | | | Measures included in sub-requirements. |
| Requirement | R1.1. Maintenance and testing intervals and their basis. | R1.1 Documented maintenance and testing intervals and the rationale for them . | |
| Measure | | MR1.1 Documents must exist as specified in requirement R1.1. | |
| Requirement | R1.2. Summary of maintenance and testing procedures. | R1.2 Documented maintenance and testing procedures. | |

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

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| Measure | M1. Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System that affects the reliability of the BES, shall have an associated Protection System maintenance and testing program as defined in Requirement 1. | MR1.2 Documents must exist as specified in requirement R1.2. | |
| Requirement | R2. Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System shall provide documentation of its Protection System maintenance and testing program and the implementation of that program to its Regional Reliability Organization on request (within 30 calendar days). The documentation of the program implementation shall include: | R2. TFOs and GFOs must each provide documentation of its protection system maintenance and testing program and the implementation of that program to the ISO on request and not later than within 30 calendar days of such request. The program implementation documentation must include evidence that protection system devices were maintained and tested within the maintenance and testing intervals as referenced in requirement R1.1. | |
| Measure | | MR2 Evidence that the program was submitted as specified in requirement R2. | |
| Requirement | R2.1. Evidence Protection System devices were maintained and tested within the defined intervals. | R3 Each TFO and GFO must implement its protection system maintenance and testing program and test protection devices in | |

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| | | <u>accordance with their program.</u> | |
| Measure | M2. Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System that affects the reliability of the BES, shall have evidence it provided documentation of its associated Protection System maintenance and testing program and the implementation of its program as defined in Requirement 2. | <p>▼</p> <p><u>MR3. Evidence that the relays were tested as specified in requirement R3.</u></p> | |
| Procedures | None identified | None identified | |
| Compliance | To view the compliance section D of the NERC reliability standard follow this link: http://www.nerc.com/files/PRC-005-1.pdf | | <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 |

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Deleted: Each Transmission Owner and any Distribution Provider that owns a transmission Protection System and each Generator Owner that owns a generation Protection System that affects the reliability of the BES, shall have evidence that it provided documentation of its associated protection system maintenance and testing program and the implementation of its program as defined in Requirement 2.

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Proposed Terms for the ARS Glossary:

Defined Terms Used in this Standard:

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

- *Alberta Interconnected Electric System (AIES)*
- *bulk electric system or BES**
- *day*
- *generation facility owner or GFO*
- *Independent System Operator or ISO*
- *protection system**
- *reliability standard*
- *transmission facility owner or TFO*

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

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