Exhibit A
Technical Justification, Retirement of WECC Regional Reliability Standard PRC-004-WECC-2 Protection System and Remedial Action Scheme Misoperation

Technical Justification

WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
Request to Retire

Cover Sheet

Technical Justification
Retirement of WECC Regional Reliability Standard
PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation

White Paper:
Retirement of WECC Regional Reliability Standard PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation

Technical Justification

WECC Standards Committee

June 21, 2017

Developed as: WECC-0126

155 North 400 West, Suite 200

Salt Lake City, Utah 84103-1114

Attachment G

Technical Justification

WECC-0126 PRC-004-WECC-2 Protection System and Remedial Action Scheme Misoperation Request to Retire

Executive Summary

The WECC-0126 PRC-004-WECC-2 Protection System (PS) and Remedial Action Scheme (RAS) Misoperation Drafting Team (DT) reviewed NERC Standards, both in effect and proposed for regulatory approval. The DT also considered the development history of PRC-004-WECC-2 and its history of performance.

The following are the DT's findings, conclusions, and recommendations.

Findings and Conclusion

The DT concluded that retirement of the standard can be made without incurring a negative impact on reliability because:

1. The reliability concern for which the standard was drafted is now specifically covered in FAC-003-4 Transmission Vegetation Management (enforceable October 1, 2016);
2. The Applicability section is overly narrow and included in other existing NERC Standards;
3. Requirement R1 is covered in other NERC Standards;
4. Requirement R2 is covered in other NERC Standards, conflicts with existing NERC Standards, and its application can lessen reliability as opposed to enhancing it;
5. Requirement R3 is entirely administrative in nature and should be retired under FERC P81 criteria;
6. The language of the standard does not meet the FERC Order 672 criteria in that it fails to assign the reliability task directly to an entity included in the NERC Functional Model.

Recommendation

After completing its review, the DT recommends that the substance of PRC-004-WECC-2 should be retired immediately and in its entirety because the reliability-related substance is addressed in peripheral NERC Standards. The DT does not believe any further actions are necessary to implement the proposed change.

Background

In 1996, two system disturbances occurred within the Western Interconnection, on the same elements within a single 24-hour period, due to improper vegetation management. To prevent reoccurrence of such a specific event, language was included in WECC's Reliability Management System (RMS) requiring that the relay or Remedial Action Scheme (RAS) that misoperated be removed from service or repaired within 22 hours.[1] [2] The language was premised on the position that if the misoperation was analyzed and promptly removed from service, the system operators could remedy the cause before an iterative misoperation took place.

By 2007, with the implementation of mandatory standards, WECC examined the RMS, identifying those requirements it deemed essential for reliability that were not addressed by NERC Standards, and translated those requirements into a language and format acceptable to the North America Electricity Reliability Council (NERC)[3] and the Federal Energy Regulatory Commission (FERC). That translation resulted in WECC Standard PRC-STD-003-1, Protective Relay and Remedial Action Scheme Misoperation and PRC-STD-001-1, Certification of Protective Relay Applications and Settings.[4]

As the mandatory scheme evolved, two things occurred. First, NERC/FERC identified drafting and format concerns in those two PRC-STD standards and instructed WECC to redraft them accordingly. The result was that the current PRC-004-WECC-1 (inactive March 31, 2017) was replaced by PRC-004-WECC-2 (United States Enforcement Date April 1, 2017) to accommodate changes in the NERC Glossary

[1] The Reliability Management System (RMS) (AKA: Western Electricity Coordinating Council, FERC Electric Tariff, First Revised Volume No. 1, Original Sheet Number 1) was the precursor to the NERC Mandatory Standards within the Western Interconnection. The Transfer Path Table and the Remedial Action Scheme table were originally developed as part of the RMS. The 22-hour period was memorialized in the RMS, Section I. Protective Relay and Remedial Action Scheme Misoperation, and Section 2. WSCC Criterion, Section a. For more detail, refer to Compliance Filing of WECC in Response to Order Numbers 751 and 752 on Version One Regional Reliability Standards, RM09-09-000.

[2] "WECC explains that these requirements were developed as a result of a 345 kV line relay misoperation in July 1996 when virtually the same outage occurred the next day because the faulty equipment had not been isolated." 119 FERC ¶ 61,260; United States of America Federal Energy Regulatory Commission (FERC) North American Electric Reliability Corporation, Docket No. RR07-11-000, Order Approving Regional Reliability Standards for the Western Interconnection and Directing Modifications (Issued June 8, 2007), para. 85.

[3] Currently known as the North American Electricity Reliability *Corporation* (emphasis added).

[4] 135 FERC ¶ 61,061; United States of America Federal Energy Regulatory Commission, 18 CFR Part 40, Docket No. RM09-9-000; Order No. 751, Version One Regional Reliability Standards for Facilities Design, Connections, and Maintenance; Protection and Control; and Voltage and Reactive (issued April 21, 2011), para. 34. FERC Order issued approving PRC-004-WECC-1 (approval effective June 27, 2011).

of Terms Used in NERC Reliability Standards (Glossary).[5] [6] Second, the Facilities Design, Connection and Maintenance (FAC) standards were introduced to address the specific type of vegetation management concerns that caused the 1996 disturbances.

In the 20 years since the precipitating events, the *remedy* for those events shifted to the vegetation management standard of the NERC FAC suite and the remaining language pertinent to Protection Systems (PS), Special Protection Schemes (SPS), and Remedial Action Schemes (RAS) shifted to other NERC PRC Standards.[7]

Shifting Remediation

At the threshold, it should be noted that remediation of the 1996 seminal event has shifted to FAC-003-4, Transmission Vegetation Management. Therefore, PRC-004-WECC-2 no longer addresses the cause for which it was drafted.

In 1996, if the applicable entities had been complying with a 2016 version of FAC-003-4, Transmission Vegetation Management (enforceable October 1, 2016) it is unlikely that the predecessors to PRC-004-WECC-2 would have been written. Remediation for the primary causal event has shifted to FAC-003-4, which is applicable to transmission facilities operated at 200-kV or higher, and below 200-kV if the facility is identified as an element of a Major WECC Transfer Path. FAC-003-4 requires: 1) that vegetation be managed to prevent the type of encroachment encountered in 1996 (R1 and R2); 2) timely notification to the appropriate control center of vegetation conditions that could cause a Flashover at any moment (R4); and 3) corrective action to ensure that Flashover distances will not be violated due to work constraints.[8]

Applicability – Scope

The narrow scope of the PRC-004-WECC-2 Applicability section should be retired in favor of the broader Applicability section of other NERC Standards. Whereas PRC-004-WECC-2 only applies to

[5] In the Glossary of Terms Used in NERC Reliability Standards, Protection Systems are not the same as Special Protection Systems (SPS). An SPS is synonymous with a RAS per that glossary.

[6] Footnote 31 NERC RAS Petition at 1-2. NERC requested approval of the PRC-004-WECC-2 to incorporate the proposed definition of Remedial Action Scheme and eliminate use of the term Special Protection System. 153 FERC ¶ 61,228; United States of America Federal Energy Regulatory Commission, 18 CFR Part 40, Docket Nos. RM15-7-000, RM15-12-000, and RM15-13-000, Order No. 818, Revisions to Emergency Operations Reliability Standards; Revisions to Undervoltage Load Shedding Reliability Standards; Revisions to the Definition of "Remedial Action Scheme" and Related Reliability Standards, (Issued November 19, 2015).

[7] This project is part of WECC's commitment to harmonize PRC-004-WECC-2 with NERC Standards addressing RAS and PS per PRC-004-4(i), 5 Background, page 2.

[8] FAC-003-4, Transmission Vegetation Management, Section 6. Background. See also: "Consideration of Actual Field Conditions in Determination of Facility Ratings."

specific RAS and PS included in defined tables, other NERC Standards address the same analysis without limiting the analysis to RAS and PS contained in the specified tables.

The Applicability of the PRC-004-WECC-2 reads as follows:

4. Applicability

4.1. Transmission Owners of selected WECC major transmission path facilities and RAS listed in tables titled "Major WECC Transfer Paths in the Bulk Electric System" provided at [hyperlink] and "Major WECC Remedial Action Schemes (RAS)" provided at [hyperlink].

4.2. Generator Owners that own RAS listed in the Table titled "Major WECC Remedial Action Schemes (RAS)" provided at [hyperlink].

4.3. Transmission Operators that operate major transmission path facilities and RAS listed in Tables titled "Major WECC Transfer Paths in the Bulk Electric System" provided at [hyperlink] and "Major WECC Remedial Action Schemes (RAS)" provided at [hyperlink].

Although the requirements of PRC-004-WECC-2 address both RAS and PS, other existing NERC Standards address these two topics in separate standards.

PRC-016-1 Remedial Action Scheme Misoperations, Requirement R1 requires any Transmission Owner (TO), Generator Owner (GO), and Distribution Provider (DP) owning a RAS to ". . .analyze its RAS operations and maintain a record of all misoperations. . ." in accordance with the regional procedures.

Since *all RAS* must be examined under PRC-016-1, there is no reason to retain PRC-004-WECC-2 which only applies to a specific and limited subset of WECC RAS. Review of all RAS under PRC-016-1 includes the subset of RAS targeted in PRC-004-WECC-2. Therefore, the PRC-004-WECC-2 Applicability section is a lesser included subset of PRC-016-1 (effective date April 1, 2017) making PRC-004-WECC-2 redundant.

In like fashion, PRC-004-4(i) Protection System Misoperation Identification and Correction, requires all TOs, GOs, and DPs to review *all PS* operations on the Bulk Electric System (BES) to: 1) identify those that are Misoperations of PS; 2) analyze Misoperations of PS; and 3) develop and implement Corrective Action Plans (CAP) to address the cause(s) of Misoperation.[9] Thus, the PRC-004-WECC-2 Applicability section is a lesser included subset of PRC-004-4(i) making PRC-004-WECC-2 redundant.

Applicability – Failure to Meet Order 672 Criteria

Although the Applicability section accurately identifies the correct NERC Functional Entities, the Requirements do not assign tasks to those entities.

[9] PRC-004-4(i) Protection System Misoperation Identification and Correction, 5. Background, page 2.

Rather than assigning the reliability task to the TO or GO, Requirement R1 assigns its task to "System Operators and System Protection personnel of the Transmission Owners and Generator Owners." Requirement R1 does not directly assign a reliability task to any applicable entity listed in the NERC Functional Model. As such, it falls short of the FERC Order 672 mandate that a Reliability Standard impose a requirement only on a user, owner, or operator of facilities associated with the Bulk-Power System (BES).[10] Presuming the requirement could be interpreted to apply to the TO and GO directly, Requirement R1 imposes a duty to "analyze all Protection System and RAS operations."[11] Because these tasks are covered in other NERC Standards (see following analysis) there is no need to retain the requirement nor try to sort out which NERC Functional Model entity the original draft intended.

Retirement of Requirement R1

The entirety of Requirement R1 should be retired because it is redundant to other NERC Standards.

The text of Requirement R1 is as follows:

B. Requirements

The requirements below only apply to the major transmission paths facilities and RAS listed in the tables titled "Major WECC Transfer Paths in the Bulk Electric System" and "Major WECC Remedial Action Schemes (RAS)."

R.1. System Operators and System Protection personnel of the Transmission Owners and Generator Owners shall analyze all Protection System and RAS operations. *[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]*

R1.1. System Operators shall review all tripping of transmission elements and RAS operations to identify apparent Misoperations within 24 hours.

R1.2. System Protection personnel shall analyze all operations of Protection Systems and RAS within 20 business days for correctness to characterize whether a Misoperation has occurred that may not have been identified by System Operators.

Covered Elsewhere

Unlike PRC-004-WECC-2 that includes both PS and RAS, in the NERC Standards these two classifications of devices are addressed in separate standards.

As for PS, existing NERC Standards include and go beyond a mandate for analysis. TOs and Generator Operators (GOP) are required to be familiar with the purpose and limitations of their PS schemes and

[10] The proposed Reliability Standard may impose a requirement on any user, owner, or operator of such facilities, but not on other entities (Order 672 at P. 322).

[11] In the Glossary of Terms Used in NERC Reliability Standards, Protection Systems are not the same as *Special* Protection Systems (SPS). An SPS is synonymous with a RAS per that glossary; an SPS is not the same as a Protection System.

take corrective actions as soon as possible – not just analyze the problem.[12] Entities must maintain and test their PS, and demonstrate efforts to correct identified Unresolved Maintenance Issues.[13] Monitoring and situational awareness are also required[14]. Finally, TOs and GOs are required to correct identified and unresolved maintenance Issues.[15] These combined NERC Standards meet and exceed the reliability concerns of Requirement R1 regarding PS.

As for RAS, PRC-004-4 not only calls for analysis it also requires coordination with other entities, notification of events and findings, and – most importantly – that corrective actions be planned and implemented. Elsewhere, applicable entities that own a RAS are required to analyze RAS operation and misoperation, take corrective actions to ensure misoperation does not reoccur, and to provide documentation of its activities upon request from the Regional Reliability Organization (RRO).[16] PRC-016-1 Remedial Action Scheme Misoperation calls for the inclusion of specific detail in its reports exceeding the requirement of PRC-004-WECC-2. Further, PRC-017-1 Special Protection System Maintenance and Testing requires both the TO and GO to have a system maintenance and testing program (to include specific characteristics), and to provide supporting documentation to the RRO on request. These combined NERC Standards meet and exceed the reliability concerns of PRC-004-WECC-2 Requirement R1 regarding RAS.

Finally, even in the absence of the continent-wide PRC suite, TOP standards would require essential analysis and remedial action so long as a facility continues in service with a single PS or RAS. In many cases, this occurs in less than the 20-day window prescribed in PRC-004-WECC-2 and focuses on results as opposed to a perfunctory task.[17]

The continent-wide TOP standards require time frames to take action that range from as quickly as possible out to as much as day-ahead planning. So long as a facility continues in service with a single PS

[12] PRC-001-1.1(ii) System Protection Coordination, Requirements R1 and R2.

[13] PRC-005-6 – Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance.

[14] PRC-001-1.1(ii) — System Protection Coordination; TOP-003-3, Operational Reliability Data, R1, part 1.2.

[15] PRC-005-6 — Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance, Requirement R5.

[16] PRC-016-1 — Remedial Action Scheme Misoperation; (United States Enforcement Date April 1, 2017).

[17] TPL-001-4 — Transmission System Planning Performance Requirements focuses on system performance rather than the method of achieving that performance.

TOP-002-2.1b — Normal Operations Planning, R6 focuses on a different aspect of system performance by analyzing the system at a minimum of the next N-1 Contingency planning.

TOP-004-2 — Transmission Operations, requires that TOPs operate to maintain reliability following occurrence of their most severe single contingency and (R3) for any multiple contingencies identified by their RC. These contingencies exclude any facilities that are already out-of-service (either forced or planned).

TOP-006-3 — Monitoring System Conditions, R3 requires that the RC, TOP, and Balancing Authority "shall provide its operating personnel with appropriate technical information concerning protective relays within" their areas of responsibility.

TOP-008-1 — Response to Transmission Limit Violations, R2 requires the TOP "operate to prevent the likelihood that a disturbance, action or inaction will result in an IROL or SOL violation …" which reinforces the TPL-004-2 R2 requirement.

or RAS, the TOP is required by the TOP standards to evaluate the system impacts for that configuration at least every day and to take further action if required by the actual circumstances. These TOP time restrictions are much more rigorous than the WECC 20 business days.[18]

Because the reliability content of PRC-004-WECC-2 Requirement R1 is covered in other existing NERC Standards, Requirement R1 can be retired without incurring any negative impact on reliability.

Illusory Time Windows – 20 Business Days

In Requirement R1.2, the 20-day review period has its origins in compliance and not in reliability. Therefore, it is not essential for reliability.

When the predecessors of PRC-004-WECC-2 were developed (circa 1995-2000), the WECC Relay Work Group identified the duration of the window (*20* business days) to *measure* performance, not as a time window essential for reliability.[19] Meeting minutes from the WECC Relay Work Group establish the first draft of what would later be called a Violation Severity Level (VSL) wherein the 20-business-day window was included in a Level 3 and Level 4 VSL.

The definition of the window (20 *business days*) makes its regulatory debut in the RMS[20] where it is used as a defined term. A Business Day is defined as "any day other than Saturday, Sunday, or a legal public holiday as designated in section 6103, of title 5 US Code." If the 20-business day window was reliability in nature it would not be predicated on weekends and holidays. This conclusion is further buttressed when considering that holidays for the United States, Canada, and Mexico do not always align.

To the extent that any level of reliability currently attaches to the 20-day window, other NERC Standards impute a shorter time window for remedial action thereby rendering the 20-day window moot. As presented, the review of numerous other NERC Standards shows that operational review of the system is required to take place much sooner than 20 days.[21] Thus, the duration and definition of the time window are irrelevant to reliability and can be retired without detriment to the system.

Retirement of Requirement R2

The entirety of Requirement R2 should be retired because it is redundant to other NERC Standards.

[18] IRO-001.1 R3, requires action within 30 minutes. TOP-008 R2, as noted, primarily reinforces TOP-004 R2, basically saying that the TOP is covered within the IRO timing requirement.

[19] WECC Relay Work Group Meeting Minutes, July 20, 2000.

[20] Reliability Management System, I. Protection Relay and Remedial Action Scheme Misoperation, Section 2.d.

[21] TOP-002-2.1b Normal Operations Planning, Requirement R6 requires a minimum of N-1 Contingency planning to meet unscheduled changes in system configuration and generation dispatch.

The text of Requirement R2 is as follows:

B. Requirements

R.2. Transmission Owners and Generator Owners shall perform the following actions for each Misoperation of the Protection System or RAS. It is not intended that Requirements R2.1 through R2.4 apply to Protection System and/or RAS actions that appear to be entirely reasonable and correct at the time of occurrence and associated system performance is fully compliant with NERC Reliability Standards. If the Transmission Owner or Generator Owner later finds the Protection System or RAS operation to be incorrect through System Protection personnel analysis, the requirements of R2.1 through R2.4 become applicable at the time the Transmission Owner or Generator Owner identifies the Misoperation:

R2.1. If the Protection System or RAS has a Security-Based Misoperation and two or more Functionally Equivalent Protection Systems (FEPS) or Functionally Equivalent RAS (FERAS) remain in service to ensure Bulk Electric System (BES) reliability, the Transmission Owners or Generator Owners shall remove from service the Protection System or RAS that misoperated within 22 hours following identification of the Misoperation. Repair or replacement of the failed Protection System or RAS is at the Transmission Owners' and Generator Owners' discretion. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations]*

R2.2. If the Protection System or RAS has a Security-Based Misoperation and only one FEPS or FERAS remains in service to ensure BES reliability, the Transmission Owner or Generator Owner shall perform the following. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations]*

R2.2.1. Following identification of the Protection System or RAS Misoperation, Transmission Owners and Generator Owners shall remove from service within 22 hours for repair or modification the Protection System or RAS that misoperated.

R2.2.2. The Transmission Owner or Generator Owner shall repair or replace any Protection System or RAS that misoperated with a FEPS or FERAS within 20 business days of the date of removal. The Transmission Owner or Generator Owner shall remove the Element from service or disable the RAS if repair or replacement is not completed within 20 business days.

R2.3. If the Protection System or RAS has a Security-Based or Dependability-Based Misoperation and a FEPS and FERAS is not in service to ensure BES reliability, Transmission Owners or Generator Owners shall repair and place back in service within 22 hours the Protection System or RAS that misoperated. If this cannot be done, then Transmission Owners and Generator Owners shall perform the following. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations]*

R2.3.1. When a FEPS is not available, the Transmission Owners shall remove the associated Element from service.

R2.3.2. When FERAS is not available, then

2.3.2.1. The Generator Owners shall adjust generation to a reliable operating level, or

2.3.2.2. Transmission Operators shall adjust the SOL and operate the facilities within established limits.

R2.4. If the Protection System or RAS has a Dependability-Based Misoperation but has one or more FEPS or FERAS that operated correctly, the associated Element or transmission path may remain in service without removing from service the Protection System or RAS that failed, provided one of the following is performed.

R2.4.1. Transmission Owners or Generator Owners shall repair or replace any Protection System or RAS that misoperated with FEPS and FERAS within 20 business days of the date of the Misoperation identification, or

R2.4.2. Transmission Owners or Generator Owners shall remove from service the associated Element or RAS. *[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]*

Retirement of Requirement R2

Requirement R2 is divided into two parts, one assigning tasks in the event of Security-Based Misoperation and the other assigning tasks in the event of Dependability-based Misoperation.[22] The requirement to analyze each Misoperation attaches whenever the Misoperation is discovered (identified).

If a PS or RAS Misoperation is *Security-based*, the PS or RAS shall be removed from service within 22 hours of the identification of the Misoperation. Whether the PS or RAS requires repair, removal, replacement or modification is fact specific and subject to specified if/then statements.

If the PS or RAS Misoperation is *Dependability-based*, but portions of the systems operate as designed, the PS or RAS can remain in service so long as repair or replacement occurs within 20 days of the identification of the Misoperation; otherwise, the PS or RAS must be removed from service.

Illusory Time Windows – 22 Hours

On the surface, the 22-hour remediation trigger of PRC-004-WECC-2, Requirement R2.2.1 is quite attractive and perceptually creates a much higher performance threshold than its peripheral NERC

[22] Security-based Misoperations and Dependability-based Misoperations are included in the WECC-specific section of the Glossary of Terms Used in NERC Reliability Standards.

Standards.[23] But when examined, the remedial clock does not begin to run until the Misoperation is *identified*. Restated, there is no remediation required until the operation is identified. The system operator may identify an *apparent* Misoperation (R1) within the identified period (R2) and thereby meet the original intent to remediate the cause. However, the reality is that the identification will not likely be determined by the Real-time system operator thus negating the assumed purpose of the 22 hours. The higher likelihood is that the system operator may annotate an anomaly in the operations log and pass the investigation on to protection engineers. After analysis and identification by the protection engineer, only then would the tolling clock begin to run. So, it could be days or weeks before the requirement to perform remediation attached. Even though the 22 hours appears to be a higher standard, in practice it is illusory because it lacks a definitive start time.

Because the 22-hour window appears in the requirement, the current mandatory regulatory regime presumes that the original drafters intended its inclusion for reliability purposes. However, a review of development record shows that the 22-hour time window did not appear in the requirement until drafted into the Reliability Management System (RMS) agreement. Meeting minutes from the July 20, 2000 WECC Relay Work Group meeting indicate that the 22-hour period was originally intended for inclusion in what would today be called a Measure. As such, the 22-hour window was not originally drafted to meet a reliability need; rather, it makes the task measurable. The minutes indicate that:

> "During the Phase 2 evaluation period the relay misoperation requirement was found to be too loosely defined to enable the assessment of *compliance* on a consistent basis among all affected parties, per the requirement, the clock starts as soon as it is determined that a relay misoperated or probably misoperated. Making this determination could take days or weeks. It was concluded that *compliance* with the requirement as originally worded is *not measurable* on an accurate or consistent basis. Consequently, the Relay Work Group in cooperation with the WSCC staff developed revisions to the requirement that will enable a consistent and accurate *measure of performance to assess compliance* the revised requirement is described in detail below." (Italic emphasis added.)

In fact, the intent of the reports is stated in the 1998 predecessor to the RMS in that:

> "The transmission path operators for the paths listed in Table 2 are requested to submit data as specified in detail within this section. *For the purpose of maintaining historical records*, and in the event, some or all of the *compliance data* have to be reviewed to resolve questions that

[23] Since a real-time assessment of system performance is being conducted at least once every 30 minutes by the Transmission Operator, the value of a review within 22 hours is diluted and somewhat redundant. TOP-001-3, Transmission Operations, R13.

> may arise in the future, the Path Operators are requested to save the data, as defined below, for at least a one-year period."[24] (Emphasis added.)

The language that found its way into the requirement section of the RMS was originally intended to serve a compliance purpose – not reliability. To the extent the 22-hour period may have evolved to address a reliability task, that task (vegetation management) is now covered in the FAC suite. As such, the 22-hour time frame can be deleted from the standard without impacting reliability.

Requirement R2 Conflicts with other Standards / Lessens Reliability

PRC-004-WECC-2 Requirement R2 has a specified set of actions that must be taken once the Misoperation is identified. Because the operator cannot deviate from the specific actions, all discretion is removed. Therefore, R2 conflicts with other standards and lessens reliability.

Under the fact pattern identified in PRC-004-WECC-2 Requirement R2.1, the TO and GO "shall remove from service" the PS or RAS that misoperated. The inflexible mandate leaves the TO/GO no operational choice. By contrast, PRC-001-1.1(ii) System Protection Coordination, Requirement R2, part 2.1 and 2.2 require that "[if] a protective relay or equipment failure reduces system reliability" then corrective action is to be taken as soon as possible.[25] Likewise, PRC-016-1 Remedial Action Scheme Misoperations, Requirement R2 allows the TO/GO owning a RAS to take "corrective actions to avoid Misoperations." Further, TOP-001-3 Transmission Operations, Requirement R1 requires the Transmission Operator (TOP) to maintain the reliability of its Transmission Operator Area *via its own actions* (emphasis added). The Balancing Authority (BA) has a similar mandate in Requirement R2 of that document.

To illustrate how retention of PRC-004-WECC-2 Requirement R2 can lessen reliability, the following actual fact pattern is offered.

Example
A fault occurred on an important path line and the relays at both terminals operated correctly to clear it. Different makes of reclosing relays are used at the two terminals, which did not allow the recloser reset time to be set the same at both terminals. The terminal that normally recloses first had a longer reset delay of 20 cycles (Terminal A), and the terminal that normally recloses after the other terminal

[24] WSCC Detailed Reporting Instructions, Reliability Management System, Evaluation Program Phase 2, Phase 2 Evaluation Period Reporting Requirements, A. Transmission Path Operators Data Collection, see sections on Protective Relay Application and Settings, and Remedial Action Schemes, and Protective Relay and Remedial Action Scheme Misoperation, August 12, 1998.

[25] Under NERC Project 2007-06.2 Phase 2 of System Protection Coordination, PRC-001-1.1(ii) is proposed for retirement. Should that occur, system awareness and corrective actions shift to other applicable entities under numerous existing NERC Standards. Please refer to that proceeding for a detailed analysis of which NERC Standards would cover the reliability tasks of PRC-001-1(ii) in the event of retirement. Misoperations that have causes other than failure can be mitigated by taking corrective action as soon as possible.

had a shorter reset delay of 15 cycles (Terminal B). A very unusual circumstance occurred when a second fault occurred on the line after the time that the recloser at Terminal B had reset (15 cycles), but before the recloser at the Terminal A had reset (20 cycles). Terminal A tripped to lockout after the second fault and did not reclose. Terminal B, which would normally reclose after Terminal A, tripped for the second fault and then proceeded to reclose. Because this is a very long line, the switch-onto-fault (SOTF) settings are set sensitively to provide instantaneous tripping for the entire length of the line. When Terminal B reclosed, the SOTF elements tripped it open due to the line charging current. It is important to recall that this terminal normally recloses after Terminal A, in which case the voltage on the line would block the SOTF elements.

Because Terminal B tripped for no fault, it created a misoperation. Because both relays at Terminal B behaved the same, they both misoperated. This would bring Requirement R2.3.1 into play, requiring the line to be removed from service if the applicable entity could not repair or replace the relays within 22 hours. Given the large volume of operations that were occurring due to the poor weather, repairing the problem within 22 hours was not easy. Taking the line out of service would have caused more problems than it solved because it would have removed an important line during heavy transfer conditions. With the poor weather that was occurring, other lines were also operating, and every available line needed to be in service. This did not present a reliability concern since the relays were only susceptible to Misoperation during a reclose during the very unlikely scenario of a second fault occurring between 15 and 20 cycles after the first.

This practical example illustrates that PRC-004-WECC-2 Requirement R2 can force undesirable consequences. Had consideration of all the surrounding circumstances been allowed, strict adherence to PRC-004-WECC-2 Requirement R2 would not have been the best choice for reliability.

As seen in the example, PRC-004-WECC-2 *mandates* a specific action without regard to outcome. By contrast, the alternate approach of PRC-001-1.1(ii) allows the TO/GO owning a RAS to take reasoned action *if* the failure reduces reliability. Further, it allows that entity to consider all the surrounding circumstances and act accordingly. Finally, if retained, PRC-004-WECC-2 could conflict with other standards wherein applicable entities are provided flexibility to decide the most appropriate actions to ensure reliability. As such, the alternate approach of PRC-001-1.1(ii) should be adopted over that of the PRC-004-WECC-2.

Requirement R2 – Failure to Meet Order 672 Criteria

Pursuant to FERC Order 672, a Reliability Standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the Bulk-Power System must know what they are required to do to maintain reliability.[26] PRC-004-WECC-2, Requirement R2 falls short of that requirement and should deleted.

[26] FERC Order No. 672 at P 325.

Requirement R2.1 through R2.4 are not intended to apply to PS and/or RAS actions "that appear to be entirely reasonable and correct" when "associated system performance is fully compliant with NERC Reliability Standards." What appears to be reasonable to one entity may not appear reasonable to the next. In like fashion, what appears to be reasonable to one auditor may not be reasonable to the next. What is reasonable is the sum of all the surrounding circumstances. These circumstances will vary each time the standard is applied.

