

RC West Oversight Committee

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

Page 1

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 <u>www.caiso.com</u> / 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.



Agenda

Time:	Торіс:	Presenter:
1:00 - 1:02	Welcome/agenda	Yelena Kopylov-Alford
1:02 – 1:05	Roll call	Chris Hofmann
1:05-1:10	Oversight Committee Business	Chris Hofmann Christopher Sanford
1:10- 1:40	RC West Operations Update	
	• Welcome	John Phipps
	General operations	Tim Beach
	Procedures update	Kathleen Fernandez
	RC metrics update	Kendall Parra/ RajaShekar Thappetaobula
1:40 – 2:20	Working Group Updates	
	FERC 881 Update	RajaShekar Thappetaobula
	Cold Weather NERC Alert 3 Discussion	Tricia Johnstone
	SOL Methodology Changes for 2024	RajaShekar Thappetaobula
2:20 – 2:25	Future agenda items	
	Calendar of Meetings for 2023	Yelena Kopylov-Alford
2:25	Public Comment	
2:30	Public Session Adjourned	

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/Janpa
- May 23rd held Summer Readiness Meeting/Webinar
- Annual Interconnection Reliability Operating Limit
 (IROL) training

RC West Operations Update – EEA

Energy Emergency Alert	2023	2022	2021	2020
EEA - W		9	4	NA
EEA - 1	1	19	7	26
EEA - 2		7	3	9
EEA - 3	2	7	3	12
Total	2	42	17	47

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

California ISO RC West

ISO Public

Procedures Update

Recently Published Procedures:

Procedure Title	Status	Description of changes
Open Loop Guideline	2/23/2023	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.
EOP-011 Plan Review Checklist	3/1/2023	Annual Review: Updated references of EOP-011-1 to EOP-011-2 (Effective 4/01/23). Minor format and grammar updates.
NWMT Path 80 Operating Guide	3/3/2023	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.
Path 3 (Northwest - British Columbia)	3/9/2023	Annual Review: Minor formatting and grammar edits only.
Guidelines for RC West IRO- 010 Data Specification and Collection	4/1/2023	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.
RC West IRO-010 Data Specification	4/1/2023	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.
ICCP or PMU Data Request Procedure	4/1/2023	Annual Review: Updated NERC Requirements under References section.
RC West IRO-010 Data Specification for Adjacent RCs	4/5/2023	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.
	EOP-011 Plan Review Checklist NWMT Path 80 Operating Guide Path 3 (Northwest - British Columbia) Guidelines for RC West IRO- D10 Data Specification and Collection RC West IRO-010 Data Specification CCP or PMU Data Request Procedure RC West IRO-010 Data	EOP-011 Plan Review Checklist3/1/2023Checklist3/3/2023NWMT Path 80 Operating Guide3/3/2023Path 3 (Northwest - British Columbia)3/9/2023Guidelines for RC West IRO- D10 Data Specification and Collection4/1/2023RC West IRO-010 Data Specification4/1/2023RC West IRO-010 Data Procedure RC West IRO-010 Data4/5/2023

Procedures Update - continued

Recently Published Procedures:

RC Proc. #	Procedure Title	Status Description of changes
<u>RC0410</u>	System Emergencies	4/1/2023 Annual Review: Updated references of EOP-011; minor formatting and grammar updates.
<u>RC0410B</u>	Transmission Emergencies Due to Wildfire	4/1/2023 Annual Review: No changes.
<u>RC0330</u>	Coordination with Neighboring Reliability Coordinators	4/20/2023 Annual Review: Minor formatting and punctuation edits. References: Updated EOP-011 reference due to standard update.
<u>RC0330A</u>	List of Ties with Neighboring RCs	4/20/2023 Annual Review: Updated reference of Nevada Power Company (Nevada Energy) to NV Energy and minor formatting.
<u>RC0330B</u>	Contingency Monitored for Neighboring RC Area	4/20/2023 Annual Review: No changes.
<u>RC0330C</u>	SPP-RC West Pseudo-Tie Arrangement for Grady Wind Generation	4/20/2023 Annual Review: No changes.
<u>RC0670A</u>	PRC-002-2 RC West DDR List	4/20/2023 Appendix I: Removed Luna Unit 3, as requested by PNM.

Procedures Update - continued

Recently Published Procedures:

RC Proc. #	Procedure Title	Status	Description of changes
<u>RC9110</u>	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.
<u>RC West</u> <u>Coordination</u> <u>Plan</u>	RC West Coordination Plan	5/4/2023	Periodic Review: Updated Section 13.2 entity list sorting alphabetically, corrected dates, included year, and removed November 1 from section title. Updated procedure RC0630A title in Appendix D. Corrected effective date for version 5.1 in Version History. Updated Appendix C - RC West Reliability Area Map.
<u>RC0100A</u>	RC Desk Area of Responsibility	5/4/2023	Updated Figure 1 to show new RC North and RC South Boundaries.
<u>RC0310A</u>	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.
<u>RC9550</u>	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).

