RC West Oversight Committee

Public Session
May 25, 2023
1:00pm-2:30pm Pacific Time
Housekeeping Reminders

• This call is being recorded for informational and convenience purposes only. Please request permission from RC West before reprinting any related transcriptions.

• Materials related to the RC West Oversight Committee are available on www.caiso.com / Stay Informed / RC West.
Instructions for raising your hand to ask a question

• If you are connected to audio through your computer or used the “call me” option, select the raise hand icon 🧑‍🤝‍🧑 located at the bottom of your screen. **Note:** #2 only works if you dialed into the meeting.
  – Please remember to state your name and affiliation before making your comment.

• If you need technical assistance during the meeting, please send a chat to the event producer.

• You may also send your question via chat to either Yelena Kopylov-Alford or to all panelists.
<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00 - 1:02</td>
<td>Welcome/agenda</td>
<td>Yelena Kopylov-Alford</td>
</tr>
<tr>
<td>1:02 – 1:05</td>
<td>Roll call</td>
<td>Chris Hofmann</td>
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<tr>
<td>1:05-1:10</td>
<td>Oversight Committee Business</td>
<td>Chris Hofmann, Christopher Sanford</td>
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<tr>
<td>1:10- 1:40</td>
<td><strong>RC West Operations Update</strong></td>
<td>John Phipps, Tim Beach, Kathleen Fernandez, Kendall Parra, Raja Shekar Thappetaobula</td>
</tr>
<tr>
<td>1:40 – 2:20</td>
<td><strong>Working Group Updates</strong></td>
<td>Raja Shekar Thappetaobula, Tricia Johnstone, Raja Shekar Thappetaobula</td>
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<tr>
<td>2:20 – 2:25</td>
<td><strong>Future agenda items</strong></td>
<td>Yelena Kopylov-Alford</td>
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<tr>
<td>2:25</td>
<td><strong>Public Comment</strong></td>
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<tr>
<td>2:30</td>
<td><strong>Public Session Adjourned</strong></td>
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Committee Member Roll Call

Chris Hofmann
Committee Chair
Oversight Committee Business

Chris Hofmann
Committee Chair

Christopher Sanford
Vice Chair
Update: RC West Operations

Tim Beach
Kathleen Fernandez
Samson Adigun
RC West Operations Update

- **Feb 24th- May 15th,**
  - 20 - forced outages on 345/500kV equipment outages
  - 6 - GMD warnings
  - 21- Frequency Trigger Level events (FTL), most due to system wide under generation
  - WECC 1 RAS Annual testing competed
  - Coordinated Energy Assistance for BA, avoided an EEA

- **May 1st-** Grid Force new RC West customer, single bus connection at PNM/Janja

- **May 23rd held Summer Readiness Meeting/Webinar

- **Annual Interconnection Reliability Operating Limit (IROL) training**
## RC West Operations Update – EEA

<table>
<thead>
<tr>
<th>Energy Emergency Alert</th>
<th>2023</th>
<th>2022</th>
<th>2021</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEA - W</td>
<td>9</td>
<td>4</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>EEA - 1</td>
<td>1</td>
<td>19</td>
<td>7</td>
<td>26</td>
</tr>
<tr>
<td>EEA - 2</td>
<td></td>
<td>7</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>EEA - 3</td>
<td>2</td>
<td>7</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2</td>
<td>42</td>
<td>17</td>
<td>47</td>
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</tbody>
</table>

32 EEA’s occurred during the heat wave 9/1-9/9/2022

New Historical Peak Load Sept 6th 2023, HE18

- RC West Historical Peak 130,985 MW
- WECC Historical Peak 167,530 MW
Recently Published Procedures:

<table>
<thead>
<tr>
<th>RC Proc. #</th>
<th>Procedure Title</th>
<th>Status</th>
<th>Description of changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC9000</td>
<td>Open Loop Guideline</td>
<td>2/23/2023</td>
<td>Clarifications to Section 3.3.2.1 regarding operating limit for Path 66, when one contingency away from Open Loop, and monitoring for potential insecure operating state.</td>
</tr>
<tr>
<td>RC9330</td>
<td>NWMT Path 80 Operating Guide</td>
<td>3/3/2023</td>
<td>Section 4: Clarified actions and steps for curtailing NWMT schedules and TTC to mitigate congestion on Path 80. Included mitigation steps such as use of other PSTs to control USF flows, evaluating USF on other paths, and evaluating the impact of opening Path 80, prior to load shedding. Added AESO RC as impacted party. Updated NERC Requirements under References section. Updated Frequency to “Annual”. Minor format and grammar edits. Changes approved by all impacted entities.</td>
</tr>
<tr>
<td>RC9210</td>
<td>Path 3 (Northwest - British Columbia)</td>
<td>3/9/2023</td>
<td>Annual Review: Minor formatting and grammar edits only.</td>
</tr>
<tr>
<td>RC0120</td>
<td>Guidelines for RC West IRO-010 Data Specification and Collection</td>
<td>4/1/2023</td>
<td>Annual Review: Updated references to IRO-010-4. Added to data request 5.1 for coverage of IRO-010-4 R1.3.1. Section 3.1.6.11 – defined RDFID. Section 3.6.6.3: Updated from “RC-EIM” to “RC-WEIM”. Minor grammar and punctuation edits.</td>
</tr>
<tr>
<td>RC0120A</td>
<td>RC West IRO-010 Data Specification</td>
<td>4/1/2023</td>
<td>Added data request 6.8.2 from discussions with DEWG on 9/7/22 and Joint Cold Weather Task Force. Updated NERC Standard EOP-011 reference. Updated remaining instances of ISO and CISO to CAISO, and minor format and grammar edits.</td>
</tr>
<tr>
<td>RC0120C</td>
<td>ICCP or PMU Data Request Procedure</td>
<td>4/1/2023</td>
<td>Annual Review: Updated NERC Requirements under References section.</td>
</tr>
<tr>
<td>RC0120B</td>
<td>RC West IRO-010 Data Specification for Adjacent RCs</td>
<td>4/5/2023</td>
<td>Annual Review: Added RC-5.17 and RC-5.18 for items communicated in real-time via webOMS that were previously listed in RC0130. Added exceptions to data requests in coordination with EPE and WALC.</td>
</tr>
</tbody>
</table>
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<tr>
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<tbody>
<tr>
<td>RC0410</td>
<td>System Emergencies</td>
<td>4/1/2023</td>
<td>Annual Review: Updated references of EOP-011; minor formatting and grammar updates.</td>
</tr>
<tr>
<td>RC0410B</td>
<td>Transmission Emergencies Due to Wildfire</td>
<td>4/1/2023</td>
<td>Annual Review: No changes.</td>
</tr>
<tr>
<td>RC0330B</td>
<td>Contingency Monitored for Neighboring RC Area</td>
<td>4/20/2023</td>
<td>Annual Review: No changes.</td>
</tr>
<tr>
<td>RC0670A</td>
<td>PRC-002-2 RC West DDR List</td>
<td>4/20/2023</td>
<td>Appendix I: Removed Luna Unit 3, as requested by PNM.</td>
</tr>
</tbody>
</table>
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<thead>
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</tr>
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</table>
| RC9110      | NW Washington Area Import IROL                                                   | 5/1/2023  | Annual Review:
|             | Section 3: Added overarching WEIM Language.                                      |           | Sections 4.1, 4.2, and 4.3: Added note to determine if security constrained market re-dispatch would increase margins.                             |
|             | Section 5: Added note to determine if security constrained market re-dispatch would mitigate IROL. |           | Appendix B: Updated Centralia to reflect one unit, since a unit had retired in 2020.                                                                  |
| RC0100A     | RC Desk Area of Responsibility                                                   | 5/4/2023  | Updated Figure 1 to show new RC North and RC South Boundaries.                                                                                      |
| RC0310A     | Stability SOLs and Areas with Risk of Localized Voltage Collapse                | 5/4/2023  | Section 1.1: Changed Path 49 to Path 46 under CASI, per APS request.                                                                                   |
| RC9550      | Monitoring Heavy E-W Flows on SWPL, HANG2, SRPL, and Parallel Transmission       | 5/4/2023  | Section 5.1: Updated 2nd bullet to include SCE and SDGE.                                                                                              |
|             | Section 5.2: Updated last bullet from “…APS to update Path 49…” to “… applicable TOPs to adjust their…” (Per APS request). |           |                                                                                                                                                     |
### Upcoming Procedure Changes:

