

Key Electric Reliability Organization (ERO) Issues¹

A Briefing Paper for the Western Interconnection Regional Advisory Body (WIRAB)

Background –

On April 19, 2006, pursuant to Section 215(j) of the Federal Power Act, the Governors of ten of the eleven States that have more than half of their loads served in the Western Interconnection, filed a Petition for the Creation of a Regional Advisory Body for the Western Interconnection. In accordance with Section 215(j), the Western Interconnection Regional Advisory Body (WIRAB) will provide advice “to the Electric Reliability Organization, a Regional Entity, or the Commission regarding the governance of an existing or proposed Regional Entity within the same region, whether a standard proposed to apply within the region is just, reasonable, not unduly discriminatory or preferential, and in the public interest, whether fees proposed to be assessed within the region are just, reasonable, not unduly discriminatory or preferential, and in the public interest and any other responsibilities requested by the Commission.”

This paper sets forth a proposed framework the WIRAB can use to focus its attention on the key standards issues and develop advice on reliability standards.

I. Standards Development

A. ERO Approval of the WECC Standards Development Process

Reliability standards development in the Western Interconnection has historically been accomplished through the activities of the Western Electricity Coordinating Council (WECC), formerly Western Systems Coordinating Council. The primary mission of WECC is to promote the reliability of the electric systems comprising the Western Interconnection. WECC’s process for developing reliability standards has evolved over the organization’s many years of existence based upon lessons learned and as a result of the evolving nature of the electric industry.

WECC’s process for developing reliability standards for the Western Interconnection is described in a document entitled “Process for Developing and Approving WECC Standards.” The document may be found on the WECC website – www.wecc.biz.

To receive Delegated Authority from the ERO as a Regional Entity, WECC must enter into a delegation agreement with the ERO. The delegation agreement will set forth the procedure the Regional Entity (WECC) will use to develop standards

¹ This paper is limited to reliability standards and compliance/enforcement issues and does not address ERO issues involving governance, budgets, or funding.

for the Western Interconnection. The process must meet certain requirements as follows – open, inclusive, balanced, due process, and transparent. ERO approval of the WECC Standards Development Process is required to ensure that WECC’s process meets the requirements.

B. Deference for Standards Developed and Approved by the Western Interconnection

WECC is one of eight Regions comprising the North American Electric Reliability Council. More importantly, however, WECC is also an Interconnection. There are three Interconnections that make up the North American electric grid – the Western Interconnection, the Eastern Interconnection, and the Electric Reliability Council of Texas (ERCOT).

In the Federal Energy Regulatory Commission (FERC) Docket No. RM05-30-000; Order No. 672, “Rules Concerning Certification of the Electric Reliability Organization; and Procedures for the Establishment, Approval, and Enforcement of Electric Reliability Standards,” page 122, paragraph 297 under Commission Conclusion the following is stated: “In Response to the Western Governments and the California Commission, while the Commission cannot simply defer to the members of the Western Interconnection in regard to the establishment of regional Reliability Standards for the West, we recognize that there may be justifiable differences in a Reliability Standard based on physical differences in the electrical systems. In addition, we respect the rebuttable presumption afforded by section 215 of the Federal Power Act (FPA) to a proposal for a Reliability Standard from a Regional Entity organized on an Interconnection-wide basis...”

FERC’s proposed rule would require the ERO to rebuttably presume that a proposed Reliability Standard or a modification to a Reliability Standard to be applicable on an Interconnection-wide basis is just, reasonable, not unduly discriminatory or preferential, and in the public interest if it is proposed by a Regional Entity organized on an Interconnection-wide basis. WECC would be the Regional Entity for the Western Interconnection and WECC Reliability Standards would receive deference under the FERC rule, provided that the standards are developed in accordance with an appropriate process as described in the legislation.

WECC’s Operating Reserve Standard is an example of a Western Interconnection standard that is not a NERC standard. Without delving into the technical details, WECC simply requires that there be sufficient resources, including both spinning reserve and non-spinning reserve, to cover the largest single contingency in a Balancing Authority or Reserve Sharing Group area. Such contingencies would include loss of a large generating unit or loss of a transmission line bringing power into the area. A Balancing Authority or Reserve Sharing Group is noncompliant with the WECC standard if reserves fall below the level required by the standard.