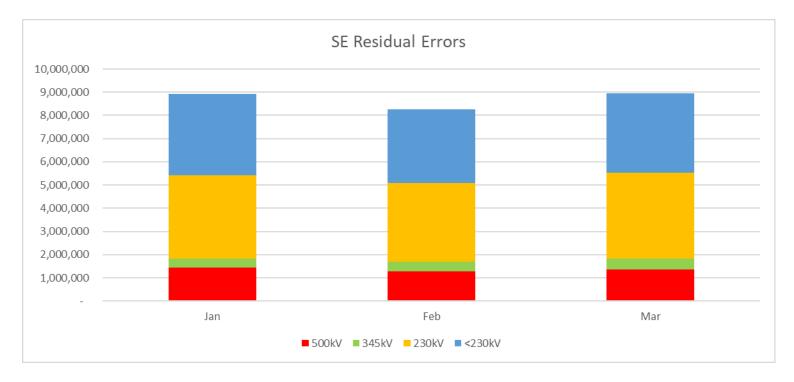
Procedures Update - continued

Upcoming Procedure Changes:

RC Proc. #	Procedure Title	Status	Description of changes
RC0140	Guidelines for Sending Messages Across RC Seams	Target Publish 6/01	Replaced "all Western Connection" with "RC West" in Operationally Affected Parties. Updated instances of BC Hydro RC to BCRC.
RC0460	Reliability Coordinator Area Restoration Plan	Target Publish 6/01	Annual Review: Minor edit in Section 3.8.1, added "or with neighboring RCs,"
RC0460A	Restoration Principles	Target Publish 6/01	Annual Review: Very minor edit in Operationally Affected Parties, no content changes.
RC0460B	Whole or Partial Transmission System Islanding Restoration Checklist	Target Publish 6/01	Annual Review: Minor edit under Operationally Affected Parties and minor formatting (No content changes).
RC0460C	Blackout Restoration Using Connection to Energized System Checklist	Target Publish 6/01	Annual Review: Minor edit under Operationally Affected Parties and minor formatting (No content changes).
RC0460D	Blackout Restoration Energizing a De-energized System Checklist	Target Publish 6/01	Annual Review: Minor edit under Operationally Affected Parties and minor formatting (No content changes).
RC0460E	Synchronization Checklist	Target Publish 6/01	Annual Review: Minor edit under Operationally Affected Parties (No content changes).
RC0460F	EOP-005 Plan Review Checklist	Target Publish 6/01	Annual Review: No changes.
RC0560	Limiting Access to BES Cyber Assets	Target Publish 6/01	Removal of ERC references and replace with JIC.
RC9030	Mitigating Forced and Inter-area Oscillations	Internal Coordination – Target Publish 7/01	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.
RC9560	SDG&E/CENACE Import Operational Guide	Target Publish 6/01	Periodic Review: Minor formatting and grammar edits and updated CAISO Contact.

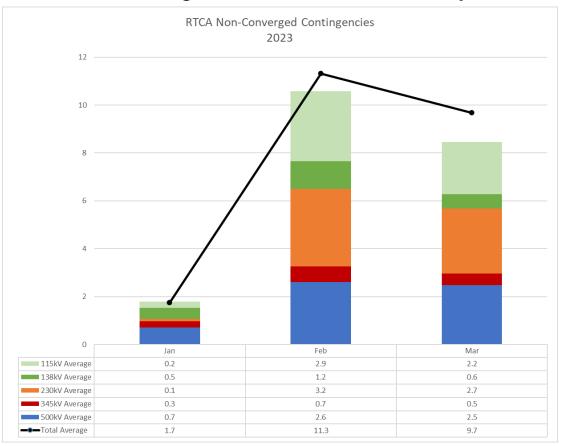
RC Metrics Q1 2023 - SE Residual Errors

- 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.



