



California ISO



RC West

# RC West Oversight Committee

Public Session

February 23, 2023

1:00pm-2:30pm Pacific Time

# Housekeeping Reminders

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- Materials related to the RC West Oversight Committee are available on [www.caiso.com](http://www.caiso.com) / Stay Informed / RC West.

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- If you are connected to audio through your computer or used the “call me” option, select the raise hand icon  located on the top right above the chat window. **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:	Topic:	Presenter:
1:00 - 1:02	Welcome/agenda	Yelena Kopylov-Alford
1:02 – 1:05	Roll call	Chris Hofmann
1:05-1:10	<b>Oversight Committee Business</b>	Chris Hofmann Christopher Sanford
1:10- 1:40	<b>RC West Operations Update</b> <ul style="list-style-type: none"> <li>Welcome/Thank you</li> <li>General operations</li> <li>Procedures update</li> <li>RC metrics update</li> </ul>	John Phipps Tim Beach Kathleen Fernandez Veera Vinnakota and Aung Oo
1:40 – 2:20	<b>Working Group Updates</b> <ul style="list-style-type: none"> <li>FERC 881 Update</li> </ul>	RajaShekar Thappetaobula
2:20 – 2:25	<b>Future agenda items</b> <ul style="list-style-type: none"> <li>Calendar of Meetings for 2023</li> </ul>	Yelena Kopylov-Alford
2:25	<b>Public Comment</b>	
2:30	<b>Public Session Adjourned</b>	

# 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

- 2022 Energy Emergency Alerts (EEA)
- NERC RTOS
  - ✓ Cold weather Recommendations
  - ✓ NERC IROL Activity Team
- NERC Standard Changes

# RC West Operations Update - EEA

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

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

New Historical Peak Load Sept 6<sup>th</sup> HE18

- RC West Historical Peak 130,985 MW
- WECC Historical Peak 167,530 MW

# RC West Operations – Update

## NERC Real-Time Operating Subcommittee (RTOS) Activity

- ***Cold Weather Recommendations***

- *Rec 21: Perform Operator Training simulations of firm load shed scenarios, to include administer rotating load shed, avoid cascading outages and system collapse, and protect critical natural gas infrastructure customers.*

- *NERC Alert responses noted 185 entities incorporate rotational load shedding into training and restoration drills, referring to RTSC for further direction.*

- *Refer to regions*

- *Develop reference paper*

- *Issue NERC Alert*

# RC West Operations – Update

## NERC Real-Time Operating Subcommittee (RTOS) Activity

- ***Cold Weather Recommendations***
  - *Rec 22. UFLS coordination with frequency tripping of relays*
    - *Related to recovering from frequency stalling via manual load shedding.*
    - SAR Project 2020-02, PRC-024-6 (Generator ride through)
    - SAR will go to ballot on 3/7-3/17 (comments closed)
    - Scope:
      - Mainly oriented toward inverter based resources, but does address generator ride through for frequency and voltage
      - Scope does not mention coordination with PRC-006 Automatic UFLS
      - Comments closed

# RC West Operations – Update

## NERC Real-Time Operating Subcommittee (RTOS) Activity

- ***REC 22 Next steps***

### **Monitor SAR and Standards development team**

- *System Protection and Control WG also monitoring*
- *Attend meetings (do not anticipate nominating RTOS member nomination)*
- *Provide input as observing member*
- *Potentially RTOS to comment on draft changes to the standard*

### **Possible Deliverables**

- *Recommend changes to PRC-006 (UFLS)*
- *Develop Coordination Guideline*
- *Issue NERC Alert*
- *Recommend back to RTSC or subcommittee (SPCWG)*

# RC West Operations – Update

## NERC Real-Time Operating Subcommittee (RTOS) Activity

- *Update on IROL Project from the IROL Activity Team – Craig Struck, NERC*
  - *Objective to develop consistent IROL practices in the following areas*

<b>Terminology</b>	<b>IROL parameters</b>	<b>Local vs Wide area</b>
<b>Establishing Real-time / Day Ahead</b>	<b>IROL Like conditions (Insecure Operating State)</b>	<b>Tools VSA – TSAT - DSA</b>
<b>RC-RC Communication</b>	<b>NERC Standards</b>	<b>Philosophical</b>

