

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
Purpose	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.	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), such that a reliable path is available.	Identified the responsible entity in Alberta. Simplified purpose.
Applicability	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: (http://www.wecc.biz/documents/library...) 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.)	TFOs of major transmission path(s) who maintain these paths as identified in the table “Major WECC Transfer Paths in the Bulk Electric System” on the WECC website.	Identified the responsible entities in Alberta.
Effective Date	5. Effective Date: On the first day of the first quarter, after applicable	365 calendar days after approval by the Commission.	

- ~~Deleted: Transmission Owner~~
- ~~Deleted: ;~~
- ~~Deleted: and performs and documents maintenance and inspection activities in accordance with the TMIP~~
- ~~Deleted: 4.1. Transmission Owners~~
- ~~Deleted: '~~
- ~~Deleted:~~
- ~~Deleted: that~~
- ~~Deleted: transmission~~
- ~~Deleted: most current~~
- ~~Deleted: titled~~
- ~~Deleted: provided~~
- ~~Deleted: at~~
- ~~Deleted: :~~
- ~~Deleted: <http://www.wecc.biz/Docs/Documents/> ¶~~
- ~~Deleted: 5.~~
- ~~Deleted: Effective Date: On the first day of the first quarter, after applicable regulatory approval.~~

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
	regulatory approval.		
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. ¹	Added definitions section to the Alberta reliability standard.
Requirement	R.1. 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] [Time Horizon: Long-term Planning]</i>	R1 The TFO’s TMIP must detail its inspection and maintenance requirements and must apply to all transmission facilities that are associated with each of the transmission paths identified in attachment 1.	Identified the responsible entity in Alberta. Identified the specific facilities that are to be included.
Measure	M1. Transmission Owners shall have a documented TMIP per R.1.	MR1 A documented TMIP as identified in R1 exists and covers all transmission facilities as identified in attachment 1.	Developed specific measure for the requirement.
Requirement	R1.1. Transmission Owners shall annually review their TMIP and update as required. <i>[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]</i>	R1.1 The TFO must review their TMIP annually and update it as required.	Identified the responsible entity in Alberta.

- Deleted: Transmission Owners
- Deleted: shall
- Deleted: must have a
- Deleted: ing
- Deleted: their
- Deleted: that
- Deleted: A
- Deleted: to maintain
- Deleted: necessary for
- Deleted: system operating limits associated with each of the transmission paths
- Deleted: paths identified in table titled “Major WECC Transfer Paths in the Bulk Electric System.” *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*
- Deleted: Transmission Owners
- Deleted: The TFO shall have a
- Deleted: per
- Deleted: .
- Deleted: A
- Deleted: Transmission Owners
- Deleted: shall
- Deleted: *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

¹ 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			
Section	FAC-501-WECC-1	Alberta FAC-501-WECC-AB-1	Reason for Difference
Measure	M1.1 Transmission Owners shall have evidence they have annually reviewed their TMIP and updated as needed.	MR1.1 Evidence exists that shows the TFO reviewed their TMIP annually and updated it as needed.	Identified the responsible entity in Alberta.
Requirement		R1.2 The TFO must annually submit their TMIP and any updates to the ISO.	New requirement to identify when the TMIP is to be submitted to the ISO.
Measure		MR1.2 The TMIP and updates, if any, are received by the ISO annually.	Developed specific measure for the requirement.
Requirement	R.2. Transmission Owners shall include the maintenance categories in Attachment 1-FAC-501-WECC-1 when developing their TMIP. [Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]	<p>R2 The TFO TMIP must include without limitation the following maintenance categories in their TMIP:</p> <p>1. <u>Transmission line maintenance details:</u> <u>a. Patrol/inspection</u> <u>b. Contamination control</u> <u>c. Tower and wood pole structure management</u></p> <p>2. <u>Station maintenance details:</u> <u>a. Inspections</u> <u>b. Contamination control</u> <u>c. Equipment maintenance for the following:</u> <ul style="list-style-type: none"> • <u>Circuit breakers</u> • <u>Power transformers (including phase-shifting transformers)</u> • <u>Regulators</u> • <u>Reactive devices (including, but not limited</u> </p>	<p>Identified the responsible entity in Alberta.</p> <p>Included specific sections from WECC Attachment 1 FAC-501-WECC-1.</p>

