

**ARC Operations Work Group Assessment and Conversion of WECC FAC-501-WECC-1 to Alberta FAC-501-WECC-AB-1 – Transmission Maintenance**

Section	FAC-501-WECC-1	Alberta FAC-501-WECC-AB-1	Reason for Difference
<b>Purpose</b>	To ensure the Transmission Owner of a transmission path identified in the table titled “Major WECC Transfer Paths in the Bulk Electric System” including associated facilities has a Transmission Maintenance and Inspection Plan (TMIP); and performs and documents maintenance and inspection activities in accordance with the TMIP.	<del>The purpose of this reliability standard is to ensure the Transmission Owner TFO of a major transmission path, including associated facilities, has a Transmission Maintenance and Inspection Plan (TMIP); and performs and documents maintenance and inspection activities in accordance with the TMIP such that a reliable path is available.</del> <u>The purpose of this reliability standard is to ensure the TFO of a major transmission path, including associated facilities, has a Transmission Maintenance and Inspection Plan (TMIP); and performs and documents maintenance and inspection activities in accordance with the TMIP such that a reliable path is available.</u>	Apply consistent writing style. Simplified purpose.
<b>Applicability</b>	4.1. Transmission Owners that maintain the transmission paths in the most current table titled “Major WECC Transfer Paths in the Bulk Electric System” provided at: ( <a href="http://www.wecc.biz/documents/library...">http://www.wecc.biz/documents/library...</a> The table titled “Major WECC Transfer Paths in the Bulk Electric System” is Attachment 2 – TOP-007-WECC-1 in this document. The table will be posted on the WECC website.)	<del>4.1. Transmission Owners TFO's of major transmission path(s) that maintain the transmission paths as identified in the most current table titled “Major WECC Transfer Paths in the Bulk Electric System” provided on the WECC website, who maintain these paths at:</del> <u>4.1. Transmission Owners TFO's of major transmission path(s) that maintain the transmission paths as identified in the most current table titled “Major WECC Transfer Paths in the Bulk Electric System” provided on the WECC website, who maintain these paths at:</u>  <a href="http://www.wecc.biz/Docs/Documents/">http://www.wecc.biz/Docs/Documents/</a>	Identified the responsible entities in Alberta.
<b>Effective Date</b>	<b>5. Effective Date:</b> On the first day of the first quarter, after applicable	<del>5. Effective Date: On the first day of the first quarter, after applicable regulatory approval.</del>	Provide adequate time to allow TFOs to develop and document

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	regulatory approval.	<u>365 calendar days after approval by the Commission.</u>	their TMIP.
<b>Definitions</b>		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. <sup>1</sup>	Added definitions section to the Alberta reliability standard.
<b>Requirement</b>	<b>R.1.</b> Transmission Owners shall have a TMIP detailing their inspection and maintenance requirements that apply to all transmission facilities necessary for System Operating Limits associated with each of the transmission paths identified in table titled “Major WECC Transfer Paths in the Bulk Electric System.” <i>[Violation Risk Factor: Medium]</i> <i>[Time Horizon: Long-term Planning]</i>	<b>R1</b> <del>Transmission Owners</del> <u>The TFO's shall must have a</u> TMIP <u>must</u> detailing <del>their</del> <u>its</u> inspection and maintenance requirements <del>and must</del> <u>that</u> apply to all transmission facilities <u>that are associated with each of the transmission paths identified in Appendix attachment 1 to maintain necessary for system operating limits associated with each of the transmission paths.</u> <del>paths identified in table titled “Major WECC Transfer Paths in the Bulk Electric System.”</del> <i>[Violation Risk Factor: Medium]</i> <i>[Time Horizon: Long-term Planning]</i>	Identified the responsible entity in Alberta.  Identified the specific facilities that are to be included.
<b>Measure</b>	<b>M1.</b> Transmission Owners shall have a documented TMIP per R.1.	<b>MR1</b> <del>Transmission Owners</del> <u>The TFO shall have a</u> documented TMIP <del>per as identified in R:1</del> <u>exists and covers all transmission facilities as identified in Appendix attachment 1.</u>	Developed specific measure for the requirement.
<b>Requirement</b>	<b>R1.1.</b> Transmission Owners shall annually review their TMIP and update as required. <i>[Violation Risk</i>	<b>R1.1</b> <del>Transmission Owners</del> <u>The TFO shall must</u> review <del>their</del> <u>its</u> TMIP annually and update <u>it</u> as required. <i>[Violation Risk Factor: Medium]</i> <i>[Time</i>	Identified the responsible entity in Alberta.

<sup>1</sup> Defined terms are not italicized in this document, but will appear in the Alberta Reliability Standards document when it is developed.