Because of the ever-changing fact patterns, neither the applicable entity nor the assigned auditor can be soundly informed as to what action must be taken or what constitutes compliance until after a violation may have occurred. The result is a lack of due process. Further, the language implies that what is reasonable equates to what is the best course of action to ensure reliability. This is not always the case. As seen above, one may act to remain perfectly in compliance but those actions may not be in the best interest of reliability. Finally, the requirement requires the applicable entity to stand as a proxy to the compliance auditor in that it requires the applicable entity to know whether an act is "entirely reasonable and correct" without further guidance. This is the standards' equivalent of drafting a law requiring all vehicles to stop *close* to the limit line – without indicating what constitutes *close.*

Although entities make every effort to remain in compliance, applicable entities are not auditors and cannot make the definitive determination whether an act complies with a standard. As such, the ambiguity of the wording robs the applicable entity of the notice required under due process. Thus, Requirement R2 does not meet FERC's Order 672 criteria and should be deleted.

Retirement of Requirement R3

The entirety of Requirement R3 should be retired because it is purely administrative in nature and meets the "P81" criteria for retirement.

The text of Requirement R3 is as follows:

B. Requirements

R.3. Transmission Owners and Generation Owners shall submit Misoperation incident reports to WECC within 10 business days for the following. *[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]*

- **R3.1.** Identification of a Misoperation of a Protection System and/or RAS,
- **R3.2.** Completion of repairs or the replacement of Protection System and/or RAS that misoperated.

Retirement of Requirement R3

The language of PRC-004-WECC-2 Requirement R3 can be retired without incurring any negative impact to reliability because the Requirement is administrative in nature.

The purpose of PRC-004-WECC-2 is "to ensure all transmission and generation Protection System and Remedial Action Scheme (RAS) Misoperations on Transmission Paths and RAS defined in section 4 are analyzed and/or mitigated."

Retirement of R3 would be consistent with FERC's order[27] approving NERC's Compliance Enforcement Initiative (CEI), including the Find, Fix, Track and Report (FFT) program. On March 15, 2012, FERC issued an order[28] approving NERC's Compliance Enforcement Implementation, including the FFT program. Paragraph 81 ("P 81") of the FFT Order reads:

> The Commission notes that NERC's FFT initiative is predicated on the view that many violations of requirements currently included in Reliability Standards pose lesser risk to the Bulk-Power System. If so, some current requirements likely provide little protection for Bulk-Power System reliability or may be redundant. The Commission is interested in obtaining views on whether such requirements could be removed from the Reliability Standards with little effect on reliability and an increase in efficiency of the ERO compliance program. If NERC believes that specific Reliability Standards or specific requirements within certain Standards should be revised or removed, we invite NERC to make specific proposals to the Commission identifying the Standards or requirements and setting forth in detail the technical basis for its belief. In addition, or in the alternative, we invite NERC, the Regional Entities and other interested entities to propose appropriate mechanisms to identify and remove from the Commission approved Reliability Standards unnecessary or redundant requirements. We will not impose a deadline on when these comments should be submitted, but ask that to the extent such comments are submitted NERC, the Regional Entities, and interested entities coordinate to submit their respective comments concurrently.[29]

In keeping with the FFT approach, the WECC-0126 DT reviewed the standard to identify requirements that could be removed from Reliability Standards without negatively impacting the reliability of the Bulk-Power System. This project identified Requirement R3 as a candidate for retirement under that criteria.

Requirement R3 P81 Justification

The language of R3 can be retired without incurring any negative impact to reliability because it is purely administrative in nature. At its core, the requirement calls for the TO and GO to "submit Misoperation incident reports to WECC" and to prove compliance by having "evidence that they reported."

[27] North American Electric Reliability Corporation, 138 FERC ¶ 61,193 at P 81 (2012) ("FFT Order").

[28] FFT Order at P 81.

[29] Joint Petition for Approval of Proposed Regional Reliability Standards, VAR-002-WECC-2 AND VAR-501-WECC-2, Section C. Project 2013-02 Paragraph 81, page 6 (VAR Order).

In PRC-004-WECC-2, requiring documentation does not add to or detract from the reliability of the grid; rather, having documentation is an element of verifying that a reliability task has been completed. In application, the requirement looks backward to ensure paperwork was filled out. As drafted, it neither requires identification of a Misoperation nor remediation of failing elements associated with a Misoperation. It only requires that a report be made. The Measure advances reliability no further as it too requires only that a report be presented. At its core, the Measure doesn't even specify the content of the report – only that a report be made.[30]

Further, the implied reliability tasks of Requirement R3 are expressly addressed in peripheral NERC Standards. The stated intent of the Requirement/Measure is to ensure that Misoperation of specific PS and RAS are analyzed and mitigated. Although the standard under review addresses only specific PS and specific RAS, these systems would be included in the broader and more general provisions of other existing NERC Standards. (See Requirement R1 analysis.)

Finally, if the true intent of PRC-004-WECC-2 is to collect data, that data can be collected in accordance with NERC's Rules of Procedure via a Rule 1600 data request. In the alternative, specifically for RAS, PRC-016-1 Requirement R3 requires both the TO and GO owning a RAS to "provide documentation of the misoperations analyses and the correction action plans to" WECC on request. As such, Requirement R3 is fully redundant and can be deleted.

Whereas Requirement R3 is administrative in nature, its implied and explicit reliability tasks are covered in existing NERC Standards. The described data collection can occur in accordance with NERC Rules of Procedure 1600; therefore, Requirement R3 can be retired without incurring any negative impact on reliability.

[30] If not retired, the language of each of the Measures should be redrafted to reflect "will have evidence" as opposed to the requirement "shall have evidence."

Table A
NERC Standard / PRC-004-WECC-2 Cross-reference Table

The Purpose of PRC-004-WECC-2 is to serve as a "Regional Reliability Standard to ensure all transmission and generation Protection System and Remedial Action Scheme (RAS) Misoperations on Transmission Paths and RAS defined in section 4 are analyzed and/or mitigated".

The requirements below only apply to the major transmission paths facilities and RAS listed in the tables titled "Major WECC Transfer Paths in the Bulk Electric System" and "Major WECC Remedial Action Schemes (RAS)."

The following table illustrates how each element of the PRC is either addressed elsewhere or simply not needed for reliability.

Retirement of Regional Reliability Standard PRC-004-WECC-1 Protection System and Remedial Action Scheme Misoperation		
PRC-004-WECC-2 Requirement in Approved Standard	PRC-004-WECC-2 Requirement covered elsewhere	Description and Change Justification
Applicability (Narrow and exclusive) The Applicability section is narrowly crafted to apply only to: 1) Transmission Owners (TO) of selected facilities with RAS listed in a specific table; 2) Generator Owners (GO) with RAS listed in a specific table; and, 3) Transmission Operators operating facilities and RAS listed in the specified table.	Applicability (Broader and all-inclusive) PRC-016-1 applies to TOs, GOs, and Distribution Providers' (DP) RAS regardless of path. PRC-004-4 applies to TOs, GOs, and DPs' PS regardless of path.	Whereas PRC-016-1 (RAS) and PRC-004-4 (PS) do not carry the overly exclusive exceptions of PRC-004-WECC-2 (only major transmission paths, facilities, and RAS listed in specified tables), the Applicability section of PRC-004-WECC-2 is fully included in the aforementioned standards. As such, all facilities included in PRC-004-WECC-2 are addressed elsewhere.
PRC-004-WECC-2 Covers RAS plus PS R.1. System Operators and System Protection personnel of the Transmission Owners and Generator Owners shall analyze all Protection System and RAS operations.	PRC-004-5(i) Covers PS. PRC-004-5(I) Protection System Misoperation Identification and Correction. R1. requires the TO and GO to identify the reasons for PS operation and whether the	Whereas PRC-004-WECC-2 covers analysis of both the RAS and the PS, these two devices are now addressed separately in NERC Standards PRC-004-5(i), PRC-016-1, and PRC-012-2. Each requires analysis like that

[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]	operation caused a Misoperation, within 120 days.[31] See also PRC-001-1.1(ii), Requirements R1 and R2; PRC-005-6, Requirement R5. PRC-016-1 Covers RAS PRC-016-1 Special Protection System Misoperations R1. The TO and GO…shall analyze…its RAS operations and maintain a record of all misoperations in accordance with the Regional RAS review procedure specified in PRC-012. R1.[32] PRC-012-2, Remedial Action Schemes[33] R5. Requires the TO and GO to review its RAS within 120 days of operation or failure. (The term analyze is used in R5.2.)[34]	prescribed in PRC-004-WECC-2. Inclusion of the reliability elements of PRC-004-WECC-2 in PRC-004-5(i) and PRC-016-1 and PRC-012-2 render PRC-004-WECC-2 redundant. As such, the Requirement can be deleted. The difference in time frames between PRC-004-WECC-2 and the other NERC Standards is addressed in the preceding sections of this filing.
PRC-004-WECC-2 R1.1 System Operators shall review all tripping of transmission elements and RAS operations to identify apparent Misoperations within 24 hours. R1.2. System Protection personnel shall analyze all operations of Protection Systems	PRC-012-2 Covering RAS R5. Requires the TO and GO to analyze each RAS operation, within 120 days, to determine: 1) 5.1.1, what caused the operation, 2) 5.1.2 and 5.1.3, if the device worked properly, and 3) 5.1.4., whether there were any unintended consequences. PRC-004-5(i) Covers PS	The language of PRC-004-WECC-2 fails to meet the FERC Order 672 criteria for clarity in that “apparent,” “reasonable,” characterization” and “correctness” are ambiguous. Both PRC-012-2 and PRC-004-5(i) require review after operation to determine the cause and, in some cases, even determine whether unforeseen consequences resulted.

[31] United States Enforcement Date is April 2, 2017.

[32] Becomes Inactive on March 31, 2017.

[33] PRC-012-2 has been filed with FERC and is pending regulatory disposition as of March 29, 2017.

[34] NERC Board of Trustees approved May 5, 2016, pending at FERC. (FERC has proposed to approve the standard subject to comments received on a Notice of Proposed Rulemaking (NOPR), comments closing April 10, 2017.)

and RAS within 20 business days for correctness to characterize whether a Misoperation has occurred that may not have been identified by System Operators.	PRC-004-5(i), R1. Requires the TO and GO owning a PS that operates, to identify whether that PS caused a Misoperation, within 120 days of the event the threshold analysis, the applicable entity is required to determine: 1) R1.1, if the PS was the cause of the Misoperation, 2) R1.2, who owns the components, and 3) R1.3 whether the operation was automatic or manual.	Although the more specific analysis is arguably included in the more general PRC-004-WECC-2 analysis, adoption of the superior PRC-012-2 and PRC-004-5(i) requirements add clarity and conformity without sacrificing reliability. As such, analysis of both RAS and PS operation is covered in greater detail outside of PRC-004-WECC-2 making PRC-004-WECC-2 redundant. Its retirement would have no negative impact on reliability because the tasks are covered elsewhere. See above analysis pertaining to 22-hours, and 20 days for time window differential.  2000-07-20-RWG-Meeting.pdf
PRC-004-WECC-2 Covers PS and RAS R.2. Transmission Owners and Generator Owners shall perform the following actions for each Misoperation of the Protection System or RAS. It is not intended that Requirements R2.1 through R2.4 apply to Protection System and/or RAS actions that appear to be entirely reasonable and correct at the time of occurrence and associated system performance is fully compliant with NERC Reliability Standards. If the Transmission Owner or Generator	PRC-016-1 Covers PS PRC-016-1 — Remedial Action Scheme Misoperations R2. Each TO, GO, and DP, owing a RAS shall take corrective actions to avoid future misoperations. PRC-012-2 Covers RAS R5. Each RAS-entity, within 120 full calendar days of a RAS operation or a failure of its RAS to operate when expected, or on a mutually agreed upon schedule with its reviewing Reliability Coordinator(s), shall	Whereas the reliability tasks of PRC-004-WECC-2 Requirement R2 are included in PRC-016-1 and PRC-012-2, PRC-004-WECC-2 Requirement R2 is redundant and can be retired.

Owner later finds the Protection System or RAS operation to be incorrect through System Protection personnel analysis, the requirements of R2.1 through R2.4 become applicable at the time the Transmission Owner or Generator Owner identifies the Misoperation:	analyze and communicate RAS performance. PRC-012-2, Requirements R6 and R7 further cover RAS Requirement R6 requires the TO, GO, and DP develop and submit a Corrective Action Plan (CAP) to the Reliability Coordinator within six months of: 1) notification of a RAS deficiency (see R4 and R5), or identifying a deficiency while performing a functional test (R8).	
R2.1. If the Protection System or RAS has a Security-Based Misoperation and two or more Functionally Equivalent Protection Systems (FEPS) or Functionally Equivalent RAS (FERAS) remain in service to ensure Bulk Electric System (BES) reliability, the Transmission Owners or Generator Owners shall remove from service the Protection System or RAS that misoperated within 22 hours following identification of the Misoperation. Repair or replacement of the failed Protection System or RAS is at the Transmission Owners' and Generator Owners' discretion. [Violation Risk Factor: High] [Time Horizon: Same-day Operations]	PRC-001-1.1(ii) R2. Each Generator Operator and Transmission Operator shall notify reliability entities of relay or equipment failures as follows: R2.1. If a protective relay or equipment failure reduces system reliability, the Generator Operator shall notify its Transmission Operator and Host Balancing Authority. The Generator Operator shall take corrective action as soon as possible. R2.2. If a protective relay or equipment failure reduces system reliability, the Transmission Operator shall notify its Reliability Coordinator and affected Transmission Operators and Balancing Authorities. The Transmission Operator shall take corrective action as soon as possible. R6. Each Transmission Operator and Balancing Authority shall monitor the status of each Special Protection System in their area, and shall notify affected	PRC-001-1.1(ii) R2 and R6 require the applicable entities to be aware of PS/RAS and to communicate with other affected parties in the event of change or operation of these devices. That standard is broad enough to allow the operators to determine the best appropriate action based on all the surrounding circumstances. Those actions may or may not include the specified tasks included in PRC-004-WECC-2 Requirement R2. If the specifics of that requirement are retained, they limit the operator's discretion and could lead to a less-than-favorable operational decision simply to be compliant, thereby defeating the reliability-related intent. PRC-004-WECC-2 Requirement R2 requires that the device be taken out-of-service under specified circumstances. By contrast, TOP-001-3, Requirement R1, requires the TO to "act to maintain the reliability of its Transmission Operator Area via its own actions." The TOP-001-3,

	Transmission Operators and Balancing Authorities of each change in status. PRC-004-4(i) R5. Each Transmission Owner, Generator Owner, and Distribution Provider that owns the Protection System component(s) that caused the Misoperation shall, within 60 calendar days of first identifying a cause of the Misoperation: • Develop a Corrective Action Plan (CAP) for the identified Protection System component(s), and an evaluation of the CAP's applicability to the entity's other Protection Systems including other locations; or • Explain in a declaration why corrective actions are beyond the entity's control or would not improve BES reliability, and that no further corrective actions will be taken. PRC-016-1 R1. The Transmission Owner, Generator Owner, and Distribution Provider that owns an RAS shall analyze its RAS operations and maintain a record of all misoperations in accordance with the Regional RAS review procedure specified in Reliability Standard PRC-012-0_R1. R2. The Transmission Owner, Generator Owner, and Distribution Provider that owns a RAS shall take corrective actions to avoid future misoperations.	Requirement R1 mandate to act with discretion conflicts with the PRC-004-WECC-2 Requirement R2 mandate to perform specific tasks. The PRC-004-WECC-2 Requirement R2 approach has the potential to lead to reliability concerns; by contrast, the approach of PRC-001-1.1(ii) and TOP-001-3 provide the operator with discretion more targeted for remedy of actual circumstances and not implemented merely for compliance purposes. Additionally, the overly prescriptive PRC-004-WECC-2 Requirement R2 approach may conflict with IRO-017-1 Requirement R1 wherein the Reliability Coordinator (RC) is required to "develop, implement, and maintain an outage coordination process." If PRC-004-WECC-2 Requirement R2 is retained it mandates a specific action that may conflict with the broader authority and outage coordination process established by the RC.

R2.2. If the Protection System or RAS has a Security-Based Misoperation and only one FEPS or FERAS remains in service to ensure BES reliability, the Transmission Owner or Generator Owner shall perform the following. [Violation Risk Factor: High] [Time Horizon: Same-day Operations] R2.2.1. Following identification of the Protection System or RAS Misoperation, Transmission Owners and Generator Owners shall remove from service within 22 hours for repair or modification the Protection System or RAS that misoperated. R2.2.2. The Transmission Owner or Generator Owner shall repair or replace any Protection System or RAS that misoperated with a FEPS or FERAS within 20 business days of the date of removal. The Transmission Owner or Generator Owner shall remove the Element from service or disable the RAS if repair or replacement is not completed within 20 business days. R2.3. If the Protection System or RAS has a Security-Based or Dependability-Based Misoperation and a FEPS and FERAS is not in service to ensure BES reliability, Transmission Owners or Generator Owners shall repair and place back in service within 22 hours the Protection System or RAS that misoperated. If this cannot be done, then Transmission Owners and Generator Owners shall perform the following. [Violation Risk Factor:		

High] [Time Horizon: Same-day Operations] R2.3.1. When a FEPS is not available, the Transmission Owners shall remove the associated Element from service. R2.3.2. When FERAS is not available, then 2.3.2.1. The Generator Owners shall adjust generation to a reliable operating level, or 2.3.2.2. Transmission Operators shall adjust the SOL and operate the facilities within established limits. R2.4. If the Protection System or RAS has a Dependability-Based Misoperation but has one or more FEPS or FERAS that operated correctly, the associated Element or transmission path may remain in service without removing from service the Protection System or RAS that failed, provided one of the following is performed. R2.4.1. Transmission Owners or Generator Owners shall repair or replace any Protection System or RAS that misoperated with FEPS and FERAS within 20 business days of the date of the Misoperation identification, or R2.4.2. Transmission Owners or Generator Owners shall remove from service the associated Element or RAS. [Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]		
R.3. Transmission Owners and Generation Owners shall submit	As of July 1, 2016, Protection System Operations and	Retirement of PRC-004-WECC-2 Requirement R3 fits the retirement

Misoperation incident reports to WECC within 10 business days for the following. R3.1. Identification of a Misoperation of a Protection System and/or RAS, R3.2. Completion of repairs or the replacement of Protection System and/or RAS that misoperated.	Misoperations are reported by TOs, GOs, and DPs, via the Misoperation Information Data Analysis System at NERC (MIDAS) in PRC-004 -5(i) and the accompanying 1600 Data Request. This renders PRC-004-WECC-2 administrative request redundant.	criteria established under FERC's "P81" criteria. See Retirement of Requirement R3 analysis in the main body of this filing. The 10-day time window is a legacy imported from the RMS, circa July 1999. A records search at WECC and inquires via corporate memory did not reveal why the original drafters believed the 10 days were essential. However, the 10-day reference was found in the 1999 WSCC Reliability Criteria Agreement (Section 5 Determining Compliance, 5.2 Data Submission and Review) as part of the document's compliance section giving rise to the conclusion that it was required for accountability and not reliability. Considering the NERC 1600 requirement, the 10-days has proven to no longer be essential. Currently, Midas will send out reminder notifications to entities that have not yet submitted for a specified quarter. They will also provide confirmation notifications upon submittal. Once the submittal is reviewed by the regions or NERC, the regions may send additional notifications to the MIDAS contacts as questions arise. Currently, all WECC entities must comply under that request, but they have 60 days to do so while also complying with the administrative request under PRC-004-WECC-2. Duplicative administrative reporting is not needed.

		WECC will continue to be responsible for facilitating and monitoring these data submissions, and will continue to share the content with the WECC Relay Work Group (RWG) for further analysis and recommendations.

Exhibit B
Implementation Plan

Implementation Plan
WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation

Standard Authorization Request

WECC-0126 PRC-004-WECC-2 Request to Retire - Standard Authorization Request

Approvals Required

- WECC Board of Directors .....December 6, 2017
- NERC Board of Trustees ..... February 8, 2018
- FERC ..... Pending

Applicable Entities

4. Applicability

4.1. Transmission Owners of selected WECC major transmission path facilities and RAS listed in tables titled "Major WECC Transfer Paths in the Bulk Electric System" provided at https://www.wecc.biz/Reliability/TableMajorPaths4-28-08.pdf and "Major WECC Remedial Action Schemes (RAS)" provided at https://www.wecc.biz/Reliability/TableMajorRAS4-28-08.pdf.

4.2. Generator Owners that own RAS listed in the Table titled "Major WECC Remedial Action Schemes (RAS)" provided at https://wecc.biz/Reliability/TableMajorRAS4-28-08.pdf.

4.3. Transmission Operators that operate major transmission path facilities and RAS listed in Tables titled "Major WECC Transfer Paths in the Bulk Electric System" provided at https://www.wecc.biz/Reliability/TableMajorPaths4-28-08.pdf and "Major WECC Remedial Action Schemes (RAS)" provided at https://www.wecc.biz/Reliability/TableMajorRAS4-28-08.pdf.

Conforming Changes to Other Standards

The entire standard is proposed for retirement immediately and in its entirety on receipt of applicable regulatory approval because the reliability-related substance is addressed in peripheral NERC Standards. The WECC-0126 PRC-004-WECC-2, Protection System and Remedial Action Scheme Misoperation Standard Drafting Team (DT) does not believe any further actions are necessary to implement the proposed retirement.

Proposed Effective Date

Immediately upon receipt of applicable regulatory approval.

Justification

The DT reviewed NERC Standards, both in effect and proposed for regulatory approval. The DT also considered the development history of PRC-004-WECC-2 and its history of performance.

What follows are the findings and justification for full and immediate retirement of the document. A detailed analysis of each of the following bullets is included with this filing.

1) The reliability concern for which the original standard was drafted is now specifically covered in FAC-003-4 Transmission Vegetation Management (enforceable October 1, 2016).
2) The Applicability section is overly narrow and included in other existing NERC Standards.
3) Requirement R1 is covered in other NERC Standards.
4) Requirement R2 is covered in other NERC Standards, conflicts with existing NERC Standards, and its application can lessen reliability as opposed to enhancing it.
5) Requirement R3 is entirely administrative in nature and should be retired under FERC P81 criteria.
6) The language of the standard does not meet the FERC Order 672 criteria in that it fails to assign the reliability task directly to an entity included in the NERC Functional Model.

Considering the above findings, the DT is recommending full and immediate retirement of the standard upon receipt of applicable regulatory approval.

Consideration of Early Compliance

The drafting team foresees no concerns with early compliance.

Required Retirements

The currently approved standard (PRC-004-WECC-2) should be retired completely and immediately following applicable regulatory approval. No other retirements or modifications are needed.

Exhibit C
Complete Record of Development

Steven Rueckert
155 North 400 West
Salt Lake City, Utah
84103

January 2, 2018

Subject: Notification of Completion
WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
Request to Retire a Regional Reliability Standard

To: Mat Bunch
Manager of Standards Development, Standards
North American Electric Reliability Corporation
3353 Peachtree Rd. NE, North Tower – Suite 600
Atlanta, GA 30326

Dear Mat,

In accordance with the Western Electricity Coordinating Council's (WECC) Reliability Standards Development Procedures, the WECC-0126 PRC-004-WECC-2, Protection System and Remedial Action Scheme Misoperation Drafting Team has completed its assigned project. Proposed retirement of the standard has been approved by the WECC Ballot Pool and the WECC Board of Directors.

The NERC Board of Trustees approved retirement of PRC-004-WECC-2 on February 8, 2018. WECC is seeking disposition by the Federal Energy Regulatory Commission, to retire PRC-004-WECC-2 immediately on receipt of applicable regulatory approval. The reliability-related content of the standard is covered in other NERC Standards.

Thank you for your assistance.

Sincerely,

Steven Rueckert
Director of Standards
Western Electricity Coordinating Council

Supporting Documentation
WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
Regional Reliability Standard

For documentation support please contact Mr. W. Shannon Black, sblack@wecc.biz, (503) 307-5782.

WECC-0126 PRC-004-WECC-2 **Protection System and Remedial Action Scheme Misoperation** **Request to Retire a Regional Reliability Standard**				
SAR – Standard Authorization Request Attachment A (1)				
Regional Reliability Standard(s) (Clean Existing) Attachment B (2)				
Project Roadmap Attachment C (3)				
Implementation Plan Attachment D (4)				
Technical Justification Attachment E (5)				
Regional Reliability Standard Submittal Request Attachment F (6)				
Drafting Team Roster with Biographies Attachment G (7)				
Ballot Pool Members Attachment H (8)				
Final Ballot Results Attachment I (9)				
Minority Issues Attachment J (10)				
WECC Standards Committee Roster Attachment K (11)				
Responses to Comments – WECC Attachment L1 (12) and L2 (12b)				
PRC-004-WECC-2 (Retirement)	Protection System and Remedial Action Scheme Misoperation	Standard Under Development	11/03/17 - 12/18/17	Info **(13)** PRC-004-WECC-2 (Retirement) **(14)** Submit Comments Technical Justification for Retirement **(15)** Unofficial Comment Form (Word) **(16)** Comments Received **(17)** Consideration of Comments **(18)**

WECC
WESTERN ELECTRICITY COORDINATING COUNCIL
155 North 400 West, Suite 200
Salt Lake City, Utah 84103-1114

Attachment A
Standard Authorization Request

WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
Request to Retire

This Standard Authorization Request (SAR) was received on October 26, 2016, and deemed complete the same day. The SAR was vetted and approved during the December 6, 2016 WECC Standards Committee meeting.

Introduction

In accordance with the Reliability Standards Development Procedures (Procedures), WECC Regional Reliability Standards (RRS), such as PRC-004-WECC-2, Protection System and Remedial Action Scheme Misoperation, are to be reviewed at least once every five years.

Version 1 was approved in FERC Order 751 (issued April 21, 2011) with a United States Enforcement Date of October 12, 2011. Version 2 was approved in FERC Order 818 (issued November 19, 2015) with a United States Enforcement Date of April 1, 2017. Changes between Version 1 and Version 2 focus mainly on incorporation of "the new Remedial Action Scheme definition and eliminate use of the term Special Protection System, and the associated implementation plan." FERC Order 818, p.23, footnote 31

Requester Information

1. Provide your contact information and your alternates contact information:
    - Your First Name: W. Shannon
    - Your Last Name: Black
    - Your Email Address: sblack@wecc.biz
    - Your Phone Number: (503) 307-5782
    - Organization Name: WECC
    - Alternates First Name: Steven
    - Alternates Last Name: Rueckert
    - Alternates Email Address: steve@wecc.biz
    - Alternates Phone Number: NA

Type of Request

2. Specify the type of request: (select one)
    - Request to Review and update as needed.

Create, Modify or Retire a Document Questions

Provide the requested information for your request to create, modify, or retire the document.

3. Requested Action: (select one)
    - Other
        i. Five-year review
4. Document Type: (select one)
    - WECC Regional Reliability Standard (RRS)
5. Issue: Specify what industry problem this request is trying to resolve.

    The RRS was created under the Procedures and requires review at least once every five years.

6. Proposed Remedy: Specify how this request proposes to address the issue described.

    Overall Review

    This SAR is designed to meet the five-year review requirement contained in the Procedures.

    The assigned drafting team is requested to review the document and to recommend any one or more of the following actions, as deemed appropriate:

    - Complete or partial retirement;
    - Correction of non-substantive drafting conventions and formats;
    - Full redraft, if deemed necessary;
    - Conformity and/or alignment with other regulatory documents;
    - Restructuring of the document;
    - Relocating portions of the document;
    - Any combination of the above.

    Consider for Retirement

    In completing the five-year review, the drafting team is requested to specifically review Requirement R3 for possible retirement because, among other things, the requirement is administrative in nature, may be redundant to WECC authority under the NERC Rules of

Procedure, Section 1600 Data Request, and may provide no added reliability to the Bulk-Electric System. [1]

The drafting team should review PRC-004-4(i), Protection System Misoperation Identification and Correction to ensure PRC-004-WECC-2 does not conflict with or create redundancy to that document. (See Background section of the NERC PRC-004-4(i).)

The following is offered for drafting team guidance.

When a Regional Reliability Standard requirement meets one or more of the following three criteria, it should be retired:[2]

1) Retirement of the requirement creates no reliability gaps;

2) The requirement is generally administrative in nature; or,

3) The requirement is redundant, or is adverse to the reliability principles set forth by NERC.

[1] Reliability Standard PRC-004-WECC-2 addresses the analysis of misoperations that occur on transmission and generation protection systems and remedial action schemes in the Western Interconnection. Docket No. RM09-9-000. It replaced PRC-004-WECC-1. (Predecessors include WECC PRC-STD-001-1, and WECC PRC-STD-003-1.) Changes made to the tables included in the applicability section of the standard will require development and submittal of the underlying methodology. 18 CFR Part 40, RM-09-9-000, Order Number 751, p. 40 (Order 751). FERC has already deemed this regional standard more stringent than the NERC equivalent. Order 751. para. 34-37.

[2] NERC Paragraph 81 Technical White Paper, page 6, December 20, 2012

Criterion A: Reliability Gaps

Retirement of the requirement would create no reliability gaps.