NERC uses a different approach called the Disturbance Control Standard (DCS). Under DCS, a Balancing Authority or Reserve Sharing Group is noncompliant if during a quarter the entity's performance does not meet the recovery requirements of DCS for triggering events. Loss of a generator is an example of a triggering event.

The difference between WECC and NERC in this example is that WECC measures operating reserve adherence on a continuous basis while NERC measures performance of reserve levels for triggering events. WECC also enforces compliance with DCS. Therefore, WECC effectively has more stringent requirements for operating reserve. Hypothetically, under NERC's approach, it would be possible for an entity to have insufficient operating reserves for a quarter and if by chance no triggering event occurred, the lack of reserves would go undetected. The WECC philosophy of enforcing operating reserve requirements is intended to provide a greater likelihood of complying with DCS events when they do occur.

C. Variance for standards not applicable to the Western Interconnection

Some Reliability Standards developed at the ERO level may not be applicable within the Western Interconnection for a variety of reasons. These reasons include but are not limited to physical, economic, and institutional differences between the Western Interconnection and the other Interconnections that comprise the North American electric grid. Although standardization of standards across all of North America is a laudable goal, it may not be practical or cost effective in some cases. A variance from an ERO standard could be due to a more stringent approach being applied within the Western Interconnection or simply a different approach that has been in place for many years that accomplishes the same level of reliability.

One current example of a Western Interconnection variance is WECC's Unscheduled Flow Mitigation Plan as a substitute for the NERC Transmission Loading Relief procedure. The WECC approach to mitigating unscheduled flows on key transmission paths is based upon coordinated operation of phase shifting transformers. If sufficient relief is not obtained with the phase shifters, a schedule curtailment approach is used. The NERC approach does not involve coordinated use of phase shifting transformers on an Interconnection-wide basis to reduce transmission loadings. An approach involving coordinated operation of phase shifters may not even be feasible within the Eastern Interconnection due to its tight electrical network characteristics. The coordinated operation of phase shifting transformers is better suited to the Western Interconnection due to its being more of a loop type network.

Another example of standards that may require a variance or application of the deference principle is the NERC standard for under frequency load shedding.

WECC has developed requirements for coordinating under frequency load shedding on a Western Interconnection basis. This coordination philosophy is a product of the West's 1996 blackouts and the associated lessons learned. The NERC standards for coordinating under frequency load shedding are not sufficiently clear (see FERC Staff report of May 11, 2006). In addition, there is not wide agreement in the East that there is benefit for coordinating under frequency load shedding on an Interconnection-wide basis. This example further underscores some of the differences between the Interconnections.

In addition to the differences noted above, the following NERC standards may prove to be controversial as they are revised to add additional requirements, compliance measures, and enforcement details and therefore may warrant special WIRAB attention:

- Methodology to Determine Facility Ratings
- Coordination of Plans for New Generation, Transmission, and End-User Facilities
- Transfer Capability Methodology
- Interchange Scheduling and Coordination
- Automatic Under Voltage Load Shedding and Minimum Reactive Reserve Requirements

D. Active Western Interconnection participation in ERO Standards Development Process

Although WECC has a process for developing standards for the Western Interconnection, it is imperative that western entities remain actively engaged in the ERO Standards Development Process. This participation should ensure that any new standard or modification to an existing standard will provide for an acceptable level of reliability within the Western Interconnection. Having common Reliability Standards for all of North America should be the general rule with few exceptions.

However, if western needs are not adequately addressed at the ERO level, the west can correct any shortcomings by developing a standard or standard modification for the Western Interconnection under the deference principle.