<table>
<thead>
<tr>
<th>RC Proc. #</th>
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</thead>
<tbody>
<tr>
<td>RC0140</td>
<td>Guidelines for Sending Messages Across RC Seams</td>
<td>Target Publish 6/01</td>
<td>Replaced “all Western Connection” with “RC West” in Operationally Affected Parties. Updated instances of BC Hydro RC to BCRC.</td>
</tr>
<tr>
<td>RC0460</td>
<td>Reliability Coordinator Area Restoration Plan</td>
<td>Target Publish 6/01</td>
<td>Annual Review: Minor edit in Section 3.8.1, added “or with neighboring RCs,”</td>
</tr>
<tr>
<td>RC0460A</td>
<td>Restoration Principles</td>
<td>Target Publish 6/01</td>
<td>Annual Review: Very minor edit in Operationally Affected Parties, no content changes.</td>
</tr>
<tr>
<td>RC0460B</td>
<td>Whole or Partial Transmission System Islanding Restoration Checklist</td>
<td>Target Publish 6/01</td>
<td>Annual Review: Minor edit under Operationally Affected Parties and minor formatting (No content changes).</td>
</tr>
<tr>
<td>RC0460C</td>
<td>Blackout Restoration Using Connection to Energized System Checklist</td>
<td>Target Publish 6/01</td>
<td>Annual Review: Minor edit under Operationally Affected Parties and minor formatting (No content changes).</td>
</tr>
<tr>
<td>RC0460D</td>
<td>Blackout Restoration Energizing a De-energized System Checklist</td>
<td>Target Publish 6/01</td>
<td>Annual Review: Minor edit under Operationally Affected Parties and minor formatting (No content changes).</td>
</tr>
<tr>
<td>RC0460E</td>
<td>Synchronization Checklist</td>
<td>Target Publish 6/01</td>
<td>Annual Review: Minor edit under Operationally Affected Parties (No content changes).</td>
</tr>
<tr>
<td>RC0460F</td>
<td>EOP-005 Plan Review Checklist</td>
<td>Target Publish 6/01</td>
<td>Annual Review: No changes.</td>
</tr>
<tr>
<td>RC0560</td>
<td>Limiting Access to BES Cyber Assets</td>
<td>Target Publish 6/01</td>
<td>Removal of ERC references and replace with JIC.</td>
</tr>
<tr>
<td>RC9030</td>
<td>Mitigating Forced and Inter-area Oscillations – Internal Coordination</td>
<td>Internal Target Publish 7/01</td>
<td>Major Update and reorganization: Added Background section to provide clarity on the different type of oscillations observed in the grid and how to distinguish between these different types of oscillations so that appropriate mitigation actions can be taken. Added subsection on taking actions for AGC related low frequency oscillations having frequencies less than 0.1 Hz that may not be detected by the ODM tool.</td>
</tr>
<tr>
<td>RC9560</td>
<td>SDG&amp;E/CENACE Import Operational Guide</td>
<td>Target Publish 6/01</td>
<td>Periodic Review: Minor formatting and grammar edits and updated CAISO Contact.</td>
</tr>
</tbody>
</table>
• Residual Errors for line MW flow observed on 500kV, 345kV, 230kV, and less than 230kV lines