- *Next steps*
- *Draft white paper under management review at NERC*
- *NERC will hold industry Workshop/Webinar when the paper is published*
- *NERC RTOS to rewrite Reliability Guideline: Methods for Establishing IROLs*

# RC West Operations – Update

## *NERC Standard Changes (Effective April 1<sup>st</sup> 2024)*

- *FAC-011-4 – System Operating Limits Methodology for the Operations Horizon*
- *FAC-014-3 – Establish and Communicate System Operating Limits*
- *IRO-008-3 – Reliability Coordinator Operational Analyses and Real-time Assessments*
- *TOP-001-6 – Transmission Operations*
  
- *Repurpose Voltage SOL Task Force (OPWG/RTWG Task Force)*
  - *Task Force scope to address Methodology and Procedure related changes*

# RC West Operations – Update – NERC Standards

*Primary objective was to align the FAC standards with existing IRO, TOP, and TPL standards as well as new definitions. In particular updated and new requirements address the following,*

- The proposed revisions to the SOL definition, coupled with the revisions to the FAC standards will support the concept that the SOL is the actual operating parameter; and eliminate confusion between “what the limits are” verses “how the system should be operated given the limits.”*

# RC West Operations – Update – NERC Standards

- *Updated RC SOL Methodology will:*
  - *Identify the method that its TOPs will use in determining which of the Facility Ratings provided by the owner (under FAC-008-3) are appropriate for use in establishing SOLs for use in operations. Under the revised definition of SOL, the Facility Ratings will be the SOL. Additionally, RC and the TOP will need to use the same Facility Ratings, which will eliminate the risk of different or inconsistent types of Facility Ratings used in operations.*
  - *Require the TOP to determine System voltage limits for use in operations.*

# RC West Operations – Update – NERC Standards

- *Updated or Revised requirements*
  - *Set a number of minimum required attributes specific to stability limitations that must be contained within the RC SOL Methodology.*
  - *Describe how contingencies are identified and allow for different contingency lists to determine stability and steady state system impacts.*
  - *Describe the performance framework to determine SOL exceedances.*
- *TOP-001 and IRO-008 changes will allow for consistency with this framework in determining SOL exceedances and communicating them to the RC*

# RC West Operations – Update – NERC Standards

## *Next steps*

- ✓ *Communicate to RTWG/OPWG members requesting confirmation of Task Force participants*
- ✓ *Develop Task Force Scope and Objectives*
- ✓ *Identify impacted Methodologies and Procedures*
  - ✓ *SOL Methodology*
  - ✓ *SOL Procedures*
- ✓ *Kick Off Meeting (April)*

# Procedures Update

## Recently Published Procedures:

RC Proc. #	Procedure Title	Status	Description of changes
RC9010	Unscheduled Flow Mitigation on Qualified Transfer Paths	Published 2/07/23	Annual Review: No content changes, only minor formatting.
RC9230	Path 14 Operating Guide	Published 2/07/23	Updated Section 4 to include IPCO mitigation actions using real-time market constraints management, and RC coordination actions for managing USF. Added additional limiting credible multiple contingency. Clarified Table 2 Operating Characteristics to highlight focus on west-to-east flows on Path 14. Changes approved all by impacted parties.
RC9410	Olinda 500 kV High Voltage Mitigation	Published 1/26/23	Periodic Review: Minor formatting and punctuation edits only.
RC0120A	RC West IRO-010 Data Specification	Published 1/24/23	<p>Publishing these changes as current update and future change will be published as version 6.2 and effective 4/01/23 (To follow).</p> <p>Annual Review: Removed exceptions to data request. Clarified RDFID in 6.23. Section 4: Updated data transfer method on 4.9 and 4.10 to match SOL methodology. Added data requests 5.17, 5.18, and 5.19 for items communicated in real-time via webOMS that were previously listed in RC0130. Removed RC0130 reference from outage data requests 5.1, 5.4, and 5.9 prior to real-time / OPA process. Minor format and grammar edits.</p> <p>Note: Also reposted future v6.2 for 4/01/23 (Joint Cold Weather Task Force update).</p>
RC9230	Path 14 Operating Guide	Published 1/11/23	Periodic Review: Minor formatting and grammar edits for procedures consistency.
RC0120	Guidelines for RC West IRO-010 Data Specification and Collection	Published 12/15 - Effective 4/01/23	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. Minor grammar and punctuation edits.
RC0120A	RC West IRO-010 Data Specification	Published 12/15 - Effective 4/01/23	<p>Annual Review: Removed exceptions to data request. Clarified RDFID in 6.23. Added data request 6.8.2 from discussions with DEWG on 9/7/22 and Joint Cold Weather Task Force.</p> <p>Added data requests 5.17, 5.18, and 5.19 for items communicated in real-time via webOMS that were previously listed in RC0130. Removed RC0130 reference from outage data requests 5.1, 5.4, and 5.9 prior to real-time / OPA process. Minor format and grammar edits.</p>