E. WIRAB review of standards under development and providing advice to the Regional Entity, ERO, or Commission as to whether the standard is just, reasonable, not unduly discriminatory or preferential, and in the public interest

WIRAB will have the opportunity to be engaged in the WECC Standards Development Process as well as the ERO Standards Development Process to meet its obligations regarding standards that are adopted. Both the WECC process and the envisioned ERO process are open and inclusive. WIRAB will have ample opportunity to review and comment as to whether the standard is just, reasonable,

not unduly discriminatory or preferential, and in the public interest. The WECC and NERC standards development processes require that all comments be addressed before finalizing the standard for adoption.

The document entitled “Process for Developing and Approving WECC Standards” referenced above documents the process that WECC uses to develop standards. It details each step of the process, length of comment periods, how to resolve disputes, and how to participate in the process. The process is currently undergoing revision to ensure that it meets all the requirements for standards development as set forth in the legislation. The NERC process for developing standards is envisioned to be the process that will be used if NERC becomes the ERO. The NERC process entitled “Reliability Standards Process Manual” is ANSI accredited. WECC is considering seeking ANSI accreditation for its process.

II. Implementation of Standards

A. Adequate Test Period to Critically Evaluate Standards before Implementation to Ensure that²—

- 1) The standards will foster intended reliability objectives and are cost effective, just, reasonable, not unduly discriminatory or preferential, and in the public interest

WECC’s experience with its Reliability Management System (RMS) has demonstrated how valuable and important a test period is before final implementation of a standard. The test period will reveal areas of confusion, differences in interpretation, and unexpected consequences that may result no matter how carefully the standard has been crafted. There is no reliable substitute for actual experience.

- 2) Necessary tools are in place to measure requirements imposed by the standards and the measurements cited in the standards are clear and appropriate

The test period will identify any problems in measuring compliance with the requirements of the standard. Such problems could include ambiguities in how the measurements are worded or problems with the tools needed to measure the requirements. One example of a problem WECC encountered with the RMS program involved interchange schedule tagging. Initially the plan was to fax all tags to the WECC office. Upon initiation of the test period, it became quickly obvious that the volume of tags could not possibly be

² The May 11, 2006 FERC Staff Preliminary Assessment of the North American Electric Reliability Council’s Proposed Mandatory Reliability Standards identifies numerous deficiencies in the standards filed by NERC for approval. In many cases, NERC has identified the same concerns and has developed a work plan to address the concerns.

handled through a fax process. Implementation had to be delayed until an automated electronic scheme was implemented to process the tags.

- 3) Personnel are trained or may be reasonably trained to follow the standards prior to their implementation

A reasonable period of time is necessary to ensure that responsible personnel and their supervisors are trained to meet the requirements of the standard. For a standard to be effective, it must be followed. An example is WECC's Unscheduled Flow Mitigation Procedure, which requires under certain conditions the curtailment of contributing schedules to reduce unscheduled flow. It became evident through tests that better training was needed to accomplish the appropriate schedule curtailments to make the plan effective.

- 4) The penalties for noncompliance are just and will promote the desired compliance

Tests will reveal potential problems with monetary penalties and allow fine tuning of the penalties before final implementation. Such tests were valuable in adjusting the monetary penalties associated with the RMS program. WIRAB's review of the test results will help WIRAB in fulfilling its obligation to determine whether fees proposed to be assessed within the region are just, not unduly discriminatory or preferential, and in the public interest.

- 5) Entities subject to the standards are clearly identified

The test period will reveal any ambiguities with respect to those for whom the standard is intended.

The May 11, 2006, FERC Staff's Preliminary Assessment of NERC's Proposed Mandatory Reliability Standards report notes that applicability of the standards is not clear in all cases³. In addition, the FERC Staff report raises a number of concerns related to items 1 through 5 above.

Entities that will be subject to the standards include all users, owners and operators of the bulk power system including Balancing Authorities, Planning Authorities, Transmission Operators, Transmission Planners, Reliability Coordinators, Regional Reliability Organizations, and other entities that perform these functions. Clearly defining all entities subject to the standards

³ The FERC report states: "Applicability: FPA section 215 requires that "all users, owners, and operators" comply with mandatory reliability standards approved by the Commission. The current standards do not define or list the "users, owners, and operators" that are required to follow the standard. The applicability of each standard needs to be clear."

will likely prove challenging.