Criterion B: Administrative

The requirement is generally administrative in nature in that is meets one or more of the following criteria: 1) administrative; 2) data collection/data retention; 3) documentation; 4) reporting; 5) periodic updates; 6) commercial or business practice; and 7) redundant).

Criterion C: Redundancy

The requirement is redundant in that it meets one or more of the following criteria: 1) the requirement part of a Find/Fix/Track filing; 2) the requirement is being reviewed in an ongoing Standards Development Project; 3) the requirement is a Violation Risk Factor ("VRF") of the requirement; 4) the requirement is a Tier in the 2013 Actively Monitored List ("AML"); 5) the requirement has a negative impact on NERC's reliability principles; 6) the requirement has a negative impact on the defense in-depth protection of the Bulk Electric System; or 7) the requirement has a negative impact on the promotion of results or performance based Reliability Standards.

[2] P81 Technical Paper, Section II. Executive Summary, Oct 23, 2012.

Specifically, for a requirement to be proposed for retirement, it must satisfy both, number 1 and 2 above. Number 3 is considered as additional information to make a more informed decision.

7. Functions: Each function will be reviewed if affected.
    - Transmission Owners of selected WECC major transmission path facilities and Remedial Action Schemes listed in the tables titled “Major WECC Transfer Path in the Bulk Electric System” and “Major WECC Remedial Action Schemes (RAS)”.
    - Generator Owners that own RASs listed in the table titled “Major WECC Remedial Action Schemes (RAS)”.
    - Transmission Operators that operate major transmission path facilities and RAS listed in Tables title “Major WECC Transfer Paths in the Bulk Electric System” and “Major WECC Remedial Action Schemes (RAS)".
8. Detailed Description:

    See above.

9. Affected Reliability Principles: Which of the following reliability principles is MOST affected by this request? (select one)
    - **Reliability Principle** —*Information necessary for the planning and operation of interconnected bulk electric systems shall be made available to those entities responsible for planning and operating the systems reliably.*

Document Information

Specify the documents title, document number, and affected section regarding the request.

10. Document Title: See above.

Reference Uploads

Please reference or upload any affected Standards, Regional Business Practices, Criterion, Policies, White Papers, Technical Reports or other relevant documents. If this request is based on a conflict of law, please include a copy of, or accessible reference to, the specific law or regulatory mandate in conflict.

11. Provide additional comments (if needed)

    Standard PRC-012-2 Remedial Action Schemes, Gene Henneberg, NV Energy, Davis Erwin, Pacific Gas and Electric Company

A. Introduction

1. Title: Protection System and Remedial Action Scheme Misoperation

2. Number: PRC-004-WECC-2

3. Purpose: Regional Reliability Standard to ensure all transmission and generation Protection System and Remedial Action Scheme (RAS) Misoperations on Transmission Paths and RAS defined in section 4 are analyzed and/or mitigated.

4. Applicability

4.1. Transmission Owners of selected WECC major transmission path facilities and RAS listed in tables titled "Major WECC Transfer Paths in the Bulk Electric System" provided at https://www.wecc.biz/Reliability/TableMajorPaths4-28-08.pdf and "Major WECC Remedial Action Schemes (RAS)" provided at https://www.wecc.biz/Reliability/TableMajorRAS4-28-08.pdf.

4.2. Generator Owners that own RAS listed in the Table titled "Major WECC Remedial Action Schemes (RAS)" provided at https://wecc.biz/Reliability/TableMajorRAS4-28-08.pdf..

4.3. Transmission Operators that operate major transmission path facilities and RAS listed in Tables titled "Major WECC Transfer Paths in the Bulk Electric System" provided at https://www.wecc.biz/Reliability/TableMajorPaths4-28-08.pdf and "Major WECC Remedial Action Schemes (RAS)" provided at https://www.wecc.biz/Reliability/TableMajorRAS4-28-08.pdf.

5. Effective Date: See Implementation Plan for the Revised Definition of "Remedial Action Scheme"

B. Requirements

The requirements below only apply to the major transmission paths facilities and RAS listed in the tables titled "Major WECC Transfer Paths in the Bulk Electric System" and "Major WECC Remedial Action Schemes (RAS)."

R.1. System Operators and System Protection personnel of the Transmission Owners and Generator Owners shall analyze all Protection System and RAS operations. *[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]*

R1.1. System Operators shall review all tripping of transmission elements and RAS operations to identify apparent Misoperations within 24 hours.

R1.2. System Protection personnel shall analyze all operations of Protection Systems and RAS within 20 business days for correctness to characterize whether a Misoperation has occurred that may not have been identified by System Operators.

R.2. Transmission Owners and Generator Owners shall perform the following actions for each Misoperation of the Protection System or RAS. It is not intended that Requirements R2.1 through R2.4 apply to Protection System and/or RAS actions that appear to be entirely reasonable and correct at the time of occurrence and associated system performance is fully compliant with NERC Reliability Standards. If the Transmission Owner or Generator Owner later finds the Protection System or RAS operation to be incorrect through System Protection personnel analysis, the requirements of R2.1 through R2.4 become applicable at the time the Transmission Owner or Generator Owner identifies the Misoperation:

R2.1. If the Protection System or RAS has a Security-Based Misoperation and two or more Functionally Equivalent Protection Systems (FEPS) or Functionally Equivalent RAS (FERAS) remain in service to ensure Bulk Electric System (BES) reliability, the Transmission Owners or Generator Owners shall remove from service the Protection

System or RAS that misoperated within 22 hours following identification of the Misoperation. Repair or replacement of the failed Protection System or RAS is at the Transmission Owners' and Generator Owners' discretion. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations]*

R2.2. If the Protection System or RAS has a Security-Based Misoperation and only one FEPS or FERAS remains in service to ensure BES reliability, the Transmission Owner or Generator Owner shall perform the following. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations]*

R2.2.1. Following identification of the Protection System or RAS Misoperation, Transmission Owners and Generator Owners shall remove from service within 22 hours for repair or modification the Protection System or RAS that misoperated.

R2.2.2. The Transmission Owner or Generator Owner shall repair or replace any Protection System or RAS that misoperated with a FEPS or FERAS within 20 business days of the date of removal. The Transmission Owner or Generator Owner shall remove the Element from service or disable the RAS if repair or replacement is not completed within 20 business days.

R2.3. If the Protection System or RAS has a Security-Based or Dependability-Based Misoperation and a FEPS and FERAS is not in service to ensure BES reliability, Transmission Owners or Generator Owners shall repair and place back in service within 22 hours the Protection System or RAS that misoperated. If this cannot be done, then Transmission Owners and Generator Owners shall perform the following. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations]*

R2.3.1. When a FEPS is not available, the Transmission Owners shall remove the associated Element from service.

R2.3.2. When FERAS is not available, then

2.3.2.1. The Generator Owners shall adjust generation to a reliable operating level, or

2.3.2.2. Transmission Operators shall adjust the SOL and operate the facilities within established limits.

R2.4. If the Protection System or RAS has a Dependability-Based Misoperation but has one or more FEPS or FERAS that operated correctly, the associated Element or transmission path may remain in service without removing from service the Protection System or RAS that failed, provided one of the following is performed.

R2.4.1. Transmission Owners or Generator Owners shall repair or replace any Protection System or RAS that misoperated with FEPS and FERAS within 20 business days of the date of the Misoperation identification, or

R2.4.2. Transmission Owners or Generator Owners shall remove from service the associated Element or RAS. *[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]*

R.3. Transmission Owners and Generation Owners shall submit Misoperation incident reports to WECC within 10 business days for the following. *[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]*

R3.1. Identification of a Misoperation of a Protection System and/or RAS,

R3.2. Completion of repairs or the replacement of Protection System and/or RAS that misoperated.

C. Measures

Each measure below applies directly to the requirement by number.

M1. Transmission Owners and Generation Owners shall have evidence that they reported and analyzed all Protection System and RAS operations.

M1.1 Transmission Owners and Generation Owners shall have evidence that System Operating personnel reviewed all operations of Protection System and RAS within 24 hours.

M1.2 Transmission Owners and Generation Owners shall have evidence that System Protection personnel analyzed all operations of Protection System and RAS for correctness within 20 business days.

M2. Transmission Owners and Generation Owners shall have evidence for the following.

M2.1 Transmission Owners and Generation Owners shall have evidence that they removed the Protection System or RAS that misoperated from service within 22 hours following identification of the Protection System or RAS Misoperation.

M2.2 Transmission Owners and Generation Owners shall have evidence that they removed from service and repaired the Protection System or RAS that misoperated per measurements M2.2.1 through M2.2.2.

M2.2.1 Transmission Owners and Generation Owners shall have evidence that they removed the Protection System or RAS that misoperated from service within 22 hours following identification of the Protection System or RAS Misoperation.

M2.2.2 Transmission Owners and Generation Owners shall have evidence that they repaired or replaced the Protection System or RAS that misoperated within 20 business days or either removed the Element from service or disabled the RAS.

M2.3 The Transmission Owners and Generation Owners shall have evidence that they repaired the Protection System or RAS that misoperated within 22 hours following identification of the Protection System or RAS Misoperation.

M2.3.1 The Transmission Owner shall have evidence that it removed the associated Element from service.

M2.3.2 The Generator Owners and Transmission Operators shall have documentation describing all actions taken that adjusted generation or SOLs and operated facilities within established limits.

M2.4 Transmission Owners and Generation Owners shall have evidence that they repaired or replaced the Protection System or RAS that misoperated including documentation that describes the actions taken.

M2.4.1 Transmission Owners and Generation Owners shall have evidence that they repaired or replaced the Protection System or RAS that misoperated within 20 business days of the misoperation identification.

M2.4.2 Transmission Owners and Generation Owners shall have evidence that they removed the associated Element or RAS from service.

M3. Transmission Owners and Generation Owners shall have evidence that they reported the following within 10 business days.

M3.1 Identification of all Protection System and RAS Misoperations and corrective actions taken or planned.

M3.2 Completion of repair or replacement of Protection System and/or RAS that misoperated.

D. Compliance

1. Compliance Monitoring Process

1.1 Compliance Monitoring Responsibility

Compliance Enforcement Authority

1.2 Compliance Monitoring Period

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

- Misoperation Reports
- Reports submitted quarterly
- 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

1.2.1 The Performance-reset Period is one calendar month.

1.3 Data Retention

Reliability Coordinators, Transmission Owners, and Generation Owners shall keep evidence for Measures M1 and M2 for five calendar years plus year to date.

1.4. Additional Compliance Information

None.

2. Violation Severity Levels

R1

Lower	Moderate	High	Severe
System Operating personnel of the Transmission Owner or Generator Owner did not review the Protection System Operation or RAS operation within 24 hours but did review the Protection System Operation or RAS operation within six business days.	System Operating personnel of the Transmission Owner or Generator Owner did not review the Protection System operation or RAS operation within six business days.	System Protection personnel of the Transmission Owner and Generator Owner did not analyze the Protection System operation or RAS operation within 20 business days but did analyze the Protection System operation or RAS operation within 25 business days.	System Protection personnel of the Transmission Owner or Generator Owner did not analyze the Protection System operation or RAS operation within 25 business days.

R2.1 and R2.2.1

Lower	Moderate	High	Severe
The Transmission Owner and Generator Owner did not remove from service, repair, or implement other compliance measures for the Protection System or RAS that misoperated as required within 22 hours but did perform the requirements within 24 hours.	The Transmission Owner and Generator Owner did not remove from service, repair, or implement other compliance measures for the Protection System or RAS that misoperated as required in less than 24 hours but did perform the requirements within 28 hours.	The Transmission Owner and Generator Owner did not perform the removal from service, repair, or implement other compliance measures for the Protection System or RAS that misoperated as required in less than 28 hours but did perform the requirements within 32 hours.	The Transmission Owner and Generator Owner did not perform the removal from service, repair, or implement other compliance measures for the Protection System or RAS that misoperated as required within 32 hours.

R2.3

Lower	Moderate	High	Severe
The Transmission Operator and Generator Owner did not adjust generation to a reliable operating level, adjust the SOL and operate the facilities within established limits or implement other compliance measures for the Protection System or RAS that misoperated as required within 22 hours but did perform the requirements within 24 hours.	The Transmission Operator and Generator Owner did not adjust generation to a reliable operating level, adjust the SOL and operate the facilities within established limits or implement other compliance measures for the Protection System or RAS that misoperated as required in less than 24 hours but did perform the requirements within 28 hours.	The Transmission Operator and Generator Owner did not adjust generation to a reliable operating level, adjust the SOL and operate the facilities within established limits or implement other compliance measures for the Protection System or RAS that misoperated as required in less than 28 hours but did perform the requirements within 32 hours.	The Transmission Operator and Generator Owner did not adjust generation to a reliable operating level, adjust the SOL and operate the facilities within established limits or implement other compliance measures for the Protection System or RAS that misoperated as required within 32 hours.

R2.2.2 and R2.4

Lower	Moderate	High	Severe
The Transmission Owner and Generator Owner did not perform the required repairs, replacement, or system operation adjustments to comply with the requirements within 20 business days but did perform the required activities within 25 business days.	The Transmission Owner and Generator Owner did not perform the required repairs, replacement, or system operation adjustment to comply with the requirements within 25 business days but did perform the required activities within 28 business days.	The Transmission Owner and Generator Owner did not perform the required repairs, replacement, or system operation adjustment to comply with the requirements within 28 business days but did perform the required activities within 30 business days.	The Transmission Owner and Generator Owner did not perform the required repairs, replacement, or system operation adjustments to comply with the requirements within 30 business days.

R3.1

Lower	Moderate	High	Severe
The Transmission Owner and Generator Owner did not report the Misoperation and corrective actions taken or planned to comply with the requirements within 10 business days but did perform the required activities within 15 business days.	The Transmission Owner and Generator Owner did not report the Misoperation and corrective actions taken or planned to comply with the requirements within 15 business days but did perform the required activities within 20 business days.	The Transmission Owner and Generator Owner did not report the Misoperation and corrective actions taken or planned to comply with the requirements within 20 business days but did perform the required activities within 25 business days.	The Transmission Owner and Generator Owner did not report the Misoperation and corrective actions taken or planned to comply with the requirements within 25 business days.

R3.2

Lower	Moderate	High	Severe
The Transmission Owner and Generator Owner did not report the completion of repair or replacement of Protection System and/or RAS that misoperated to comply with the requirements within 10 business days of the completion but did perform the required activities within 15 business days.	The Transmission Owner and Generator Owner did not report the completion of repair or replacement of Protection System and/or RAS that misoperated to comply with the requirements within 15 business days of the completion but did perform the required activities within 20 business days.	The Transmission Owner and Generator Owner did not report the completion of repair or replacement of Protection System and/or RAS that misoperated to comply with the requirements within 20 business days of the completion but did perform the required activities within 25 business days.	The Transmission Owner and Generator Owner did not report the completion of repair or replacement of Protection System and/or RAS that misoperated to comply with the requirements within 25 business days of the completion.

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-001-1 and PRC-STD-003-1	
1	April 21, 2011	FERC Order issued approving PRC-004-WECC-1 (approval effective June 27, 2011)	
2	November 13, 2014	Adopted by the NERC Board of Trustees	
2	November 19, 2015	FERC Order issued approving PRC-004-WECC-2. Docket No. RM15-13-000.	
2	May 26, 2017	All links were updated in the Applicability section of the standard (4.1, 4.2 and 4.3)	

Attachment C
Project Roadmap
WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
Request to Retire

Project Roadmap

Actions	Proposed Date
1. SAR Filed	October 26, 2016
2. DT Solicited	October 26, 2016
3. WSC approved the SAR and DT	December 6, 2016
4. First DT meeting	January 26, 2017
5. Posting 1 Comments Open	April 6, 2017
6. Posting 1 Comments Closed (45-day)	May 22, 2017
7. DT Meets to answer Comments	May 24, 2017
8. WSC approves for Ballot	July 6, 2017
9. Notice of Ballot Pool Forming	July 10, 2017
10. Ballot Pool Open	July 11, 2017
11. Notice of Standards Briefing	July 17, 2017
12. Ballot Pool – Closed	July 26, 2017
13. Standards Briefing	August 1, 2017
14. Ballot Open	August 9, 2017
15. Ballot Closes	August 28, 2017
16. NERC Posting for 45 days – Open	November 3, 2017
17. WECC Board of Directors approval	December 6, 2017
18. NERC Posting for 45 days – Closed	December 18, 2017
19. NERC Board of Trustees approval	February 8, 2017

Anticipated Actions	Proposed Date
1. FERC approval	

Standard Authorization Request

WECC-0126 PRC-004-WECC-2 Request to Retire - Standard Authorization Request

Approvals Required

- WECC Board of Directors .....December 6, 2017
- NERC Board of Trustees ..... February 8, 2018
- FERC ..... Pending

Applicable Entities

4. Applicability

4.1. Transmission Owners of selected WECC major transmission path facilities and RAS listed in tables titled "Major WECC Transfer Paths in the Bulk Electric System" provided at https://www.wecc.biz/Reliability/TableMajorPaths4-28-08.pdf and "Major WECC Remedial Action Schemes (RAS)" provided at https://www.wecc.biz/Reliability/TableMajorRAS4-28-08.pdf.

4.2. Generator Owners that own RAS listed in the Table titled "Major WECC Remedial Action Schemes (RAS)" provided at https://wecc.biz/Reliability/TableMajorRAS4-28-08.pdf.

4.3. Transmission Operators that operate major transmission path facilities and RAS listed in Tables titled "Major WECC Transfer Paths in the Bulk Electric System" provided at https://www.wecc.biz/Reliability/TableMajorPaths4-28-08.pdf and "Major WECC Remedial Action Schemes (RAS)" provided at https://www.wecc.biz/Reliability/TableMajorRAS4-28-08.pdf.

Conforming Changes to Other Standards

The entire standard is proposed for retirement immediately and in its entirety on receipt of applicable regulatory approval because the reliability-related substance is addressed in peripheral NERC Standards. The WECC-0126 PRC-004-WECC-2, Protection System and Remedial Action Scheme Misoperation Standard Drafting Team (DT) does not believe any further actions are necessary to implement the proposed retirement.

Proposed Effective Date

Immediately upon receipt of applicable regulatory approval.

Justification

The DT reviewed NERC Standards, both in effect and proposed for regulatory approval. The DT also considered the development history of PRC-004-WECC-2 and its history of performance.

What follows are the findings and justification for full and immediate retirement of the document. A detailed analysis of each of the following bullets is included with this filing.

1) The reliability concern for which the original standard was drafted is now specifically covered in FAC-003-4 Transmission Vegetation Management (enforceable October 1, 2016).
2) The Applicability section is overly narrow and included in other existing NERC Standards.
3) Requirement R1 is covered in other NERC Standards.
4) Requirement R2 is covered in other NERC Standards, conflicts with existing NERC Standards, and its application can lessen reliability as opposed to enhancing it.
5) Requirement R3 is entirely administrative in nature and should be retired under FERC P81 criteria.
6) The language of the standard does not meet the FERC Order 672 criteria in that it fails to assign the reliability task directly to an entity included in the NERC Functional Model.

Considering the above findings, the DT is recommending full and immediate retirement of the standard upon receipt of applicable regulatory approval.

Consideration of Early Compliance

The drafting team foresees no concerns with early compliance.

Required Retirements

The currently approved standard (PRC-004-WECC-2) should be retired completely and immediately following applicable regulatory approval. No other retirements or modifications are needed.

Attachment E

Technical Justification

WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
Request to Retire

Cover Sheet

Technical Justification
Retirement of WECC Regional Reliability Standard
PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation

White Paper:
Retirement of WECC Regional Reliability Standard PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation

Technical Justification

WECC Standards Committee

June 21, 2017

Developed as: WECC-0126

155 North 400 West, Suite 200

Salt Lake City, Utah 84103-1114

Attachment G

Technical Justification

WECC-0126 PRC-004-WECC-2 Protection System and Remedial Action Scheme Misoperation Request to Retire

Executive Summary

The WECC-0126 PRC-004-WECC-2 Protection System (PS) and Remedial Action Scheme (RAS) Misoperation Drafting Team (DT) reviewed NERC Standards, both in effect and proposed for regulatory approval. The DT also considered the development history of PRC-004-WECC-2 and its history of performance.

The following are the DT's findings, conclusions, and recommendations.

Findings and Conclusion

The DT concluded that retirement of the standard can be made without incurring a negative impact on reliability because:

1. The reliability concern for which the standard was drafted is now specifically covered in FAC-003-4 Transmission Vegetation Management (enforceable October 1, 2016);
2. The Applicability section is overly narrow and included in other existing NERC Standards;
3. Requirement R1 is covered in other NERC Standards;
4. Requirement R2 is covered in other NERC Standards, conflicts with existing NERC Standards, and its application can lessen reliability as opposed to enhancing it;
5. Requirement R3 is entirely administrative in nature and should be retired under FERC P81 criteria;
6. The language of the standard does not meet the FERC Order 672 criteria in that it fails to assign the reliability task directly to an entity included in the NERC Functional Model.

Recommendation

After completing its review, the DT recommends that the substance of PRC-004-WECC-2 should be retired immediately and in its entirety because the reliability-related substance is addressed in peripheral NERC Standards. The DT does not believe any further actions are necessary to implement the proposed change.

Background

In 1996, two system disturbances occurred within the Western Interconnection, on the same elements within a single 24-hour period, due to improper vegetation management. To prevent reoccurrence of such a specific event, language was included in WECC's Reliability Management System (RMS) requiring that the relay or Remedial Action Scheme (RAS) that misoperated be removed from service or repaired within 22 hours.[1] [2] The language was premised on the position that if the misoperation was analyzed and promptly removed from service, the system operators could remedy the cause before an iterative misoperation took place.

By 2007, with the implementation of mandatory standards, WECC examined the RMS, identifying those requirements it deemed essential for reliability that were not addressed by NERC Standards, and translated those requirements into a language and format acceptable to the North America Electricity Reliability Council (NERC)[3] and the Federal Energy Regulatory Commission (FERC). That translation resulted in WECC Standard PRC-STD-003-1, Protective Relay and Remedial Action Scheme Misoperation and PRC-STD-001-1, Certification of Protective Relay Applications and Settings.[4]

As the mandatory scheme evolved, two things occurred. First, NERC/FERC identified drafting and format concerns in those two PRC-STD standards and instructed WECC to redraft them accordingly. The result was that the current PRC-004-WECC-1 (inactive March 31, 2017) was replaced by PRC-004-WECC-2 (United States Enforcement Date April 1, 2017) to accommodate changes in the NERC Glossary

[1] The Reliability Management System (RMS) (AKA: Western Electricity Coordinating Council, FERC Electric Tariff, First Revised Volume No. 1, Original Sheet Number 1) was the precursor to the NERC Mandatory Standards within the Western Interconnection. The Transfer Path Table and the Remedial Action Scheme table were originally developed as part of the RMS. The 22-hour period was memorialized in the RMS, Section I. Protective Relay and Remedial Action Scheme Misoperation, and Section 2. WSCC Criterion, Section a. For more detail, refer to Compliance Filing of WECC in Response to Order Numbers 751 and 752 on Version One Regional Reliability Standards, RM09-09-000.

[2] "WECC explains that these requirements were developed as a result of a 345 kV line relay misoperation in July 1996 when virtually the same outage occurred the next day because the faulty equipment had not been isolated." 119 FERC ¶ 61,260; United States of America Federal Energy Regulatory Commission (FERC) North American Electric Reliability Corporation, Docket No. RR07-11-000, Order Approving Regional Reliability Standards for the Western Interconnection and Directing Modifications (Issued June 8, 2007), para. 85.

[3] Currently known as the North American Electricity Reliability *Corporation* (emphasis added).

[4] 135 FERC ¶ 61,061; United States of America Federal Energy Regulatory Commission, 18 CFR Part 40, Docket No. RM09-9-000; Order No. 751, Version One Regional Reliability Standards for Facilities Design, Connections, and Maintenance; Protection and Control; and Voltage and Reactive (issued April 21, 2011), para. 34. FERC Order issued approving PRC-004-WECC-1 (approval effective June 27, 2011).

of Terms Used in NERC Reliability Standards (Glossary).[5] [6] Second, the Facilities Design, Connection and Maintenance (FAC) standards were introduced to address the specific type of vegetation management concerns that caused the 1996 disturbances.

In the 20 years since the precipitating events, the *remedy* for those events shifted to the vegetation management standard of the NERC FAC suite and the remaining language pertinent to Protection Systems (PS), Special Protection Schemes (SPS), and Remedial Action Schemes (RAS) shifted to other NERC PRC Standards.[7]

Shifting Remediation

At the threshold, it should be noted that remediation of the 1996 seminal event has shifted to FAC-003-4, Transmission Vegetation Management. Therefore, PRC-004-WECC-2 no longer addresses the cause for which it was drafted.

In 1996, if the applicable entities had been complying with a 2016 version of FAC-003-4, Transmission Vegetation Management (enforceable October 1, 2016) it is unlikely that the predecessors to PRC-004-WECC-2 would have been written. Remediation for the primary causal event has shifted to FAC-003-4, which is applicable to transmission facilities operated at 200-kV or higher, and below 200-kV if the facility is identified as an element of a Major WECC Transfer Path. FAC-003-4 requires: 1) that vegetation be managed to prevent the type of encroachment encountered in 1996 (R1 and R2); 2) timely notification to the appropriate control center of vegetation conditions that could cause a Flashover at any moment (R4); and 3) corrective action to ensure that Flashover distances will not be violated due to work constraints.[8]

Applicability – Scope

The narrow scope of the PRC-004-WECC-2 Applicability section should be retired in favor of the broader Applicability section of other NERC Standards. Whereas PRC-004-WECC-2 only applies to

[5] In the Glossary of Terms Used in NERC Reliability Standards, Protection Systems are not the same as Special Protection Systems (SPS). An SPS is synonymous with a RAS per that glossary.

[6] Footnote 31 NERC RAS Petition at 1-2. NERC requested approval of the PRC-004-WECC-2 to incorporate the proposed definition of Remedial Action Scheme and eliminate use of the term Special Protection System. 153 FERC ¶ 61,228; United States of America Federal Energy Regulatory Commission, 18 CFR Part 40, Docket Nos. RM15-7-000, RM15-12-000, and RM15-13-000, Order No. 818, Revisions to Emergency Operations Reliability Standards; Revisions to Undervoltage Load Shedding Reliability Standards; Revisions to the Definition of "Remedial Action Scheme" and Related Reliability Standards, (Issued November 19, 2015).

[7] This project is part of WECC's commitment to harmonize PRC-004-WECC-2 with NERC Standards addressing RAS and PS per PRC-004-4(i), 5 Background, page 2.

[8] FAC-003-4, Transmission Vegetation Management, Section 6. Background. See also: "Consideration of Actual Field Conditions in Determination of Facility Ratings."

specific RAS and PS included in defined tables, other NERC Standards address the same analysis without limiting the analysis to RAS and PS contained in the specified tables.

The Applicability of the PRC-004-WECC-2 reads as follows:

4. Applicability

4.1. Transmission Owners of selected WECC major transmission path facilities and RAS listed in tables titled "Major WECC Transfer Paths in the Bulk Electric System" provided at [hyperlink] and "Major WECC Remedial Action Schemes (RAS)" provided at [hyperlink].

4.2. Generator Owners that own RAS listed in the Table titled "Major WECC Remedial Action Schemes (RAS)" provided at [hyperlink].

4.3. Transmission Operators that operate major transmission path facilities and RAS listed in Tables titled "Major WECC Transfer Paths in the Bulk Electric System" provided at [hyperlink] and "Major WECC Remedial Action Schemes (RAS)" provided at [hyperlink].

Although the requirements of PRC-004-WECC-2 address both RAS and PS, other existing NERC Standards address these two topics in separate standards.

PRC-016-1 Remedial Action Scheme Misoperations, Requirement R1 requires any Transmission Owner (TO), Generator Owner (GO), and Distribution Provider (DP) owning a RAS to ". . .analyze its RAS operations and maintain a record of all misoperations. . ." in accordance with the regional procedures.

Since *all RAS* must be examined under PRC-016-1, there is no reason to retain PRC-004-WECC-2 which only applies to a specific and limited subset of WECC RAS. Review of all RAS under PRC-016-1 includes the subset of RAS targeted in PRC-004-WECC-2. Therefore, the PRC-004-WECC-2 Applicability section is a lesser included subset of PRC-016-1 (effective date April 1, 2017) making PRC-004-WECC-2 redundant.

In like fashion, PRC-004-4(i) Protection System Misoperation Identification and Correction, requires all TOs, GOs, and DPs to review *all PS* operations on the Bulk Electric System (BES) to: 1) identify those that are Misoperations of PS; 2) analyze Misoperations of PS; and 3) develop and implement Corrective Action Plans (CAP) to address the cause(s) of Misoperation.[9] Thus, the PRC-004-WECC-2 Applicability section is a lesser included subset of PRC-004-4(i) making PRC-004-WECC-2 redundant.

Applicability – Failure to Meet Order 672 Criteria

Although the Applicability section accurately identifies the correct NERC Functional Entities, the Requirements do not assign tasks to those entities.

[9] PRC-004-4(i) Protection System Misoperation Identification and Correction, 5. Background, page 2.