Deleted: Transmission Owners
Deleted: The TFO shall have e
Deleted: they have annually

Deleted: .
Deleted: Transmission Owners
Deleted: shall
Deleted: must include the
Deleted: categories
Deleted: when developing

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
		to, Shunt capacitors, series capacitors, static VAR compensators, synchronous condensers, shunt reactors, and tertiary reactors).	
Measure	M2. Transmission Owners shall have evidence that their TMIP addresses the required maintenance details of R.2.	MR2 The TMIP addresses the required maintenance details of R2.	
Requirement		<p>R3 The TFO's maintenance practices in the TMIP must be performance-based, or time-based, or conditional based, or a combination of all three.</p> <p>The TFO's TMIP must include scheduled intervals 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.</p>	New Requirement prepared from WECC Attachment 1 FAC-501-WECC-1.
Measure		MR3 The TMIP addresses the items in R3.	Developed measure for new requirement.
Requirement	R.3. Transmission Owners shall implement and follow their TMIP. [Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]	<p>R4 The TFO must implement its TMIP and retain records that demonstrate such implementation including the following without limitations:</p> <ul style="list-style-type: none"> The person or crew responsible for performing the work or inspection, The date(s) the work or inspection was 	<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</p>

- Deleted: ¶
- Deleted: in Attachment 1-FAC-501-
- Deleted: WECC
- Deleted: AB-1 sections 3 and 4 when developing their TMIP. [Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]
- Formatted: Indent: Left: 17.35 pt
- Deleted: Transmission Owners
- Deleted: TFO's shall have evidence that their
- Deleted: .
- Deleted: .
- Deleted: may
- Deleted:
- Deleted: .
- Deleted: .
- Deleted: 3
- Deleted: Transmission Owners
- Deleted: 's
- Deleted: shall
- Deleted: e
- Deleted: 1.
- Deleted: 2.

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
		<p><u>performed.</u></p> <ul style="list-style-type: none"> <u>The transmission facility on which the work was performed, and</u> <u>A description of the inspection or maintenance performed.</u> 	<p>embedded in the WECC measure for this requirement.</p>
Measure	<p>M3. 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"> The person or crew responsible for performing the work or inspection, The date(s) the work or inspection was performed, The transmission facility on which the work was performed, and A description of the inspection or maintenance performed. 	<p>MR4 Records exist that show the TFO implemented and followed its TMIP.</p>	<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>
Procedures			
Compliance	<p>D. Compliance</p> <p>1. Compliance Monitoring Process</p> <p>1.1 Compliance Monitoring</p>		<p>There is no compliance section currently proposed in the Alberta Reliability Standards.</p> <p>A compliance program will be</p>

- Deleted: 3.
- Deleted: 4.
- Deleted: ¶
- Deleted: their TMIP. [Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]
- Deleted: 3
- Deleted: Transmission Owners
- Deleted: TFO's shall have r
- Deleted: they
- Deleted: their
- Deleted: as required in R.3
- Deleted: .
- Deleted: The records shall include:
- Deleted: 1. The person or crew responsible for performing the work or inspection, ¶
- Deleted: 2. The date(s) the work or inspection was performed, ¶
- Deleted: 3. The transmission facility on which the work was performed, and ¶
- Deleted: 4. A description of the inspection or maintenance performed.

