

WECC Standard FAC-501-WECC-1 – Transmission Maintenance

Standard Development Roadmap

This section is maintained by the drafting team during the development of the standard and will be removed when the standard becomes effective.

Development Steps Completed:

Completed Actions	Completion Date
1. Post Draft Standard for initial industry comments	September 4, 2007
2. Drafting Team to review and respond to initial industry comments	November 1, 2007
3. Post second Draft Standard for industry comments	November 9, 2007
4. Drafting Team to review and respond to industry comments	January 7, 2008
5. Post Draft Standard for Operating Committee approval	January 17, 2008
6. Operating Committee ballots proposed standard	March 6, 2008
7. Post Draft Standard for WECC Board approval	March 12, 2008

Description of Current Draft:

The purpose of this standard is to create a permanent replacement standard for PRC-STD-005-1. In response to comments, the drafting team changed the name of the standard from PRC-005-WECC-1 to FAC-501-WECC-1 to better align with the NERC numbering system. FAC-501-WECC-1 is designed to implement the directives of FERC and recommendations of NERC when PRC-STD-005-1 was approved as a NERC reliability standard. This posting of the standard is for WECC Board of Director ballot. The Operating Committee recommends that the WECC Board of Directors approve the FAC-501-WECC-1 as a permanent replacement standard for PRC-STD-005-1 and that the Board of Directors submit the standard to the NERC and FERC for approval.

Justification for a Regional Standard

The NERC standard PRC-005-1 has requirements for equipment maintenance and inspection of relay and backup power systems. FAC-003-1 has requirements for vegetation management. The NERC standards do not have any maintenance and test requirements for the additional components such as breakers, reactive devices, transformers and the associated transmission line. The 40 major paths listed in the Attachment 1-FAC-501-WECC-1 are significant components for reliable delivery of power in the Western Interconnection. Breaker, transformer, and insulator failures cause reductions to the System Operating Limits (SOL) for those paths, and thus limit transfers between remotely located generation in the Western Interconnection and population/load centers.

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The entities of the Western Interconnection through study and operation see optimizing the capacity for these paths as critical to the reliability of the Western Interconnection. The lack of redundant transmission in these corridors raises the level of scrutiny for the components and facilities associated with these paths; therefore, this standard is designed to minimize the SOL reductions required to maintain reliable Western Interconnection operation.

Future Development Plan:

Anticipated Actions	Anticipated Date
1. Post Draft Standard for NERC comment period	March 28, 2008
2. WECC Board ballots proposed standard	April 16-18, 2008
3. Drafting Team to review and respond to NERC industry comments	May 2008
4. NERC Board approval request	May 2008
5. Request FERC approval	June 2008

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Definitions of Terms Used in Standard

This section includes all newly defined or revised terms used in the proposed standard. Terms already defined in the Reliability Standards Glossary of Terms are not repeated here. New or revised definitions listed below become approved when the proposed standard is approved. When the standard becomes effective, these definitions will be removed from the standard and added to the Glossary.

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A. Introduction

- 1. Title:** Transmission Maintenance
- 2. Number:** FAC-501-WECC-1
- 3. 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.
- 4. 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:
[\(<http://www.wecc.biz/documents/library...> The table titled “Major WECC Transfer Paths in the Bulk Electric System” is Attachment 2 – TOP-007-WECC-1 in this document. The table will be posted on the WECC website.\)](http://www.wecc.biz/documents/library...)
- 5. Effective Date:** On the first day of the first quarter, after applicable regulatory approval.

B. Requirements

- 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.” *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*
 - R1.1.** Transmission Owners shall annually review their TMIP and update as required. *[Violation Risk Factor: Medium] [Time Horizon: Long-term Planning]*
- 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]*
- R.3.** Transmission Owners shall implement and follow their TMIP. *[Violation Risk Factor: Medium] [Time Horizon: Operations Assessment]*

C. 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 have evidence that their TMIP addresses the required maintenance details of R.2.

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M3. Transmission Owners shall have records that they implemented and followed their TMIP as required in R.3. The records shall include:

1. The person or crew responsible for performing the work or inspection,
2. The date(s) the work or inspection was performed,
3. The transmission facility on which the work was performed, and
4. A description of the inspection or maintenance performed.

D. Compliance

1. Compliance Monitoring Process

1.1 Compliance Monitoring Responsibility

Compliance Enforcement Authority

1.2 Compliance Monitoring Period

The Compliance Enforcement Authority may use one or more of the following methods to assess compliance:

- 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

The Reset Time Frame shall be one year.

1.3 Data Retention

The Transmission Owners shall keep evidence for Measure M1 through M3 for three years plus the current year, or since the last audit, whichever is longer.

1.4 Additional Compliance Information

No additional compliance information.

2. Violation Severity Levels

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

2.1.1 The TMIP does not include associated Facilities for one of the Paths

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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 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.

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.
- 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.

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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	January 1, 2008	Permanent Replacement Standard for PRC-STD-005-1	

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Attachment 1-FAC-501-WECC-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, Synchronous Condensers, Shunt Reactors, and Tertiary Reactors)

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(This document will be posted on the WECC Website)

Attachment 2 – TOP-007-WECC-1

Table

**Major WECC Transfer Paths in the Bulk Electric System
(Revised September 1, 2007)**

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

* 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.