A. Introduction

1. **Title:** Transmission Maintenance

2. **Number:** FAC-501-WECC-3

3. **Purpose:** To ensure the Transmission Owner of a path identified in Attachment B, Path Names Identified for Transmission Maintenance and Inspection, has a Transmission Maintenance and Inspection Plan (TMIP) for those paths, annually updates its TMIP, and adheres to the TMIP.

4. **Applicability**

   4.1 Transmission Owners maintaining paths listed on Attachment B.

5. **Facilities**

   5.1 Bulk Electric System Facilities, Elements, Transmission Lines, and other equipment as listed on Attachment A Transmission Maintenance and Inspection Plan (TMIP) Content, comprising the named paths on Attachment B, Path Names Identified for Transmission Maintenance and Inspection

6. **Effective Date:** See Posting 4, Implementation Plan

B. Background

(This section may be removed from the standard to align with NERC's current trends. If so, the content will be provided to NERC as part of WECC's filing with a request for approval.)

In July and August of 1996, the Western Interconnection experienced two widespread outages resulting from inadequate vegetation management. In March 1997, the Western Systems Coordinating Council (WSCC) trustees created the WSCC Reliability Management System (RMS) Policy Group establishing a remedial contract-based operational agreement known as the RMS. Although the RMS was established in response to the 1996 vegetation-related outages, unlike the FAC-003-X Transmission Vegetation Management standard, neither the RMS nor those standards evolving from it had vegetation management as their primary purpose. Rather the initial version of WECC's regional Reliability Standards were designed to address the outages collectively by continuing operational practices addressed in the RMS.[1]

By February 2000, the WSCC translated the RMS into what would become the first version of NERC's mandatory Reliability Standards. In that process, the list of paths contained in the 2000 RMS, Table 4 migrated from the RMS into PRC-STD-005-1 (PRC), Transmission Maintenance, Attachment A, Table 2, Existing WECC Transfer Paths (BPTP), (Revised February 2006), and was permanently replaced with FAC-501-WECC-1 and 2, Transmission

[1] The initial version of WECC's regional Reliability Standards were colloquially referred to as Version Zero standards. Version Zero is not a term used in the NERC Glossary of Terms Used in Reliability Standards. (See Docket No. RR07-11-000, July 2007).

Maintenance (Version 2, 2018).

The paths listed in Attachment B did not change between 2000 and 2020. Neither the RMS nor the filings of PRC-STD-005-1, FAC-501-WECC-1 or 2 explain *why* the specific paths were added to Attachment B, except that the RMS defines those paths as being monitored by the "Security Coordinator."

The addition of FAC-501-WECC-3, Attachment C, Revision Process is intended to provide a streamlined development procedure for adding, removing or modifying paths listed on Attachment B. Specific equipment comprising a path can be identified on FAC-501-WECC-3, Attachment A, Transmission Maintenance and Inspection Plan.

C. Requirements and Measures

R1. Each Transmission Owner shall have a TMIP that includes, at a minimum, each of the items listed in Attachment A, Transmission Maintenance and Inspection Plan (TMIP) Content. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

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 update its TMIP to reflect all changes to its TMIP. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*

M2. Each Transmission Owner will have evidence that it annually updated its TMIP, as required in Requirement R2. When an annual update shows no changes are required to the TMIP, evidence may include but is not limited to, attestation that the update was performed but showed no changes were required.

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

M3. Each Transmission Owner will have evidence that it adhered to its TMIP, as required in Requirement R3. Evidence may include, but is not limited to:

1.1 The date(s) the patrol, inspection or maintenance was performed;

1.2 The equipment on which the maintenance was performed;

1.3 A description of the inspection results or maintenance performed.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Enforcement Authority: As defined in the NERC Rules of Procedure, "Compliance Enforcement Authority" (CEA) means NERC or the Regional Entity in their respective roles of monitoring and enforcing compliance with the NERC Reliability Standards.

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 R1-R3 for three calendar years, or since the last audit, whichever is longer.