# Procedures Update - *continued*

## Recently Published Procedures:

RC Proc. #	Procedure Title	Status	Description of changes
RC0120B	RC West IRO-010 Data Specification for Adjacent RC	Published 12/15 - Effective 4/01/23	Annual Review: Added RC-5.17, RC-5.18, and RC-5.19 for items communicated in real-time via webOMS that were previously listed in RC0130.
RC0120C	ICCP or PMU Data Request Procedure	Published 12/15 - Effective 4/01/23	Annual Review: No changes.
RC0600	RC West Implementation of Common Interconnection-wide Methodology	Published 12/15 - Effective 1/01/23	Annual Review: Minor formatting and punctuation edits only.
RC0600A	Western Interconnection Modeling and Monitoring Common Methodology	Published 12/15 - Effective 1/01/23	Annual Review: No content changes to this document were requested.
RC0670A	PRC-002-2 RC West DDR List	Published 12/15	Appendix I: Updated DDR list for Alamitos Units. Updated instances of PG&E to PGAE and corrected typo with Potrero.

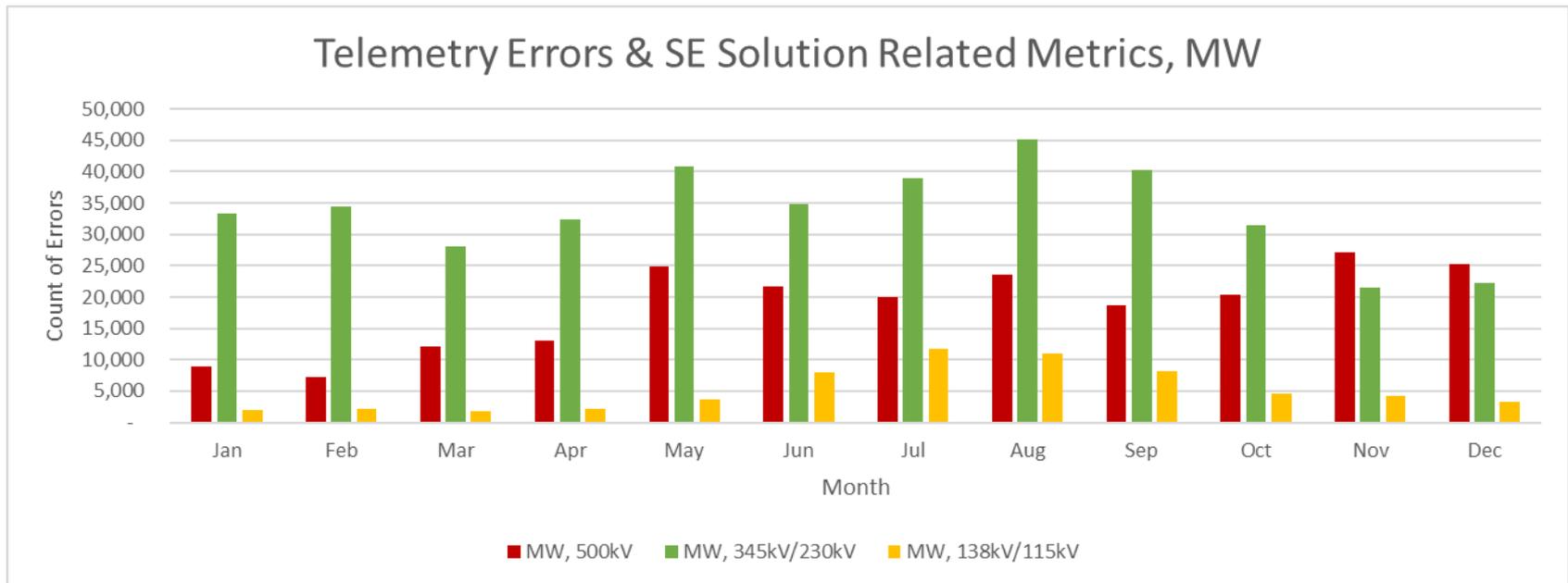
# Procedures Update - *continued*

## Upcoming Procedure Changes:

RC Proc. #	Procedure Title	Status	Description of changes
RC0210	Monitoring Frequency and Balancing Authority Performance	Internal Review – Target publish 3/31	Updated references to EOP-011-1 due to standard update.
RC0330	Coordination with Neighboring Reliability Coordinators	Internal Review – Target Publish 3/30	Annual Review: Updated references of EOP-011; minor formatting and grammar updates.
