



FERC Order 881: Managing Transmission Line Ratings – Phase 2


Data Submission Working Group
February 6, 2023

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Reminders

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

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 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.
- You may also send your question via chat to either Isabella Nicosia or to all panelists.

Agenda

Topic	Presenter
Welcome & introduction	Isabella Nicosia
Initiative background & overview	Raja Thappetaobula
Track 1: Real Time Reliability Applications: <ul style="list-style-type: none">• ICCP data submission requirements	Raja Thappetaobula
Working group schedule & next steps	Isabella Nicosia

Initiative background & overview

- FERC Order 881 requires ambient adjusted ratings (AAR) to be used in the evaluation or curtailment of near term (10 days or less) transmission service.
- It requires ISOs/RTOs to use AARs in their congestion management process and near term commitment markets.
- ISO filed a compliance filing on 7/12/2022
- Full compliance required by 7/12/2025

Initiative background & overview

- ISO initiated a stakeholder process
 - Public quarterly initiative updates
 - Public data submission working group
 - Small group discussions with participating transmission owners (PTOs) to ensure consistency in development of Transmission Line Rating methodologies
 - Small group discussions through the RC Data Exchange 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

Today's working group focus



Track 1: Real Time Reliability Applications

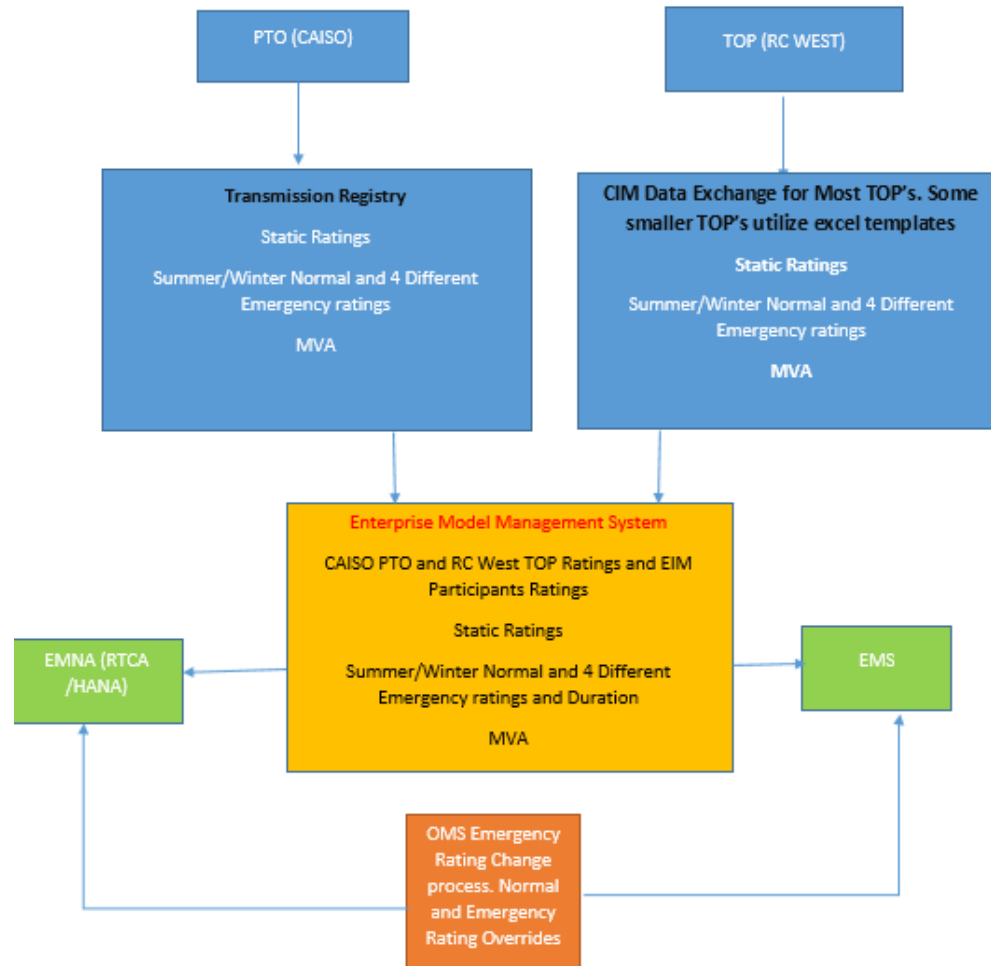
- Plan to receive AAR data via Inter-Control Center Communications Protocol (ICCP)
- Anticipate capability ready in 2023, but need to develop customer implementation timeline