RC Metrics Q1 2023 - RTCA Non-Converged Contingencies

- 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

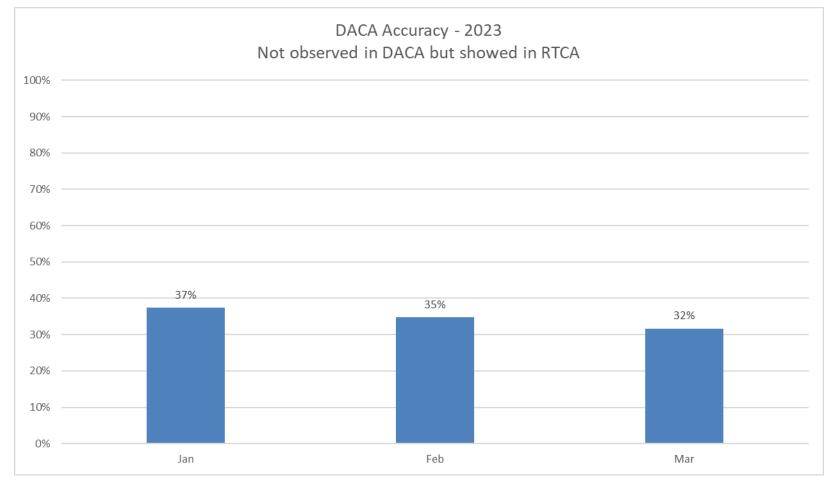


California ISO RC West

ISO Public

RC Metrics Q1 2023 - DACA Accuracy

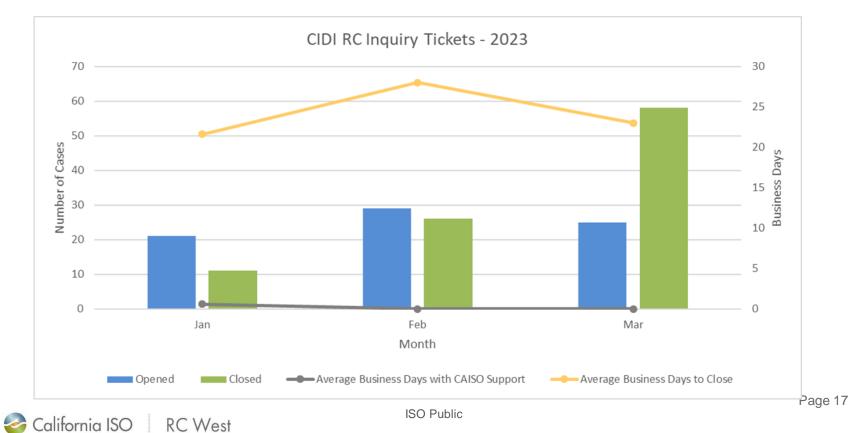
Day Ahead Contingency Analysis (DACA) tool is designed to identify potential contingencies in the day ahead timeframe



net So 🛛 📀 📀 📀 🌝

RC Metrics Q1 2023 - CIDI/Issue Resolution Progress

- 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



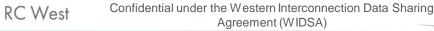
Working Group Updates



FERC 881 Ambient Adjusted Rating & Dynamic Line Ratings

Raja Thappetaobula Director, Operations Engineering Services

California ISO



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

RC West

California ISO

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. <u>initiative webpage</u>

California ISO

RC West

FERC Order No.881 CAISO/RCWEST Whitepaper

- 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 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.

California ISO

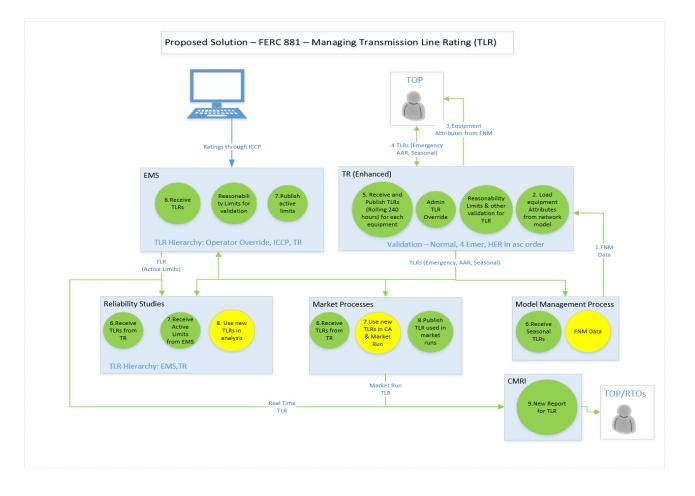
Status update on Data Submission Working Group

- 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

California ISO RC West



Confidential under the Western Interconnection Data Sharing Agreement (WIDSA)

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



Confidential under the Western Interconnection Data Sharing Agreement (WIDSA)

Cold/ Extreme Weather updates effective 4/1/2023

• EOP-011-2 additions

California ISO

 <u>TOP and BA Operating Plan(s)</u> 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

RC West

 TOP, BA and RC data specification collection of <u>generator cold</u> weather limitations and include provisions for <u>notification of BES</u> generating unit(s) status during local forecasted cold weather