RC0330A	List of Ties with Neighboring RCs	Internal Review – Target Publish 3/30	Annual Review: Updated reference of Nevada Power Company (Nevada Energy) to NV Energy.
RC0330B	Contingency Monitored for Neighboring RC Area	Internal Review – Target Publish 3/30	Annual Review: No changes.
RC0330C	SPP-RC West Pseudo-Tie Arrangement for Grady Wind Generation	Internal Review – Target Publish 3/30	Annual Review: No changes.
RC0410	System Emergencies	Internal Review – Target Publish 3/30	Annual Review: Updated references of EOP-011; minor formatting and grammar updates.
RC0410A	EOP-011 Plan Review Checklist	Internal Review – Target Publish 3/30	Annual Review: Updated references of EOP-011; minor format and grammar updates.
RC0410B	Transmission Emergencies Due to Wildfire	Internal Review – Target Publish 3/30	Annual Review: No changes.
RC9000	Open Loop Guideline	Internal Coordination – Target Publish 2/23	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.
RC9030	Mitigating Forced and Inter-area Oscillations	Internal/External (BPA) Coordination	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.
RC9210	Path 3 (Northwest - British Columbia)	Internal Review – Target Publish 3/2	Annual Review: Minor formatting and grammar edits only.

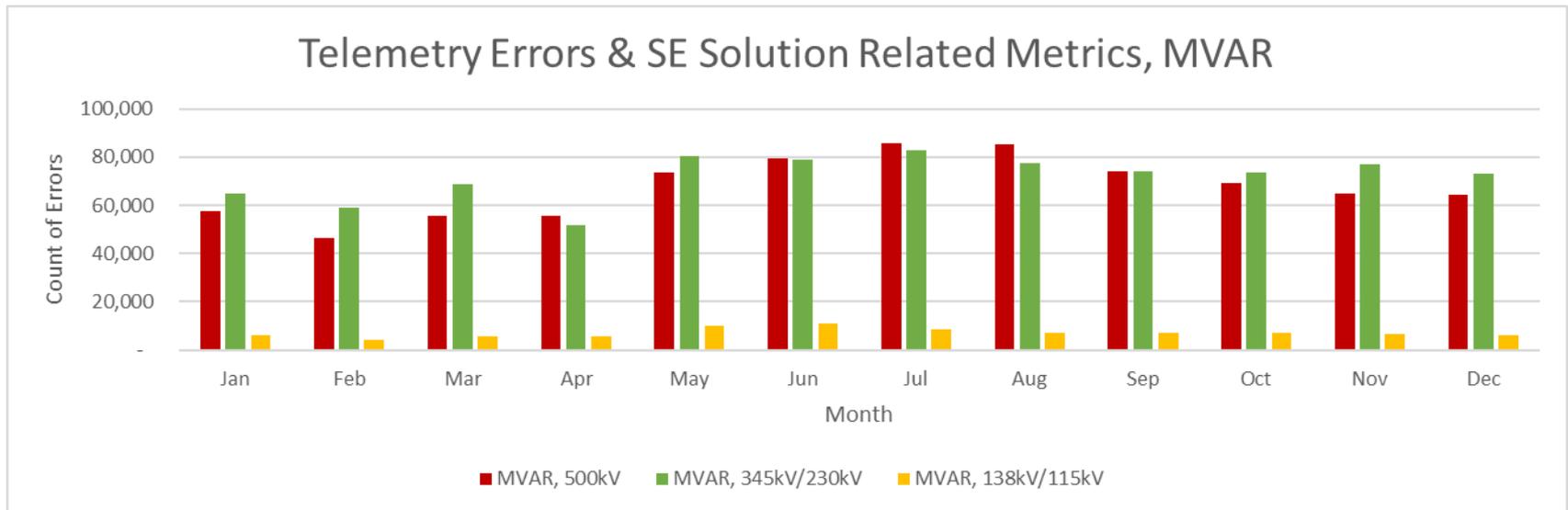
## RC Metrics Year End 2022 - SE Solution related metrics (MW)