III. Enforcement of Standards

A. Standards Essential for Maintaining Reliability

Identify those standards that are essential for maintaining reliability to ensure that they receive highest degree of scrutiny. The following are examples of key reliability standards: Operating within transfer capability limits, constrain operation within studied conditions, operating reserve, right-of-way maintenance of key transmission corridors, primary protection and remedial action scheme performance, operator certification and training, etc.

It is uncertain which specific Reliability Standards will be initially approved by FERC for mandatory compliance and enforcement. NERC has filed 102 reliability standards with FERC requesting that they be approved and subsequently made mandatory. The FERC Staff report of May 11, 2006, raises concerns regarding the viability of many of these standards for compliance enforcement for a variety of reasons.

Regardless of the number of standards eventually approved, it is important that careful attention be given to those standards that are most significant to preserving interconnected electric system reliability. Trying to enforce a large number of standards initially could spread personnel too thin and run the risk of not giving sufficient attention to those standards that matter most. The philosophy of WECC's RMS program was to identify and monitor those requirements that have the greatest impact on preserving reliability. The requirements of the RMS program would provide an excellent starting point in identifying key reliability standards.

B. Penalties for Noncompliance

- 1) Ensure that the entities subject to penalties for noncompliance are clearly identified and that the penalties for noncompliance are sufficient to promote compliance.

A test period as described above in section II should be conducted to validate the sanctions before actually assessing any penalties. The length of each test period should be determined on a case by case basis.

A number of policy makers are advocating consistent penalties across North America. Care must be exercised to ensure that the penalty structure does not gravitate to the lowest common denominator and that the penalties are indeed sufficient to promote meeting compliance objectives. The Western Interconnection has several years of experience in setting monetary penalties and this experience should receive due consideration. In establishing

penalties, many factors including the size of the organization subject to compliance as well as the severity of the infraction and its bearing on electric system reliability have been considered.

Care must also be taken to ensure that the entities are clearly identified who are subject to the penalties. An example of potential confusion in this regard is a transmission path between two Balancing Authorities. If the path is operated in excess of its transfer capability limit, who is responsible for the penalty?

- The Balancing Authority at the path's sending end?
- The Balancing Authority at the path's receiving end?
- Both Balancing Authorities?

2) Promote consistency of penalties across reasonable geographic and electrical boundaries

Consistent penalties across all of North America may be too optimistic for practical consideration. As noted above there are differences between the three Interconnections that may well justify some differences in penalty structures. The important issue is determining what works best within each Interconnection. A blackout in the Eastern Interconnection will not physically propagate into the Western or ERCOT Interconnections and conversely a blackout in the Western Interconnection will not propagate into the other two Interconnections. However, a serious infraction in one portion of the Western Interconnection resulting in an adverse reliability impact could affect the entire Western Interconnection. Therefore, it is important that the penalties within each Interconnection's electrical boundaries promote consistent reliability performance within the Interconnection.

There may be cross-border issues that affect penalty structures. Care must be exercised to ensure that the penalties for noncompliance within Canada, the United States, and Mexico promote consistent reliability performance within the Interconnection.

3) Penalties should focus on proper performance to achieve reliability rather than being based on arbitrary reporting deadlines.

This issue addresses what is being measured by the standard to ensure that the focus is appropriately on reliable system performance rather than paper shuffling. An example which illustrates this point is the standard for vegetation management. Initially, the focus of the standard's measurements was on the timeliness of vegetation management reports. Eventually, after much debate this focus was changed to actual performance measures – the number of transmission outages caused by contact with vegetation.

Each standard as it is developed must be carefully reviewed to ensure that the measurements focus on reliable performance of the system. Timely reports are indeed necessary; however, reporting processes should not be confused with reliable operation of the electric system. Separate processes can be implemented to deal with reporting as has been done in WECC's RMS program.

- 4) The enforcement organization must be independent.

The enforcement organization is the organization that reviews the facts surrounding potential infractions, determines noncompliance, and collects the sanction payments. Respective Canadian and Mexican authorities may wish to establish enforcement organizations to assess noncompliance and collect penalties from the operating entities within their respective countries.