• *Note: Though the measurements in anomaly are not used by SE in estimating the solution, the count of anomalies provide opportunity of reducing them.*
• Count of Real-Time Contingency Analysis (RTCA) non-converged contingencies in five-minute intervals
• *Note: Over 10,000 contingencies are solved in every RTCA solution*
Day Ahead Contingency Analysis (DACA) tool is designed to identify potential contingencies in the day ahead timeframe.
• Count of Customer Inquiry and Dispute Information (CIDI) tickets of the RC Inquiry case record type
• The number of opened cases will not change each time the data is pulled, but the other numbers can change as there are still cases opened from a prior month that haven’t been closed.
• Current issue with CAISO support calculation expected to be resolved next quarter
Working Group Updates
FERC 881 Ambient Adjusted Rating & Dynamic Line Ratings

Raja Thappetaobula
Director, Operations Engineering Services
FERC Order No. 881 Initiative Update

• ISO initiated a public stakeholder process
  • Quarterly initiative updates
  • Data submission working group
  • Methodology Working group
• Three proposed tracks to develop our tools and processes to meet compliance requirements by 7/12/2025
  • **Track 1: Real Time Reliability Applications**
    • **in progress; target 2023/2024**
  • Track 2: Operational/EMS Model Data and Applications
    • target 2023/2024
  • Track 3: Market Applications and Look Ahead Applications
    • target fall 2025
FERC Order No. 881 Initiative Update

• FERC Order 881 requires at minimum utilization of 4 seasonal ratings.
  • ISO PTOs will need to follow the ISO transmission registry process to utilize 4 seasonal ratings.
  • RC West TOPs will need to follow the RC West IRO-010 data specification process to utilize 4 seasonal ratings.

• Real time AAR from both ISO PTOs and RC West TOPs will be acquired through Inter-Control Center Communications Protocol (ICCP) protocol.

• New interface to acquire look ahead Ambient adjusted ratings (240 hours).
FERC Order No. 881 Initiative Update

- CAISO/RCWEST has posted the technical white paper that documents our efforts related to the process/tools implementation timelines for Order No. 881 compliance.

- The paper is available on CAISO initiative page.

- Link for initiative page. initiative webpage
• Feedback aligns with our goal of achieving alignment between TO’s on transmission line rating methodologies and alignment of seasons definitions.

• More clarification needed on rating validation checks.
Status update on Methodology Working Group

• Good discussion surrounding Ambient adjusted rating exceptions.

• The applicable facility rating shall equal to the most limiting applicable equipment rating of the individual equipment that comprises the facility as per NERC FAC-008 standard.

• Terminal equipment includes all other series equipment that must be considered in rating and completing an electrical circuit including breakers, cables, switches, current transformers, jumpers, wave traps, switches.

• Operating conditions can affect facility ratings.
Status update on Methodology Working Group

- For operating limitations due to equipment failure or malfunction, temporary facility ratings could be established.

- Line flow on a transmission line could be limited due to local/regional voltage stability or transient stability. In those instances the rating of the equipment is not thermally limited.

- We expect TOP to identify these exceptions in the transmission line rating methodology and communicate the exception list to CAISO/RCWEST.

- Discussion about tie line rating coordination and coordination on seasonal definitions coordination in upcoming WG meetings.
Status update on Data Submission Working Group

• Shared draft templates that will be utilized to receive real time AAR through ICCP.

• Draft Changes for RC procedures were also discussed.
Proposed Solution for Managing AAR

Proposed Solution – FERC 881 – Managing Transmission Line Rating (TLR)

TLR Hierarchy: Operator Override, ICCP, TR

6. Receive TLRs from TR
7. Publish active limits from EMS

6. Receive TLRs from TR
7. Publish active limits from EMS

6. Receive TLRs from TR
7. Use new TLRs in analysis

6. Receive TLRs from TR
7. Use new TLRs in CA & Market Run

6. Receive TLRs from TR
7. Use new TLRs in market run

6. Receive Seasonal TLRs

6. Load equipment attributes from network model
7. TLRs (Emergency AAR, Seasonal) from FNM

6. TLRs (Emergency AAR, Seasonal) from FNM
7. Equipment attributes from FNM

6. Equipment attributes from FNM
7. TOP

TOP

TOP/RTOs

CMRI

Market Run TLR

Real Time TLR

Validation = Normal, 4 Emer, HER in asc order

Validation = Normal, 4 Emer, HER in asc order

TLR Hierarchy: EMS, TR

TTR Hierarchy: Operator Override, ICCP, TR
Proposed Solution for Managing AAR

– New user interface to submit and/or retrieve Transmission Line Ratings
– New web services interface to programmatically submit and/or retrieve ratings
– Data validations, including reasonability checks, will be enforced
– Standard certificate-based authorization and authentication protocol
NERC Alert 3 – Cold Weather Task Force