Rather than assigning the reliability task to the TO or GO, Requirement R1 assigns its task to "System Operators and System Protection personnel of the Transmission Owners and Generator Owners." Requirement R1 does not directly assign a reliability task to any applicable entity listed in the NERC Functional Model. As such, it falls short of the FERC Order 672 mandate that a Reliability Standard impose a requirement only on a user, owner, or operator of facilities associated with the Bulk-Power System (BES).[10] Presuming the requirement could be interpreted to apply to the TO and GO directly, Requirement R1 imposes a duty to "analyze all Protection System and RAS operations."[11] Because these tasks are covered in other NERC Standards (see following analysis) there is no need to retain the requirement nor try to sort out which NERC Functional Model entity the original draft intended.

Retirement of Requirement R1

The entirety of Requirement R1 should be retired because it is redundant to other NERC Standards.

The text of Requirement R1 is as follows:

B. Requirements

The requirements below only apply to the major transmission paths facilities and RAS listed in the tables titled "Major WECC Transfer Paths in the Bulk Electric System" and "Major WECC Remedial Action Schemes (RAS)."

R.1. System Operators and System Protection personnel of the Transmission Owners and Generator Owners shall analyze all Protection System and RAS operations. *[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]*

R1.1. System Operators shall review all tripping of transmission elements and RAS operations to identify apparent Misoperations within 24 hours.

R1.2. System Protection personnel shall analyze all operations of Protection Systems and RAS within 20 business days for correctness to characterize whether a Misoperation has occurred that may not have been identified by System Operators.

Covered Elsewhere

Unlike PRC-004-WECC-2 that includes both PS and RAS, in the NERC Standards these two classifications of devices are addressed in separate standards.

As for PS, existing NERC Standards include and go beyond a mandate for analysis. TOs and Generator Operators (GOP) are required to be familiar with the purpose and limitations of their PS schemes and

[10] The proposed Reliability Standard may impose a requirement on any user, owner, or operator of such facilities, but not on other entities (Order 672 at P. 322).

[11] In the Glossary of Terms Used in NERC Reliability Standards, Protection Systems are not the same as *Special* Protection Systems (SPS). An SPS is synonymous with a RAS per that glossary; an SPS is not the same as a Protection System.

take corrective actions as soon as possible – not just analyze the problem.[12] Entities must maintain and test their PS, and demonstrate efforts to correct identified Unresolved Maintenance Issues.[13] Monitoring and situational awareness are also required[14]. Finally, TOs and GOs are required to correct identified and unresolved maintenance Issues.[15] These combined NERC Standards meet and exceed the reliability concerns of Requirement R1 regarding PS.

As for RAS, PRC-004-4 not only calls for analysis it also requires coordination with other entities, notification of events and findings, and – most importantly – that corrective actions be planned and implemented. Elsewhere, applicable entities that own a RAS are required to analyze RAS operation and misoperation, take corrective actions to ensure misoperation does not reoccur, and to provide documentation of its activities upon request from the Regional Reliability Organization (RRO).[16] PRC-016-1 Remedial Action Scheme Misoperation calls for the inclusion of specific detail in its reports exceeding the requirement of PRC-004-WECC-2. Further, PRC-017-1 Special Protection System Maintenance and Testing requires both the TO and GO to have a system maintenance and testing program (to include specific characteristics), and to provide supporting documentation to the RRO on request. These combined NERC Standards meet and exceed the reliability concerns of PRC-004-WECC-2 Requirement R1 regarding RAS.

Finally, even in the absence of the continent-wide PRC suite, TOP standards would require essential analysis and remedial action so long as a facility continues in service with a single PS or RAS. In many cases, this occurs in less than the 20-day window prescribed in PRC-004-WECC-2 and focuses on results as opposed to a perfunctory task.[17]

The continent-wide TOP standards require time frames to take action that range from as quickly as possible out to as much as day-ahead planning. So long as a facility continues in service with a single PS

[12] PRC-001-1.1(ii) System Protection Coordination, Requirements R1 and R2.

[13] PRC-005-6 – Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance.

[14] PRC-001-1.1(ii) — System Protection Coordination; TOP-003-3, Operational Reliability Data, R1, part 1.2.

[15] PRC-005-6 — Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance, Requirement R5.

[16] PRC-016-1 — Remedial Action Scheme Misoperation; (United States Enforcement Date April 1, 2017).

[17] TPL-001-4 — Transmission System Planning Performance Requirements focuses on system performance rather than the method of achieving that performance.

TOP-002-2.1b — Normal Operations Planning, R6 focuses on a different aspect of system performance by analyzing the system at a minimum of the next N-1 Contingency planning.

TOP-004-2 — Transmission Operations, requires that TOPs operate to maintain reliability following occurrence of their most severe single contingency and (R3) for any multiple contingencies identified by their RC. These contingencies exclude any facilities that are already out-of-service (either forced or planned).

TOP-006-3 — Monitoring System Conditions, R3 requires that the RC, TOP, and Balancing Authority "shall provide its operating personnel with appropriate technical information concerning protective relays within" their areas of responsibility.

TOP-008-1 — Response to Transmission Limit Violations, R2 requires the TOP "operate to prevent the likelihood that a disturbance, action or inaction will result in an IROL or SOL violation …" which reinforces the TPL-004-2 R2 requirement.

or RAS, the TOP is required by the TOP standards to evaluate the system impacts for that configuration at least every day and to take further action if required by the actual circumstances. These TOP time restrictions are much more rigorous than the WECC 20 business days.[18]

Because the reliability content of PRC-004-WECC-2 Requirement R1 is covered in other existing NERC Standards, Requirement R1 can be retired without incurring any negative impact on reliability.

Illusory Time Windows – 20 Business Days

In Requirement R1.2, the 20-day review period has its origins in compliance and not in reliability. Therefore, it is not essential for reliability.

When the predecessors of PRC-004-WECC-2 were developed (circa 1995-2000), the WECC Relay Work Group identified the duration of the window (*20* business days) to *measure* performance, not as a time window essential for reliability.[19] Meeting minutes from the WECC Relay Work Group establish the first draft of what would later be called a Violation Severity Level (VSL) wherein the 20-business-day window was included in a Level 3 and Level 4 VSL.

The definition of the window (20 *business days*) makes its regulatory debut in the RMS[20] where it is used as a defined term. A Business Day is defined as "any day other than Saturday, Sunday, or a legal public holiday as designated in section 6103, of title 5 US Code." If the 20-business day window was reliability in nature it would not be predicated on weekends and holidays. This conclusion is further buttressed when considering that holidays for the United States, Canada, and Mexico do not always align.

To the extent that any level of reliability currently attaches to the 20-day window, other NERC Standards impute a shorter time window for remedial action thereby rendering the 20-day window moot. As presented, the review of numerous other NERC Standards shows that operational review of the system is required to take place much sooner than 20 days.[21] Thus, the duration and definition of the time window are irrelevant to reliability and can be retired without detriment to the system.

Retirement of Requirement R2

The entirety of Requirement R2 should be retired because it is redundant to other NERC Standards.

[18] IRO-001.1 R3, requires action within 30 minutes. TOP-008 R2, as noted, primarily reinforces TOP-004 R2, basically saying that the TOP is covered within the IRO timing requirement.

[19] WECC Relay Work Group Meeting Minutes, July 20, 2000.

[20] Reliability Management System, I. Protection Relay and Remedial Action Scheme Misoperation, Section 2.d.

[21] TOP-002-2.1b Normal Operations Planning, Requirement R6 requires a minimum of N-1 Contingency planning to meet unscheduled changes in system configuration and generation dispatch.

The text of Requirement R2 is as follows:

B. Requirements

R.2. Transmission Owners and Generator Owners shall perform the following actions for each Misoperation of the Protection System or RAS. It is not intended that Requirements R2.1 through R2.4 apply to Protection System and/or RAS actions that appear to be entirely reasonable and correct at the time of occurrence and associated system performance is fully compliant with NERC Reliability Standards. If the Transmission Owner or Generator Owner later finds the Protection System or RAS operation to be incorrect through System Protection personnel analysis, the requirements of R2.1 through R2.4 become applicable at the time the Transmission Owner or Generator Owner identifies the Misoperation:

R2.1. If the Protection System or RAS has a Security-Based Misoperation and two or more Functionally Equivalent Protection Systems (FEPS) or Functionally Equivalent RAS (FERAS) remain in service to ensure Bulk Electric System (BES) reliability, the Transmission Owners or Generator Owners shall remove from service the Protection System or RAS that misoperated within 22 hours following identification of the Misoperation. Repair or replacement of the failed Protection System or RAS is at the Transmission Owners' and Generator Owners' discretion. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations]*

R2.2. If the Protection System or RAS has a Security-Based Misoperation and only one FEPS or FERAS remains in service to ensure BES reliability, the Transmission Owner or Generator Owner shall perform the following. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations]*

R2.2.1. Following identification of the Protection System or RAS Misoperation, Transmission Owners and Generator Owners shall remove from service within 22 hours for repair or modification the Protection System or RAS that misoperated.

R2.2.2. The Transmission Owner or Generator Owner shall repair or replace any Protection System or RAS that misoperated with a FEPS or FERAS within 20 business days of the date of removal. The Transmission Owner or Generator Owner shall remove the Element from service or disable the RAS if repair or replacement is not completed within 20 business days.

R2.3. If the Protection System or RAS has a Security-Based or Dependability-Based Misoperation and a FEPS and FERAS is not in service to ensure BES reliability, Transmission Owners or Generator Owners shall repair and place back in service within 22 hours the Protection System or RAS that misoperated. If this cannot be done, then Transmission Owners and Generator Owners shall perform the following. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations]*

R2.3.1. When a FEPS is not available, the Transmission Owners shall remove the associated Element from service.

R2.3.2. When FERAS is not available, then

2.3.2.1. The Generator Owners shall adjust generation to a reliable operating level, or

2.3.2.2. Transmission Operators shall adjust the SOL and operate the facilities within established limits.

R2.4. If the Protection System or RAS has a Dependability-Based Misoperation but has one or more FEPS or FERAS that operated correctly, the associated Element or transmission path may remain in service without removing from service the Protection System or RAS that failed, provided one of the following is performed.

R2.4.1. Transmission Owners or Generator Owners shall repair or replace any Protection System or RAS that misoperated with FEPS and FERAS within 20 business days of the date of the Misoperation identification, or

R2.4.2. Transmission Owners or Generator Owners shall remove from service the associated Element or RAS. *[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]*

Retirement of Requirement R2

Requirement R2 is divided into two parts, one assigning tasks in the event of Security-Based Misoperation and the other assigning tasks in the event of Dependability-based Misoperation.[22] The requirement to analyze each Misoperation attaches whenever the Misoperation is discovered (identified).

If a PS or RAS Misoperation is *Security-based*, the PS or RAS shall be removed from service within 22 hours of the identification of the Misoperation. Whether the PS or RAS requires repair, removal, replacement or modification is fact specific and subject to specified if/then statements.

If the PS or RAS Misoperation is *Dependability-based*, but portions of the systems operate as designed, the PS or RAS can remain in service so long as repair or replacement occurs within 20 days of the identification of the Misoperation; otherwise, the PS or RAS must be removed from service.

Illusory Time Windows – 22 Hours

On the surface, the 22-hour remediation trigger of PRC-004-WECC-2, Requirement R2.2.1 is quite attractive and perceptually creates a much higher performance threshold than its peripheral NERC

[22] Security-based Misoperations and Dependability-based Misoperations are included in the WECC-specific section of the Glossary of Terms Used in NERC Reliability Standards.

Standards.[23] But when examined, the remedial clock does not begin to run until the Misoperation is *identified*. Restated, there is no remediation required until the operation is identified. The system operator may identify an *apparent* Misoperation (R1) within the identified period (R2) and thereby meet the original intent to remediate the cause. However, the reality is that the identification will not likely be determined by the Real-time system operator thus negating the assumed purpose of the 22 hours. The higher likelihood is that the system operator may annotate an anomaly in the operations log and pass the investigation on to protection engineers. After analysis and identification by the protection engineer, only then would the tolling clock begin to run. So, it could be days or weeks before the requirement to perform remediation attached. Even though the 22 hours appears to be a higher standard, in practice it is illusory because it lacks a definitive start time.

Because the 22-hour window appears in the requirement, the current mandatory regulatory regime presumes that the original drafters intended its inclusion for reliability purposes. However, a review of development record shows that the 22-hour time window did not appear in the requirement until drafted into the Reliability Management System (RMS) agreement. Meeting minutes from the July 20, 2000 WECC Relay Work Group meeting indicate that the 22-hour period was originally intended for inclusion in what would today be called a Measure. As such, the 22-hour window was not originally drafted to meet a reliability need; rather, it makes the task measurable. The minutes indicate that:

> "During the Phase 2 evaluation period the relay misoperation requirement was found to be too loosely defined to enable the assessment of *compliance* on a consistent basis among all affected parties, per the requirement, the clock starts as soon as it is determined that a relay misoperated or probably misoperated. Making this determination could take days or weeks. It was concluded that *compliance* with the requirement as originally worded is *not measurable* on an accurate or consistent basis. Consequently, the Relay Work Group in cooperation with the WSCC staff developed revisions to the requirement that will enable a consistent and accurate *measure of performance to assess compliance* the revised requirement is described in detail below." (Italic emphasis added.)

In fact, the intent of the reports is stated in the 1998 predecessor to the RMS in that:

> "The transmission path operators for the paths listed in Table 2 are requested to submit data as specified in detail within this section. *For the purpose of maintaining historical records,* and in the event, some or all of the *compliance data* have to be reviewed to resolve questions that

[23] Since a real-time assessment of system performance is being conducted at least once every 30 minutes by the Transmission Operator, the value of a review within 22 hours is diluted and somewhat redundant. TOP-001-3, Transmission Operations, R13.

> may arise in the future, the Path Operators are requested to save the data, as defined below, for at least a one-year period."[24] (Emphasis added.)

The language that found its way into the requirement section of the RMS was originally intended to serve a compliance purpose – not reliability. To the extent the 22-hour period may have evolved to address a reliability task, that task (vegetation management) is now covered in the FAC suite. As such, the 22-hour time frame can be deleted from the standard without impacting reliability.

Requirement R2 Conflicts with other Standards / Lessens Reliability

PRC-004-WECC-2 Requirement R2 has a specified set of actions that must be taken once the Misoperation is identified. Because the operator cannot deviate from the specific actions, all discretion is removed. Therefore, R2 conflicts with other standards and lessens reliability.

Under the fact pattern identified in PRC-004-WECC-2 Requirement R2.1, the TO and GO "shall remove from service" the PS or RAS that misoperated. The inflexible mandate leaves the TO/GO no operational choice. By contrast, PRC-001-1.1(ii) System Protection Coordination, Requirement R2, part 2.1 and 2.2 require that "[if] a protective relay or equipment failure reduces system reliability" then corrective action is to be taken as soon as possible.[25] Likewise, PRC-016-1 Remedial Action Scheme Misoperations, Requirement R2 allows the TO/GO owning a RAS to take "corrective actions to avoid Misoperations." Further, TOP-001-3 Transmission Operations, Requirement R1 requires the Transmission Operator (TOP) to maintain the reliability of its Transmission Operator Area *via its own actions* (emphasis added). The Balancing Authority (BA) has a similar mandate in Requirement R2 of that document.

To illustrate how retention of PRC-004-WECC-2 Requirement R2 can lessen reliability, the following actual fact pattern is offered.

Example
A fault occurred on an important path line and the relays at both terminals operated correctly to clear it. Different makes of reclosing relays are used at the two terminals, which did not allow the recloser reset time to be set the same at both terminals. The terminal that normally recloses first had a longer reset delay of 20 cycles (Terminal A), and the terminal that normally recloses after the other terminal

[24] WSCC Detailed Reporting Instructions, Reliability Management System, Evaluation Program Phase 2, Phase 2 Evaluation Period Reporting Requirements, A. Transmission Path Operators Data Collection, see sections on Protective Relay Application and Settings, and Remedial Action Schemes, and Protective Relay and Remedial Action Scheme Misoperation, August 12, 1998.

[25] Under NERC Project 2007-06.2 Phase 2 of System Protection Coordination, PRC-001-1.1(ii) is proposed for retirement. Should that occur, system awareness and corrective actions shift to other applicable entities under numerous existing NERC Standards. Please refer to that proceeding for a detailed analysis of which NERC Standards would cover the reliability tasks of PRC-001-1(ii) in the event of retirement. Misoperations that have causes other than failure can be mitigated by taking corrective action as soon as possible.

had a shorter reset delay of 15 cycles (Terminal B). A very unusual circumstance occurred when a second fault occurred on the line after the time that the recloser at Terminal B had reset (15 cycles), but before the recloser at the Terminal A had reset (20 cycles). Terminal A tripped to lockout after the second fault and did not reclose. Terminal B, which would normally reclose after Terminal A, tripped for the second fault and then proceeded to reclose. Because this is a very long line, the switch-onto-fault (SOTF) settings are set sensitively to provide instantaneous tripping for the entire length of the line. When Terminal B reclosed, the SOTF elements tripped it open due to the line charging current. It is important to recall that this terminal normally recloses after Terminal A, in which case the voltage on the line would block the SOTF elements.

Because Terminal B tripped for no fault, it created a misoperation. Because both relays at Terminal B behaved the same, they both misoperated. This would bring Requirement R2.3.1 into play, requiring the line to be removed from service if the applicable entity could not repair or replace the relays within 22 hours. Given the large volume of operations that were occurring due to the poor weather, repairing the problem within 22 hours was not easy. Taking the line out of service would have caused more problems than it solved because it would have removed an important line during heavy transfer conditions. With the poor weather that was occurring, other lines were also operating, and every available line needed to be in service. This did not present a reliability concern since the relays were only susceptible to Misoperation during a reclose during the very unlikely scenario of a second fault occurring between 15 and 20 cycles after the first.

This practical example illustrates that PRC-004-WECC-2 Requirement R2 can force undesirable consequences. Had consideration of all the surrounding circumstances been allowed, strict adherence to PRC-004-WECC-2 Requirement R2 would not have been the best choice for reliability.

As seen in the example, PRC-004-WECC-2 *mandates* a specific action without regard to outcome. By contrast, the alternate approach of PRC-001-1.1(ii) allows the TO/GO owning a RAS to take reasoned action *if* the failure reduces reliability. Further, it allows that entity to consider all the surrounding circumstances and act accordingly. Finally, if retained, PRC-004-WECC-2 could conflict with other standards wherein applicable entities are provided flexibility to decide the most appropriate actions to ensure reliability. As such, the alternate approach of PRC-001-1.1(ii) should be adopted over that of the PRC-004-WECC-2.

Requirement R2 – Failure to Meet Order 672 Criteria

Pursuant to FERC Order 672, a Reliability Standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the Bulk-Power System must know what they are required to do to maintain reliability.[26] PRC-004-WECC-2, Requirement R2 falls short of that requirement and should deleted.

[26] FERC Order No. 672 at P 325.

Requirement R2.1 through R2.4 are not intended to apply to PS and/or RAS actions "that appear to be entirely reasonable and correct" when "associated system performance is fully compliant with NERC Reliability Standards." What appears to be reasonable to one entity may not appear reasonable to the next. In like fashion, what appears to be reasonable to one auditor may not be reasonable to the next. What is reasonable is the sum of all the surrounding circumstances. These circumstances will vary each time the standard is applied.

Because of the ever-changing fact patterns, neither the applicable entity nor the assigned auditor can be soundly informed as to what action must be taken or what constitutes compliance until after a violation may have occurred. The result is a lack of due process. Further, the language implies that what is reasonable equates to what is the best course of action to ensure reliability. This is not always the case. As seen above, one may act to remain perfectly in compliance but those actions may not be in the best interest of reliability. Finally, the requirement requires the applicable entity to stand as a proxy to the compliance auditor in that it requires the applicable entity to know whether an act is "entirely reasonable and correct" without further guidance. This is the standards' equivalent of drafting a law requiring all vehicles to stop *close* to the limit line – without indicating what constitutes *close.*

Although entities make every effort to remain in compliance, applicable entities are not auditors and cannot make the definitive determination whether an act complies with a standard. As such, the ambiguity of the wording robs the applicable entity of the notice required under due process. Thus, Requirement R2 does not meet FERC's Order 672 criteria and should be deleted.

Retirement of Requirement R3

The entirety of Requirement R3 should be retired because it is purely administrative in nature and meets the "P81" criteria for retirement.

The text of Requirement R3 is as follows:

B. Requirements

R.3. Transmission Owners and Generation Owners shall submit Misoperation incident reports to WECC within 10 business days for the following. *[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]*

- **R3.1.** Identification of a Misoperation of a Protection System and/or RAS,
- **R3.2.** Completion of repairs or the replacement of Protection System and/or RAS that misoperated.

Retirement of Requirement R3

The language of PRC-004-WECC-2 Requirement R3 can be retired without incurring any negative impact to reliability because the Requirement is administrative in nature.

The purpose of PRC-004-WECC-2 is "to ensure all transmission and generation Protection System and Remedial Action Scheme (RAS) Misoperations on Transmission Paths and RAS defined in section 4 are analyzed and/or mitigated."

Retirement of R3 would be consistent with FERC's order[27] approving NERC's Compliance Enforcement Initiative (CEI), including the Find, Fix, Track and Report (FFT) program. On March 15, 2012, FERC issued an order[28] approving NERC's Compliance Enforcement Implementation, including the FFT program. Paragraph 81 ("P 81") of the FFT Order reads:

> The Commission notes that NERC's FFT initiative is predicated on the view that many violations of requirements currently included in Reliability Standards pose lesser risk to the Bulk-Power System. If so, some current requirements likely provide little protection for Bulk-Power System reliability or may be redundant. The Commission is interested in obtaining views on whether such requirements could be removed from the Reliability Standards with little effect on reliability and an increase in efficiency of the ERO compliance program. If NERC believes that specific Reliability Standards or specific requirements within certain Standards should be revised or removed, we invite NERC to make specific proposals to the Commission identifying the Standards or requirements and setting forth in detail the technical basis for its belief. In addition, or in the alternative, we invite NERC, the Regional Entities and other interested entities to propose appropriate mechanisms to identify and remove from the Commission approved Reliability Standards unnecessary or redundant requirements. We will not impose a deadline on when these comments should be submitted, but ask that to the extent such comments are submitted NERC, the Regional Entities, and interested entities coordinate to submit their respective comments concurrently.[29]

In keeping with the FFT approach, the WECC-0126 DT reviewed the standard to identify requirements that could be removed from Reliability Standards without negatively impacting the reliability of the Bulk-Power System. This project identified Requirement R3 as a candidate for retirement under that criteria.

Requirement R3 P81 Justification

The language of R3 can be retired without incurring any negative impact to reliability because it is purely administrative in nature. At its core, the requirement calls for the TO and GO to "submit Misoperation incident reports to WECC" and to prove compliance by having "evidence that they reported."

[27] North American Electric Reliability Corporation, 138 FERC ¶ 61,193 at P 81 (2012) ("FFT Order").

[28] FFT Order at P 81.

[29] Joint Petition for Approval of Proposed Regional Reliability Standards, VAR-002-WECC-2 AND VAR-501-WECC-2, Section C. Project 2013-02 Paragraph 81, page 6 (VAR Order).

In PRC-004-WECC-2, requiring documentation does not add to or detract from the reliability of the grid; rather, having documentation is an element of verifying that a reliability task has been completed. In application, the requirement looks backward to ensure paperwork was filled out. As drafted, it neither requires identification of a Misoperation nor remediation of failing elements associated with a Misoperation. It only requires that a report be made. The Measure advances reliability no further as it too requires only that a report be presented. At its core, the Measure doesn't even specify the content of the report – only that a report be made.[30]

Further, the implied reliability tasks of Requirement R3 are expressly addressed in peripheral NERC Standards. The stated intent of the Requirement/Measure is to ensure that Misoperation of specific PS and RAS are analyzed and mitigated. Although the standard under review addresses only specific PS and specific RAS, these systems would be included in the broader and more general provisions of other existing NERC Standards. (See Requirement R1 analysis.)

Finally, if the true intent of PRC-004-WECC-2 is to collect data, that data can be collected in accordance with NERC's Rules of Procedure via a Rule 1600 data request. In the alternative, specifically for RAS, PRC-016-1 Requirement R3 requires both the TO and GO owning a RAS to "provide documentation of the misoperations analyses and the correction action plans to" WECC on request. As such, Requirement R3 is fully redundant and can be deleted.

Whereas Requirement R3 is administrative in nature, its implied and explicit reliability tasks are covered in existing NERC Standards. The described data collection can occur in accordance with NERC Rules of Procedure 1600; therefore, Requirement R3 can be retired without incurring any negative impact on reliability.

[30] If not retired, the language of each of the Measures should be redrafted to reflect "will have evidence" as opposed to the requirement "shall have evidence."

Table A
NERC Standard / PRC-004-WECC-2 Cross-reference Table

The Purpose of PRC-004-WECC-2 is to serve as a "Regional Reliability Standard to ensure all transmission and generation Protection System and Remedial Action Scheme (RAS) Misoperations on Transmission Paths and RAS defined in section 4 are analyzed and/or mitigated".

The requirements below only apply to the major transmission paths facilities and RAS listed in the tables titled "Major WECC Transfer Paths in the Bulk Electric System" and "Major WECC Remedial Action Schemes (RAS)."

The following table illustrates how each element of the PRC is either addressed elsewhere or simply not needed for reliability.

Retirement of Regional Reliability Standard PRC-004-WECC-1 Protection System and Remedial Action Scheme Misoperation		
PRC-004-WECC-2 Requirement in Approved Standard	PRC-004-WECC-2 Requirement covered elsewhere	Description and Change Justification
Applicability (Narrow and exclusive) The Applicability section is narrowly crafted to apply only to: 1) Transmission Owners (TO) of selected facilities with RAS listed in a specific table; 2) Generator Owners (GO) with RAS listed in a specific table; and, 3) Transmission Operators operating facilities and RAS listed in the specified table.	Applicability (Broader and all-inclusive) PRC-016-1 applies to TOs, GOs, and Distribution Providers' (DP) RAS regardless of path. PRC-004-4 applies to TOs, GOs, and DPs' PS regardless of path.	Whereas PRC-016-1 (RAS) and PRC-004-4 (PS) do not carry the overly exclusive exceptions of PRC-004-WECC-2 (only major transmission paths, facilities, and RAS listed in specified tables), the Applicability section of PRC-004-WECC-2 is fully included in the aforementioned standards. As such, all facilities included in PRC-004-WECC-2 are addressed elsewhere.
PRC-004-WECC-2 Covers RAS plus PS R.1. System Operators and System Protection personnel of the Transmission Owners and Generator Owners shall analyze all Protection System and RAS operations.	PRC-004-5(i) Covers PS. PRC-004-5(I) Protection System Misoperation Identification and Correction. R1. requires the TO and GO to identify the reasons for PS operation and whether the	Whereas PRC-004-WECC-2 covers analysis of both the RAS and the PS, these two devices are now addressed separately in NERC Standards PRC-004-5(i), PRC-016-1, and PRC-012-2. Each requires analysis like that

[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]	operation caused a Misoperation, within 120 days.[31] See also PRC-001-1.1(ii), Requirements R1 and R2; PRC-005-6, Requirement R5. PRC-016-1 Covers RAS PRC-016-1 Special Protection System Misoperations R1. The TO and GO…shall analyze…its RAS operations and maintain a record of all misoperations in accordance with the Regional RAS review procedure specified in PRC-012. R1.[32] PRC-012-2, Remedial Action Schemes[33] R5. Requires the TO and GO to review its RAS within 120 days of operation or failure. (The term analyze is used in R5.2.)[34]	prescribed in PRC-004-WECC-2. Inclusion of the reliability elements of PRC-004-WECC-2 in PRC-004-5(i) and PRC-016-1 and PRC-012-2 render PRC-004-WECC-2 redundant. As such, the Requirement can be deleted. The difference in time frames between PRC-004-WECC-2 and the other NERC Standards is addressed in the preceding sections of this filing.
PRC-004-WECC-2 R1.1 System Operators shall review all tripping of transmission elements and RAS operations to identify apparent Misoperations within 24 hours. R1.2. System Protection personnel shall analyze all operations of Protection Systems	PRC-012-2 Covering RAS R5. Requires the TO and GO to analyze each RAS operation, within 120 days, to determine: 1) 5.1.1, what caused the operation, 2) 5.1.2 and 5.1.3, if the device worked properly, and 3) 5.1.4., whether there were any unintended consequences. PRC-004-5(i) Covers PS	The language of PRC-004-WECC-2 fails to meet the FERC Order 672 criteria for clarity in that “apparent,” “reasonable,” characterization” and “correctness” are ambiguous. Both PRC-012-2 and PRC-004-5(i) require review after operation to determine the cause and, in some cases, even determine whether unforeseen consequences resulted.

[31] United States Enforcement Date is April 2, 2017.

[32] Becomes Inactive on March 31, 2017.

[33] PRC-012-2 has been filed with FERC and is pending regulatory disposition as of March 29, 2017.