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

R #	Violation Severity Levels			
	Lower VSL	Moderate VSL	High VSL	Severe VSL
R1.	The Transmission Owner's TMIP did not include one of the items listed in Attachment A, as required in Requirement R1.	The Transmission Owner's TMIP did not include two of the items listed in Attachment A, as required in Requirement R1.	The Transmission Owner's TMIP did not include three of the items listed in Attachment A, as required in Requirement R1.	The Transmission Owner's TMIP did not include four or more of the items listed in Attachment A, as required in Requirement R1.
R2.	The Transmission Owner did not annually update its TMIP (within the 365 days following the last review), as required by R2.	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.	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.	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.
R3.	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.	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 required in R3.	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 required in R3.	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.

E. Regional Variances

None.

F. Associated Documents

Attachment C, Revision Process is *not* part of this standard. Attachment C describes the procedure whereby paths are added to or removed from Attachment B.

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	
2	July 1, 2017	Approved by the WECC Board of Directors.	1) Conformed to newest NERC template and drafting conventions, 2) eliminated URLs, 3) clarified Attachment A, and Measure M3.
2	February 8, 2018	Adopted by the NERC Board of Trustees.	
2	May 30, 2018	FERC Order issued approving FAC-501-WECC-2. Docket No. RD18-5-000. Effective July 1, 2018.	
3		TBD	This project: 1) adds a Background and a Facilities section, 2) updates Attachment A, with emphasis in Section 2, 3) updates the title to Attachment B and deletes Paths 22, 50, 51, and 73, 4) creates Attachment C, Revision Process (C is not part of this standard), and 5) updates NERC's Compliance section.

Attachment A
Transmission Maintenance and Inspection Plan (TMIP) Content

The TMIP shall include, at a minimum, each of the following items:

1. Facilities

A list of Facilities, Elements, Transmission Lines, and other equipment comprising the named paths on Attachment B, Path Names Identified for Transmission Maintenance and Inspection

2. Maintenance Method

A description of the maintenance method(s) used for the equipment included in the TMIP.

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

- Performance-based
    - This approach conducts maintenance by first defining the outcome then designing a maintenance program to meet the end performance.
- Time-based
    - This approach conducts maintenance based on defined timelines or specific events.
- Condition-based
    - This approach conducts maintenance based on the current condition of equipment.
- Risk-based
    - This approach conducts maintenance proactively based on predictive modeling. This approach is a benefit/burden analysis weighing the cost of maintenance against the likelihood of component failure. Equipment posing a greater risk to reliability in the event of failure may be maintained more frequently than components posing a lower reliability risk in the event of failure.
- Original Equipment Manufacturer
    - This approach is based on the recommendations of the equipment manufacturer.

3. Periodicity

Based on the maintenance method(s) selected in Item 2 above, the TMIP shall include a specification of the periodicity at which the described maintenance will occur or under what circumstance it occurs.

4. Transmission Line Maintenance and Inspection

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

a. Inspection requirements

b. Patrol requirements

c. Tower and wood pole structure management

5. Station Maintenance and Inspection

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

a. Inspection requirements

b. Equipment maintenance for each of the following:

1. Circuit breakers

2. Power transformers, specifically including phase-shifting transformers, where present.

3. Reactive devices, specifically including shunt capacitors, series capacitors, synchronous condensers, shunt reactors, and tertiary reactors, where present.

Attachment B

Path Names Identified for Transmission Maintenance and Inspection

PATH NAME[2]	Path Number
Alberta – British Columbia	1
Northwest – British Columbia	3
West of Cascades – North	4
West of Cascades – South	5
West of Hatwai	6
Montana to Northwest	8
Idaho to Northwest	14
South of Los Banos or Midway- Los Banos	15
Idaho – Sierra	16
Borah West	17
Idaho – Montana	18
Bridger West	19
Path C	20
Reserved	Reserved
PG&E – SPP	24
Northern – Southern California	26
Intmntn. Power Project DC Line	27
TOT 1A	30
TOT 2A	31
Pavant – Gonder 230 kV Intermountain – Gonder 230 kV	32
TOT 2B	34
TOT 2C	35
TOT 3	36
TOT 5	39
SDGE – CFE	45
West of Colorado River (WOR)	46
Southern New Mexico (NM1)	47
Northern New Mexico (NM2)	48
East of the Colorado River (EOR)	49
Reserved	Reserved
Reserved	Reserved
Brownlee East	55
Lugo – Victorville 500 kV	61
Pacific DC Intertie	65
COI	66
Reserved	Reserved
Alturas	76
Montana Southeast	80
SCIT[3]	
COI/PDCI – North of John Day cutplane[4]	

[2] For an explanation of terms, path numbers, and definition for the paths refer to WECC's Path Rating Catalog.
[3] The SCIT is a path operated in accordance with nomograms identified in WECC's Path Rating Catalog.
[4] The COI/PDCI is a path operated in accordance with nomograms identified in WECC's Path Rating Catalog.