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
	<p>Responsibility Compliance Enforcement Authority</p> <p>1.2 Compliance Monitoring Period The Compliance Enforcement Authority may use one or more of the following methods to assess compliance:</p> <ul style="list-style-type: none"> - Self-certification conducted annually - Spot check audits conducted anytime with 30 days notice given to prepare - Periodic audit as scheduled by the Compliance Enforcement Authority - Investigations - Other methods as provided for in the Compliance Monitoring Enforcement Program <p>The Reset Time Frame shall be one year.</p> <p>1.3 Data Retention The Transmission Owners shall keep evidence for Measure M1 through M3 for three years plus</p>		<p>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>

**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
	<p>the current year, or since the last audit, whichever is longer.</p> <p>1.4 Additional Compliance Information</p> <p>No additional compliance information.</p> <p>2. Violation Severity Levels</p> <p>2.1. Lower: There shall be a Lower Level of non-compliance if any of the following conditions exist:</p> <p>2.1.1 The TMIP does not include associated Facilities for one of the Paths in Attachment 1 FAC-501-WECC-1 as required by R.1 but Transmission Owners are performing maintenance and inspection for the missing Facilities.</p> <p>2.1.2 Transmission Owners did not review their TMIP annually as required by R.1.1.</p> <p>2.1.3 The TMIP does not include one maintenance category identified in Attachment 1 FAC-501-WECC-1 as required by R.2 but Transmission Owners are</p>		

**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
	<p>performing maintenance and inspection for the missing maintenance categories.</p> <p>2.1.4 Transmission Owners and Transmission Operators do not have maintenance and inspection records as required by R.3 but have evidence that they are implementing and following their TMIP.</p> <p>2.2. Moderate: There shall be a Moderate Level of non-compliance if any of the following conditions exist:</p> <p>2.2.1 The TMIP does not include associated Facilities for two of the Paths identified in the most current Table titled “Major WECC Transfer Paths in the Bulk Electric System” as required by R.1 and Transmission Owners are not performing maintenance and inspection for the missing Facilities.</p> <p>2.2.2 The TMIP does not include two maintenance categories</p>		

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
	<p>identified in Attachment 1 FAC-501-WECC-1 as required by R.2 but Transmission Owners are performing maintenance and inspection for the missing maintenance categories.</p> <p>2.2.3 Transmission Owners are not performing maintenance and inspection for one maintenance category identified in Attachment 1 FAC-501-WECC-1 as required in R3.</p> <p>2.3. High: There shall be a High Level of non-compliance if any of the following condition exists:</p> <p>2.3.1 The TMIP does not include associated Facilities for three of the Paths identified in the most current Table titled “Major WECC Transfer Paths in the Bulk Electric System” as required by R.1 and Transmission Owners are not performing maintenance and inspection for the missing Facilities.</p> <p>2.3.2 The TMIP does not include</p>		

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
	<p>three maintenance categories identified in Attachment 1 FAC-501-WECC-1 as required by R.2 but Transmission Owners are performing maintenance and inspection for the missing maintenance categories.</p> <p>2.3.3 Transmission Owners are not performing maintenance and inspection for two maintenance categories identified in Attachment 1 FAC-501-WECC-1 as required in R3.</p> <p>2.4. Severe: There shall be a Severe Level of non-compliance if any of the following condition exists:</p> <p>2.4.1 The TMIP does not include associated Facilities for more than three of the Paths identified in the most current Table titled "Major WECC Transfer Paths in the Bulk Electric System" as required by R.1 and Transmission Owners are not performing maintenance and inspection for the missing Facilities.</p>		

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
	<p>2.4.2 The TMIP does not exist or does not include more than three maintenance categories identified in Attachment 1 FAC-501-WECC-1 as required by R.2 but Transmission Owners are performing maintenance and inspection for the missing maintenance categories.</p> <p>2.4.3 Transmission Owners are not performing maintenance and inspection for more than two maintenance categories identified in Attachment 1 FAC-501-WECC-1 as required in R3.</p>		
Regional Differences			Not applicable in Alberta

Attachment 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

Deleted: ¶

Deleted: Attachment 1-FAC-501-

Deleted: WECC

Deleted: AB-1 ¶
Transmission Line and Station Maintenance Details ¶

Deleted: ¶

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

Deleted: ¶

Deleted: 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;" ¶

Deleted: ¶

Deleted: 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; ¶

Deleted: ¶

Deleted: 3. Transmission Line Maintenance Details: ¶
 ¶
 a. Patrol/Inspection ¶
 ¶
 b. Contamination Control ¶
 ¶

... [1]

Deleted: -----Page Break-----

Deleted: -AB-FAC-501-WECCAB-1



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

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)