[34] NERC Board of Trustees approved May 5, 2016, pending at FERC. (FERC has proposed to approve the standard subject to comments received on a Notice of Proposed Rulemaking (NOPR), comments closing April 10, 2017.)

and RAS within 20 business days for correctness to characterize whether a Misoperation has occurred that may not have been identified by System Operators.	PRC-004-5(i), R1. Requires the TO and GO owning a PS that operates, to identify whether that PS caused a Misoperation, within 120 days of the event the threshold analysis, the applicable entity is required to determine: 1) R1.1, if the PS was the cause of the Misoperation, 2) R1.2, who owns the components, and 3) R1.3 whether the operation was automatic or manual.	Although the more specific analysis is arguably included in the more general PRC-004-WECC-2 analysis, adoption of the superior PRC-012-2 and PRC-004-5(i) requirements add clarity and conformity without sacrificing reliability. As such, analysis of both RAS and PS operation is covered in greater detail outside of PRC-004-WECC-2 making PRC-004-WECC-2 redundant. Its retirement would have no negative impact on reliability because the tasks are covered elsewhere. See above analysis pertaining to 22-hours, and 20 days for time window differential.  2000-07-20-RWG-Meeting.pdf
PRC-004-WECC-2 Covers PS and RAS R.2. Transmission Owners and Generator Owners shall perform the following actions for each Misoperation of the Protection System or RAS. It is not intended that Requirements R2.1 through R2.4 apply to Protection System and/or RAS actions that appear to be entirely reasonable and correct at the time of occurrence and associated system performance is fully compliant with NERC Reliability Standards. If the Transmission Owner or Generator	PRC-016-1 Covers PS PRC-016-1 — Remedial Action Scheme Misoperations R2. Each TO, GO, and DP, owing a RAS shall take corrective actions to avoid future misoperations. PRC-012-2 Covers RAS R5. Each RAS-entity, within 120 full calendar days of a RAS operation or a failure of its RAS to operate when expected, or on a mutually agreed upon schedule with its reviewing Reliability Coordinator(s), shall	Whereas the reliability tasks of PRC-004-WECC-2 Requirement R2 are included in PRC-016-1 and PRC-012-2, PRC-004-WECC-2 Requirement R2 is redundant and can be retired.

Owner later finds the Protection System or RAS operation to be incorrect through System Protection personnel analysis, the requirements of R2.1 through R2.4 become applicable at the time the Transmission Owner or Generator Owner identifies the Misoperation:	analyze and communicate RAS performance. PRC-012-2, Requirements R6 and R7 further cover RAS Requirement R6 requires the TO, GO, and DP develop and submit a Corrective Action Plan (CAP) to the Reliability Coordinator within six months of: 1) notification of a RAS deficiency (see R4 and R5), or identifying a deficiency while performing a functional test (R8).	
R2.1. If the Protection System or RAS has a Security-Based Misoperation and two or more Functionally Equivalent Protection Systems (FEPS) or Functionally Equivalent RAS (FERAS) remain in service to ensure Bulk Electric System (BES) reliability, the Transmission Owners or Generator Owners shall remove from service the Protection System or RAS that misoperated within 22 hours following identification of the Misoperation. Repair or replacement of the failed Protection System or RAS is at the Transmission Owners' and Generator Owners' discretion. [Violation Risk Factor: High] [Time Horizon: Same-day Operations]	PRC-001-1.1(ii) R2. Each Generator Operator and Transmission Operator shall notify reliability entities of relay or equipment failures as follows: R2.1. If a protective relay or equipment failure reduces system reliability, the Generator Operator shall notify its Transmission Operator and Host Balancing Authority. The Generator Operator shall take corrective action as soon as possible. R2.2. If a protective relay or equipment failure reduces system reliability, the Transmission Operator shall notify its Reliability Coordinator and affected Transmission Operators and Balancing Authorities. The Transmission Operator shall take corrective action as soon as possible. R6. Each Transmission Operator and Balancing Authority shall monitor the status of each Special Protection System in their area, and shall notify affected	PRC-001-1.1(ii) R2 and R6 require the applicable entities to be aware of PS/RAS and to communicate with other affected parties in the event of change or operation of these devices. That standard is broad enough to allow the operators to determine the best appropriate action based on all the surrounding circumstances. Those actions may or may not include the specified tasks included in PRC-004-WECC-2 Requirement R2. If the specifics of that requirement are retained, they limit the operator's discretion and could lead to a less-than-favorable operational decision simply to be compliant, thereby defeating the reliability-related intent. PRC-004-WECC-2 Requirement R2 requires that the device be taken out-of-service under specified circumstances. By contrast, TOP-001-3, Requirement R1, requires the TO to "act to maintain the reliability of its Transmission Operator Area via its own actions." The TOP-001-3,

	Transmission Operators and Balancing Authorities of each change in status. PRC-004-4(i) R5. Each Transmission Owner, Generator Owner, and Distribution Provider that owns the Protection System component(s) that caused the Misoperation shall, within 60 calendar days of first identifying a cause of the Misoperation: • Develop a Corrective Action Plan (CAP) for the identified Protection System component(s), and an evaluation of the CAP's applicability to the entity's other Protection Systems including other locations; or • Explain in a declaration why corrective actions are beyond the entity's control or would not improve BES reliability, and that no further corrective actions will be taken. PRC-016-1 R1. The Transmission Owner, Generator Owner, and Distribution Provider that owns an RAS shall analyze its RAS operations and maintain a record of all misoperations in accordance with the Regional RAS review procedure specified in Reliability Standard PRC-012-0_R1. R2. The Transmission Owner, Generator Owner, and Distribution Provider that owns a RAS shall take corrective actions to avoid future misoperations.	Requirement R1 mandate to act with discretion conflicts with the PRC-004-WECC-2 Requirement R2 mandate to perform specific tasks. The PRC-004-WECC-2 Requirement R2 approach has the potential to lead to reliability concerns; by contrast, the approach of PRC-001-1.1(ii) and TOP-001-3 provide the operator with discretion more targeted for remedy of actual circumstances and not implemented merely for compliance purposes. Additionally, the overly prescriptive PRC-004-WECC-2 Requirement R2 approach may conflict with IRO-017-1 Requirement R1 wherein the Reliability Coordinator (RC) is required to "develop, implement, and maintain an outage coordination process." If PRC-004-WECC-2 Requirement R2 is retained it mandates a specific action that may conflict with the broader authority and outage coordination process established by the RC.

R2.2. If the Protection System or RAS has a Security-Based Misoperation and only one FEPS or FERAS remains in service to ensure BES reliability, the Transmission Owner or Generator Owner shall perform the following. [Violation Risk Factor: High] [Time Horizon: Same-day Operations] R2.2.1. Following identification of the Protection System or RAS Misoperation, Transmission Owners and Generator Owners shall remove from service within 22 hours for repair or modification the Protection System or RAS that misoperated. R2.2.2. The Transmission Owner or Generator Owner shall repair or replace any Protection System or RAS that misoperated with a FEPS or FERAS within 20 business days of the date of removal. The Transmission Owner or Generator Owner shall remove the Element from service or disable the RAS if repair or replacement is not completed within 20 business days. R2.3. If the Protection System or RAS has a Security-Based or Dependability-Based Misoperation and a FEPS and FERAS is not in service to ensure BES reliability, Transmission Owners or Generator Owners shall repair and place back in service within 22 hours the Protection System or RAS that misoperated. If this cannot be done, then Transmission Owners and Generator Owners shall perform the following. [Violation Risk Factor:		

High] [Time Horizon: Same-day Operations] R2.3.1. When a FEPS is not available, the Transmission Owners shall remove the associated Element from service. R2.3.2. When FERAS is not available, then 2.3.2.1. The Generator Owners shall adjust generation to a reliable operating level, or 2.3.2.2. Transmission Operators shall adjust the SOL and operate the facilities within established limits. R2.4. If the Protection System or RAS has a Dependability-Based Misoperation but has one or more FEPS or FERAS that operated correctly, the associated Element or transmission path may remain in service without removing from service the Protection System or RAS that failed, provided one of the following is performed. R2.4.1. Transmission Owners or Generator Owners shall repair or replace any Protection System or RAS that misoperated with FEPS and FERAS within 20 business days of the date of the Misoperation identification, or R2.4.2. Transmission Owners or Generator Owners shall remove from service the associated Element or RAS. [Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]		
R.3. Transmission Owners and Generation Owners shall submit	As of July 1, 2016, Protection System Operations and	Retirement of PRC-004-WECC-2 Requirement R3 fits the retirement

Misoperation incident reports to WECC within 10 business days for the following. R3.1. Identification of a Misoperation of a Protection System and/or RAS, R3.2. Completion of repairs or the replacement of Protection System and/or RAS that misoperated.	Misoperations are reported by TOs, GOs, and DPs, via the Misoperation Information Data Analysis System at NERC (MIDAS) in PRC-004 -5(i) and the accompanying 1600 Data Request. This renders PRC-004-WECC-2 administrative request redundant.	criteria established under FERC's "P81" criteria. See Retirement of Requirement R3 analysis in the main body of this filing. The 10-day time window is a legacy imported from the RMS, circa July 1999. A records search at WECC and inquires via corporate memory did not reveal why the original drafters believed the 10 days were essential. However, the 10-day reference was found in the 1999 WSCC Reliability Criteria Agreement (Section 5 Determining Compliance, 5.2 Data Submission and Review) as part of the document's compliance section giving rise to the conclusion that it was required for accountability and not reliability. Considering the NERC 1600 requirement, the 10-days has proven to no longer be essential. Currently, Midas will send out reminder notifications to entities that have not yet submitted for a specified quarter. They will also provide confirmation notifications upon submittal. Once the submittal is reviewed by the regions or NERC, the regions may send additional notifications to the MIDAS contacts as questions arise. Currently, all WECC entities must comply under that request, but they have 60 days to do so while also complying with the administrative request under PRC-004-WECC-2. Duplicative administrative reporting is not needed.

		WECC will continue to be responsible for facilitating and monitoring these data submissions, and will continue to share the content with the WECC Relay Work Group (RWG) for further analysis and recommendations.

Regional Reliability Standard Submittal Request
Attachment F

Region:	**Western Electricity Coordinating Council**
Regional Standard Number:	**PRC-004-WECC-2**
Regional Standard Title:	**Protection System and Remedial Action Scheme Misoperation**
Date Submitted:	**January 2, 2018**
Regional Contact Name:	**Steven Rueckert**
Regional Contact Title:	**Director of Standards**
Regional Contact Telephone Number:	**(801) 883-6878**

Request (check all that apply):

- ☒ Retirement of WECC Regional Standard PRC-004-WECC-2
- ☐ Interpret an Existing Standard
- ☐ Approval of a new standard
- ☐ Revision of an existing standard
- ☐ Withdrawal of an existing standard
- ☐ Urgent Action

Has this action been approved by your Board of Directors:

- ☒ Yes
- ☐ No

(If no please indicate date standard action is expected along with the current status (e.g., third comment period with anticipated board approval on mm/dd/year)):

December 6, 2017, Board of Directors / Board Resolution

Resolved, that the Western Electricity Coordinating Council (WECC) Board of Directors (Board), acting on the recommendation of the WECC Standards Committee at the meeting of the Board on December 6, 2017, hereby retires Regional Reliability Standards –

- PRC-004-WECC-2, Protection System and Remedial Action Scheme Misoperation, and

• VAR-002-WECC-2, Automatic Voltage Regulators	
[Note: The purpose of the remaining questions is to provide NERC with the information needed to file the regional standard(s) with FERC. The information provided may to a large degree be used verbatim. It is extremely important for the entity submitting this form to provide sufficient detail that clearly delineates the scope and justification of the request.]	
Concise statement of the basis and purpose (scope) of request:	See below.
Concise statement of the justification of the request:	As proposed, PRC-004-WECC-2, Protection System and Remedial Action Scheme Misoperation Procedures would be retired completely and immediately on receipt of applicable regulatory approval. **Executive Summary** The WECC-0126 PRC-004-WECC-2 Standard Drafting Team (DT) reviewed NERC Standards, both in effect and proposed for regulatory approval. The DT also considered the development history of PRC-004-WECC-2 and its history of performance. The following are the findings, conclusion reached, and recommendation of the DT. **Findings and Conclusion** The DT concluded that retirement of the standard can be made without incurring a negative impact on reliability because: 1. The reliability concern for which the standard was drafted is now specifically covered in FAC-003-4 Transmission Vegetation Management (enforceable October 1, 2016).

	2. The Applicability section is overly narrow and included in other existing NERC Standards; 3. Requirement R1 is covered in other NERC Standards; 4. Requirement R2 is covered in other NERC Standards, conflicts with existing NERC Standards, and its application can lessen reliability as opposed to enhancing it; 5. Requirement R3 is entirely administrative in nature and should be retired under FERC P81 criteria; 6. The language of the standard does not meet the FERC Order 672 criteria in that it fails to assign the reliability task directly to an entity included in the NERC Functional Model. **Recommendation** After completing its review, the DT recommends that PRC-004-WECC-2 be retired immediately and in its entirety, on receipt of applicable regulatory approval, because the reliability-related content is addressed in peripheral NERC Standards. The DT does not believe any further actions are necessary to implement the proposed change.

Attachment G
Drafting Team Roster
WECC-0126 PRC-004-WECC-2
Request to Retire

Below are biographical snapshots for the members of the WECC-0126 PRC-004-WECC-3, Protection Scheme and Remedial Action Scheme Misoperation Drafting Team.

Name	Background
Bill Middaugh Tri-State Generation and Transmission Team Chair	Bill Middaugh has been working in the electric utility industry since 1982 with about 26 years in system protection and eight years in transmission planning. He Is currently the System Protection Manager at Tri-State Generation and Transmission Association. As a transmission planning engineer, he performed power flow studies in support of new generation interconnections, summer and winter operating conditions, and future transmission requirements. He also performed dynamic stability studies and developed tools to analyze apparent impedances during power swings to evaluate relay performance. As a protection engineer he developed Tri-State's responses to NERC's Recommendation 8a which is to ensure that transmission facilities are not unnecessarily interrupted during system disturbances when operator action within the first 15-minutes could alleviate potentially damaging overloads or prevent cascading outages. Additionally, regarding relay loadability, he developed Tri-State's documentation procedure for reliability standard PRC-023. He chaired the WECC Relay Work Group for about five years and coordinated WECC member responses to NERC Recommendation 8a. He also chaired two WECC regional drafting teams associated with misoperations; one a standard and one a criterion. He chaired the NERC PRC-026 drafting team and is currently the chair of Project 2007-06 – System Protection Coordination (PRC-027-1), which is awaiting FERC approval. He was also a member of the team developing NERC reliability standard PRC-004-3, "Protection System Misoperation Identification and Correction." Mr. Middaugh received a Bachelor of Science degree in Electrical Engineering from the University of Colorado at Boulder in 1982. He is a registered Professional Engineer in the State of Colorado and a member of IEEE.

Name	Background
Mr. Gene Henneberg Nevada Energy	Mr. Gene Henneberg earned a Bachelor of Science from Walla Walla College and Master of Science in Electrical Engineering from Washington State University. He has more than 38 years of utility experience with NV Energy in Transmission Planning, substation construction and operations, and System Protection. Mr. Henneberg was the chair of the drafting team for NERC's PRC-012-2, and for WECC's PRC-012—014-WECC-CRT-1 and -2, and a drafting team member for WECC's PRC-004-WECC-1 He is a member of the WECC Relay Work Group, chair of the WECC Remedial Action Scheme Reliability Subcommittee, and is active in the IEEE Power System Relaying Committee. He is a registered professional engineer in Nevada.
Randy Spacek Avista Utilities	Mr. Spacek has 29 plus years of experience in transmission, distribution and generation protection, operations, integration, technical training, and technical writing. Mr. Spacek is presently a System Protection Engineering Manager. As manager, he is responsible for NERC compliance activities in the areas of Protection Relay and Control (PRC), and facilitates the group's business, technical and support efforts. Mr. Spacek is also a Senior Electrical Engineer in the area of System Protection and Integration having experience in the area of generation and transmission relaying and substation integration. He has been involved in the development of new transmission relay standards, relay applications and integration design, and the development of Protection systems. Mr. Spacek has a Bachelor of Science in Electrical Engineering from the University of Idaho and is a registered Professional Engineer.
Stuart Steiner Los Angeles Department of Water and Power	Mr. Steiner is a Subject Matter Expert for NERC Standards PRC-004 and PRC-005 with 31 years of experience in the System Protection group at the Los Angeles Department of Water and Power.

Name	Background
Dean Bender Bonneville Power Administration	Mr. Dean Bender of the Bonneville Power Administration has 25 years of protection system experience including setting relays and analyzing misoperations. He currently serves as the vice-chair of the WECC Relay Work Group. As Bonneville Power Administration's subject matter expert for PRC-004-WECC since its inception, he has submitted 17 reports to WECC per the requirements of this standard. Mr. Bender was a participant on original PRC standard drafting team.
Jonathan Meyer Idaho Power – System protection	Mr. Meyer's current position is Leader of System Protection Engineering at Idaho Power Company. He has been a member of System Protection for 16 years, progressing from a Protection Engineer to the leadership role, setting the philosophies for transmission protection at Idaho Power and taking responsibility for NERC/WECC compliance associated with Protection, Relaying, and Control (PRC) Standards applicable to Transmission Owners (e.g. PRC-004, PRC-005, PRC-23, etc.) Mr. Meyer has created/reviewed the audit packages for the applicable standards for three successful NERC/WECC audits and is regularly utilized as a consultant with company on compliance related questions and interpretations for other working groups, most recently for NERC FAC-008 for our Planning Department. In addition, he was a member of the original drafting team for PRC-004-WECC and is currently a member of the WECC Relay Work Group. More recently, Mr. Meyer was a volunteer member of the NERC PRC-012-2 Remedial Action Schemes Drafting Team. Through his regular attendance and participation, he was given the responsibilities of a full member (minus full voting privilege). Mr. Meyer drafted Requirement 8 – functional testing, created the draft rational and technical justification documents, responded to industry comments, and presented on the NERC webinars for PRC-012.

Name	Background
Rafael Pina Pacific Gas and Electric	Mr. Pineda has over 25 years of experience in transmission protection, substation engineering, and hydro generation engineering with the last 18 years in protection. He is a member of the WECC Relay Work Group since 2009 and is the PRC-004 Subject Matter Expert at PG&E. Mr. Pineda currently provides protection support for operations, maintenance, and capital projects on PG&E's 500kV transmission system and wide-area RAS schemes. Mr. Pineda earned a Bachelor of Science degree in Electrical Engineering from California Polytechnic State University at San Luis Obispo in 1990. He is a registered Professional Engineer in the State of California.
David Jensen PacifiCorp	Mr. Jensen has 25 plus years of experience in transmission and distribution planning, operations, and protection. He is currently a Senior Distribution and Transmission Specialist in the PacifiCorp Protection and Control group and is the current subject matter expert at PacifiCorp for PRC-004-WECC. He has been involved with system protection investigations, procedures, compliance, and reporting for more than 7 years. Mr. Jensen has a Bachelor of Science degree in Electrical Engineering from the University of Utah.

Attachment H
Ballot Pool Members
WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
Request to Retire

Ballot Pool

Title	Company	Sector	Vote	Comments	Created By
WECC-0126	AES Corporation	Generation			Leo Bernier
WECC-0126	Arizona Public Service Company	System Coordination	Yes		Vivian Vo
WECC-0126	Arizona Public Service Company	Marketers and Brokers	Yes		Linda Henrickson
WECC-0126	Arizona Public Service Company	Transmission	Yes		Gary Nolan
WECC-0126	Arizona Public Service Company	Generation	Yes		Kasey Bohannon
WECC-0126	Arizona Public Service Company	Distribution	Yes		Michelle Amarantos
WECC-0126	Avista Corporation	Marketers and Brokers	Yes		Scott Kinney
WECC-0126	Balancing Authority of Northern California	System Coordination	Yes		Joe Tarantino
WECC-0126	Black Hills Corporation	Transmission			Eric Scherr
WECC-0126	Black Hills Corporation	Distribution			Eric Scherr

Title	Company	Sector	Vote	Comments	Created By
WECC-0126	Black Hills Corporation	Generation			Eric Scherr
WECC-0126	Black Hills Corporation	System Coordination			Eric Scherr
WECC-0126	Bonneville Power Administration	Transmission	Yes		Kammy Rogers-Holliday
WECC-0126	Bonneville Power Administration	Distribution	Yes		Rebecca Berdahl
WECC-0126	Bonneville Power Administration	Marketers and Brokers	Yes		Andrew Meyers
WECC-0126	Bonneville Power Administration	System Coordination	Yes		Francis Halpin
WECC-0126	British Columbia Hydro & Power Authority	Distribution	Abstain	No Comments	Hootan Jarollahi
WECC-0126	British Columbia Hydro & Power Authority	System Coordination	Abstain	No Comments	Patricia Robertson
WECC-0126	British Columbia Hydro & Power Authority	Transmission	Abstain	No Comments	Patricia Robertson
WECC-0126	California Independent System Operator	System Coordination	Yes		Richard Vine

Title	Company	Sector	Vote	Comments	Created By
WECC-0126	California Independent System Operator	Transmission	Yes		Richard Vine
WECC-0126	Dominion Resources Services, Inc.	Generation			Sean Bodkin
WECC-0126	El Paso Electric Company	Transmission	Yes		Pablo Onate
WECC-0126	El Paso Electric Company	System Coordination	Yes		Pablo Onate
WECC-0126	El Paso Electric Company	Generation	Yes	EPE agrees with the finding and conclusions of the Drafting Team for the retirement of this standard.	Victor Garzon
WECC-0126	El Paso Electric Company	Distribution	Yes	EPE agrees with the finding and conclusions of the Drafting Team for the retirement of this standard.	Victor Garzon
WECC-0126	Idaho Power Company	System Coordination	Yes		Laura Nelson
WECC-0126	Idaho Power Company	Generation	Yes		Laura Nelson
WECC-0126	Idaho Power Company	Distribution	Yes		Laura Nelson
WECC-0126	Idaho Power Company	Transmission	Yes		Laura Nelson
WECC-0126	Nevada Power Company	Transmission	Yes		Eric Schwarzrock
WECC-0126	Northern California Power Agency	Marketers and Brokers	Yes		Dennis Sismaet

Title	Company	Sector	Vote	Comments	Created By
WECC-0126	Northern California Power Agency	Generation	Yes		Marty Hostler
WECC-0126	Open Access Technology International	End User Representative	Yes		Mark Hackney
WECC-0126	Pacific Gas and Electric Company	Generation	Abstain	none	Alex Chua
WECC-0126	PacifiCorp	Generation	Yes		Sandra Shaffer
WECC-0126	PacifiCorp	Distribution	Yes		Sandra Shaffer
WECC-0126	PacifiCorp	Transmission	Yes		Sandra Shaffer
WECC-0126	PacifiCorp	Marketers and Brokers	Yes		Sandra Shaffer
WECC-0126	PacifiCorp	System Coordination	Yes		Sandra Shaffer
WECC-0126	Platte River Power Authority	System Coordination	Yes		Matthew Thompson
WECC-0126	Platte River Power Authority	Marketers and Brokers	Yes		Sabrina Martz
WECC-0126	Platte River Power Authority	Transmission	Yes		Jeff Landis
WECC-0126	Platte River Power Authority	Generation	Yes		Tyson Archie
WECC-0126	Public Service Company of New Mexico	System Coordination	Yes		Laurie Williams

Title	Company	Sector	Vote	Comments	Created By
WECC-0126	Public Service Company of New Mexico	Generation	Yes		Laurie Williams
WECC-0126	Public Service Company of New Mexico	Distribution	Yes		Laurie Williams
WECC-0126	Public Service Company of New Mexico	Transmission	Yes		Laurie Williams
WECC-0126	Public Service Company of New Mexico	Marketers and Brokers	Yes		Laurie Williams
WECC-0126	Public Utility District No. 1 of Clark County	Transmission	Yes		Jack Stamper
WECC-0126	Public Utility District No. 1 of Snohomish County	Generation	Yes		Franklin Lu
WECC-0126	Public Utility District No. 1 of Snohomish County	Distribution	Yes		Franklin Lu
WECC-0126	Public Utility District No. 1 of Snohomish County	Transmission	Yes		Franklin Lu
WECC-0126	Public Utility District No. 1 of Snohomish County	Marketers and Brokers	Yes		Franklin Lu
WECC-0126	Public Utility District No. 2 of Grant County	System Coordination	Yes		LeRoy Patterson

Title	Company	Sector	Vote	Comments	Created By
WECC-0126	Public Utility District No. 2 of Grant County	Generation	Yes		LeRoy Patterson
WECC-0126	Public Utility District No. 2 of Grant County	Distribution	Yes		LeRoy Patterson
WECC-0126	Public Utility District No. 2 of Grant County	Transmission	Yes		LeRoy Patterson
WECC-0126	Public Utility District No. 2 of Grant County	Marketers and Brokers	Yes		LeRoy Patterson
WECC-0126	Puget Sound Energy, Inc.	Transmission	Yes		Theresa Rakowsky
WECC-0126	Puget Sound Energy, Inc.	Distribution	Yes		Theresa Rakowsky
WECC-0126	Puget Sound Energy, Inc.	System Coordination	Yes		Theresa Rakowsky
WECC-0126	Puget Sound Energy, Inc.	Marketers and Brokers			Lynda Kupfer
WECC-0126	Puget Sound Energy, Inc.	Generation			Eleanor Ewry
WECC-0126	Sacramento Municipal Utility District	System Coordination	Yes		Joe Tarantino
WECC-0126	Sacramento Municipal Utility District	Generation	Yes		Joe Tarantino
WECC-0126	Sacramento Municipal Utility District	Distribution	Yes		Joe Tarantino

Title	Company	Sector	Vote	Comments	Created By
WECC-0126	Sacramento Municipal Utility District	Transmission	Yes		Joe Tarantino
WECC-0126	Sacramento Municipal Utility District	Marketers and Brokers	Yes		Joe Tarantino
WECC-0126	Salt River Project	Generation	Yes		Kevin Nielsen
WECC-0126	Salt River Project	Distribution	Yes		Rudy Navarro
WECC-0126	San Diego Gas & Electric	Transmission	Yes		Martine Blair
WECC-0126	San Diego Gas & Electric	Distribution	Yes		ANNIE RUIZ
WECC-0126	San Diego Gas & Electric	Generation	Yes		Jerome Gobby
WECC-0126	San Diego Gas & Electric	System Coordination	Yes		Bridget Silvia
WECC-0126	Seattle City Light	Transmission	Yes		Hao Li
WECC-0126	Seattle City Light	Distribution	Yes		Tuan Tran
WECC-0126	Seattle City Light	System Coordination	Yes		Pawel Krupa
WECC-0126	Seattle City Light	Marketers and Brokers	Yes		Charles Freeman
WECC-0126	Seattle City Light	Generation			Mike Haynes
WECC-0126	Southern California Edison Company	Generation	Yes		Thomas Rafferty

Title	Company	Sector	Vote	Comments	Created By
WECC-0126	Southern California Edison Company	Distribution	Yes		Steven Mavis
WECC-0126	Southern California Edison Company	Transmission	Yes		Steven Mavis
WECC-0126	Southern California Edison Company	System Coordination	Yes		Romel Aquino
WECC-0126	Tacoma Power	Distribution	Yes		Chad Edinger
WECC-0126	Tacoma Power	System Coordination	Yes		Chad Edinger
WECC-0126	Tacoma Power	Transmission	Yes		Joseph Wilson
WECC-0126	Tacoma Power	Marketers and Brokers			Todd Lloyd
WECC-0126	Tri-State Generation & Transmission - Reliability	Distribution	Yes		Janelle Gill
WECC-0126	Tri-State Generation & Transmission - Reliability	System Coordination	Yes		Tracy Sliman
WECC-0126	Tri-State Generation & Transmission - Reliability	Transmission	Yes		Tracy Sliman
WECC-0126	Tri-State Generation & Transmission - Reliability	Generation			Mark Stein

Title	Company	Sector	Vote	Comments	Created By
WECC-0126	Tucson Electric Power	System Coordination	Yes		John Tolo
WECC-0126	Tucson Electric Power	Generation	Yes		John Tolo
WECC-0126	Tucson Electric Power	Distribution	Yes		John Tolo
WECC-0126	Tucson Electric Power	Transmission	Yes		John Tolo
WECC-0126	Western Area Power Administration	System Coordination	Yes		Patrick Harwood
WECC-0126	Western Area Power Administration	Transmission	Yes		Patrick Harwood
WECC-0126	Western Area Power Administration - Rocky Mountain Region	Transmission	Yes		James Hirning
WECC-0126	Western Area Power Administration - Upper Great Plains Region	System Coordination	No	NERC Standards should suffice.	Lloyd Linke
WECC-0126	Western Area Power Administration - Upper Great Plains Region	Transmission	No	NERC Standards should suffice.	Lloyd Linke

Attachment I
Final Ballot Results
WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
Request to Retire

Ballot Name: WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation

After completing a routine five-year review, the drafting team concluded that the substance of PRC-004-WECC-2 should be retired immediately because the reliability-related substance is addressed in peripheral NERC Standards.