- Count of MW anomalies observed on 500kV, 345kV, 230kV, 138kV, and 115kV lines
- *Note: Though the measurement is not used by SE in estimating the solution, the residue is computed and contributes to the metric.*



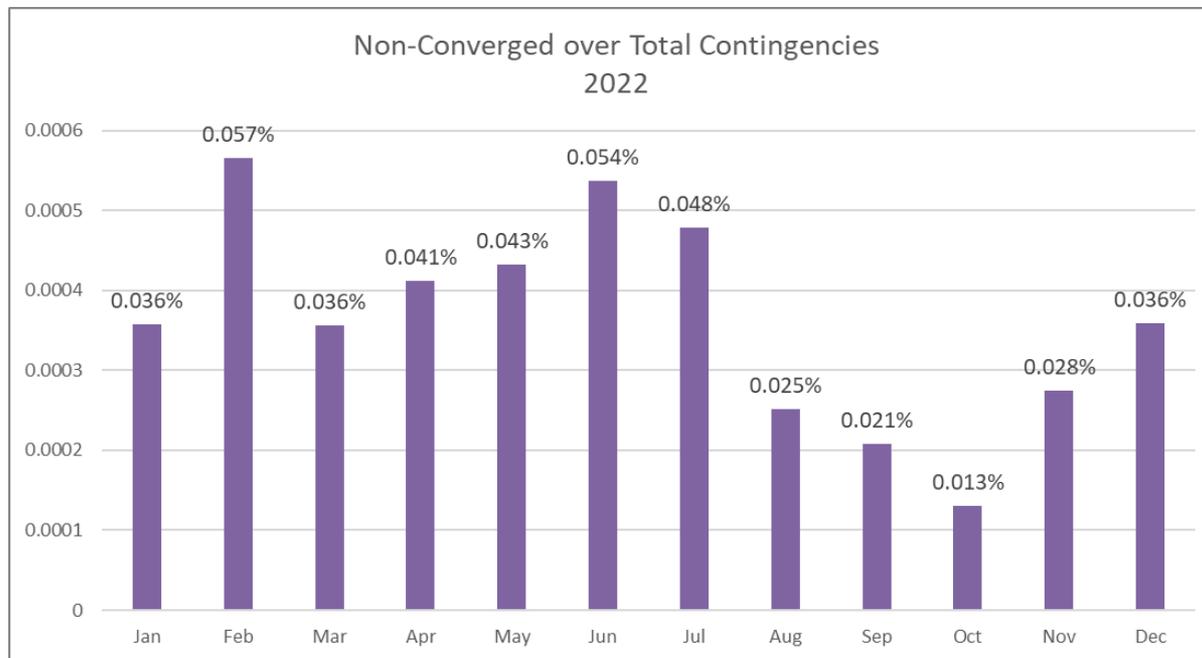
## RC Metrics Year End 2022 - SE Solution related metrics (MVAR)

- Count of MVAR anomalies observed on 500kV, 345kV, 230kV, 138kV, and 115kV lines
- *Note: Though the measurement is not used by SE in estimating the solution, the residue is computed and contributes to the metric.*



