

A. Introduction

1. **Title:** Transmission Maintenance
2. **Number:** FAC-501-WECC-~~12~~
3. **Purpose:** To ensure the Transmission Owner of a transmission path identified in ~~the table titled “Attachment B, 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.
4. **Applicability**
 - 4.1 Transmission Owners that maintain the transmission paths in ~~the most current table titled “Attachment B, Major WECC Transfer Paths in the Bulk Electric System”~~ provided at:
<https://www.wecc.biz/Reliability/TableMajorPaths4-28-08.pdf>.
5. **Effective Date:** ~~July 1, 2011~~ The first day of the first quarter following applicable regulatory approval.

B. Requirements and Measures

~~R1.~~ Each Transmission Owners~~Owner~~ shall have a TMIP ~~detailing their inspection and maintenance requirements that apply to all transmission facilities necessary for System Operating Limits associated with~~ includes, at a minimum, each of the transmission paths identified in table titled “Major WECC Transfer Paths in the Bulk Electric System.” items listed in Attachment A, Transmission Maintenance and Inspection Plan Content. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

~~R1.1.~~ Transmission Owners~~M1.~~ Each Transmission Owner will have evidence that it has a TMIP detailing each of the items listed in Attachment A, as required in Requirement R1.

~~R2.~~ Each Transmission Owner shall annually ~~review their TMIP and update as required.~~ its TMIP to reflect all changes to its TMIP. *[Violation Risk Factor: Medium] -[Time Horizon: Long-term Planning]*

~~Transmission Owners shall~~ M2. Each Transmission Owner will have evidence that it annually updated its TMIP, as required in Requirement R2. When an annual update shows that no changes are required to the TMIP, evidence may include the maintenance categories in Attachment 1 FAC 501 WECC 1 when developing their TMIP, but is not limited to, attestation that the update was performed but showed that no changes were required.

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R3. Each Transmission Owner shall adhere to its TMIP. [Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]

~~R.1.~~ M3. Each Transmission Owners shall implement and follow their TMIP. [Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]

A. Measures

~~M1.~~ Transmission Owners shall have a documented TMIP per R.1.

~~M1.1~~ Transmission Owners shall have evidence they have annually reviewed their TMIP and updated as needed.

~~M2.~~ Transmission Owners shall Owner will have evidence that their TMIP addresses the required maintenance details of R.2.

~~M3.~~ Transmission Owners shall have records that they implemented and followed their TMIP it adhered to its TMIP, as required in R.3. The records shall Requirement R3. Evidence may include, but is not limited to:

1.1 The ~~person or crew responsible for performing~~ date(s) the work ~~patrol, inspection or maintenance was performed;~~

~~1.~~ The transmission Facility ~~or inspection,~~

~~2.~~ The date(s) the work or inspection was performed,

~~1.1.2~~ The ~~transmission facility~~ Element on which the ~~work~~ maintenance was performed, ~~and;~~

~~1.2.3~~ A description of the inspection results or maintenance performed.

C. Compliance

1. Compliance Monitoring Process

- 1.1. **Compliance Enforcement Authority:** “Compliance Enforcement Authority” means NERC or the Regional Entity, or any entity as otherwise designated by an Applicable Governmental Authority, in their respective roles of monitoring and/or enforcing compliance with mandatory and enforceable Reliability Standards in their respective jurisdictions.
- 1.2. **Evidence Retention:** The following evidence retention period(s) identify the period of time an entity is required to retain specific evidence to demonstrate compliance. For instances where the evidence retention period specified below is shorter than the time since the last audit, the Compliance Enforcement Authority may ask an entity to provide other evidence to show that it was compliant for the full-time period since the last audit.

The applicable entity shall keep data or evidence to show compliance as identified below unless directed by its Compliance Enforcement Authority to retain specific evidence for a longer period of time as part of an investigation.

- The Transmission Owners listed in section 4.1 shall keep data or evidence of Requirements 1-3 for three calendar years, or since the last audit, whichever is longer.

~~2.1 Additional Compliance Information~~

~~No additional compliance information.~~

- 1.3. **Compliance Monitoring and Enforcement Program:** As defined in the NERC Rules of Procedure, “Compliance Monitoring and Enforcement Program” refers to the identification of the processes that will be used to evaluate data or information for the purpose of assessing performance or outcomes with the associated Reliability Standard.

