

**ARC Operations Work Group Assessment and Conversion of NERC PRC-009-0 to Alberta PRC-009-AB-0 UFLS Performance Following an Underfrequency Event**

<b>Section</b>	<b>NERC PRC-009-0</b>	<b>Alberta PRC-009-AB-0</b>	<b>Reason for Difference<sup>1</sup></b>
<b>Purpose</b>	Provide last resort System preservation measures by implementing an Under Frequency Load Shedding (UFLS) program.	<del>Provide last resort System preservation measures by implementing an Under Frequency Load Shedding (UFLS) program.</del> <u>The purpose of this reliability standard is to ensure effectiveness of the UFLS program performance.</u>	Align the purpose with the contents of the reliability standard.
<b>Applicability</b>	<p><b>4.1.</b> Transmission Owner required by its Regional Reliability Organization to own a UFLS program</p> <p><b>4.2.</b> Transmission Operator required by its Regional Reliability Organization to operate a UFLS program</p> <p><b>4.3.</b> Load-Serving Entity required by the Regional Reliability Organization to operate a UFLS program</p> <p><b>4.4.</b> Distribution Provider required by the Regional Reliability Organization to own or operate a UFLS program</p>	<p><del>4.1. Transmission Owner required by its Regional Reliability Organization to own a UFLS program</del></p> <p><del>4.2. Transmission Operator required by its Regional Reliability Organization to operate a UFLS program</del></p> <p><del>4.3. Load-Serving Entity required by the Regional Reliability Organization to operate a UFLS program</del></p> <p><del>4.4. Distribution Provider required by the Regional Reliability Organization to own or operate a UFLS program</del></p> <p><u>This reliability standard applies to the ISO.</u></p>	
<b>Effective Date</b>	April 1, 2005	<del>April 1, 2005</del> <u>Date approved 10 calendar days after the date of approval by the Commission.</u>	
<b>Definitions</b>		Italicized terms used in this reliability	Added definitions section

<sup>1</sup> 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”.

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		standard have the same meanings as set out in the Alberta Reliability Standards Glossary of Terms and Part 1 of the ISO Rules. <sup>2</sup>	to the Alberta reliability standard.
<b>Requirement</b>	<p><b>R1.</b> The Transmission Owner, Transmission Operator, Load-Serving Entity and Distribution Provider that owns or operates a UFLS program (as required by its Regional Reliability Organization) shall analyze and document its UFLS program performance in accordance with its Regional Reliability Organization's UFLS program. The analysis shall address the performance of UFLS equipment and program effectiveness following system events resulting in system frequency excursions below the initializing set points of the UFLS program. The analysis shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>R1.1 A description of the event including initiating conditions</li> <li>R1.2 A review of the UFLS set points and tripping times.</li> <li>R1.3 A simulation of the event.</li> <li>R1.4 A summary of the findings.</li> </ul>	<p><b>R1.</b> The <del>Transmission Owner, Transmission Operator, Load-Serving Entity and Distribution Provider that owns or operates a UFLS program (as required by its Regional Reliability Organization)</del> shall <u>ISO must</u> analyze and document its UFLS program performance in accordance with <del>the its Regional Reliability Organization</del> <u>WECC's</u> UFLS program. The analysis <del>shall</del> <u>must</u> address the performance of UFLS equipment and program effectiveness following system events resulting in system frequency excursions below the initializing set points of the UFLS program. The analysis <del>shall</del> <u>must</u> include, <del>but not be limited to</del> <u>without limitation the following:</u></p> <ul style="list-style-type: none"> <li>• A description of the <u>system</u> event including initiating conditions</li> <li>• A review of the UFLS set points and tripping times.</li> <li>• A simulation of the <u>system</u> event.</li> <li>• A summary of the findings.</li> </ul>	<p>Note: Information is provided to the ISO by facility owners and operators in accordance with OPP 1304 System Event Monitoring and Disturbance Reporting.</p>

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

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<b>Measure</b>	<b>M1.</b> Each Transmission Owner's, Transmission Operator's, Load-Serving Entity's and Distribution Provider's documentation of the UFLS program performance following an underfrequency event includes all elements identified in Reliability Standard PRC-009-0_R1.	<del><b>M1.</b> Each Transmission Owner's, Transmission Operator's, Load-Serving Entity's and Distribution Provider's documentation of the UFLS program performance following an underfrequency event includes all elements identified in Reliability Standard PRC-009-0_R1.</del> <u>MR1. Disturbance document(s) exist for each UFLS event. The disturbance document(s) contain analysis of the event.</u>	Developed appropriate measures for the requirement.
<b>Requirement</b>	<b>R2.</b> The Transmission Owner, Transmission Operator, Load-Serving Entity, and Distribution Provider that owns or operates a UFLS program (as required by its Regional Reliability Organization) shall provide documentation of the analysis of the UFLS program to its Regional Reliability Organization and NERC on request 90 calendar days after the system event.	<del><b>R2.</b> The Transmission Owner, Transmission Operator, Load-Serving Entity, and Distribution Provider that owns or operates a UFLS program (as required by its Regional Reliability Organization) shall</del> <u>ISO must</u> provide documentation of the analysis of the UFLS program <u>performance to its Regional Reliability Organization and NERC</u> WECC on request <del>90 calendar days after the system event</del> <u>and within the timeframe agreed to by the ISO and WECC.</u>	Provided clarity that documentation includes analysis of UFLS program <u>performance</u> as indicated in NERC measure M2.  <b>Alberta Variance<sup>3</sup>:</b> Clarified that the ISO only provides information to the WECC and not to NERC.

<sup>3</sup> An Alberta Variance is a change from the US Reliability Standard that the AESO has determined is material.

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<b>Measure</b>	<b>M2.</b> Each Transmission Owner, Transmission Operator, Load-Serving Entity and Distribution Provider that owns or operate a UFLS program, shall have evidence it provided documentation of the analysis of the UFLS program performance following an underfrequency event as specified in Reliability Standard PRC-009-0_R1.	<del>Each Transmission Owner, Transmission Operator, Load-Serving Entity and Distribution Provider that owns or operate a UFLS program, shall have evidence it provided documentation of the analysis of the UFLS program performance following an underfrequency event as specified in Reliability Standard PRC-009-0_R1.</del> MR2. Written confirmation from WECC that documentation was received.	Identified the type of evidence to be provided.
<b>Procedures</b>			
<b>Compliance</b>	To view the compliance section D of the NERC reliability standard follow this link: <a href="http://www.nerc.com/files/PRC-009-0.pdf">http://www.nerc.com/files/PRC-009-0.pdf</a>		There is no compliance section currently proposed in the Alberta Reliability Standards.  A compliance program will be developed at a later date for Alberta Reliability Standards that recognizes the compliance monitoring and enforcement structure in Alberta.  This approach is deemed consistent with the existing ISO Rules.



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<b>Regional Differences</b>	None identified.	None identified.	Not applicable in Alberta

**Proposed Terms for the Alberta Reliability Standard Glossary:**

None specified.

**Defined Terms Used in this Standard:**

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

- reliability standard
- Commission
- ISO
- day
- under frequency load shedding (UFLS)
- WECC