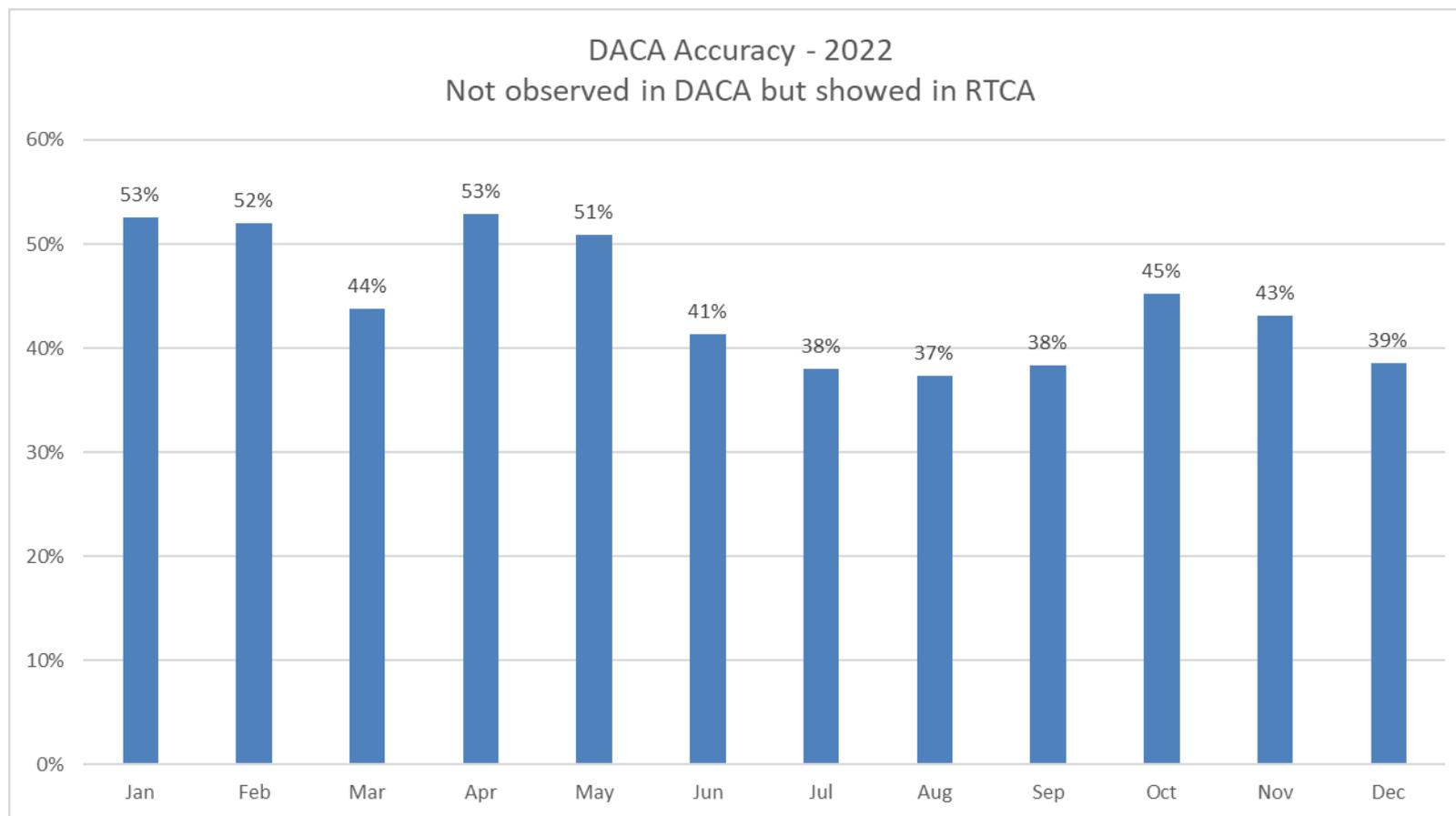
# RC Metrics Year End 2022 - RTCA Non-Converged Contingencies

- Percentage of Real-Time Contingency Analysis (RTCA) non-converged contingencies over the total number of contingencies in five-minute intervals
- *Note: Over 8,500 contingencies are solved in every RTCA solution*



