

**RC to RC coordination in the Western Interconnection
Meeting June 20 – June 21, 2018
Location: Tri-State Generation and Transmission Association, Inc.
Denver, CO**

Participants: Representatives from Alberta Electric System Operator (AESO) California Independent System Operator (CAISO), Peak Reliability (Peak), Southwest Power Pool (SPP), British Columbia Hydro (BCH), North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC)

Introduction: Participants conducted a second meeting to continue discussions on topics relevant to the reliability of the western interconnection as it relates to the proposed restructuring of reliability coordinator functions in the United States. The notes provide a summary of the discussion over the two days of meetings.

RC Services Timeline

Each prospective RC entity provided an update on their timelines for providing RC services.

1. SPP has submitted their certification request to WECC as of June 21, 2018 for a Go-live date of December 31, 2019. On site certification is anticipated in August 2019. Shadow operations conducted two to three months prior to Go-Live
2. CAISO working with WECC to determine on-site ISO BA area certification date in February / March 2019. Shadow operations anticipated to start May 2019 for a July 1, 2019 Go-Live. Certification review anticipated to start mid-summer 2019 for extended RC service area based on entities who elect CAISO RC services starting September 2019.
3. Peak has published a budget for two options 1) transitional RC 2) wind down. The joint RC meetings are only focusing on the option 1. A certification review will occur once RC service area is known.
4. BC Hydro is also considering becoming an RC for their BA service area. Decision will be made in three to four months.
5. WECC has requested its members to provide an informal decision on RC service provider by September 4, 2018

WECC SAR for IRO-002-5 R5 Regional Variance

1. On June 21, the WECC Standards Committee approved the WECC Standard Authorization Request (SAR) for Regional Variance (RV) to IRO-002-5 R5 (WECC-0135 Project). The Regional Variance if adopted would require the use of a single, common model covering the Western Interconnection and would require each RC within the Western Interconnection to:
 - a. Model the entire Interconnection as part of its monitoring and identification processes; and
 - b. Include specific types of Remedial Action Scheme (RAS) in its processes
2. A common understanding and interpretation of RV requirements are critical to successful implementation.

3. WECC has requested AESO, SPP, CAISO and Peak to participate in the Regional Variance drafting process.

Operations Planning Update

An Operations Planning work group was formed to work through operational details in each of the diverse category outlined in the May meeting notes. Work group updates to the key Operational Planning topics include:

1. SOL Methodology:
 - a. The underlying principle remains for a high degree of consistency among the multiple methodologies at the interconnection level. However, regional differences exist and should be identified and address within specific RC methodologies. The work group will review the various RC SOL methodologies for these regional differences. The expectation for final methodologies to be communicated and coordinated clearly between neighboring RCs.
2. Seasonal coordination:
 - a. Although NERC has retired the requirement to perform seasonal assessments, conducting reliability assessments remains a best practice. Peak recently revised its seasonal coordination process providing flexibility to perform studies that add reliability benefit.
 - b. The work group will review the revised Peak seasonal coordination process and suggest modifications that are applicable for a multiple RC environment.
3. Operational Planning analyses:

The work group focused on data exchange required to perform a comprehensive OPA for each RC's area of responsibility.

 - a. Each RC must send/receive data from their area BAs and TOPs to be compliant with NERC standards. In Addition, each RC should have the ability to demonstrate its compliance to NERC Reliability Standard without reliance on other RCs.
 - i. Peak believes that Inefficiencies may be created with this approach. For example, Operational Planning Analyses (OPA) will now be posted/made available by each RC in a manner chosen by each RC. Today all OPAs are posted on a single location on Peakrc.org. There are ways to manage the compliance risk without completely dropping existing efficiencies.
 - ii. The group discussed potential solutions to automatically synchronize OPA that allow automatic upload/download information between RC
4. Date exchange near term approach (mid 2019-2020)
 - a. Outage Data
 - i. Peak will be repository for all outage data utilizing the Peak COS as the clearing house for Western Interconnection.
 - ii. Each RC will receive outage data from its BAs/TOPs and upload it to Peak COS.
 - iii. Conversely, each RC will download outage data for other RCs via Peak COS;
 - iv. BA/TOP who want outage data for a BA/TOP that is outside its RC service area, can download directly from COS or will need to go through its own RC to receive such data
 - b. Two new outage states will be introduced in COS for external RC outages: Pre-approved and Approved

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- c. Outage data should be mapped to Network Models. Costs for mapping needs to be acceptable to all the RCs and potential for mistakes minimized
 - d. Load and Generation
 - i. Peak will be repository and data clearing house for all load/generation forecast for Western Interconnection.
 - ii. Each RC will receive load/generation data from its BAs and upload it to Peak via EIDE protocol.
 - iii. Each RC will receive load/generation forecast data for other RCs via Peak Secured FTP;
 - iv. BA/TOP who want load/forecast data for a BA that is outside its RC service area it will need to go through its own RC.
 - e. Exchange of study results (mid 2019 – 2020)
 - i. Each RC will host their own SharePoint site or some equivalent to post / retrieve documents for their respective service areas
 - ii. Each RC will provide SharePoint access to other RCs to retrieve study results.
 - iii. The potential to automatically synchronizing operating plans by sending/receiving documents across the different RC SharePoint sites is being explored.
5. Long Term data exchange plan – beyond 2020
- a. The team will explore the transition to a centralized data exchange

Operations Coordination Update

The Operations Coordination discussions focused on the areas of IROL, stability limit, RAS, USF coordination, and external system modeling.