Violation Severity Levels

2.1. Lower: There shall be a Lower Level of non-compliance if any of the following conditions exist:

The TMIP does not include associated

R.#	Violation Severity Levels			
	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	<u>The Transmission Owner's TMIP did not include one of the items listed in Attachment A, as required in Requirement R1.</u>	<u>The Transmission Owner's TMIP did not include two of the items listed in Attachment A, as required in Requirement R1.</u>	<u>The Transmission Owner's TMIP did not include three of the items listed in Attachment A, as required in Requirement R1.</u>	<u>The Transmission Owner's TMIP did not include four or more of the items listed in Attachment A, as required in Requirement R1.</u>
R2.	<u>The Transmission Owner did not annually update its TMIP (within the 365 days following the last review), as required by R2.</u>	<u>The Transmission Owner did not update its TMIP within the last one year and 1 day (within the 366 days following the last review), as required by R2.</u>	<u>The Transmission Owner did not update its TMIP within the last two years and 1 day (within the 731 days following the last review), as required by R2.</u>	<u>The Transmission Owner did not update its TMIP within the last three years and 1 day (within the 1095 days following the last review), as required by R2.</u>
R3.	<u>The Transmission Owner failed to adhere to: 1) one transmission line maintenance item, or 2) one station maintenance item, as contained in its TMIP, as required in R3.</u>	<u>The Transmission Owner failed to adhere to: 1) two transmission line maintenance items; or, 2) two station maintenance items; or 3) any combination of two items taken from the above list, for items contained in its TMIP, as</u>	<u>The Transmission Owner failed to adhere to: 1) three transmission line maintenance items; or, 2) three station maintenance items; or 3) any combination of three items taken from the above list, for items contained in its TMIP, as</u>	<u>The Transmission Owner failed to adhere to: 1) four or more transmission line maintenance items; or, 2) four or more station maintenance items; or, 3) any combination of four or more items taken from the above list, for items contained in its TMIP, as required in R3.</u>

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		<u>required in R3.</u>	<u>required in R3.</u>	
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D. Regional Variances

None.

E. Associated Documents

None

~~2.1.1~~ ~~Facilities~~ for one of the Paths identified in Attachment 1 FAC 501 WECC 1 as required by R.1 but Transmission Owners are performing maintenance and inspection for the missing Facilities.

~~2.1.2~~ Transmission Owners did not review their TMIP annually as required by R.1.1.

~~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 performing maintenance and inspection for the missing maintenance categories.

~~2.1.4~~ Transmission Owners do not have maintenance and inspection records as required by R.3 but have evidence that they are implementing and following their TMIP.

~~2.2. Moderate:~~ There shall be a Moderate Level of non-compliance if any of the following conditions exist:

~~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.

~~2.2.2~~ The TMIP does not include two 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.

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~~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.

~~2.3. High:~~ There shall be a High Level of non-compliance if any of the following condition exists:

~~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.

~~2.3.2~~ The TMIP does not include 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.

~~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.

~~2.4. Severe:~~ There shall be a Severe Level of non-compliance if any of the following condition exists:

~~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.

~~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.

~~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.

Version History – Shows Approval History and Summary of Changes in the Action Field

Version	Date	Action	Change Tracking
1	April 16, 2008	Permanent Replacement Standard for PRC-STD-005-1	
1	October 29, 2008	NERC BOT conditional approval	
1	April 21, 2011	FERC Approved in Order 751	

WECC Standard FAC-501-WECC-2 – Transmission Maintenance

Attachment 1- FAC-501- WECC 1-2	<u>TBD</u>	<u>TBD</u>	<u>1) Conformed to newest NERC template and drafting conventions, 2) eliminated URLs, 3) clarified Attachment A, and Measure 3M.</u>
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Posting 6 Final Not For Comment

Attachment A

Transmission Line and Station Maintenance Details and Inspection Plan Content

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

1. Facilities

~~A list of Facilities and associated (e.g., transmission lines, transformers, etc.) and Elements necessary to maintain the SOL for the transfer paths (e.g. circuit breaker, bus section, etc.) that comprise each transmission path(s) identified in the most current Table titled "Attachment B, Major WECC Transfer Paths in the Bulk Electric System;"~~

- ~~1. 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;~~

2. Maintenance Methodology

~~A description of the maintenance methodology used for the Facility, transmission line, or station included in the TMIP.~~

~~The TMIP maintenance methodology may be any one of the following or any combination thereof, but must include at least one of the following:~~

- ~~• Performance-based~~
- ~~• Time-based~~
- ~~• Condition based~~

3. Periodicity

~~A specification of the periodicity that the described maintenance will occur, or under what circumstances it occurs.~~

4. Transmission Line Maintenance Details:

~~A description of each of the following for the transmission line(s) included in the TMIP:~~

- ~~a. Inspection requirements~~
- ~~b. Patrol/Inspection requirements~~
 - ~~a. Contamination Control~~
- ~~c. Tower and wood pole structure management~~

5. Station Maintenance Details:

- ~~b. Inspections~~
- ~~e. Contamination Control~~

~~A description of each of the following for each station included in the TMIP:~~