Attachment C
Revision Process

Purpose and Process Approval

This Attachment C, Revision Process (Revision Process) is to be used in lieu of the WECC Reliability Standards Development Procedures when adding paths to or removing paths from FAC-501-WECC-X, Attachment B, Path Names Identified for Transmission Maintenance and Inspection, or its successor.

Although the content of Attachment B and the WECC Path Rating Catalog (Catalog) are similar, changes made to either document are governed by two separate processes. Changes to Attachment B are governed by this Revision Process (Attachment C). Changes made to the Catalog have been governed by the WECC Project Coordination and Path Rating Processes (PRP) since 1998 or earlier. A change made to Attachment B per Attachment C does not make a change to the Catalog. A change made to the Catalog does not make a change to Attachment B.

Changes to Attachment B made per this Revision Process only require the approval of the WECC Board of Directors, followed by an informational filing with NERC and FERC.

Changes to Attachment C require approval of the WECC Board of Directors, the NERC Board of Trustees, and the Federal Energy Regulatory Commission.

The Attachment C, Revision Process is not a part of FAC-501-WECC-3 or its successors.

Overview

Paths once deemed essential to stability may no longer be essential as changes are made to the operation, planning, and configuration of the Bulk Electric System. As such, those paths and the equipment comprising those paths may be considered for deletion from Attachment B because it no longer warrants the more stringent level of maintenance required by FAC-501-WECC-3, or its successors. Conversely, where system changes warrant a more stringent level of maintenance on specific equipment, the associated path may be considered for addition to Attachment B.

A review of the development record leading to FAC-501-WECC-3 concluded:

1) The list of Path Names on FAC-501-WECC-3, Attachment B has not substantively changed between 2000 and 2020.
2) The record does not provide the criteria by which the paths (AKA: Path Names) were chosen.
3) A 2020-2021 review of the paths listed on Attachment B could not discern any common operational features.

Technical Study and Request

A Transmission Owner, Transmission Operator, or Reliability Coordinator may request the WECC Operating Committee, or its successor add or remove paths from Attachment B. That request shall include each of the following:

1. A description of the path to be added or removed from Attachment B;
2. A description of the circumstances necessitating the requested change;
3. A description of the study method used in support of the requested change;
4. A description of the impacts disclosed by the relevant studies;
5. A description of maintenance practices applicable to the path at the time of the request, and a description of the maintenance practices that would apply if the path is approved for removal from Attachment B.
6. A report on enforceable NERC Standards that may be impacted by the requested change.
    a. If a review of enforceable NERC Standards shows that accepting the request for addition or removal will have no impact on other Standards, a statement to that effect meets this requirement.
7. The proposed effective date for the requested change, subject to required approvals;
    a. The actual effective date shall be the latter of the proposed effective date or the first day of the third month following FERC's receipt of the required informational filing;
8. Contact information for entities to provide comments related to the requested change.

Notice/Comment/Response

To ensure an open and transparent process, after completion of the technical studies and request described above, the following notice shall be provided from the entity requesting the change:

1. Notice of the proposed change shall be made specifically to: 1) the Transmission Owner(s) that maintains the path identified in Attachment B, 2) the Transmission Operator(s) that operates the path identified in Attachment B, and 3) the Reliability Coordinator(s) having oversight of the path identified in Attachment B.
2. Notice of the proposed change shall be made generically by dispatching notice of the proposed change(s) via WECC's Standard Email List, or its successor (as created per the WECC Reliability Standards Development Procedures, or its successor).
3. Notice of the proposed change shall allow for a 30-day comment period during which comments regarding the requested change shall be received.
4. The entity making the request shall consider and respond to each comment received. Multiple comment/response periods may be used. Comments and responses will be posted on the WECC website.

Request for Approval

1. At the conclusion of the comment/response cycle(s), the entity requesting the change shall present its findings to the WECC Operating Committee, or its successor.

Thereafter, the requested change will be presented to the WECC Board of Directors for final disposition.

2. Changes to Attachment B approved by the WECC Board of Directors will be filed with NERC and FERC for information purposes.