**ARC Operations Work Group Assessment and Conversion of WECC FAC-501-WECC-1 to Alberta FAC-501-WECC-AB-1 – Transmission Maintenance**

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	<i>Factor: Medium] [Time Horizon: Long-term Planning]</i>	<i>Horizon: Long-term Planning]</i>	
<b>Measure</b>	<b>M1.1</b> Transmission Owners shall have evidence they have annually reviewed their TMIP and updated as needed.	<del>MR1.1 Transmission Owners</del> <u>The TFO shall have evidence exists that shows the TFO they have annually reviewed their TMIP annually and updated it as needed.</u>	Identified the responsible entity in Alberta.
<b>Requirement</b>		<b>R1.2</b> The TFO must annually submit <del>their-its</del> TMIP and any updates to the ISO.	New requirement to identify when the TMIP is to be submitted to the ISO.
<b>Measure</b>		<del>MR1.2</del> The TMIP and updates, <u>if any,</u> are received by the ISO annually.	Developed specific measure for the requirement.
<b>Requirement</b>	<b>R.2.</b> Transmission Owners shall include the maintenance categories in Attachment 1-FAC-501-WECC-1 when developing their TMIP. <i>[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]</i>	<del>R.2 The Transmission Owners TFO's TMIP must include, without limitation, the shall must include the following maintenance categories categories when developing in their TMIP:</del>  <del>R2.1 1-Transmission line maintenance details:</del> <del>    R2.1.1</del> <del>    a- Patrol/inspection</del> <del>    R2.1.2</del> <del>    b- Contamination control</del> <del>    e- R2.1.3 Tower and wood pole structure management</del>  <del>2- R2.2 Station maintenance details:</del> <del>    R2.2.1 a- Inspections</del>	Identified the responsible entity in Alberta.  Included specific sections from WECC Attachment 1 FAC-501-WECC-1.

**ARC Operations Work Group Assessment and Conversion of WECC FAC-501-WECC-1 to Alberta FAC-501-WECC-AB-1 – Transmission Maintenance**

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		<p><del>R2.2.2 b. Contamination control</del></p> <p><del>R2.2.3 e. Equipment maintenance for the following:</del></p> <ul style="list-style-type: none"> <li>• <del>Circuit breakers</del></li> <li>• <del>Power transformers (including phase-shifting transformers)</del></li> <li>— <del>Regulators</del></li> <li>• <del>Power transformers (including phase-shifting transformers)</del></li> <li>• <del>Regulators</del></li> <li>• <del>Reactive devices (including, but not limited to, Shunt capacitors, series capacitors, static VAR compensators, synchronous condensers, shunt reactors, and tertiary reactors)</del></li> <li>• <del>in Attachment 1-FAC-501-WECCAB-1 sections 3 and 4 when developing their TMIP. [Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]</del></li> </ul>	
<b>Measure</b>	<b>M2.</b> Transmission Owners shall have evidence that their TMIP addresses the required maintenance details of R.2.	<del>MR2 Transmission Owners</del> The TFO's shall have evidence that their TMIP addresses the required maintenance details of R-2.	
<b>Requirement</b>		<b>R.3</b> <del>The TFO's maintenance practices in the TMIP must</del> <u>may be performance-based, or time-based, or conditional based, or a combination of all three.</u>	New Requirement prepared from WECC Attachment 1 FAC-501-WECC-1.

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		<p><u>The TFO's TMIP must include scheduled intervals for any time-based maintenance practices and/or a description supporting condition or performance-based maintenance practices including a description of the condition or performance based trigger.</u></p>	
Measure		<p><u>MR3 The TMIP addresses the items in R-3.</u></p>	Developed measure for new requirement.
Requirement	<p><b>R.3.</b> Transmission Owners shall implement and follow their TMIP. [Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]</p>	<p><del>R.43</del> <u>Transmission Owners</u> <del>The TFO's shall</del> <u>must</u> implement <u>its TMIP</u> and <u>retain records that demonstrate such implementation including without limitation the following:</u></p> <p><u>R4.1</u> <del>1-</del> <u>The names of person individual or crew members responsible for _____ performing the work or inspection.</u></p> <p><u>R4.2</u> <del>2-</del> <u>The date(s) the work or inspection _____ was performed.</u></p> <p><u>R4.3</u> <del>3-</del> <u>The transmission facility on which _____ the work or inspection was performed, and</u></p> <p><u>R4.4</u> <del>4-</del> <u>A description of the inspection or maintenance performed.</u></p> <p><del>their TMIP. [Violation Risk Factor: Medium] [Time</del></p>	<p>Identified the responsible entity in Alberta.</p> <p>Enhanced the requirement to include a record of the implementation of the TMIP and what that record is to contain as embedded in the WECC measure for this requirement.</p>