Track 2: Operational/EMS Model Data and Applications

Track 3: Market Applications and Look Ahead Applications

Real Time Ambient Adjusted Rating (AAR) Implementation

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



Real Time AAR Rating Implementation

- Most of the ISO PTOs and RC West transmission operators (TOPs) utilize 2 seasonal ratings currently.
- 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 Rating Implementation

- Real time AAR from both ISO PTOs and RC West TOPs will be acquired through Inter-Control Center Communications Protocol (ICCP) protocol.
- AAR with valid/normal data quality from ISO PTOs and RC West TOPs will be processed per standard ICCP data quality guideline.
- ISO expects normal and up to 4 emergency ratings in ascending order. Reasonability limits will be applied to the incoming AAR ratings. Invalid limits will be discarded and seasonal ratings will be utilized.

Real Time AAR Rating Implementation

- Data refresh will depend on sending balancing authority areas (BAAs) energy management system (EMS) data transmit configuration. Expectation is on demand update or AAR can be updated every 15 minutes or hourly for real time use.
- ISO expects AAR limits engineering unit (MVA/AMP) consistent with seasonal limits submitted during full network model submission.
- ISO EMS will not use temperature based look up table to determine AAR for relevant power system equipment.
- If telemetry is not available due to loss of communication, or if ICCP link is not functional, then EMS will switch (based on user configurable duration in minutes) to use static ratings submitted with full network model.

Real Time AAR Rating Implementation

➤ **Draft Rating submission format for BA/TOP with CIM model:**

- ✓ GeographicalRegion name
- ✓ SubGeographicalRegion name
- ✓ Substation RDFID
- ✓ Substation name
- ✓ ACLineSegment RDFID
- ✓ ACLineSegment name
- ✓ Nominal Voltage
- ✓ Terminal RDFID
- ✓ Terminal name
- ✓ Normal AAR ICCP ID
- ✓ 4Hr AAR ICCP ID
- ✓ 1 Hr. AAR ICCP ID
- ✓ 30 Min AAR ICCP ID
- ✓ 15 Min AAR ICCP ID
- ✓ Highest Emergency Rating ICCP ID (optional)
- ✓ Engineering unit (MVA/AMP)

Real Time AAR Rating Implementation

- **Draft rating submission format for non BAA/TOP with Non CIM model:**
 - ✓ GeographicalRegion name
 - ✓ SubGeographicalRegion name
 - ✓ Substation name
 - ✓ Nominal Voltage
 - ✓ Device type (line/XFR etc)
 - ✓ Line Name FROM Substation
 - ✓ Line Name TO Substation
 - ✓ Normal AAR ICCP ID
 - ✓ 4Hr AAR ICCP ID
 - ✓ 1 Hr. AAR ICCP ID
 - ✓ 30 Min AAR ICCP ID
 - ✓ 15 Min AAR ICCP ID
 - ✓ Highest Emergency Rating ICCP ID (optional)
 - ✓ Engineering unit (MVA/AMP)

Real Time AAR Rating Implementation

- Normal AAR ICCP ID 1: Upper Limit
- 4 Hr AAR ICCP ID **2: Upper Limit**
- 1 Hr AAR ICCP ID **3: Upper Limit**
- 30 Min AAR ICCP ID **4: Upper Limit**
- 15 Min AAR ICCP ID **5: Upper Limit**

Data submission working group schedule

- These data submission working groups will be held on the first Monday of each month through December 2023.
- The next data submission working group is on March 6, 2023.
- The next quarterly initiative update meeting is on February 14, 2023.
- Working group materials will be posted prior to each meeting on the FERC Order 881 – Managing Transmission Line Ratings Phase 2 [initiative webpage](#).

Next steps

- Please submit comments on today's working group discussion by end of day February 20 using the template provided on the [initiative webpage](#).
- Stakeholders may submit additional comments or questions related to the implementation of FERC Order 881 to be considered in a future working group to ISOStakeholderAffairs@caiso.com.