Independence of the enforcement organization is important to maintain the legitimacy and credibility of the program. The enforcement organization must not benefit or be harmed by findings of noncompliance to ensure that its decisions are based solely on the facts and not materially affected by the decision's outcome or improperly influenced in any way. Currently the WECC staff fulfills the role of the enforcement organization for the RMS program.

- 5) Ensure that instances of noncompliance are made known to the enforcement organization in a timely and accurate manner.

There are several ways in which the enforcement organization becomes aware of noncompliance. Examples include periodic routine data collection on a monthly basis, quarterly basis, or annual basis. Other examples include incident triggered reporting, self-certification, event analysis, compliance audits, readiness audits, etc. Each of these approaches may have their individual flaws; therefore, some overlap or redundancy in obtaining compliance information is useful.

As an example of a potential pitfall, if a certain set of infractions are to be reported on a quarterly basis only if a triggering event occurs, one cannot be certain that no report received means full compliance. Follow up is necessary to obtain a certified positive indication to verify that there were indeed no triggering events for the quarter. In addition, reporting must be periodically audited at random to ensure accuracy and validity of the reported information. Real-time system monitoring is also very useful.

- 6) Processes and procedures must be in place to ensure the timely payment of penalties once a final determination of noncompliance has been made and the appeals process has run its course

Establishing appropriate processes and procedures to ensure the timely payment of penalties is an area that should not be overlooked. Late fees and interest should be considered when sanction payments are not submitted on time. The RMS program includes processes and procedures for late sanction payments.

C. Disputed Noncompliance

Ensure that policies and procedures for reviewing disputed instances of noncompliance are appropriate and follow due process.

Checks and balances should be in place to review the findings of the enforcement organization when there is a dispute. Within the Western Interconnection experience has been gained in this area through administration of the RMS program and the lessons learned from this experience should be helpful in establishing appropriate checks and balances under the new legislated program.

The ERO will administer appeals for disputes that are not resolved within the Regional Entity's processes for U.S. entities. Canadian and Mexican authorities may wish to implement their own respective appeals processes.

D. Public Disclosure of Noncompliance

Ensure that policies and procedures for public disclosure of noncompliance are appropriate and utilize due process. Prior to such disclosure, policies and procedures must be in place to maintain confidentiality of the information.

There should be no public disclosure of noncompliance until a final determination has been made following due process and any appeals or disputes have been resolved. Premature public disclosure of noncompliance could have an adverse commercial impact on the entity who is wrongly accused if the information is subsequently found to be in error.

Critical energy infrastructure information should never be publicly disclosed.

E. Audits

The WIRAB should review and provide input regarding the various audit processes that are implemented. Consideration should be given to WIRAB participation in the audits. Such audits include readiness and compliance audits of operating entities, Regional Entity (WECC) audits, and ERO audits.

As noted above, audits are important in maintaining the legitimacy and credibility of the compliance/enforcement program. Participation by WIRAB representatives would add an additional perspective and provide an opportunity for WIRAB to suggest changes to improve the program.

Participation in the audits would also help WIRAB oversee performance of the compliance/enforcement program and develop information needed to fulfill its responsibility in providing advice to the Regional Entity, ERO, or the Commission.

IV. Reliability Coordination Centers

A. Performance of Reliability Coordinators

WECC is in the process of conducting a Reliability Center Strategic Planning Initiative and has identified some weaknesses in how the centers are currently operated. In performing their responsibilities the three WECC centers currently are using different data, different tools, and have a mixture of reporting/organizational relationships. In addition, the centers do not model the entire Western Interconnection. Most, if not all, of these weaknesses will not meet NERC standards. The strategic planning initiative identifies possible solutions to these issues. In addition to remaining abreast of WECC's strategic planning initiative with respect to the Reliability Centers, the following are suggested for ongoing review by WIRAB:

- 1) Reliability Coordinator performance must be closely monitored to ensure directives are issued when required and that appropriate actions are taken by operating entities in response to the directives.