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<b>Measure</b>	<p><b>M3.</b> Transmission Owners shall have records that they implemented and followed their TMIP as required in R.3. The records shall include:</p> <ol style="list-style-type: none"> <li>1. The person or crew responsible for performing the work or inspection,</li> <li>2. The date(s) the work or inspection was performed,</li> <li>3. The transmission facility on which the work was performed, and</li> <li>4. A description of the inspection or maintenance performed.</li> </ol>	<p><del>Horizon: Operations Assessment}</del></p> <p><del>MR43 Transmission Owners TFO's shall have records exist that show the TFO they implemented and followed their-its TMIP, as required in R.3. The records shall include:</del></p> <ol style="list-style-type: none"> <li><del>1. The person or crew responsible for performing the work or inspection,</del></li> <li><del>2. The date(s) the work or inspection was performed,</del></li> <li><del>3. The transmission facility on which the work was performed, and</del></li> <li><del>4. A description of the inspection or maintenance performed.</del></li> </ol>	<p>Identified the responsible entity in Alberta.</p> <p>Moved the requirement for records and the information they contain from NERC M3 into the Alberta requirement R4.</p>
<b>Procedures</b>	<p>To view the compliance section D of the NERC reliability standard follow this link:</p> <p><a href="http://www.nerc.com/files/FAC-501-WECC-1.pdf">http://www.nerc.com/files/FAC-501-WECC-1.pdf</a></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>



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			This approach is deemed consistent with the existing ISO Rules.
<b>Regional Differences</b>			Not applicable in Alberta

## ~~Attachment 1 FAC 501 WECCAB 1~~

### ~~Transmission Line and Station Maintenance Details~~

~~The maintenance practices in the TMIP may be performance based, time based, conditional based, or a combination of all three. The TMIP shall include:~~

- ~~1. A list of Facilities and associated Elements necessary to maintain the SOL for the transfer paths identified in the most current Table titled “Major WECC Transfer Paths in the Bulk Electric System;”~~
- ~~2. The scheduled interval for any time based maintenance activities and/or a description supporting condition or performance based maintenance activities including a description of the condition based trigger;~~
- ~~3. Transmission Line Maintenance Details:
  - ~~a. Patrol/Inspection~~
  - ~~b. Contamination Control~~
  - ~~c. Tower and wood pole structure management~~~~
- ~~4. Station Maintenance Details:
  - ~~a. Inspections~~
  - ~~b. Contamination Control~~
  - ~~c. Equipment Maintenance for the following:
    - ~~• Circuit Breakers~~
    - ~~• Power Transformers (including phase shifting transformers)~~~~~~

- ~~Regulators~~

- ~~Reactive Devices (including, but not limited to, Shunt Capacitors, Series Capacitors, Static Var Compensators, Synchronous Condensers, Shunt Reactors, and Tertiary Reactors)~~

### Appendix 1

#### Equipment and Facilities to be included in Path 1

WECC Path 1 – For this standard Path 1 shall include the following facilities:

1. 1201L from AB/BC boundary to Langdon 102S
2. 500kV breaker, reactor, switches, PT's, bus work at Langdon 102S
3. 500/240kV Transformer and 240kV switch at Langdon 102S
4. SVC at Langdon 102S
5. All equipment associated with the connection of the SVC to the 240kV bus including:
  - a) breaker 102S252 and associated switches
  - b) breaker 102S552 and associated switches
  - c) 240kV West bus
  - d) 240kV West bus PT's
6. 786L West from AB/BC boundary to Coleman 799S
7. Breaker 799S786W and associated switches
8. The 138kV bus at 799S and associated PT's
9. Breaker 799S170E and associated switches
10. 170L from Coleman 799S to Pincher Creek 396S
11. Breaker 396S10 and associated switches



12. [887L from AB/BC boundary to Pocaterra 48S](#)
13. [Breaker 48S887X and associated switches](#)
14. [Switch 48S777N and associated PT's](#)
15. [777L from Pocaterra 48S to Seebe 245S](#)
16. [Breaker 245S777X and associated switches](#)

Attachment 1-AB-FAC-501-WECCAB-1  
Equipment and Facilities to be included in Path 1

WECC Path 1— For this standard Path 1 shall include the following facilities:

- 1201L from AB/BC boundary to Langdon 102S
- 500kV breaker, reactor, switches, PT's, bus work at Langdon 102S
- 500/240kV Transformer and 240kV switch at Langdon 102S
- SVC at Langdon 102S
- All equipment associated with the connection of the SVC to the 240kV bus including:
  - breaker 102S252 and associated switches
  - breaker 102S552 and associated switches
  - 240kV West bus
  - 240kV West bus PT's
- 786L West from AB/BC boundary to Coleman 799S
- Breaker 799S786W and associated switches
- The 138kV bus at 799S and associated PT's
- Breaker 799S170E and associated switches
- 170L from Coleman 799S to Pincher Creek 396S
- Breaker 396S10 and associated switches
- 887L from AB/BC boundary to Pocaterra 48S
- Breaker 48S887X and associated switches
- a) Switch 48S777N and associated PT's
- 777L from Pocaterra 48S to Seebe 245S
- Breaker 245S777X and associated switches



### **Proposed Terms for the Alberta Reliability Standards Glossary:**

"TMIP" means a written plan for the regular and ongoing maintenance of transmission facilities;

### **Existing Defined Terms Used in this Standard:**

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

- reliability standard
- Commission
- Transmission facility owner (TFO)
- ISO
- Western Electricity Coordinating Council (WECC)
- bulk electric system
- merchant transmission facility
- system operating limit