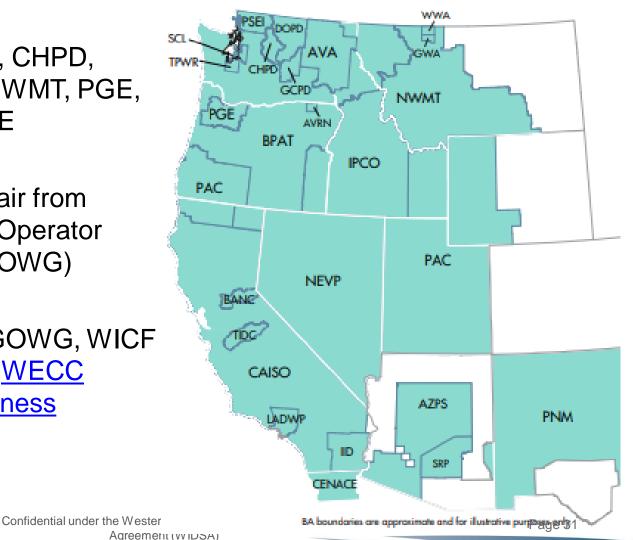
Leveraged RC West Emergency Preparation & Power System Restoration Working Group to form a Task Force

- Task force members:
 - APS, BPA, CAISO, CHPD,
 HHWP, IID, LST, NWMT, PGE,
 Redding, SRP, SCE
 - WECC

California ISO

- Chair and Vice Chair from WECC Generator Operator Working Group (GOWG)
- Presented at WECC GOWG, WICF Generator Forum and <u>WECC</u> <u>Winter Weather Readiness</u> <u>Workshop</u>

RC West



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
 - TOP-002-5 Operations Planning
 - 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
 - <u>Level 3 Industry Essential Actions issued 5/15/23</u>

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
- 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

California ISO

RC West

NERC Alert Level 3 – 8 essential actions

- 5. TOP potential updates to EOP-011 plans
- 6. BA potential updates to EOP-011 plans

California ISO RC West

- 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.
- 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 gaselectric 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

RC West

🊰 California ISO

	2 - 7 DAYS OUT	1 – 4 DAYS OUT	1 DAY OUT	OPERATING DAY
OPERATIONAL ASSESSMENTS	CAISO monitors forecast 7 days out, assesses resource adequacy, system conditions, weather, and other potential grid impacts and plans for next possible steps.	CAISO reviews and validates most current information on actual and potential system conditions, resource adequacy, weather, and other potential factors impacting the grid.	CAISO reviews and validates day-ahead market results and most current information on actual and potential system conditions, resource adequacy, weather, and other potential factors impacting the grid	CAISO reviews actual and poter system conditions and takes actic in accordance with OP 4420.
OUTREACH TO EXTERNAL ENTITIES	Depending on actual and potential system conditions, outreach and coordination possible extreme event to: • Governor's Office (CO) • long-start strategic reserve resource scheduling coordinators (IS-SRR SCs) Consider need for Department of Energy (DOE) 202c Orders and whether other government agency assistance may be needed	To prepare entities for possible conservation efforts and free up additional supply, the CAISO may take the following actions: Initiate communication to: • Water agencies (Department of Water Resources, Metropolitan Water District) • Neighboring Balancing Areas (BAs) • Emergency Load Reduction Program (ELRP Board • Utilities • Reliability Coordinates II • Program II •	Operational coordination with: - Utilities - Neighboring BAs - ELP - RC - RC	Operational coordination with: • Utilities • Neighboring BAs • ERP Board • RC West
PUBLIC COMMUNICATIONS	CAISO may issue high temper heads up via: • CAISO Website • CAISO Social media Twitter handles: @California ISO @ISONatices @Elexalett	CAISO may issue Restricted Maintenance Operations (RMO) notifications via: • Market notification system (MNS) • Emergency notifications email • ISO Today app • Today's Outlook Department of Energy (DOE) Emergency Orders available <u>here</u> GO Proclamation of a State of Emergency and GO Executive Orders will be publicly available	CAISO may issue Flex Alert and/or Energy Emergency Alert (EEA) Watch ¹ notice via: • Emergency natifications email • Notice (Daily Briating) • So Today mobile app • MNS • CAISO social media Learn more about EEA Flex Alert only: • FlexAlert org: • FlexAlert subscription lats • Flex Alert and CAISO social media	CAISO may issue EEA notices at needed based on system conditi • Notices (<u>laity Streing</u>) • MNS • Emergency notifications emo • Nova needata • ISO Today mobile app • CaISO social media • MNS • Emergency notifications emo • CaISO social media • CaISO social media • SOT oday mobile app • CaISO social media

alifornia Independent System Operator | www.caiso.com | 250 Outcropping Way, Folsom, CA 95630 | 916.351.4400

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 <u>RC West webpage</u> for additional details
- Send topic suggestions to isorc@caiso.com.



Open for Public Comments



Public Session Adjourned