RC directives are driven by the need to operate the system in accordance with the standards. Information and experience gained by WIRAB in reviewing reports regarding RC directives and the responses to the directives will help WIRAB formulate advice regarding whether the standards are just, reasonable, not unduly discriminatory or preferential, and in the public interest.

WECC is monitoring Reliability Coordinator (RC) performance and providing information regarding RC directives to the Reliability Policy Issues Committee of WECC and periodically to the WECC Board. In addition, information regarding the responses of those on the receiving end of RC directives is included. WIRAB should remain abreast of this monitoring and provide input as deemed appropriate. For example, do the directives appear to be appropriate? Do there seem to be an excessive number of directives? Are the responses to the directives timely and appropriate?

- 2) Reliability Coordinators must have the necessary training and tools to perform their intended functions.

RCs provide a vital function in maintaining the reliability of the interconnected electric system. There are three Reliability Coordination

Centers in the Western Interconnection providing reliability oversight to the Balancing Authorities and operating entities in the Northwest, Rocky Mountain – Desert Southwest, and California – Mexico areas of the Western Interconnection. To accomplish their reliability mission, the RCs must have the necessary personnel, tools, training, and facilities. A considerable portion of the WECC budget is devoted to funding the Reliability Coordination Centers.

Considering the importance of the RCs in maintaining reliability, WECC's strategic planning initiative regarding the Reliability Centers to address training and tools is deserving of WIRAB's ongoing attention.

3) Reliability Coordinators must receive necessary funding

Although funding is not the focus of this paper, it is important to note the necessity for adequate RC funding due to their significance to interconnected electric system reliability. Some believe that RC funding qualifies for statutory funding under the ERO while others believe that the RC function is non-statutory and should be funded outside the ERO. Regardless of where the RC function falls, it is very important that the necessary funding is provided to enable the RCs to meet their responsibilities in helping to preserve reliability.

V. WIRAB Review

A. Review periodic reports regarding compliance/readiness assessments and provide advice to the Regional Entity, ERO, or Commission

Information from reports regarding compliance/readiness assessments contain information identifying how well or how poorly entities are doing in their efforts to comply with the standards. These reports are prepared by the Regional Entity or the ERO routinely. Balancing Authorities and Reliability Coordination Centers receive readiness audits at least once every three years. Other operating entities may receive readiness audits less frequently. Compliance audits are conducted on a similar time schedule. The Regional Entity is audited once every three years to evaluate its compliance program implementation.

Since these reports include information relating the entities' performance with respect to the standards, the information has direct bearing on the WIRAB's charge to provide advice to the Regional Entity, ERO, or Commission as to whether the standards are just, reasonable, not unduly discriminatory or preferential, and in the public interest.

B. Review periodic reliability assessments and provide advice to the Regional Entity, ERO, or Commission

Long term reliability assessments are conducted annually and seasonal

assessments are conducted prior to each summer and winter operating season. Special assessments may be conducted on a regional or Interconnection-wide basis as needed. Members of WECC participate in the preparation of these assessments and review and comment on the assessments before they are made final.

The assessments may include recommendations for new or modified standards and will very likely contain information that has bearing on the WIRAB's charge to provide advice to the Regional Entity, ERO, or Commission as to whether the standards are just, reasonable, not unduly discriminatory or preferential, and in the public interest.

- C. Review reports regarding disturbances and other significant system events and provide advice to the Regional Entity, ERO, or Commission

These reports typically assess performance with respect to existing standards and include recommendations for new or modified standards. The reports are prepared by the Regional Entity or the ERO following the occurrence of a disturbance or event that is significant enough to warrant analysis and documentation. Since the reports analyze performance relative to the requirements of the standards, this information will be very useful regarding the WIRAB's charge to provide advice to the Regional Entity, ERO, or Commission as to whether the standards are just, reasonable, not unduly discriminatory or preferential, and in the public interest.

- D. Review and provide advice regarding cross border issues to the Regional Entity, ERO, or Commission

WECC is meeting with Canadian authorities to discuss issues pertaining to responsibilities and authorities for establishing a reliability framework in Alberta and British Columbia. Representatives from WIRAB should consider being a part of or at least remaining abreast of these discussions.