Ballot Pool Open: 07/11/2017
Ballot Pool Closed: 07/26/2017
Ballot Opened: 08/09/2017
Ballot Closed: 08/28/2017
Total Ballot Pool: 101
Total Votes: 90
Quorum: 89.1%
Weighted Votes: 98.2%
Ballot Results: Pass

Voting Sectors	Total In Ballot Pool	Votes Non-Abstain	Sector Weight	Yes Votes	Weighted Segment Vote	No Votes	Abstain	Total Votes for Quorum	Didn't Vote
Distribution	19	17	1	17	100.0%	0	1	18	1
End User Representative	1	1	0.1	1	10.0%	0	0	1	0
Generation	21	14	1	14	100.0%	0	1	15	6
Marketers and Brokers	13	11	1	11	100.0%	0	0	11	2
Other Non-Registered WECC Members and Participating Stakeholders	0	0	0	0	0.0%	0	0	0	0

Voting Sectors	Total In Ballot Pool	Votes Non-Abstain	Sector Weight	Yes Votes	Weighted Segment Vote	No Votes	Abstain	Total Votes for Quorum	Didn't Vote
State and Provincial Representatives	0	0	0	0	0.0%	0	0	0	0
System Coordination	22	20	1	19	95.0%	1	1	21	1
Transmission	25	23	1	22	95.7%	1	1	24	1

Attachment J
Minority Issues
WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
Request to Retire

Following a ballot period from August 9 through August 28, 2017, the WECC Ballot Pool approved retirement of WECC-0126 PRC-004-WECC-2, Protection System and Remedial Action Scheme Misoperation.

The project was posted for comment on one occasion. The drafting team reviewed and considered all comments received. No minority views were expressed from the posting.

A single negative vote was cast during balloting. That vote was supported with the following statement: "NERC Standards should suffice." Since the ballot proposed retirement of the standard, the comment included with the negative vote seem to support retirement of the standard.

During the NERC 45-day posting there were no minority views expressed.

Attachment K
WECC Standards Committee Members
WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
Request to Retire

The following individuals are those assigned to the WECC Standards Committee as of September 1, 2017.

Sector	Name	Organization
1 Transmission	Dana Cabbell	Southern California Edison
2 Generation	Gary Nolan	Arizona Public Service Company
3 Marketers and Brokers	Tanner Brier	Bonneville Power Administration
4 Distribution	Warren Rust	Colorado Springs Utilities
5 System Coordination	Joseph Tarantino	Sacramento Muni. Utility District
6 End User Representative	Caitlin Liotiris	Utah Assoc. of Energy Users
7 State and Provincial	Vacant	Vacant
8 Other Non-Registered Entities	Crystal Musselman	Proven Compliance Solutions
Board of Directors	Joe McArthur	Non-Affiliate Director / WSC Chair

Attachment L1
WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
Response to Comments / Posting 1
April 6 through May 22, 2017

Posting 1

The WECC-0126, PRC-004-WECC-2, Protection System and Remedial Action Scheme Misoperation Drafting Team (DT) thanks everyone who submitted comments on the proposed document.

Posting

This project was posted for a 45-day public comment period from April 6 through May 22, 2017.

WECC distributed the notice for the posting on April 4, 2017. The DT asked stakeholders to provide feedback on the proposed document through a standardized electronic template. WECC received four comments on this posting.

Location of Comments

All comments received on the project can be viewed in their original format on the WECC-0126 project page under the "Submit and Review Comments" accordion.

Changes in Response to Comment

In response to comments received, the WECC-0126 drafting team made no further substantive changes. All respondents concurred with the DT that the document should be retired.

Minority View

There is no minority view.

Effective Date

The WECC-0126 drafting team is recommending immediate retirement of the Regional Reliability Standard because the reliability-related substance is addressed in peripheral NERC Standards. The DT does not believe any further actions are necessary to implement the proposed change.

The proposed Effective Date for the project is immediately on receipt of applicable regulatory approval.

Justification

See above.

Attachment L1
WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
Response to Comments / Posting 1
April 6 through May 22, 2017

Action Plan

On May 24, 2017, the WECC-0126 PRC-004-WECC-2 Protection System and Remedial Action Scheme Misoperation Drafting Team agreed to forward the project to the WECC Standards Committee (WSC) with a request for ballot.

No further postings are anticipated.

Contacts and Appeals

If you feel your comment has been omitted or overlooked, please contact W. Shannon Black, WECC Consultant, at (503) 307-5782. In addition, there is a WECC Reliability Standards Appeals Process.

Commenter		Organization
1	Pjoy Chua	Los Angeles Department of Water and Power (LADWP)
2	Laura Nelson	Idaho Power
3	Kenneth Silver	Los Angeles Department of Water and Power (LADWP)
4	William Franklin	Public Service Company of Colorado (PSCO)
5	Michelle Amarantos	Arizona Public Service Company (APS)

Index to Questions, Comments, and Responses

Question

1. **The Drafting Team welcomes comments on all aspects of the document.**

1. The Drafting Team welcomes comments on all aspects of the document.

Summary Consideration:	See summary in the preamble of this document.
Commenter / Comment	**Response**
LADWP ((1) Chua and (3) Silver)	LADWP [agrees] the substance of PRC-004-WECC-2 should be retired.
The DT appreciates LADWP's continued involvement in the standards development process.	
Idaho Power	Idaho Power agrees with the recommendation for retirement of PRC-004-WECC-2.
The DT appreciates Idaho Power's continued involvement in the standards development process.	
PSCo	PSCo supports retirement of the PRC-004-WECC-2 standard and supports the work of the drafting team.
The DT appreciates PSCo's continued involvement in the standards development process.	
APS	APS supports the Drafting Team's recommendation to retire PRC-004-WECC-[2].
The DT appreciates APS' continued involvement in the standards development process.	

Attachment L2
WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
NERC Response to Comments / Posting 1
November 3 through December 18, 2017

Posting 1

The WECC-0126 PRC-004-WECC-2, Protection System and Remedial Action Scheme Misoperation (DT) thanks everyone who submitted comments on the proposed project.

Posting

This document was posted for a 45-day public comment period at the North American Electricity Reliability Corporation (NERC) from November 3 through December 18, 2017.

On November 3, 2017, NERC distributed notice of the posting via the NERC Standards Announcements email exploder.

NERC received comments from four entities as shown in the following table.

Location of Comments

All comments received on the project can be viewed in their original format on the WECC-0126 project page under the "Submit and Review Comments" accordion. Additionally, the raw data provided to WECC by NERC in support of this filing is appended to this response form.

Changes in Response to Comment

No changes were made to the project based on the comments received during this posting.

Minority View

There were no minority concerns.

Effective Date and Implementation Plan

The Reliability Standards Development Procedures (Procedures) require that an implementation plan be posted with at least one posting of the project. After completing its review, the DT recommends that the substance of PRC-004-WECC-2 should be retired immediately and in its entirety because the reliability-related substance is addressed in peripheral NERC Standards. The DT does not believe any further actions are necessary to implement the proposed changes.

Action Plan

As of January 10, 2018, this project is awaiting filing at NERC.

Contacts and Appeals

If you feel your comment has been omitted or overlooked, please contact W. Shannon Black, WECC Consultant. In addition, the WECC Reliability Standards Appeals Process can be found in the Reliability Standards Development Procedures.

Comment Report Form for WECC-0126

WECC Standards Comment Table

Commenter		Organization
1	Aaron Cavanaugh	Bonneville Power Administration (BPA)
2	John Tolo	Tucson Electric Power Company (TEP)
3	Laurie Williams	PNM Resources - Public Service Company of New Mexico (PNM)
4	Glen Farmer	Avista

Index to Questions, Comments, and Responses

Questions

1. Do you agree the development of the Regional Reliability Standard met the "Open" criteria as outlined above? If "No," please explain in the comment area below:

2. Do you agree the development of the Regional Reliability Standard met the "Inclusive" criteria as outlined above? If "No," please explain in the comment area below:

3. Do you agree the development of the Regional Reliability Standard met the "Balanced" criteria as outlined above? If "No," please explain in the comment area below:

4. Do you agree the development of the Regional Reliability Standard met the "Due Process" criteria as outlined above? If "No," please explain in the comment area below:

5. Do you agree the development of the Regional Reliability Standard met the "Transparent" criteria as outlined above? If "No," please explain in the comment area below:

Comment Report Form for WECC-0126

1. Response Summary

Summary Consideration:	See summary in the preamble of this document.		
Commenter / Comment			**Response**
The WECC-0126 PRC-004-WECC-2, Protection System and Remedial Action Scheme Misoperation Drafting Team thanks all parties for their continued support and dedication to the standards development process. All respondents answered in the affirmative on all questions. There were no minority opinions nor were there requests for modification. No changes were made to the project.			

Raw Data provided by NERC

Comment Report

Project Name:	Regional Reliability Standard (WECC) | PRC-004-WECC-2 Retirement
Comment Period Start Date:	11/3/2017
Comment Period End Date:	12/18/2017
Associated Ballots:	

There were 4 sets of responses, including comments from approximately 4 different people from approximately 4 companies representing 4 of the Industry Segments as shown in the table on the following pages.

Questions

1. Do you agree the development of the Regional Reliability Standard met the "Open" criteria as outlined above? If "No", please explain in the comment area below:

2. Do you agree the development of the Regional Reliability Standard met the "Inclusive" criteria as outlined above? If "No", please explain in the comment area below:

3. Do you agree the development of the Regional Reliability Standard met the "Balanced" criteria as outlined above? If "No", please explain in the comment area below:

4. Do you agree the development of the Regional Reliability Standard met the "Due Process" criteria as outlined above? If "No", please explain in the comment area below:

5. Do you agree the development of the Regional Reliability Standard met the "Transparent" criteria as outlined above? If "No", please explain in the comment area below:

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region

1. Do you agree the development of the Regional Reliability Standard met the "Open" criteria as outlined above? If "No", please explain in the comment area below:	
John Tolo - Unisource - Tucson Electric Power Co. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1,3	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 1,3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

2. Do you agree the development of the Regional Reliability Standard met the "Inclusive" criteria as outlined above? If "No", please explain in the comment area below:	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 1,3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1,3	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
John Tolo - Unisource - Tucson Electric Power Co. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

3. Do you agree the development of the Regional Reliability Standard met the "Balanced" criteria as outlined above? If "No", please explain in the comment area below:
John Tolo - Unisource - Tucson Electric Power Co. - 1

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1,3	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 1,3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

4. Do you agree the development of the Regional Reliability Standard met the "Due Process" criteria as outlined above? If "No", please explain in the comment area below:	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 1,3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1,3	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
John Tolo - Unisource - Tucson Electric Power Co. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

5. Do you agree the development of the Regional Reliability Standard met the "Transparent" criteria as outlined above? If "No", please explain in the comment area below:	
John Tolo - Unisource - Tucson Electric Power Co. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1,3	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 1,3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Regional Reliability Standards Announcement

Western Electricity Coordinating Council
FAC-501-WECC-2, PRC-004-WECC-2, and VAR-002-WECC-2

Comment period open through December 18, 2017

Now Available

The Western Electricity Coordinating Council (WECC) has requested NERC to post the following proposed Regional Reliability Standards for industry review and comment as permitted by the NERC Rules of Procedure:

- **FAC-501-WECC-2 - Transmission Maintenance**
- **PRC-004-WECC-2 - Protection System and Remedial Action Scheme Misoperation (Retirement)**
- **VAR-002-WECC-2 - Automatic Voltage Regulators (Retirement)**

Commenting
Use the Standards Balloting and Commenting System (SBS) to submit comments. If you experience any difficulties using the electronic forms, contact Mat Bunch. The forms must be submitted by **8 p.m. Eastern, Monday, December 18, 2017.** Unofficial Word versions of the comment forms are posted on the Regional Reliability Standards Under Development page.

Regional Reliability Standards Development Process
Section 300 of NERC's Rules of Procedures of the Electric Reliability Organization governs the regional reliability standards development process. Although the technical aspects of this Regional Reliability Standard have been vetted through WECC's Regional Standards development process, the final approval process for a Regional Reliability Standard requires NERC publicly to notice and request comment on the criteria outlined in the unofficial comment forms.

Documents and information about this project are available on the WECC's Standards Under Development page.

For more information or assistance, contact Standards Developer, Mat Bunch (via email) or at (404) 446-9785.

North American Electric Reliability Corporation
3353 Peachtree Rd, NE
Suite 600, North Tower
Atlanta, GA 30326
404-446-2560 | www.nerc.com

A. Introduction

1. Title: Protection System and Remedial Action Scheme Misoperation

2. Number: PRC-004-WECC-2

3. Purpose: Regional Reliability Standard to ensure all transmission and generation Protection System and Remedial Action Scheme (RAS) Misoperations on Transmission Paths and RAS defined in section 4 are analyzed and/or mitigated.

4. Applicability

4.1. Transmission Owners of selected WECC major transmission path facilities and RAS listed in tables titled "Major WECC Transfer Paths in the Bulk Electric System" provided at https://www.wecc.biz/Reliability/TableMajorPaths4-28-08.pdf and "Major WECC Remedial Action Schemes (RAS)" provided at https://www.wecc.biz/Reliability/TableMajorRAS4-28-08.pdf.

4.2. Generator Owners that own RAS listed in the Table titled "Major WECC Remedial Action Schemes (RAS)" provided at https://wecc.biz/Reliability/TableMajorRAS4-28-08.pdf..

4.3. Transmission Operators that operate major transmission path facilities and RAS listed in Tables titled "Major WECC Transfer Paths in the Bulk Electric System" provided at https://www.wecc.biz/Reliability/TableMajorPaths4-28-08.pdf and "Major WECC Remedial Action Schemes (RAS)" provided at https://www.wecc.biz/Reliability/TableMajorRAS4-28-08.pdf.

5. Effective Date: See Implementation Plan for the Revised Definition of "Remedial Action Scheme"

B. Requirements

The requirements below only apply to the major transmission paths facilities and RAS listed in the tables titled "Major WECC Transfer Paths in the Bulk Electric System" and "Major WECC Remedial Action Schemes (RAS)."

R.1. System Operators and System Protection personnel of the Transmission Owners and Generator Owners shall analyze all Protection System and RAS operations. *[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]*

R1.1. System Operators shall review all tripping of transmission elements and RAS operations to identify apparent Misoperations within 24 hours.

R1.2. System Protection personnel shall analyze all operations of Protection Systems and RAS within 20 business days for correctness to characterize whether a Misoperation has occurred that may not have been identified by System Operators.

R.2. Transmission Owners and Generator Owners shall perform the following actions for each Misoperation of the Protection System or RAS. It is not intended that Requirements R2.1 through R2.4 apply to Protection System and/or RAS actions that appear to be entirely reasonable and correct at the time of occurrence and associated system performance is fully compliant with NERC Reliability Standards. If the Transmission Owner or Generator Owner later finds the Protection System or RAS operation to be incorrect through System Protection personnel analysis, the requirements of R2.1 through R2.4 become applicable at the time the Transmission Owner or Generator Owner identifies the Misoperation:

R2.1. If the Protection System or RAS has a Security-Based Misoperation and two or more Functionally Equivalent Protection Systems (FEPS) or Functionally Equivalent RAS (FERAS) remain in service to ensure Bulk Electric System (BES) reliability, the Transmission Owners or Generator Owners shall remove from service the Protection

System or RAS that misoperated within 22 hours following identification of the Misoperation. Repair or replacement of the failed Protection System or RAS is at the Transmission Owners' and Generator Owners' discretion. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations]*

R2.2. If the Protection System or RAS has a Security-Based Misoperation and only one FEPS or FERAS remains in service to ensure BES reliability, the Transmission Owner or Generator Owner shall perform the following. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations]*

R2.2.1. Following identification of the Protection System or RAS Misoperation, Transmission Owners and Generator Owners shall remove from service within 22 hours for repair or modification the Protection System or RAS that misoperated.

R2.2.2. The Transmission Owner or Generator Owner shall repair or replace any Protection System or RAS that misoperated with a FEPS or FERAS within 20 business days of the date of removal. The Transmission Owner or Generator Owner shall remove the Element from service or disable the RAS if repair or replacement is not completed within 20 business days.

R2.3. If the Protection System or RAS has a Security-Based or Dependability-Based Misoperation and a FEPS and FERAS is not in service to ensure BES reliability, Transmission Owners or Generator Owners shall repair and place back in service within 22 hours the Protection System or RAS that misoperated. If this cannot be done, then Transmission Owners and Generator Owners shall perform the following. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations]*

R2.3.1. When a FEPS is not available, the Transmission Owners shall remove the associated Element from service.

R2.3.2. When FERAS is not available, then

2.3.2.1. The Generator Owners shall adjust generation to a reliable operating level, or

2.3.2.2. Transmission Operators shall adjust the SOL and operate the facilities within established limits.

R2.4. If the Protection System or RAS has a Dependability-Based Misoperation but has one or more FEPS or FERAS that operated correctly, the associated Element or transmission path may remain in service without removing from service the Protection System or RAS that failed, provided one of the following is performed.

R2.4.1. Transmission Owners or Generator Owners shall repair or replace any Protection System or RAS that misoperated with FEPS and FERAS within 20 business days of the date of the Misoperation identification, or

R2.4.2. Transmission Owners or Generator Owners shall remove from service the associated Element or RAS. *[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]*

R.3. Transmission Owners and Generation Owners shall submit Misoperation incident reports to WECC within 10 business days for the following. *[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]*

R3.1. Identification of a Misoperation of a Protection System and/or RAS,

R3.2. Completion of repairs or the replacement of Protection System and/or RAS that misoperated.

C. Measures

Each measure below applies directly to the requirement by number.

M1. Transmission Owners and Generation Owners shall have evidence that they reported and analyzed all Protection System and RAS operations.

M1.1 Transmission Owners and Generation Owners shall have evidence that System Operating personnel reviewed all operations of Protection System and RAS within 24 hours.

M1.2 Transmission Owners and Generation Owners shall have evidence that System Protection personnel analyzed all operations of Protection System and RAS for correctness within 20 business days.

M2. Transmission Owners and Generation Owners shall have evidence for the following.

M2.1 Transmission Owners and Generation Owners shall have evidence that they removed the Protection System or RAS that misoperated from service within 22 hours following identification of the Protection System or RAS Misoperation.

M2.2 Transmission Owners and Generation Owners shall have evidence that they removed from service and repaired the Protection System or RAS that misoperated per measurements M2.2.1 through M2.2.2.

M2.2.1 Transmission Owners and Generation Owners shall have evidence that they removed the Protection System or RAS that misoperated from service within 22 hours following identification of the Protection System or RAS Misoperation.

M2.2.2 Transmission Owners and Generation Owners shall have evidence that they repaired or replaced the Protection System or RAS that misoperated within 20 business days or either removed the Element from service or disabled the RAS.

M2.3 The Transmission Owners and Generation Owners shall have evidence that they repaired the Protection System or RAS that misoperated within 22 hours following identification of the Protection System or RAS Misoperation.

M2.3.1 The Transmission Owner shall have evidence that it removed the associated Element from service.

M2.3.2 The Generator Owners and Transmission Operators shall have documentation describing all actions taken that adjusted generation or SOLs and operated facilities within established limits.

M2.4 Transmission Owners and Generation Owners shall have evidence that they repaired or replaced the Protection System or RAS that misoperated including documentation that describes the actions taken.

M2.4.1 Transmission Owners and Generation Owners shall have evidence that they repaired or replaced the Protection System or RAS that misoperated within 20 business days of the misoperation identification.

M2.4.2 Transmission Owners and Generation Owners shall have evidence that they removed the associated Element or RAS from service.

M3. Transmission Owners and Generation Owners shall have evidence that they reported the following within 10 business days.

M3.1 Identification of all Protection System and RAS Misoperations and corrective actions taken or planned.

M3.2 Completion of repair or replacement of Protection System and/or RAS that misoperated.

D. Compliance

1. Compliance Monitoring Process

1.1 Compliance Monitoring Responsibility

Compliance Enforcement Authority

1.2 Compliance Monitoring Period

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

- Misoperation Reports
- Reports submitted quarterly
- 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

1.2.1 The Performance-reset Period is one calendar month.

1.3 Data Retention

Reliability Coordinators, Transmission Owners, and Generation Owners shall keep evidence for Measures M1 and M2 for five calendar years plus year to date.

1.4. Additional Compliance Information

None.

2. Violation Severity Levels

R1

Lower	Moderate	High	Severe
System Operating personnel of the Transmission Owner or Generator Owner did not review the Protection System Operation or RAS operation within 24 hours but did review the Protection System Operation or RAS operation within six business days.	System Operating personnel of the Transmission Owner or Generator Owner did not review the Protection System operation or RAS operation within six business days.	System Protection personnel of the Transmission Owner and Generator Owner did not analyze the Protection System operation or RAS operation within 20 business days but did analyze the Protection System operation or RAS operation within 25 business days.	System Protection personnel of the Transmission Owner or Generator Owner did not analyze the Protection System operation or RAS operation within 25 business days.

R2.1 and R2.2.1

Lower	Moderate	High	Severe
The Transmission Owner and Generator Owner did not remove from service, repair, or implement other compliance measures for the Protection System or RAS that misoperated as required within 22 hours but did perform the requirements within 24 hours.	The Transmission Owner and Generator Owner did not remove from service, repair, or implement other compliance measures for the Protection System or RAS that misoperated as required in less than 24 hours but did perform the requirements within 28 hours.	The Transmission Owner and Generator Owner did not perform the removal from service, repair, or implement other compliance measures for the Protection System or RAS that misoperated as required in less than 28 hours but did perform the requirements within 32 hours.	The Transmission Owner and Generator Owner did not perform the removal from service, repair, or implement other compliance measures for the Protection System or RAS that misoperated as required within 32 hours.

R2.3

Lower	Moderate	High	Severe
The Transmission Operator and Generator Owner did not adjust generation to a reliable operating level, adjust the SOL and operate the facilities within established limits or implement other compliance measures for the Protection System or RAS that misoperated as required within 22 hours but did perform the requirements within 24 hours.	The Transmission Operator and Generator Owner did not adjust generation to a reliable operating level, adjust the SOL and operate the facilities within established limits or implement other compliance measures for the Protection System or RAS that misoperated as required in less than 24 hours but did perform the requirements within 28 hours.	The Transmission Operator and Generator Owner did not adjust generation to a reliable operating level, adjust the SOL and operate the facilities within established limits or implement other compliance measures for the Protection System or RAS that misoperated as required in less than 28 hours but did perform the requirements within 32 hours.	The Transmission Operator and Generator Owner did not adjust generation to a reliable operating level, adjust the SOL and operate the facilities within established limits or implement other compliance measures for the Protection System or RAS that misoperated as required within 32 hours.

R2.2.2 and R2.4

Lower	Moderate	High	Severe
The Transmission Owner and Generator Owner did not perform the required repairs, replacement, or system operation adjustments to comply with the requirements within 20 business days but did perform the required activities within 25 business days.	The Transmission Owner and Generator Owner did not perform the required repairs, replacement, or system operation adjustment to comply with the requirements within 25 business days but did perform the required activities within 28 business days.	The Transmission Owner and Generator Owner did not perform the required repairs, replacement, or system operation adjustment to comply with the requirements within 28 business days but did perform the required activities within 30 business days.	The Transmission Owner and Generator Owner did not perform the required repairs, replacement, or system operation adjustments to comply with the requirements within 30 business days.

R3.1

Lower	Moderate	High	Severe
The Transmission Owner and Generator Owner did not report the Misoperation and corrective actions taken or planned to comply with the requirements within 10 business days but did perform the required activities within 15 business days.	The Transmission Owner and Generator Owner did not report the Misoperation and corrective actions taken or planned to comply with the requirements within 15 business days but did perform the required activities within 20 business days.	The Transmission Owner and Generator Owner did not report the Misoperation and corrective actions taken or planned to comply with the requirements within 20 business days but did perform the required activities within 25 business days.	The Transmission Owner and Generator Owner did not report the Misoperation and corrective actions taken or planned to comply with the requirements within 25 business days.

R3.2

Lower	Moderate	High	Severe
The Transmission Owner and Generator Owner did not report the completion of repair or replacement of Protection System and/or RAS that misoperated to comply with the requirements within 10 business days of the completion but did perform the required activities within 15 business days.	The Transmission Owner and Generator Owner did not report the completion of repair or replacement of Protection System and/or RAS that misoperated to comply with the requirements within 15 business days of the completion but did perform the required activities within 20 business days.	The Transmission Owner and Generator Owner did not report the completion of repair or replacement of Protection System and/or RAS that misoperated to comply with the requirements within 20 business days of the completion but did perform the required activities within 25 business days.	The Transmission Owner and Generator Owner did not report the completion of repair or replacement of Protection System and/or RAS that misoperated to comply with the requirements within 25 business days of the completion.

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-001-1 and PRC-STD-003-1	
1	April 21, 2011	FERC Order issued approving PRC-004-WECC-1 (approval effective June 27, 2011)	
2	November 13, 2014	Adopted by the NERC Board of Trustees	
2	November 19, 2015	FERC Order issued approving PRC-004-WECC-2. Docket No. RM15-13-000.	
2	May 26, 2017	All links were updated in the Applicability section of the standard (4.1, 4.2 and 4.3)	

Attachment F2

Technical Justification

WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
Request to Retire Regional Reliability Standard

Cover Sheet

Technical Justification
Retirement of WECC Regional Reliability Standard
PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation

White Paper:
Retirement of WECC Regional Reliability Standard PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation

Technical Justification

WECC Standards Committee

June 21, 2017

Developed as: WECC-0126

155 North 400 West, Suite 200

Salt Lake City, Utah 84103-1114

Attachment F
Technical Justification

WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
Request to Retire Regional Reliability Standard
Developed as: WECC-0126

Executive Summary

The WECC-0126 PRC-004-WECC-2 Standard Drafting Team (DT) reviewed NERC Standards, both in effect and proposed for regulatory approval. The DT also considered the development history of PRC-004-WECC-2 and its history of performance.

The following are the findings reached and conclusion, and the recommendation made by the DT.

Findings and Conclusion

The DT concluded that retirement of the standard can be made without incurring a negative impact on reliability because:

1. The reliability concern for which the standard was drafted is now specifically covered in FAC-003-4 Transmission Vegetation Management (enforceable October 1, 2016).
2. The Applicability section is overly narrow and included in other existing NERC Standards;
3. Requirement R1 is covered in other NERC Standards;
4. Requirement R2 is covered in other NERC Standards, conflicts with existing NERC Standards, and its application can lessen reliability as opposed to enhancing it;
5. Requirement R3 is entirely administrative in nature and should be retired under FERC P81 criteria;
6. The language of the standard does not meet the FERC Order 672 criteria in that it fails to assign the reliability task directly to an entity included in the NERC Functional Model.

Recommendation

After completing its review, the DT recommends that the substance of PRC-004-WECC-2 should be retired immediately and in its entirety because the reliability-related substance is addressed in peripheral NERC Standards. The DT does not believe any further actions are necessary to implement the proposed change.

Background

In 1996, two system disturbances occurred within the Western Interconnection, on the same elements, within a single 24-hour period, due to improper vegetation management. To prevent reoccurrence of such a specific event, language was included in WECC's Reliability Management System (RMS) requiring that the relay or Remedial Action Scheme (RAS) that misoperated be removed from service or repaired within 22 hours.[1] [2] The language was premised on the position that if the misoperation was analyzed and promptly removed from service the system operators could remedy the cause before an iterative misoperation took place.

By 2007, with the implementation of mandatory standards, WECC examined the RMS, identifying those requirements it deemed essential for reliability, and translated those requirements into a language and format acceptable to the North America Electricity Reliability Council (NERC)[3] and the Federal Energy Regulatory Commission (FERC). That translation resulted in WECC Standard PRC-STD-003-1, Protective Relay and Remedial Action Scheme Misoperation and PRC-STD-001-1, Certification of Protective Relay Applications and Settings.[4]

As the mandatory scheme evolved, two things occurred. First, NERC/FERC identified drafting and format concerns in those two standards and instructed WECC to redraft them accordingly. The result was that the current PRC-004-WECC-1 (inactive March 31, 2017) was replaced by PRC-004-WECC-2 (United States Enforcement Date April 1, 2017) to accommodate changes in the NERC Glossary of Terms Used in NERC Reliability Standards (Glossary).[5] [6] The second was the introduction of the

[1] The Reliability Management System (AKA: Western Electricity Coordinating Council, FERC Electric Tariff, First Revised Volume No. 1, Original Sheet Number 1) was the precursor to the NERC Mandatory Standards within the Western Interconnection. The Transfer Path Table and the Remedial Action Scheme table were originally developed as part of the RMS. The 22-hour period was memorialized in the RMS: I. Protective Relay and Remedial Action Scheme Misoperation; 2. WSCC Criterion, Section a. For more detail refer to Compliance Filing of WECC in Response to Order Numbers 751 and 752 on Version One Regional Reliability Standards. RM09-09-000.

[2] "WECC explains that these requirements were developed as a result of a 345 kV line relay misoperation in July 1996 when virtually the same outage occurred the next day because the faulty equipment had not been isolated." 119 FERC ¶ 61,260; United States of America Federal Energy Regulatory Commission (FERC) North American Electric Reliability Corporation, Docket No. RR07-11-000, Order Approving Regional Reliability Standards for the Western Interconnection and Directing Modifications (Issued June 8, 2007), Para. 85.

[3] Currently known as the North American Electricity Reliability *Corporation*. (Emphasis added.)

[4] 135 FERC ¶ 61,061; United States of America Federal Energy Regulatory Commission, 18 CFR Part 40, Docket No. RM09-9-000; Order No. 751, Version One Regional Reliability Standards for Facilities Design, Connections, and Maintenance; Protection and Control; and Voltage and Reactive (Issued April 21, 2011), para. 34. FERC Order issued approving PRC-004-WECC-1 (approval effective June 27, 2011).