- ~~a. Inspection requirements~~

a.b. Equipment ~~Maintenance~~maintenance for each of the following:

1. Circuit Breakers~~breakers~~

~~2. Power Transformers (including phase-shifting transformers)~~

~~Regulators~~

~~Reactive Devices (including, but not limited to, phase-shifting transformers)~~

3. Reactive devices (including, but not limited to, shut capacitors, series capacitors, synchronous condensers, shunt reactors, and tertiary reactors)

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Attachment B

Major WECC Transfer Paths in the Bulk Electric System (Shunt Capacitors, Series-Capacitors, Synchronous Condensers, Shunt Reactors, and Tertiary Reactors)

	<u>PATH NAME*</u>	<u>Path Number</u>
1.	<u>Alberta – British Columbia</u>	<u>1</u>
2.	<u>Northwest – British Columbia</u>	<u>3</u>
3.	<u>West of Cascades – North</u>	<u>4</u>
4.	<u>West of Cascades – South</u>	<u>5</u>
5.	<u>West of Hawaii</u>	<u>6</u>
6.	<u>Montana to Northwest</u>	<u>8</u>
7.	<u>Idaho to Northwest</u>	<u>14</u>
8.	<u>South of Los Banos or Midway- Los Banos</u>	<u>15</u>
9.	<u>Idaho – Sierra</u>	<u>16</u>
10.	<u>Borah West</u>	<u>17</u>
11.	<u>Idaho – Montana</u>	<u>18</u>
12.	<u>Bridger West</u>	<u>19</u>
13.	<u>Path C</u>	<u>20</u>
14.	<u>Southwest of Four Corners</u>	<u>22</u>
15.	<u>PG&E – SPP</u>	<u>24</u>
16.	<u>Northern – Southern California</u>	<u>26</u>
17.	<u>Intmntn. Power Project DC Line</u>	<u>27</u>
18.	<u>TOT 1A</u>	<u>30</u>
19.	<u>TOT 2A</u>	<u>31</u>
20.	<u>Pavant – Gonder 230 kV</u> <u>Intermountain – Gonder 230 kV</u>	<u>32</u>
21.	<u>TOT 2B</u>	<u>34</u>
22.	<u>TOT 2C</u>	<u>35</u>
23.	<u>TOT 3</u>	<u>36</u>
24.	<u>TOT 5</u>	<u>39</u>
25.	<u>SDGE – CFE</u>	<u>45</u>
26.	<u>West of Colorado River (WOR)</u>	<u>46</u>
27.	<u>Southern New Mexico (NM1)</u>	<u>47</u>
28.	<u>Northern New Mexico (NM2)</u>	<u>48</u>
29.	<u>East of the Colorado River (EOR)</u>	<u>49</u>
30.	<u>Cholla – Pinnacle Peak</u>	<u>50</u>
31.	<u>Southern Navajo</u>	<u>51</u>
32.	<u>Brownlee East</u>	<u>55</u>
33.	<u>Lugo – Victorville 500 kV</u>	<u>61</u>
34.	<u>Pacific DC Intertie</u>	<u>65</u>
35.	<u>COI</u>	<u>66</u>
36.	<u>North of John Day cutplane</u>	<u>73</u>
37.	<u>Alturas</u>	<u>76</u>
38.	<u>Montana Southeast</u>	<u>80</u>
39.	<u>SCIT**</u>	
40.	<u>COI/PDCI – North of John Day cutplane**</u>	

* For an explanation of terms, path numbers, and definition for the paths refer to WECC’s Path Rating Catalog.

** The SCIT and COI/PDCI-North of John Day Cutplane are paths that are operated in accordance with nomograms identified in WECC’s Path Rating Catalog.

Standards Authorization Request (SAR)

WECC-0120 FAC-501-WECC-2 Transmission Maintenance SAR

Approvals Required

- WECC Ballot Pool Pending
- WECC Board of Directors Pending
- NERC Board of Trustees Pending
- FERC Pending

Applicable Entities

Transmission Owners that maintain the transmission paths in the most current WECC Major Paths table (Attachment B of the standard)

Conforming Changes to Other Standards

None are required.

Proposed Effective Date

The first day of the first quarter following regulatory approval

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Justification

The WECC-0120, FAC-501-WECC-2, Transmission Maintenance Drafting Team (DT) has reviewed NERC Standards, both in effect and those standards that are NERC Board of Trustees approved pending regulatory filing. The DT concluded that the proposed substantive changes pose a minimal burden beyond ordinary and current operations. As such, the short implementation time should impose no undue burden.

Consideration of Early Compliance

The DT foresees no negative impacts to reliability in the event of early compliance.

Retirements

None