Tricia Johnstone
Director, Operational Readiness
Cold/ Extreme Weather updates effective 4/1/2023

- EOP-011-2 additions
  - TOP and BA Operating Plan(s) shall include provisions to determine reliability impacts of: cold weather and extreme weather conditions
  - Each Generator Owner shall implement and maintain one or more cold weather preparedness plan(s) for its generating units

- TOP-003-5 and IRO-010-4 additions
  - TOP, BA and RC data specification collection of generator cold weather limitations and include provisions for notification of BES generating unit(s) status during local forecasted cold weather
Leveraged RC West Emergency Preparation & Power System Restoration Working Group to form a Task Force

- Task force members:
  - APS, BPA, CAISO, CHPD, HHWP, IID, LST, NWMT, PGE, Redding, SRP, SCE
  - WECC
  - Chair and Vice Chair from WECC Generator Operator Working Group (GOWG)

- Presented at WECC GOWG, WICF Generator Forum and [WECC Winter Weather Readiness Workshop](http://wecc.org)
Standards Drafting Work still in progress

• Project 2021-07 Extreme Cold Weather Grid Operations, Preparedness, and Coordination
  – EOP-011-4 – Emergency Operations
    • Adding DP and TO applicability
    • Adding natural gas infrastructure requirements
    • New BA requirement – Cold Weather Operating Process
  – Expecting more for EOP-012 - Extreme Cold Weather Preparedness and Operations (applicable to GO, GOP functions)

• NERC Alerts
  – Level 1 – Industry Advisory issued 2/13/23
  – Level 3 – Industry Essential Actions issued 5/15/23
NERC Alert Level 3 – 8 essential actions

1. GO – Extreme Cold Weather Temperature (ECWT) calculation
2. GO – EOP-011 R7 – add critical components to plan
3. GO – identify which resources need additional freeze protection measures, is it possible by winter 2023-2024?
4. GO – identify which resources experienced ECW event winter 2022 – 2023
NERC Alert Level 3 – 8 essential actions

5. TOP – potential updates to EOP-011 plans
6. BA – potential updates to EOP-011 plans
7. Per Essential Actions #1 and #2, each GO should provide its RC, BA, and TOP the ECWT for its location prior to the next winter season and whether Generator Cold Weather Critical Component freeze protection measures will not be implemented on components prior to the 2023–2024 winter season.
8. Per the questions below on net winter capacity Megawatts (MW), each GO should share their responses with their respective BAs and TOPs to allow for updates to any operating plans before the 2023–2024 winter season
Key considerations for CAISO BA - Winter 2023-24

- Leverage gas-electric coordination data and experience
- Improve DP and TO coordination
- Many processes are focused on summer loads and extreme heat events
- Consider adapting Playbook and Reports to events throughout the year
FAC-011,FAC-014,IRO-008 Upcoming Standard Changes

• Upcoming standard changes effective 4/1/2024 requires RCWEST to update RC SOL methodology.

• Standards help to provide clarity by requiring a performance framework for determining SOL exceedances in SOL methodology.

• RCWEST created a joint RTWG/OPWG SOL methodology 2024 task force to agree on the SOL methodology changes and process changes and procedural changes.

• Licheng Jin is representing RCWEST at the taskforce meetings and coordinate the SOL methodology and process changes.
Future Agenda Items

• The next RC West Oversight Committee meeting is scheduled for August 24; visit [RC West webpage](#) for additional details
• Send topic suggestions to [isorc@caiso.com](mailto:isorc@caiso.com).
Open for Public Comments
Public Session Adjourned