[5] In the Glossary of Terms Used in NERC Reliability Standards, Protection Systems are not the same as Special Protection Systems (SPS). An SPS is synonymous with a RAS per that glossary.

[6] FN31 NERC RAS Petition at 1-2. NERC requested approval of the following Reliability Standards to incorporate the proposed definition of Remedial Action Scheme and eliminate use of the term Special Protection System: i.e., PRC-004-WECC-2.

Facilities Design, Connection and Maintenance (FAC) standards designed, among other things, to address the specific type of vegetation management concerns that caused the 1996 disturbances.

In the 20 years since the precipitating events, the *remedy* for those events shifted to the vegetation management standards of the NERC FAC suite and the remaining language pertinent to Protection Systems (PS), Special Protection Schemes (SPS), and Remedial Action Schemes (RAS) shifted to other NERC PRC Standards.[7]

Shifting Remediation

At the threshold, it should be noted that remediation of the 1996 seminal event has shifted to FAC-003-4, Transmission Vegetation Management. Therefore, PRC-004-WECC-2 no longer addresses the cause for which it was drafted.

In 1996, if the applicable entities had been complying with a 2016 version of FAC-003-4, Transmission Vegetation Management (enforceable October 1, 2016) it is unlikely that the predecessors to PRC-004-WECC-2 would have been written. Remediation for the primary causal event has shifted to FAC-003-4, which is applicable to transmission facilities operated at 200-kV or higher, and below 200-kV if the facility is identified as an element of a Major WECC Transfer Path. FAC-003-4 requires: 1) that vegetation be managed to prevent the type of encroachment encountered in 1996 (R1 and R2); 2) timely notification to the appropriate control center of vegetation conditions that could cause a Flashover at any moment (R4); and 3) corrective action to ensure that Flashover distances will not be violated due to work constraints.[8]

Applicability – Scope

The narrow scope of the PRC-004-WECC-2 Applicability section should be retired in favor of the broader Applicability section of other NERC Standards. Whereas PRC-004-WECC-2 only applies to specific RAS and PS included in defined tables, other NERC Standards address the same analysis without limiting the analysis to RAS and PS contained in the specified tables.

153 FERC ¶ 61,228; United States of America Federal Energy Regulatory Commission, 18 CFR Part 40, Docket Nos. RM15-7-000, RM15-12-000, and RM15-13-000, Order No. 818, Revisions to Emergency Operations Reliability Standards; Revisions to Undervoltage Load Shedding Reliability Standards; Revisions to the Definition of "Remedial Action Scheme" and Related Reliability Standards, (Issued November 19, 2015)

[7] This project is part of WECC's commitment to harmonize PRC-004-WECC-2 with NERC Standards addressing RAS and PS per PRC-004-4(i), 5 Background, page 2.

[8] FAC-003-4, Transmission Vegetation Management, Section 6. Background. See also: "Consideration of Actual Field Conditions in Determination of Facility Ratings".

The Applicability of the PRC-004-WECC-2 reads as follows:

4. Applicability

4.1. Transmission Owners of selected WECC major transmission path facilities and RAS listed in tables titled "Major WECC Transfer Paths in the Bulk Electric System" provided at [hyperlink] and "Major WECC Remedial Action Schemes (RAS)" provided at [hyperlink].

4.2. Generator Owners that own RAS listed in the Table titled "Major WECC Remedial Action Schemes (RAS)" provided at [hyperlink].

4.3. Transmission Operators that operate major transmission path facilities and RAS listed in Tables titled "Major WECC Transfer Paths in the Bulk Electric System" provided at [hyperlink] and "Major WECC Remedial Action Schemes (RAS)" provided at [hyperlink].

Although the requirements of PRC-004-WECC-2 address both RAS and PS, the existing NERC Standards address these two topics in separate standards.

PRC-016-1 Remedial Action Scheme Misoperations, Requirement R1 requires any Transmission Owner (TO), Generator Owner (GO), and Distribution Provider (DP) owning a RAS to ". . .analyze its RAS operations and maintain a record of all misoperations. . ." in accordance with the regional procedures.

Since *all RAS* must be examined under PRC-016-1, there is no reason to retain PRC-004-WECC-2 which only applies to a specific and limited subset of WECC RAS. Review of all RAS under PRC-016-1 subsumes the subset of RAS targeted in PRC-004-WECC-2. So, the specificity of the PRC-004-WECC-2 Applicability section is a lesser included subset of PRC-016-1 (effective date April 1, 2017) making PRC-004-WECC-2 redundant.

In like fashion, PRC-004-4(i) Protection System Misoperation Identification and Correction, requires all TOs, GOs, and DPs to review *all PS* operations on the BES to: 1) identify those that are Misoperations of PS; 2) analyze Misoperations of PS; and 3) develop and implement Corrective Action Plans (CAP) to address the cause(s) of Misoperation.[9] Thus, the specificity of the PRC-004-WECC-2 Applicability section is a lesser included subset of PRC-004-4(i) making PRC-004-WECC-2 redundant.

Applicability – Failure to Meet Order 672 Criteria

Although the Applicability section accurately identifies the correct NERC Functional Entities, the Requirements do not assign tasks to those entities.

Rather than assigning the reliability task to the TO or GO, R1 assigns its task to "System Operators and System Protection personnel of the Transmission Owners and Generator Owners." R1 does not directly assign a reliability task to any applicable entity listed in the NERC Functional Model. As such, it falls

[9] PRC-004-4(i) Protection System Misoperation Identification and Correction, 5. Background, page 2.

short of the FERC Order 672 mandate that a Reliability Standard impose a requirement only on a user, owner, or operator of facilities associated with the Bulk-Power System (BES).[10] Presuming the requirement could be interpreted to apply to the TO and GO directly, R1 imposes a duty to "analyze all Protection System and RAS operations."[11] Because these tasks are covered in other NERC Standards (see following analysis) there is no need to retain the requirement nor try to sort out which NERC Functional Model entity the original draft intended.

Retirement of Requirement R1

The entirety of Requirement R1 should be retired because it is redundant to other NERC Standards.

The text of Requirement R1 is as follows:

B. Requirements

The requirements below only apply to the major transmission paths facilities and RAS listed in the tables titled "Major WECC Transfer Paths in the Bulk Electric System" and "Major WECC Remedial Action Schemes (RAS)."

R.1. System Operators and System Protection personnel of the Transmission Owners and Generator Owners shall analyze all Protection System and RAS operations. *[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]*

R1.1. System Operators shall review all tripping of transmission elements and RAS operations to identify apparent Misoperations within 24 hours.

R1.2. System Protection personnel shall analyze all operations of Protection Systems and RAS within 20 business days for correctness to characterize whether a Misoperation has occurred that may not have been identified by System Operators.

Covered Elsewhere

Unlike PRC-004-WECC-2 that sweeps in both PS and RAS, in the NERC Standards these two classifications of devices are addressed in separate standards.

As for PS, existing NERC Standards include and go beyond a mandate for analysis. TOs and Generator Operators (GOP) are required to be familiar with the purpose and limitations of their PS schemes and take corrective actions as soon as possible – not just analyze the problem.[12] Entities must maintain and

[10] The proposed Reliability Standard may impose a requirement on any user, owner, or operator of such facilities, but no on other. Order 672 at P. 322.

[11] In the Glossary of Terms Used in NERC Reliability Standards, Protection Systems are not the same as *Special* Protection Systems (SPS). An SPS is synonymous with a RAS per that glossary; an SPS is not the same as a Protection System.

[12] PRC-001-1.1(ii) System Protection Coordination, Requirements R1 and R2.

test their PS, and demonstrate efforts to correct identified Unresolved Maintenance Issues.[13] Monitoring and situational awareness are also required[14]. Finally, TOs and GOs are required to correct identified and unresolved maintenance Issues.[15] These combined NERC Standards meet and exceed the reliability concerns of Requirement R1 regarding PS.

As for RAS, PRC-004-4 not only calls for analysis it also requires coordination with other entities, notification of events and findings, and most importantly that corrective actions be planned and implemented. Elsewhere, applicable entities that own a RAS are required to analyze RAS operation and misoperation, take corrective actions to ensure misoperation does not reoccur, and to provide documentation of its activities upon request from the Regional Reliability Organization (RRO).[16] PRC-016-1 Remedial Action Scheme Misoperation calls for the inclusion of specific detail in its reports exceeding the requirement of PRC-004-WECC-2. Further, PRC-017-1 Special Protection System Maintenance and Testing requires the TO and GO to have a system maintenance and testing program (to include specific characteristics), and to provide supporting documentation to the RRO on request. These combined NERC Standards meet and exceed the reliability concerns of PRC-004-WECC-2 Requirement R1 regarding RAS.

Finally, even in the absence of the continent-wide PRC suite, TPL/TOP standards would require essential analysis and remedial action so long as a facility continues in service with a single PS or RAS. In many cases, this occurs in less than the 20-day window prescribed in PRC-004-WECC-2 and focuses on results as opposed to a perfunctory task.[17]

The continent-wide TPL/TOP standards require time frames to take action that range from as quickly as possible out to as much as day-ahead planning. So long as a facility continues in service with a single PS or RAS, the TOP is required by the TOP standards to evaluate the system impacts for that configuration

[13] PRC-005-6 – Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance.

[14] PRC-001-1.1(ii) — System Protection Coordination; TOP-003-3, Operational Reliability Data, R1, part 1.2

[15] PRC-005-6 – Protection System, Automatic Reclosing, and Sudden Pressure Relaying Maintenance, Requirement R5.

[16] PRC-016-1 — Remedial Action Scheme Misoperation; (United States Enforcement Date April 1, 2017)

[17] TPL-001-4 — Transmission System Planning Performance Requirements, focuses on system performance rather than the method of achieving that performance.

TOP-002-2.1b — Normal Operations Planning, R6 focuses on a different aspect of system performance by analyzing the system at a minimum of the next N-1 Contingency planning.

TOP-004-2 — Transmission Operations, requires that TOPs operate to maintain reliability following occurrence of their most severe single contingency and (R3) for any multiple contingencies identified by their RC. These contingencies exclude any facilities that are already out-of-service (either forced or planned).

TOP-006-3 — Monitoring System Conditions, R3 requires that the RC, TOP, and Balancing Authority "shall provide its operating personnel with appropriate technical information concerning protective relays within" their areas of responsibility.

TOP-008-1 — Response to Transmission Limit Violations, R2 requires the TOP "operate to prevent the likelihood that a disturbance, action or inaction will result in an IROL or SOL violation …" which reinforces the TPL-004-2 R2 requirement.

at least every day and to take further action if required by the actual circumstances. These TOP time restrictions are much more rigorous than the WECC 20 business days.[18]

Because the reliability content of PRC-004-WECC-2 Requirement R1 is covered in other existing NERC Standards, Requirement R1 can be retired without incurring any negative impact on reliability.

Illusory Time Windows – 20 Business Days

In Requirement R1.2, the 20-day review period has its origins in compliance and not in reliability. Therefore, it is not essential for reliability.

When the predecessors of PRC-004-WECC-2 were developed (circa 1995-2000), the WECC Relay Work Group identified the duration of the window (*20* business days) to *measure* performance, not as a time window essential for reliability.[19] Meeting minutes from the WECC Relay Work Group establish the first draft of what would later be called a Violation Severity Level (VSL) wherein the 20-business-day window was included in a Level 3 and Level 4 VSL.

The definition of the window (20 *business days*) makes its regulatory debut in the RMS[20] where is it used as a defined term. A Business Day is defined as "any day other than Saturday, Sunday, or a legal public holiday as designated in section 6103, of title 5 US Code." If the 20-business day window was reliability in nature it would not be predicated on weekends and holidays.

To the extent that any level of reliability now attaches to the 20-day window, other NERC Standards impute a shorter time window for remedial action thereby rendering the 20-day window moot. As presented, the review of numerous other NERC Standards shows that operational review of the system is required to take place much sooner than 20 days.[21] Thus, the duration and definition of the time window are irrelevant to reliability and can be retired without detriment to the system.

Retirement of Requirement R2

The entirety of Requirement R2 should be retired because it is redundant to other NERC Standards.

The text of Requirement R2 is as follows:

B. Requirements

R.2. Transmission Owners and Generator Owners shall perform the following actions for each Misoperation of the Protection System or RAS. It is not intended that Requirements R2.1

[18] IRO-001.1 R3, requires action within 30 minutes. TOP-008 R2, as noted, primarily reinforces TOP-004 R2, basically saying that the TOP is covered within the IRO timing requirement.

[19] WECC Relay Work Group Meeting Minutes, July 20, 2000.

[20] Reliability Management System, I. Protection Relay and Remedial Action Scheme Misoperation, Section 2.d.

[21] TOP-002-2.1b Normal Operations Planning, Requirement R6 requires a minimum of N-1 Contingency planning to meet unscheduled changes in system configuration and generation dispatch.

through R2.4 apply to Protection System and/or RAS actions that appear to be entirely reasonable and correct at the time of occurrence and associated system performance is fully compliant with NERC Reliability Standards. If the Transmission Owner or Generator Owner later finds the Protection System or RAS operation to be incorrect through System Protection personnel analysis, the requirements of R2.1 through R2.4 become applicable at the time the Transmission Owner or Generator Owner identifies the Misoperation:

R2.1. If the Protection System or RAS has a Security-Based Misoperation and two or more Functionally Equivalent Protection Systems (FEPS) or Functionally Equivalent RAS (FERAS) remain in service to ensure Bulk Electric System (BES) reliability, the Transmission Owners or Generator Owners shall remove from service the Protection System or RAS that misoperated within 22 hours following identification of the Misoperation. Repair or replacement of the failed Protection System or RAS is at the Transmission Owners' and Generator Owners' discretion. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations]*

R2.2. If the Protection System or RAS has a Security-Based Misoperation and only one FEPS or FERAS remains in service to ensure BES reliability, the Transmission Owner or Generator Owner shall perform the following. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations]*

R2.2.1. Following identification of the Protection System or RAS Misoperation, Transmission Owners and Generator Owners shall remove from service within 22 hours for repair or modification the Protection System or RAS that misoperated.

R2.2.2. The Transmission Owner or Generator Owner shall repair or replace any Protection System or RAS that misoperated with a FEPS or FERAS within 20 business days of the date of removal. The Transmission Owner or Generator Owner shall remove the Element from service or disable the RAS if repair or replacement is not completed within 20 business days.

R2.3. If the Protection System or RAS has a Security-Based or Dependability-Based Misoperation and a FEPS and FERAS is not in service to ensure BES reliability, Transmission Owners or Generator Owners shall repair and place back in service within 22 hours the Protection System or RAS that misoperated. If this cannot be done, then Transmission Owners and Generator Owners shall perform the following. *[Violation Risk Factor: High] [Time Horizon: Same-day Operations]*

R2.3.1. When a FEPS is not available, the Transmission Owners shall remove the associated Element from service.

R2.3.2. When FERAS is not available, then

2.3.2.1. The Generator Owners shall adjust generation to a reliable operating level, or

2.3.2.2. Transmission Operators shall adjust the SOL and operate the facilities within established limits.

R2.4. If the Protection System or RAS has a Dependability-Based Misoperation but has one or more FEPS or FERAS that operated correctly, the associated Element or transmission path may remain in service without removing from service the Protection System or RAS that failed, provided one of the following is performed.

R2.4.1. Transmission Owners or Generator Owners shall repair or replace any Protection System or RAS that misoperated with FEPS and FERAS within 20 business days of the date of the Misoperation identification, or

R2.4.2. Transmission Owners or Generator Owners shall remove from service the associated Element or RAS. *[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]*

Retirement of Requirement R2

Requirement R2 is divided into two parts, one assigning tasks in the event of Security-Based Misoperation and the other assigning tasks in the event of Dependability-based Misoperation.[22] The requirement to analyze each Misoperation attaches whenever the Misoperation is discovered (identified).

If a PS or RAS Misoperation is *Security-based*, the PS or RAS shall be removed from service within 22 hours of the identification of the Misoperation. Whether the PS or RAS requires repair, removal, replacement or modification is fact specific and subject to If/Then statements.

If the PS or RAS Misoperation is *Dependability-based*, but portions of the systems operated as designed, the PS or RAS can remain in service so long as repair or replacement occurs within 20 days of the identification of the Misoperation; otherwise, the PS or RAS must be removed from service.

Illusory Time Windows – 22 Hours

On the surface, the 22-hour remediation trigger of PRC-004-WECC-2, Requirement R2.2.1 is quite attractive and perceptually creates a much higher performance threshold than its peripheral NERC Standards.[23] But when examined, the remedial clock does not begin to run until the Misoperation is *identified*. In other words, there is no remediation required until the operation is identified. The system operator may identify an *apparent* Misoperation (R1) within the coveted period (R2) and thereby meet

[22] Security-based Misoperations and Dependability-based Misoperations are included in the WECC-specific section of the Glossary of Terms Used in NERC Reliability Standards.

[23] Since a real-time assessment of system performance is being conducted at least once every 30 minutes by the Transmission Operator, the value of a review within 22 hours is diluted and somewhat redundant. TOP-001-3, Transmission Operations, R13.

the original intent to remediate the cause. However, the reality is that the identification will not likely be determined by the Real-time system operator thus negating the assumed purpose of the 22 hours. Rather, the higher likelihood is that the system operator may annotate an anomaly in the operations log and pass the investigation on to protection engineers. After analysis and identification by the protection engineer, only then would the tolling clock begin to run. So, it could be days or weeks before the requirement to perform remediation attached. Even though the 22 hours appears to be a higher standard, in practice it is illusory because it lacks a definitive start time.

Because the 22-hour window appears in the requirement, it is assumed that the original drafters intended its inclusion for reliability purposes. However, a review of development record shows that the 22-hour time window did not appear in the requirement until drafted into the Reliability Management System (RMS) agreement. Meeting minutes from a July 20, 2000 WECC Relay Work Group meeting indicates that the 22-hour period was originally intended for inclusion in what would today be called a Measure. The minutes indicate that:

> "During the Phase 2 evaluation period the relay misoperation requirement was found to be too loosely defined to enable the assessment of *compliance* on a consistent basis among all affected parties, per the requirement, the clock starts as soon as it is determined that a relay misoperated or probably misoperated. Making this determination could take days or weeks. It was concluded that *compliance* with the requirement as originally worded is *not measurable* on an accurate or consistent basis. Consequently, the Relay Work group in cooperation with the WSCC staff developed revisions to the requirement that will enable a consistent and accurate *measure of performance to assess compliance* the revised requirement is described in detail below." (Italic emphasis added.)

In fact, the intent of the reports is stated in the 1998 predecessor to the RMS in that:

> "The transmission path operators for the paths listed in Table 2 are requested to submit data as specified in detail within this section. *For the purpose of maintaining historical records,* and in the event, some or all of the *compliance data* have to be reviewed to resolve questions that may arise in the future, the Path Operators are requested to save the data, as defined below, for at least a one-year period."[24] (Emphasis added.)

The language that found its way into the requirement section of the RMS was originally intended to serve a compliance purpose. To the extent the 22-hour period may have evolved to address a reliability task, that task (vegetation management) is now covered in the FAC suite. As such, the 22-hour time frame can be deleted from the standard without impacting reliability.

[24] WSCC Detailed Reporting Instructions, Reliability Management System, Evaluation Program Phase 2, Phase 2 Evaluation Period Reporting Requirements, A. Transmission Path Operators Data Collection, see sections on Protective Relay Application and Settings, and Remedial Action Schemes, and Protective Relay and Remedial Action Scheme Misoperation, August 12, 1998.

Requirement R2 Conflicts with other Standards / Lessens Reliability

PRC-004-WECC-2 Requirement R2 has a specified set of actions that must be taken once the Misoperation is identified. Because the operator cannot deviate from the specific actions, all discretion is removed. Therefore, R2 conflicts with other standards and lessens reliability.

Under the fact pattern identified in PRC-004-WECC-2 Requirement R2.1, the TO and GO "shall remove from service" the PS or RAS that misoperated. The inflexible mandate leaves the TO/GO no operational choice. By contrast, PRC-001-1.1(ii) System Protection Coordination, Requirement R2, part 2.1 and 2.2 require that "[if] a protective relay or equipment failure reduces system reliability" then corrective action is to be taken as soon as possible.[25] Likewise, PRC-016-1 Remedial Action Scheme Misoperations, Requirement R2 allows the TO/GO owning a RAS to take "corrective actions to avoid Misoperations." Further, TOP-001-3 Transmission Operations, R1 requires the Transmission Operator (TOP) to maintain the reliability of its Transmission Operator Area *via its own actions* (emphasis added). The Balancing Authority (BA) has a similar mandate in R2 of that document.

To illustrate how retention of PRC-004-WECC-2 Requirement R2 can lessen reliability, the following fact pattern is offered.

Example 1
A fault occurred on an important path line and the relays at both terminals operated correctly to clear it. Different makes of reclosing relays are used at the two terminals, which did not allow the recloser reset time to be set the same at both terminals. The terminal that normally recloses first had a longer reset delay of 20 cycles (Terminal A), and the terminal that normally recloses after the other terminal had a shorter reset delay of 15 cycles (Terminal B). A very unusual circumstance occurred when a second fault occurred on the line after the time that the recloser at Terminal B had reset (15 cycles), but before the recloser at the Terminal A had reset (20 cycles). Terminal A, therefore, tripped to lockout after the second fault and did not reclose. Terminal B, which would normally reclose after Terminal A, tripped for the second fault and then proceeded to reclose. Because this is a very long line, the switch-onto-fault (SOTF) settings are set sensitively to provide instantaneous tripping for the entire length of the line. When Terminal B reclosed, The SOTF elements tripped it open due to the line charging current. It is important to recall that this terminal normally recloses after Terminal A, in which case the voltage on the line would block the SOTF elements.

Because Terminal B tripped for no fault, it created a misoperation. Because both relays at Terminal B behaved the same, they both misoperated. This would bring R2.3.1 into play, requiring the line to be

[25] Under NERC Project 2007-06.2 Phase 2 of System Protection Coordination, PRC-001-1.1(ii) is proposed for retirement. Should that occur, system awareness and corrective actions shifts to other applicable entities under numerous existing NERC Standards. Please refer to that proceeding for a detailed analysis of which NERC Standards would cover the reliability tasks of PRC-001-1(ii) in the event of retirement. Misoperations that have causes other than failure can be mitigated by taking corrective action as soon as possible.

removed from service if the applicable entity could not repair or replace the relays within 22 hours. Given the large volume of operations that were occurring due to the poor weather, repairing the problem within 22 hours was not easy. Taking the line out of service would have caused more problems than it solved because it would have removed an important line during heavy transfer conditions. With the poor weather that was occurring, other lines were also operating, and every available line needed to be in service. This did not present a reliability concern since the relays were only susceptible to Misoperation during a reclose during the very unlikely scenario of a second fault occurring between 15 and 20 cycles after the first.

This practical example illustrates that PRC-004-WECC-2 Requirement R2 can force undesirable consequences. Had consideration of all the surrounding circumstances been allowed, strict adherence to PRC-004-WECC-2 Requirement R2 would not have been the best choice for reliability.

As seen in the example, PRC-004-WECC-2 *mandates* a specific action without regard to outcome. By contrast, the alternate approach of PRC-001-1.1(ii) allows the TO/GO owning a RAS to take reasoned action *if* the failure reduces reliability. Further, it allows that entity to consider all the surrounding circumstances and act accordingly. Finally, if retained, PRC-004-WECC-2 could conflict with other standards wherein applicable entities are provided flexibility to decide the most appropriate actions to ensure reliability. As such, the alternate approach of PRC-001-1.1(ii) should be adopted over that of the PRC-004-WECC-2.

Requirement R2 – Failure to Meet Order 672 Criteria

Pursuant to FERC Order 672, a Reliability Standard should be clear and unambiguous regarding what is required and who is required to comply. Users, owners, and operators of the Bulk-Power System must know what they are required to do to maintain reliability.[26] PRC-004-WECC-2, Requirement R2 falls short of that requirement and should deleted.

Requirement R2.1 through R2.4 are not intended to apply to PS and/or RAS actions "that appear to be entirely reasonable and correct" when "associated system performance is fully compliant with NERC Reliability Standards." What appears to be reasonable to one entity may not appear reasonable to the next. In like fashion, what appears to be reasonable to one auditor may not be reasonable to the next. What is reasonable is the sum of all the surrounding circumstances. These circumstances will vary each time the standard is applied.

Because of the ever-changing fact patterns, neither the applicable entity nor the assigned auditor can be soundly informed as to what action must be taken or what constitutes compliance until after a violation may have occurred. Further, the language implies that what is reasonable equates to what is the best course of action to ensure reliability. This is not always the case. As seen above, one may act to remain perfectly in compliance but those actions may not be in the best interest of reliability.

[26] FERC Order No. 672 at P 325.

Finally, the requirement requires the applicable entity to stand as a proxy to the compliance auditor in that it requires the applicable entity to know whether an act is "entirely reasonable and correct" without further guidance. This is the standards equivalent of drafting a law requiring all vehicles to stop *close* to the limit line – without indicating what constitutes *close.*

Although entities make every effort to remain in compliance, applicable entities are not auditors and cannot make the definitive determination whether an act complies with a standard. As such, the ambiguity of the wording robs the applicable entity of the notice required under due process. Thus, Requirement R2 does not meet FERC's Order 672 criteria and should be deleted.

Retirement of Requirement R3

The entirety of Requirement R3 should be retired because it is purely administrative in nature and meets the "P81" criteria for retirement.

The text of Requirement R3 is as follows:

B. Requirements

R.3. Transmission Owners and Generation Owners shall submit Misoperation incident reports to WECC within 10 business days for the following. *[Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]*

R3.1. Identification of a Misoperation of a Protection System and/or RAS,

R3.2. Completion of repairs or the replacement of Protection System and/or RAS that misoperated.

Retirement of Requirement R3

The language of PRC-004-WECC-2 Requirement R3 can be retired without incurring any negative impact to reliability because the Requirement is administrative in nature.

The purpose of PRC-004-WECC-2 is "to ensure all transmission and generation Protection System and Remedial Action Scheme (RAS) Misoperations on Transmission Paths and RAS defined in section 4 are analyzed and/or mitigated."

Retirement of R3 would be consistent with FERC's order[27] approving NERC's Compliance Enforcement Initiative ("CEI"), including the Find, Fix, Track and Report ("FFT") program. On March 15, 2012, FERC issued an order[28] approving NERC's Compliance Enforcement Implementation (CEI), including the FFT program. Paragraph 81 ("P 81") of the FFT Order reads:

> The Commission notes that NERC's FFT initiative is predicated on the view that many violations of requirements currently included in Reliability Standards pose lesser risk to the Bulk-Power

[27] North American Electric Reliability Corporation, 138 FERC ¶ 61,193 at P 81 (2012) ("FFT Order").

[28] FFT Order at P 81.

> System. If so, some current requirements likely provide little protection for Bulk-Power System reliability or may be redundant. The Commission is interested in obtaining views on whether such requirements could be removed from the Reliability Standards with little effect on reliability and an increase in efficiency of the ERO compliance program. If NERC believes that specific Reliability Standards or specific requirements within certain Standards should be revised or removed, we invite NERC to make specific proposals to the Commission identifying the Standards or requirements and setting forth in detail the technical basis for its belief. In addition, or in the alternative, we invite NERC, the Regional Entities and other interested entities to propose appropriate mechanisms to identify and remove from the Commission approved Reliability Standards unnecessary or redundant requirements. We will not impose a deadline on when these comments should be submitted, but ask that to the extent such comments are submitted NERC, the Regional Entities, and interested entities coordinate to submit their respective comments concurrently.[29]

In keeping with the FFT approach, the WECC-0126 DT reviewed the standard to identify requirements that could be removed from Reliability Standards without negatively impacting the reliability of the Bulk-Power System. This project identified Requirement R3 as a candidate for retirement under that criteria.

Requirement R3 P81 Justification

The language of R3 can be retired without incurring any negative impact to reliability because it is purely administrative in nature. At its core, the requirement calls for the TO and GO to "submit Misoperation incident reports to WECC" and to prove compliance by having "evidence that they reported."

In PRC-004-WECC-2, requiring documentation does not add to or detract from the reliability of the grid; rather, having documentation is an element of verifying that a reliability task has been completed. In application, the requirement looks backwards to ensure paperwork was filled out. As drafted, it neither requires identification of a Misoperation nor remediation of failing elements associated with a Misoperation. It only requires that a report be made. The Measure advances reliability no further as it too requires only that a report be presented. As its core, the Measure doesn't even specify the content of the report – only that a report be made.[30]

Further, the implied reliability tasks of R3 are expressly addressed in peripheral NERC Standards. The stated intent of the Requirement/Measure is to ensure that Misoperation of specific PS and RAS are analyzed and mitigated. Although the standard under review addresses only specific PS and RAS, these

[29] Joint Petition for Approval of Proposed Regional Reliability Standards, VAR-002-WECC-2 AND VAR-501-WECC-2, Section C. Project 2013-02 Paragraph 81, page 6. (VAR Order)

[30] If not retired, the language of each of the Measures should be redrafted to reflect "will have evidence" as opposed to the requirement "shall have evidence."

specific systems would be included in the broader more general provisions of other existing NERC Standards. (See Requirement R1 analysis.)