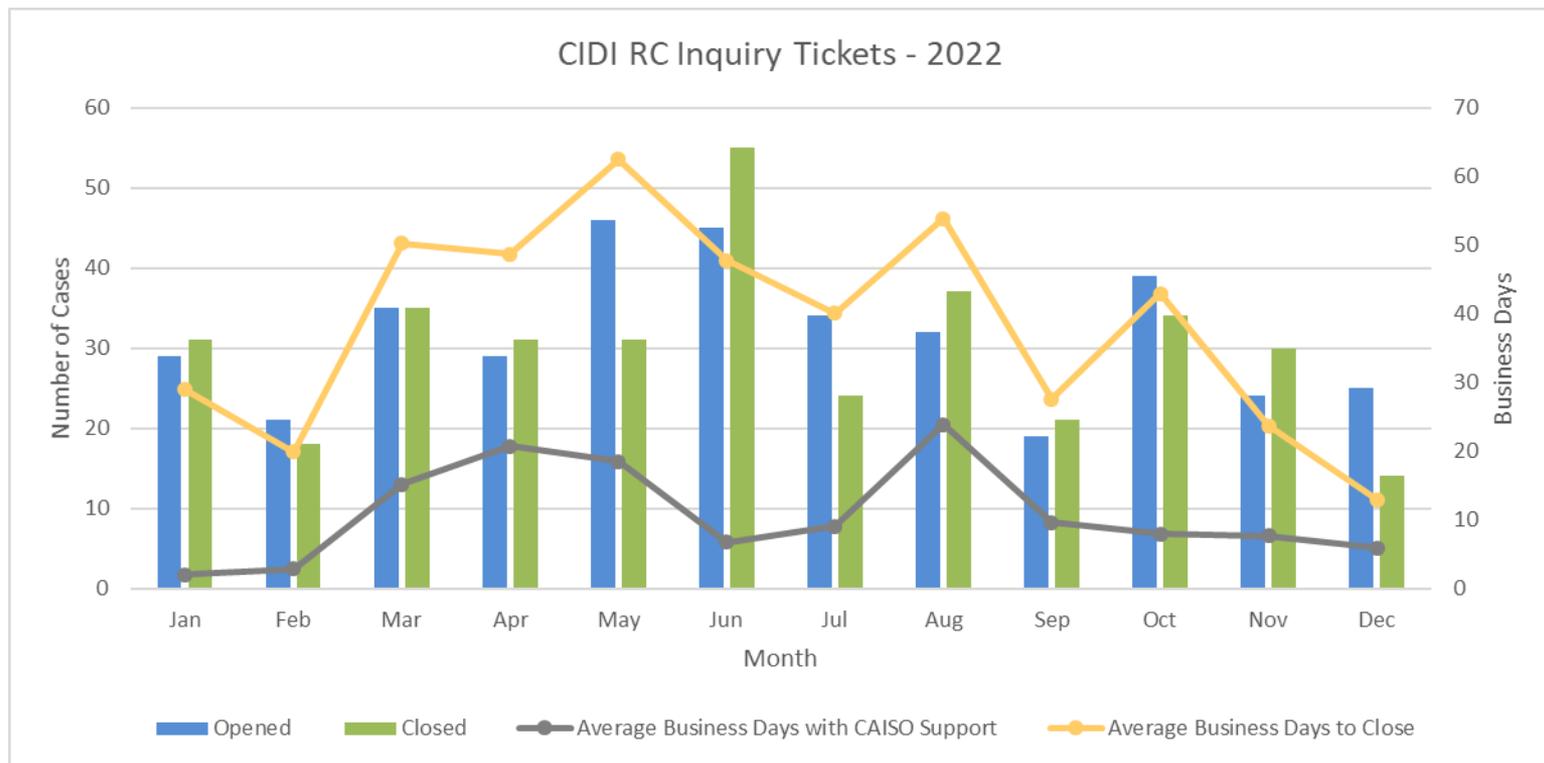
## RC Metrics Year End 2022 - DACA Accuracy