1. Shadow operations prior to go live
 - a. CAISO and SPP both plan to shadow Peak in preparation for their organizations taking on the RC function.
 - b. CAISO and SPP to document their needs and expectations of shadow operations for coordination and planning with all RCs.
2. IROL Coordination
 - a. CAISO has utilized Peak IROL methodology as it develops the SOL/IROL methodology for its RC service area. CAISO will communicate and coordinate the IROL calculations and plans with other RCs. Continuing the same approach with Operating procedures in place today for both Peak and CAISO.
 - b. As of July 1, 2019, CAISO will continue to monitor San Diego and San Diego / CENACE and Victorville-Lugo IROLs within the CAISO RC service area.
 - c. Note: NW Net Export IROL is not expected in the CAISO RC service area on July 1, 2019, however coordination will continue between CAISO and Peak to manage the IROL.
3. Stability Limit Coordination
 - a. Discussion of options to capture, document and maintain stability SOLs, interface limits and seasonal updates.
4. RAS Coordination
 - a. Continue to use the WECC RASRS process to coordinate RAS in the Western Interconnection.
 - b. TOPs/BAs are required to provide RAS data to RCs per each RCs IRO-010-2 data request.

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- c. Detailed RAS data exchange is currently shared between TOPs and the RC via IRO-10 data request. In some cases Peak models non-RAS automated actions based on potential impact to OPA and RTA quality.
 - d. Question to WECC as to the requirement for TOPs to share detailed RAS information with RC whom they are not taking RC services. This discussion will continue as part of the WECC Regional Variance SAR
5. UFMP Coordination
- a. As of July 1, 2019, CAISO will be responsible for UFMP on the COI. Peak will continue to coordinate phase shifter operations within its RC service area.

Wide Area Tools Update

Discussions associated with some of those tools include the following:

1. The Enhanced Curtailment Calculator (ECC) – Continued focus for all RC to meet the needs of IRO-006-WECC-2 actions related to qualified paths. To accommodate multiple RCs, changes are required to the ECC. Peak is currently working with the vendor on technical requirement and cost. Once known, RCs will determine approach for sharing upgrade costs.
 - a. Current ECC upgrade priorities 1) support of multiple RC configuration with an emphasis on IRO-006-WECC-2, R1, 2) Final state mitigation, 3) additional future hour situational awareness
 - b. Note: Alberta does not use the ECC because of AESO’s radial system; may not be part of the agreement or sharing of the costs.
 - c. Process for review and approval of ECC upgrades will need to be determined. Currently, this role is an informal part of the ECC work group and may need to be formalized in the future.
2. WECC Interchange Tool (WIT) – Each RC will continue to support the use the current WIT functionality for all of the BAs in the Western Interconnection. Peak is working with the vendor to evaluate modifications that are needed to support multiple RCs.
3. Messaging – RCIS will be used to communicate RC to RC messaging
 - a. CAISO will utilize a vendor based tool for their internal RC service area messaging functionality.
 - b. SPP is developing an independent messaging tool for their internal RC service area
 - c. Peak continued to advocate for a common messaging tool for all RCs, TOPs and BAs.
 - d. CAISO to lead messaging team; identification of risks will be part of the team’s efforts. The team will include Operations personnel to define messaging requirements.
 - i. The Messaging team will be comprised of Operational and Technical staff from CAISO, SPP, ASEO and Peak. The Technical members will design API functionality for messaging system interfaces, the Operational members address process.
 - ii. TOPs hosting multiple BAs in different RC areas and in multiple regions (WECC MRO and SPP) may have challenges due multiple tools, although this scenario exists today, the RCs will consider this when designing a message sharing process.

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4. Synchrophasor Technology – work group formed to discuss the future of the Synchrophasor tools and PMU registry and how they will be used by multiple RCs. The team will leverage the SMART group and RC participants for feedback and discussion.

Technology and Data Sharing Update

1. Networks
 - a. WISP WAN (Harris network) replacement
 - i. Peak moving forward with WISP WAN replacement, which is necessary because Harris is no longer providing network service as of July 1, 2019.
 - ii. Plan to be presented at July WECC DEMSWG meeting
 - iii. Contract extension with Harris will be evaluated
 - b. Will continue to evaluate option of moving network ownership to consortium

Modeling Update

1. Near term
 - a. Peak will continue to maintain the WSM updating on an approximate five week schedule. The updated model will be posted on peakrc.org for other entities.
 - b. Peak will provide a list of model updates. External entities will each develop their process and timeline up syncing WSM model updates.
2. Long term
 - a. Goal is to develop a long term process to maintain the WSM as it provides situational awareness and is the platform for advanced application and the ECC tool.
 - i. Each RC will have the ability to adapt the WSM for its unique needs.
3. AESO does not model entire Western Interconnection but updates their reduced model as needed with the periodic WECC-wide model updates from Peak

Governance and Funding

Governance and Funding is related to how common tools and services will be managed and funded. General agreement across all of the RCs is that for the long term some type of consortium could be established in 2020 or shortly thereafter to support these tools. Detailed discussions of a consortium design or implementation is being deferred to this fall after it is known which RCs will be providing services in the West beginning in 2020.

Other

1. RC to RC Work groups will continue to meet and discuss details in each of these topic areas.
2. A face to face meeting is scheduled for October in Denver.
3. The RC to RC Team is continuing to better defining “seams” and “seams management” in the context of multiple RCs. This appears to be the main concern for us and we want to be clear in what is meant and what issues are going to be addressed.

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