Finally, if the true intent of PRC-004-WECC-2 is to collect data, that data can be collected in accordance with NERC's Rules of Procedure via a Rule 1600 data request. In the alternative, specifically for RAS, PRC-016-1 Requirement R3 requires the TO and GO owning a RAS to "provide documentation of the misoperations analyses and the correction action plans to" WECC on request. As such, Requirement R3 is fully redundant and can be deleted.

Whereas Requirement R3 is administrative in nature, its implied and explicit reliability tasks are covered in existing NERC Standards, and the described data collection can occur in accordance with NERC Rules of Procedure 1600, Requirement R3 can be retired without incurring any negative impact on reliability.

Table A

NERC Standard / PRC-004-WECC-2 Cross-reference Table

The Purpose of PRC-004-WECC-2 is to serve as a "Regional Reliability Standard to ensure all transmission and generation Protection System and Remedial Action Scheme (RAS) Misoperations on Transmission Paths and RAS defined in section 4 are analyzed and/or mitigated".

The requirements below only apply to the major transmission paths facilities and RAS listed in the tables titled "Major WECC Transfer Paths in the Bulk Electric System" and "Major WECC Remedial Action Schemes (RAS)."

The following table illustrates how each element of the PRC is either addressed elsewhere or simply not needed for reliability.

Retirement of Regional Reliability Standard PRC-004-WECC-1 Protection System and Remedial Action Scheme Misoperation		
PRC-004-WECC-2 Requirement in Approved Standard	PRC-004-WECC-2 Requirements covered elsewhere	Description and Change Justification
Applicability (Narrow and exclusive) The Applicability section is narrowly crafted to apply only to: 1) Transmission Owners (TO) of selected facilities with RAS listed in a specific table; 2) Generator Owners (GO) with RAS listed in a specific table; and, 3) Transmission Operators operating facilities and RAS listed in the specified table.	Applicability (Broader and all-inclusive) PRC-016-1 applies to TOs, GOs, and Distribution Providers' (DP) RAS regardless of path. PRC-004-4 applies to TOs, GOs, and DPs' PS regardless of path.	Whereas PRC-016-1 (RAS) and PRC-004-4 (PS) do not carry the overly exclusive exceptions of PRC-004-WECC-2 (only major transmission paths, facilities, and RAS listed in specified tables), the Applicability section of PRC-004-WECC-2 is fully included in the aforementioned standards. As such, all facilities included in PRC-004-WECC-2 are addressed elsewhere.
PRC-004-WECC-2 Covers RAS plus PS R.1. System Operators and System Protection personnel of the Transmission Owners and Generator Owners shall analyze all Protection System and RAS operations. [Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]	PRC-004-5(i) Covers PS. PRC-004-5(I) Protection System Misoperation Identification and Correction. R1. requires the TO and GO to identify the reasons for PS operation and whether the	Whereas PRC-004-WECC-2 covers analysis of both the RAS and the PS, these two devices are now addressed separately in NERC Standards PRC-004-5(i), PRC-016-1, and PRC-012-2. Each requires analysis like that prescribed in PRC-004-WECC-2.

Retirement of Regional Reliability Standard PRC-004-WECC-1 Protection System and Remedial Action Scheme Misoperation		
PRC-004-WECC-2 Requirement in Approved Standard	PRC-004-WECC-2 Requirements covered elsewhere	Description and Change Justification
	operation caused a Misoperation, within 120 days.[31] See also PRC-001-1.1(ii), Requirements R1 and R2; PRC-005-6, Requirement R5. PRC-016-1 Covers RAS PRC-016-1 Special Protection System Misoperations R1. The TO and GO…shall analyze…its RAS operations and maintain a record of all misoperations in accordance with the Regional RAS review procedure specified in PRC-012. R1.[32] PRC-012-2, Remedial Action Schemes[33] R5. Requires the TO and GO to review its RAS within 120 days of operation or failure. (The term analyze is used in R5.2.)[34]	Inclusion of the reliability elements of PRC-004-WECC-2 in PRC-004-5(i) and PRC-016-1 and PRC-012-2 render PRC-004-WECC-2 redundant. As such, the Requirement can be deleted. The difference in time frames between PRC-004-WECC-2 and the other NERC Standards is addressed in the preceding sections of this filing.
PRC-004-WECC-2 R1.1 System Operators shall review all tripping of transmission elements and RAS operations to identify apparent Misoperations within 24 hours.	PRC-012-2 Covering RAS R5. Requires the TO and GO to analyze each RAS operation, within 120 days, to determine: 1) 5.1.1, what caused the operation, 2) 5.1.2 and 5.1.3, if the device worked properly, and 3) 5.1.4., whether	The language of PRC-004-WECC-2 fails to meet the FERC Order 672 criteria for clarity in that "apparent," "reasonable," characterization" and "correctness" are ambiguous.

[31] United States Enforcement Date is April 2, 2017.

[32] Becomes Inactive on March 31, 2017.

[33] PRC-012-2 has been filed with FERC and is pending regulatory disposition as of March 29, 2017.

[34] NERC Board of Trustees approved May 5, 2016, pending at FERC. (FERC has proposed to approve the standard subject to comments received on a Notice of Proposed Rulemaking (NOPR), comments closing April 10, 2017.

Retirement of Regional Reliability Standard PRC-004-WECC-1 Protection System and Remedial Action Scheme Misoperation		
PRC-004-WECC-2 Requirement in Approved Standard	PRC-004-WECC-2 Requirements covered elsewhere	Description and Change Justification
R1.2. System Protection personnel shall analyze all operations of Protection Systems and RAS within 20 business days for correctness to characterize whether a Misoperation has occurred that may not have been identified by System Operators.	there were any unintended consequences. PRC-004-5(i) Covers PS PRC-004-5(i), R1. Requires the TO and GO owning a PS that operates, to identify whether that PS caused a Misoperation, within 120 days of the event the threshold analysis, the applicable entity is required to determine: 1) R1.1, if the PS was the cause of the Misoperation, 2) R1.2, who owns the components, and 3) R1.3 whether the operation was automatic or manual.	Both PRC-012-2 and PRC-004-5(i) require review after operation to determine the cause, and in some cases, even determine whether unforeseen consequences resulted. Although the more specific analysis is arguably included in the more general PRC-004-WECC-2 analysis, adoption of the superior PRC-012-2 and PRC-004-5(i) requirements add clarity and conformity without sacrificing reliability. As such, analysis of both RAS and PS operation is covered in greater detail outside of PRC-004-WECC-2 making PRC-004-WECC-2 redundant. Its retirement would have no negative impact on reliability because the tasks are covered elsewhere. See above analysis pertaining to 22-hours, and 20 days for time window differential.  2000-07-20-RWG-Meeting.pdf

Retirement of Regional Reliability Standard PRC-004-WECC-1 Protection System and Remedial Action Scheme Misoperation		
PRC-004-WECC-2 Requirement in Approved Standard	PRC-004-WECC-2 Requirements covered elsewhere	Description and Change Justification
PRC-004-WECC-2 Covers PS and RAS R.2. Transmission Owners and Generator Owners shall perform the following actions for each Misoperation of the Protection System or RAS. It is not intended that Requirements R2.1 through R2.4 apply to Protection System and/or RAS actions that appear to be entirely reasonable and correct at the time of occurrence and associated system performance is fully compliant with NERC Reliability Standards. If the Transmission Owner or Generator Owner later finds the Protection System or RAS operation to be incorrect through System Protection personnel analysis, the requirements of R2.1 through R2.4 become applicable at the time the Transmission Owner or Generator Owner identifies the Misoperation:	PRC-016-1 Covers PS PRC-016-1 — Remedial Action Scheme Misoperations R2. Each TO, GO, and DP, owing a RAS shall take corrective actions to avoid future misoperations. PRC-012-2 Covers RAS R5. Each RAS-entity, within 120 full calendar days of a RAS operation or a failure of its RAS to operate when expected, or on a mutually agreed upon schedule with its reviewing Reliability Coordinator(s), shall analyze and communicate RAS performance. PRC-012-2, Requirements R6 and R7 further cover RAS Requirement R6 requires the TO, GO, and DP develop and submit a Corrective Action Plan (CAP) to the Reliability Coordinator within six months of: 1) notification of a RAS deficiency (see R4 and R5), or identifying a deficiency while performing a functional test (R8).	Whereas the reliability tasks of PRC-004-WECC-2 Requirement R2 are included in PRC-016-1 and PRC-012-2, PRC-004-WECC-2 Requirement R2 is redundant and can be retired.
R2.1. If the Protection System or RAS has a Security-Based Misoperation and two or more Functionally Equivalent Protection Systems (FEPS) or Functionally Equivalent RAS (FERAS) remain in service to ensure Bulk Electric	PRC-001-1.1(ii) R2. Each Generator Operator and Transmission Operator shall notify reliability entities of relay or equipment failures as follows: R2.1. If a protective relay or equipment failure reduces system reliability, the Generator Operator	PRC-001-1.1(ii) R2 and R6 require the applicable entities to be aware of PS/RAS and to communicate with other affected parties in the event of change or operation of these devices. That standard is broad enough to allow the operators to determine the best

Retirement of Regional Reliability Standard PRC-004-WECC-1 Protection System and Remedial Action Scheme Misoperation		
PRC-004-WECC-2 Requirement in Approved Standard	PRC-004-WECC-2 Requirements covered elsewhere	Description and Change Justification
System (BES) reliability, the Transmission Owners or Generator Owners shall remove from service the Protection System or RAS that misoperated within 22 hours following identification of the Misoperation. Repair or replacement of the failed Protection System or RAS is at the Transmission Owners' and Generator Owners' discretion. [Violation Risk Factor: High] [Time Horizon: Same-day Operations]	shall notify its Transmission Operator and Host Balancing Authority. The Generator Operator shall take corrective action as soon as possible. R2.2. If a protective relay or equipment failure reduces system reliability, the Transmission Operator shall notify its Reliability Coordinator and affected Transmission Operators and Balancing Authorities. The Transmission Operator shall take corrective action as soon as possible. R6. Each Transmission Operator and Balancing Authority shall monitor the status of each Special Protection System in their area, and shall notify affected Transmission Operators and Balancing Authorities of each change in status. PRC-004-4(i) R5. Each Transmission Owner, Generator Owner, and Distribution Provider that owns the Protection System component(s) that caused the Misoperation shall, within 60 calendar days of first identifying a cause of the Misoperation: • Develop a Corrective Action Plan (CAP) for the identified Protection System component(s), and an evaluation of the CAP's	appropriate action based on all the surrounding circumstances. Those actions may or may not include the specified tasks included in PRC-004-WECC-2 Requirement R2. If the specifics of that requirement are retained they limit the operator's discretion and could lead to a less-than-favorable operational decision simply to be compliant, thereby defeating the reliability-related intent. PRC-004-WECC-2 Requirement R2 requires that the device be taken out-of-service under specified circumstances. By contrast, TOP-001-3, Requirement R1, requires the TO to "act to maintain the reliability of its Transmission Operator Area via its own actions." The TOP-001-3, Requirement R1 mandate to act with discretion conflicts with the PRC-004-WECC-2 Requirement R2 mandate to perform specific tasks. The PRC-004-WECC-2 Requirement R2 approach has the potential to lead to reliability concerns; by contrast, the approach of PRC-001-1.1(ii) and TOP-001-3 provide the operator with discretion more targeted for remedy of actual circumstances and not implemented merely for compliance purposes. Additionally, the overly prescriptive PRC-004-WECC-2 Requirement R2 approach may conflict with IRO-017-1 Requirement R1 wherein the Reliability Coordinator (RC) is

Retirement of Regional Reliability Standard PRC-004-WECC-1 Protection System and Remedial Action Scheme Misoperation		
PRC-004-WECC-2 Requirement in Approved Standard	PRC-004-WECC-2 Requirements covered elsewhere	Description and Change Justification
	applicability to the entity's other Protection Systems including other locations; or • Explain in a declaration why corrective actions are beyond the entity's control or would not improve BES reliability, and that no further corrective actions will be taken. PRC-016-1 R1. The Transmission Owner, Generator Owner, and Distribution Provider that owns an RAS shall analyze its RAS operations and maintain a record of all misoperations in accordance with the Regional RAS review procedure specified in Reliability Standard PRC-012-0_R1. R2. The Transmission Owner, Generator Owner, and Distribution Provider that owns a RAS shall take corrective actions to avoid future misoperations.	required to 'develop, implement, and maintain an outage coordination process." If PRC-004-WECC-2 Requirement R2 is retained it mandates a specific action that may conflict with the broader authority and outage coordination process established by the RC.
R2.2. If the Protection System or RAS has a Security-Based Misoperation and only one FEPS or FERAS remains in service to ensure BES reliability, the Transmission Owner or Generator Owner shall perform the following. [Violation Risk Factor: High] [Time Horizon: Same-day Operations] R2.2.1. Following identification of the Protection System or RAS Misoperation, Transmission Owners		

Retirement of Regional Reliability Standard PRC-004-WECC-1 Protection System and Remedial Action Scheme Misoperation		
PRC-004-WECC-2 Requirement in Approved Standard	PRC-004-WECC-2 Requirements covered elsewhere	Description and Change Justification
and Generator Owners shall remove from service within 22 hours for repair or modification the Protection System or RAS that misoperated. R2.2.2. The Transmission Owner or Generator Owner shall repair or replace any Protection System or RAS that misoperated with a FEPS or FERAS within 20 business days of the date of removal. The Transmission Owner or Generator Owner shall remove the Element from service or disable the RAS if repair or replacement is not completed within 20 business days. R2.3. If the Protection System or RAS has a Security-Based or Dependability-Based Misoperation and a FEPS and FERAS is not in service to ensure BES reliability, Transmission Owners or Generator Owners shall repair and place back in service within 22 hours the Protection System or RAS that misoperated. If this cannot be done, then Transmission Owners and Generator Owners shall perform the following. [Violation Risk Factor: High] [Time Horizon: Same-day Operations] R2.3.1. When a FEPS is not available, the Transmission Owners shall remove the associated Element from service.		

Retirement of Regional Reliability Standard PRC-004-WECC-1 Protection System and Remedial Action Scheme Misoperation		
PRC-004-WECC-2 Requirement in Approved Standard	PRC-004-WECC-2 Requirements covered elsewhere	Description and Change Justification
R2.3.2. When FERAS is not available, then 2.3.2.1. The Generator Owners shall adjust generation to a reliable operating level, or 2.3.2.2. Transmission Operators shall adjust the SOL and operate the facilities within established limits. R2.4. If the Protection System or RAS has a Dependability-Based Misoperation but has one or more FEPS or FERAS that operated correctly, the associated Element or transmission path may remain in service without removing from service the Protection System or RAS that failed, provided one of the following is performed. R2.4.1. Transmission Owners or Generator Owners shall repair or replace any Protection System or RAS that misoperated with FEPS and FERAS within 20 business days of the date of the Misoperation identification, or R2.4.2. Transmission Owners or Generator Owners shall remove from service the associated Element or RAS. [Violation Risk Factor: Lower] [Time Horizon: Operations Assessment]		
R.3. Transmission Owners and Generation Owners shall submit Misoperation incident reports to	As of July 1, 2016, Protection System Operations and Misoperations are reported by TOs, GOs, and DPs, via the Misoperation	Retirement of PRC-004-WECC-2 Requirement R3 fits the retirement criteria established under FERC's "P81" criteria. See Retirement of

Retirement of Regional Reliability Standard PRC-004-WECC-1 Protection System and Remedial Action Scheme Misoperation		
PRC-004-WECC-2 Requirement in Approved Standard	PRC-004-WECC-2 Requirements covered elsewhere	Description and Change Justification
WECC within 10 business days for the following. R3.1. Identification of a Misoperation of a Protection System and/or RAS, R3.2. Completion of repairs or the replacement of Protection System and/or RAS that misoperated.	Information Data Analysis System at NERC (MIDAS) in PRC-004 -5(i) and the accompanying 1600 Data Request. This renders PRC-004-WECC-2 administrative request redundant.	Requirement R3 analysis in the main body of this filing. The 10-day time window is a legacy imported from the RMS, circa July 1999. A records search at WECC and inquires via corporate memory did not reveal why the original drafters believed the 10-days was essential. However, the 10-day reference was found in the 1999 WSCC Reliability Criteria Agreement (Section 5 Determining Compliance, 5.2 Data Submission and Review) as part of the document's compliance section giving rise to the conclusion that it was required for accountability and not reliability. Considering the NERC 1600 requirement, the 10-days has proven to be no longer essential. Currently, Midas will send out reminder notifications to entities who have not yet submitted for a specified quarter. They will also provide confirmation notifications upon submittal. Once the submittal is being by the regions or NERC, they may send additional notifications to the MIDAS contacts as questions arise. Currently, all WECC entities must comply under that request, but they have 60 days to do so while also complying with the administrative request under PRC-004-WECC-2.

Retirement of Regional Reliability Standard PRC-004-WECC-1 Protection System and Remedial Action Scheme Misoperation		
PRC-004-WECC-2 Requirement in Approved Standard	PRC-004-WECC-2 Requirements covered elsewhere	Description and Change Justification
		Duplicative administrative reporting is not needed. WECC will continue to be responsible for facilitating and monitoring these data submissions, and will continue to share the content with the WECC Relay Work Group (RWG) for further analysis and recommendations.

NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Unofficial Comment Form

Regional Reliability Standard – Retirement
PRC-004-WECC-2

DO NOT use this form for submitting comments. Use the electronic form to submit comments on the proposed retirement of the Regional Reliability Standard **PRC-004-WECC-2 – Protection System and Remedial Action Scheme Misoperation**. The electronic form must be submitted by **8 p.m. Eastern, Monday, December 18, 2017.**

Documents and information about this project are available on the WECC's Standards Under Development page. If you have questions, contact Standards Developer, Mat Bunch (via email) or at (404) 446-9785.

Background Information

During its five-year update, the WECC standard drafting team concluded that retirement of the standard can be made without incurring a negative impact on reliability due to the following:

- The reliability concern is now specifically covered in FAC-003-4;
- The Applicability section is overly narrow and included in other existing NERC Standards;
- Requirement R1 is covered in other NERC Standards;
- Requirement R2 is covered in other NERC Standards, conflicts with existing NERC Standards, and its application can lessen reliability as opposed to enhancing it;
- Requirement R3 is entirely administrative in nature and should be retired under FERC P81 criteria; and
- The language of the standard does not meet the FERC Order 672 criteria in that it fails to assign the reliability task directly to an entity included in the NERC Functional Model.

NERC Criteria for Developing or Modifying a Regional Reliability Standard

Regional Reliability Standard shall be: (1) a regional reliability standard that is more stringent than the continent-wide reliability standard, including a regional standard that addresses matters that the continent-wide reliability standard does not; or (2) a regional reliability standard that is necessitated by a physical difference in the bulk power system. Regional reliability standards shall provide for as much uniformity as possible with reliability standards across the interconnected bulk power system of the North American continent. Regional reliability standards, when approved by FERC and applicable authorities in Mexico and Canada, shall be made part of the body of NERC reliability standards and shall be enforced upon all applicable bulk power system owners, operators, and users within the applicable area, regardless of membership in the region.

The approval process for a regional reliability standard requires NERC to publicly notice and request comment on the proposed standard. Comments shall be permitted only on the following criteria (technical aspects of the standard are vetted through the regional standards development process):

Open — Regional reliability standards shall provide that any person or entity that is directly and materially affected by the reliability of the bulk power system within the regional entity shall be able to participate in the development and approval of reliability standards. There shall be no undue financial barriers to participation. Participation shall not be conditional upon membership in the regional entity, a regional entity or any organization, and shall not be unreasonably restricted on the basis of technical qualifications or other such requirements.

Inclusive — Regional reliability standards shall provide that any person with a direct and material interest has a right to participate by expressing an opinion and its basis, having that position considered, and appealing through an established appeals process, if adversely affected.

Balanced — Regional reliability standards shall have a balance of interests and shall not be dominated by any two-interest categories and no single-interest category shall be able to defeat a matter.

Due Process — Regional reliability standards shall provide for reasonable notice and opportunity for public comment. At a minimum, the standard shall include public notice of the intent to develop a standard, a public comment period on the proposed standard, due consideration of those public comments, and a ballot of interested stakeholders.

Transparent — All actions material to the development of regional reliability standards shall be transparent. All standards development meetings shall be open and publicly noticed on the regional entity's Web site.

Review the revised the Regional Reliability Standard regional standard and answer the following questions.

1. Do you agree the development of the Regional Reliability Standard met the "Open" criteria as outlined above? If "No", please explain in the comment area below:

   ☐ Yes
   ☐ No
   Comments:

2. Do you agree the development of the Regional Reliability Standard met the "Inclusive" criteria as outlined above? If "No", please explain in the comment area below:

   ☐ Yes
   ☐ No
   Comments:

3. Do you agree the development of the Regional Reliability Standard met the "Balanced" criteria as outlined above? If "No", please explain in the comment area below:

☐ Yes
☐ No
Comments:

4. Do you agree the development of the Regional Reliability Standard met the "Due Process" criteria as outlined above? If "No", please explain in the comment area below:

   ☐ Yes
   ☐ No
   Comments:

5. Do you agree the development of the Regional Reliability Standard met the "Transparent" criteria as outlined above? If "No", please explain in the comment area below:

   ☐ Yes
   ☐ No
   Comments:

Comment Report

Project Name:	Regional Reliability Standard (WECC) | PRC-004-WECC-2 Retirement
Comment Period Start Date:	11/3/2017
Comment Period End Date:	12/18/2017
Associated Ballots:	

There were 4 sets of responses, including comments from approximately 4 different people from approximately 4 companies representing 4 of the Industry Segments as shown in the table on the following pages.

Questions

1. Do you agree the development of the Regional Reliability Standard met the "Open" criteria as outlined above? If "No", please explain in the comment area below:

2. Do you agree the development of the Regional Reliability Standard met the "Inclusive" criteria as outlined above? If "No", please explain in the comment area below:

3. Do you agree the development of the Regional Reliability Standard met the "Balanced" criteria as outlined above? If "No", please explain in the comment area below:

4. Do you agree the development of the Regional Reliability Standard met the "Due Process" criteria as outlined above? If "No", please explain in the comment area below:

5. Do you agree the development of the Regional Reliability Standard met the "Transparent" criteria as outlined above? If "No", please explain in the comment area below:

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region

1. Do you agree the development of the Regional Reliability Standard met the “Open” criteria as outlined above? If “No”, please explain in the comment area below:	
John Tolo - Unisource - Tucson Electric Power Co. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1,3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 1,3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

2. Do you agree the development of the Regional Reliability Standard met the “Inclusive” criteria as outlined above? If “No”, please explain in the comment area below:	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 1,3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1,3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
John Tolo - Unisource - Tucson Electric Power Co. - 1	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

3. Do you agree the development of the Regional Reliability Standard met the "Balanced" criteria as outlined above? If "No", please explain in the comment area below:	
John Tolo - Unisource - Tucson Electric Power Co. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1,3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 1,3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

4. Do you agree the development of the Regional Reliability Standard met the "Due Process" criteria as outlined above? If "No", please explain in the comment area below:	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 1,3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1,3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
John Tolo - Unisource - Tucson Electric Power Co. - 1	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

5. Do you agree the development of the Regional Reliability Standard met the “Transparent” criteria as outlined above? If “No”, please explain in the comment area below:	
John Tolo - Unisource - Tucson Electric Power Co. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1,3	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 1,3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Attachment R2
WECC-0126 PRC-004-WECC-2
Protection System and Remedial Action Scheme Misoperation
NERC Response to Comments / Posting 1
November 3 through December 18, 2017

Posting 1

The WECC-0126 PRC-004-WECC-2, Protection System and Remedial Action Scheme Misoperation (DT) thanks everyone who submitted comments on the proposed project.

Posting

This document was posted for a 45-day public comment period at the North American Electricity Reliability Corporation (NERC) from November 3 through December 18, 2017.

On November 3, 2017, NERC distributed notice of the posting via the NERC Standards Announcements email exploder.

NERC received comments from four entities as shown in the following table.

Location of Comments

All comments received on the project can be viewed in their original format on the WECC-0126 project page under the "Submit and Review Comments" accordion. Additionally, the raw data provided to WECC by NERC in support of this filing is appended to this response form.

Changes in Response to Comment

No changes were made to the project based on the comments received during this posting.

Minority View

There were no minority concerns.

Effective Date and Implementation Plan

The Reliability Standards Development Procedures (Procedures) require that an implementation plan be posted with at least one posting of the project. After completing its review, the DT recommends that the substance of PRC-004-WECC-2 should be retired immediately and in its entirety because the reliability-related substance is addressed in peripheral NERC Standards. The DT does not believe any further actions are necessary to implement the proposed changes.

Action Plan

As of January 10, 2018, this project is awaiting filing at NERC.

Contacts and Appeals

If you feel your comment has been omitted or overlooked, please contact W. Shannon Black, WECC Consultant. In addition, the WECC Reliability Standards Appeals Process can be found in the Reliability Standards Development Procedures.

Comment Report Form for WECC-0126

WECC Standards Comment Table

Commenter		Organization
1	Aaron Cavanaugh	Bonneville Power Administration (BPA)
2	John Tolo	Tucson Electric Power Company (TEP)
3	Laurie Williams	PNM Resources - Public Service Company of New Mexico (PNM)
4	Glen Farmer	Avista

Index to Questions, Comments, and Responses

Questions

1. Do you agree the development of the Regional Reliability Standard met the “Open” criteria as outlined above? If “No”, please explain in the comment area below:

2. Do you agree the development of the Regional Reliability Standard met the “Inclusive” criteria as outlined above? If “No”, please explain in the comment area below:

3. Do you agree the development of the Regional Reliability Standard met the “Balanced” criteria as outlined above? If “No”, please explain in the comment area below:

4. Do you agree the development of the Regional Reliability Standard met the “Due Process” criteria as outlined above? If “No”, please explain in the comment area below:

5. Do you agree the development of the Regional Reliability Standard met the “Transparent” criteria as outlined above? If “No”, please explain in the comment area below:

Comment Report Form for WECC-0126

1. Response Summary

Summary Consideration:	See summary in the preamble of this document.		
Commenter / Comment			**Response**
The WECC-0126 PRC-004-WECC-2, Protection System and Remedial Action Scheme Misoperation Drafting Team thanks each party for their continued support and dedication to the standards development process. All respondents answered in the affirmative on all questions. There were no minority opinions nor were there requests for modification. No changes were made to the project.			

Comment Report Form for WECC-0126

Raw Data provided by NERC

Comment Report

Project Name:	Regional Reliability Standard (WECC) | PRC-004-WECC-2 Retirement
Comment Period Start Date:	11/3/2017
Comment Period End Date:	12/18/2017
Associated Ballots:	

There were 4 sets of responses, including comments from approximately 4 different people from approximately 4 companies representing 4 of the Industry Segments as shown in the table on the following pages.

Questions

1. Do you agree the development of the Regional Reliability Standard met the "Open" criteria as outlined above? If "No", please explain in the comment area below:

2. Do you agree the development of the Regional Reliability Standard met the "Inclusive" criteria as outlined above? If "No", please explain in the comment area below:

3. Do you agree the development of the Regional Reliability Standard met the "Balanced" criteria as outlined above? If "No", please explain in the comment area below:

4. Do you agree the development of the Regional Reliability Standard met the "Due Process" criteria as outlined above? If "No", please explain in the comment area below:

5. Do you agree the development of the Regional Reliability Standard met the "Transparent" criteria as outlined above? If "No", please explain in the comment area below:

Organization Name	Name	Segment(s)	Region	Group Name	Group Member Name	Group Member Organization	Group Member Segment(s)	Group Member Region

1. Do you agree the development of the Regional Reliability Standard met the "Open" criteria as outlined above? If "No", please explain in the comment area below:	
John Tolo - Unisource - Tucson Electric Power Co. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1,3	
Answer	Yes

Comment Report Form for WECC-0126

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 1,3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

2. Do you agree the development of the Regional Reliability Standard met the "Inclusive" criteria as outlined above? If "No", please explain in the comment area below:	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 1,3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1,3	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
John Tolo - Unisource - Tucson Electric Power Co. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

3. Do you agree the development of the Regional Reliability Standard met the "Balanced" criteria as outlined above? If "No", please explain in the comment area below:
John Tolo - Unisource - Tucson Electric Power Co. - 1

Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1,3	
Answer	Yes

Comment Report Form for WECC-0126

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 1,3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

4. Do you agree the development of the Regional Reliability Standard met the "Due Process" criteria as outlined above? If "No", please explain in the comment area below:	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 1,3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1,3	
Answer	Yes
Document Name	
Comment	
Likes 0	

Dislikes 0	
Response	
John Tolo - Unisource - Tucson Electric Power Co. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

5. Do you agree the development of the Regional Reliability Standard met the "Transparent" criteria as outlined above? If "No", please explain in the comment area below:	
John Tolo - Unisource - Tucson Electric Power Co. - 1	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Laurie Williams - PNM Resources - Public Service Company of New Mexico - 1,3	
Answer	Yes

Comment Report Form for WECC-0126

Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Glen Farmer - Avista - Avista Corporation - 1,3,5	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	
Aaron Cavanaugh - Bonneville Power Administration - 1,3,5,6 - WECC	
Answer	Yes
Document Name	
Comment	
Likes 0	
Dislikes 0	
Response	

Comment Report Form for WECC-0126