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



# RC Metrics Year End 2022 - 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.



# Working Group Updates

# FERC 881 Ambient Adjusted Rating & Dynamic Line Ratings

Raja Thappetaobula  
Director, Operations Engineering Services

# FERC 881 Quarterly Initiative Update

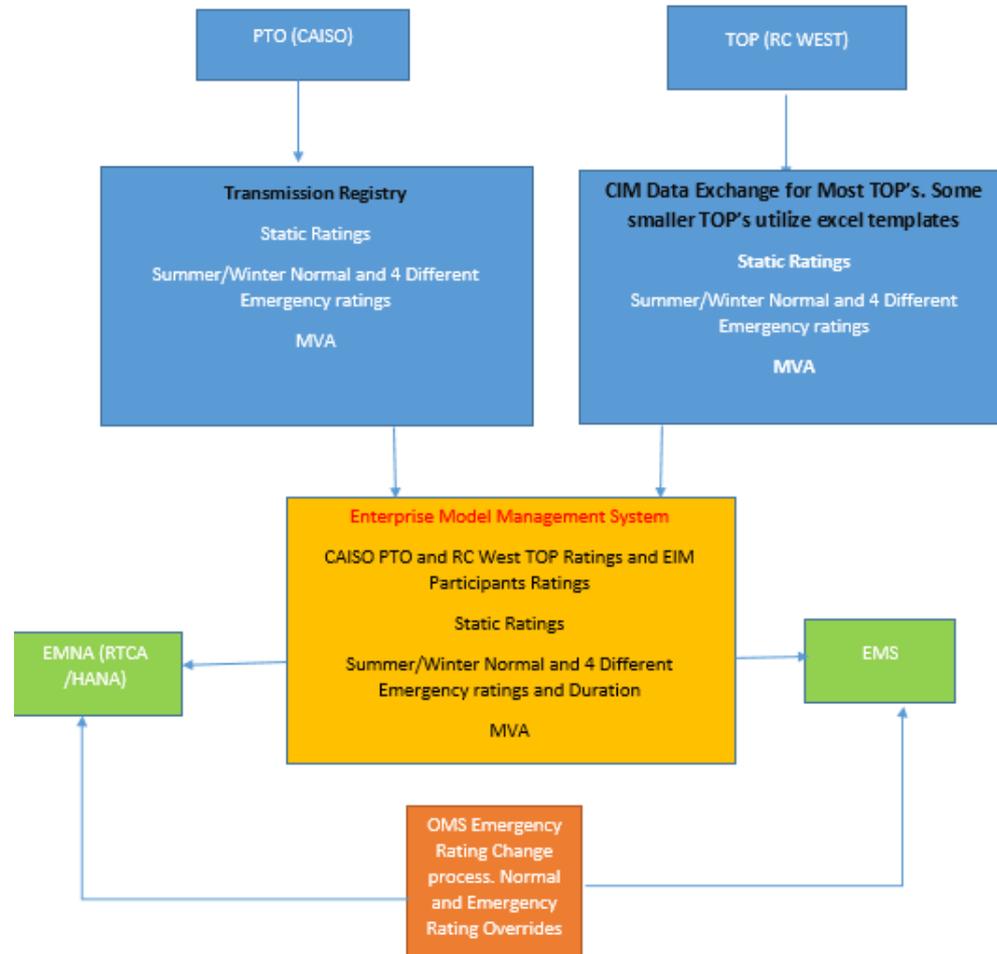
- FERC Order 881 designed to improve transparency of transmission line ratings.
- FERC Order 881 requires Transmission Owners (TO's) to implement ambient adjusted ratings on transmission lines over which they provide transmission service.
- FERC Order requires ISOs/RTOs to use AARs in their congestion management process and near term commitment markets.
- FERC Order requires ISO/RTO's to utilize ambient adjusted ratings (AAR) in evaluation or curtailment of near term (10 days or less) transmission service.
- ISO filed a compliance filing on 7/12/2022
- Full compliance required by 7/12/2025

# FERC 881 Quarterly Initiative Update

- ISO initiated a public stakeholder process
  - Quarterly initiative updates
  - Data submission working group – began 2/6/23
  - Small group discussions with transmission owners to ensure consistency in development of transmission line rating methodologies – first meeting on 2/16/23
- 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

# Real Time Ambient Adjusted Rating (AAR) Implementation

Current CAISO TOP and RC West Rating Consumption into Real Time Reliability:



# FERC 881 Quarterly 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 will be developed to acquire look ahead Ambient adjusted ratings(240 hours).

# Proposed timeline

Milestone	Date
White paper & process drawings	March 2023
Project timeline	March 2023
Track 1/Track 2 business requirement specification development	Jan - Jun 2023
IRO-010 and TOP-003 data specifications published	Q2 2023
Track 1 data submission templates/guides posted	Q3 2023
External training	Q3 2023
Track 1 data submission + testing	Q4 2023

*\*This is a high level schedule. All dates are tentative and subject to change.*

# Future Agenda Items

- The next RC West Oversight Committee meeting is scheduled to be hosted by CAISO on May 25; 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