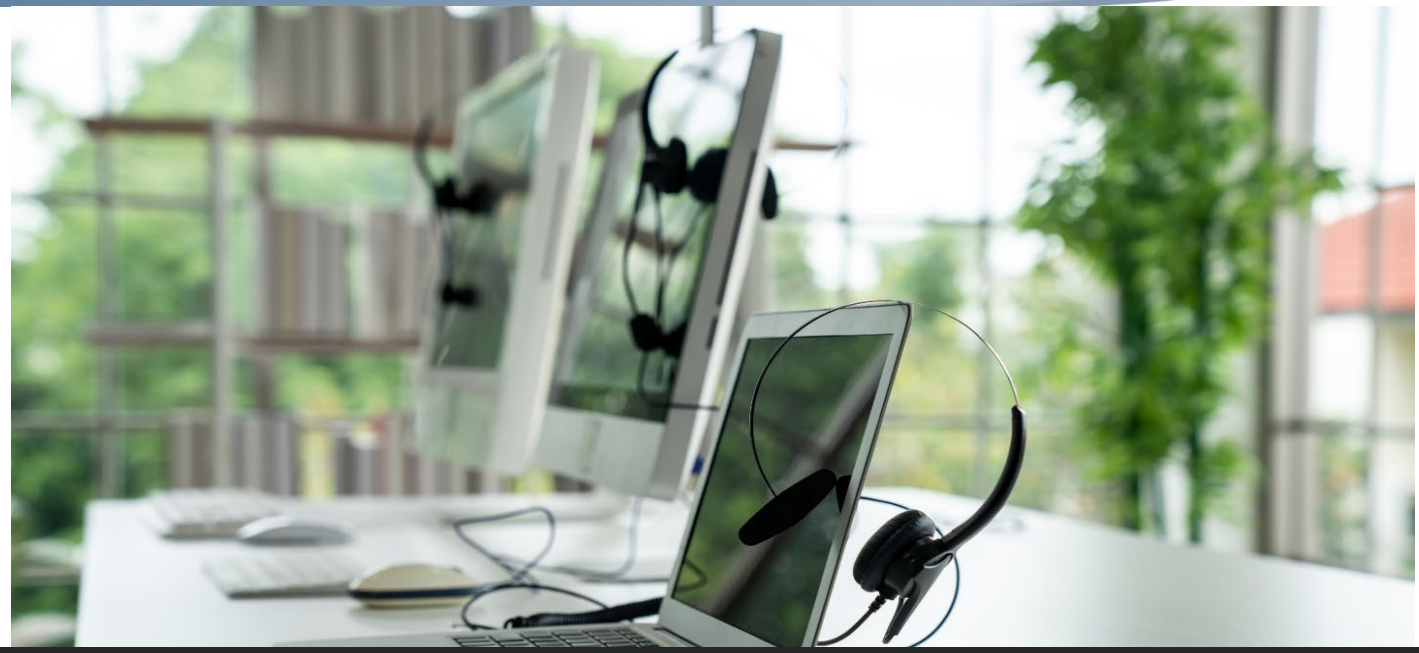
California ISO

NEW RESOURCE IMPLEMENTATION FORUM

ISO PUBLIC - © 2023 CAISO

California ISO



Grid Operations Role with NRI

Welcome

Our presentation will begin shortly.

Today's Presenter: Chris Bossard – Grid Operations Manager, Real Time Operations

ISO PUBLIC - © 2026 CAISO
Rev. 9/13/26

Housekeeping

Keep yourself muted to minimize background noise

Unmute to ask verbal questions or write questions in the chat pod

Raise your hand using WebEx interactivity tools

The information contained in these materials is provided for general information only and does not constitute legal or regulatory advice. The ultimate responsibility for complying with the ISO FERC Tariff and other applicable laws, rules or regulations lies with you. In no event shall the ISO or its employees be liable to you or anyone else for any decision made or action taken in reliance on the information in these materials.

Objectives

- Discuss the role of Operations as a Balancing Authority.
- Identify the role and process after Sync Approval in the NRI.
- WebOMS Card Submissions
- Discuss Unit Testing and expectations prior to COD.

CAISO Balancing Authority

- Ensures Generation and Load are balanced
- Monitors and redispatches generation as necessary to manage transmission constraints.
- Utilizes the wholesale electricity market

ISO PUBLIC - © 2023 CAISO

California ISO balancing authority

The ISO manages the flow of electricity across high-voltage transmission lines for 80 percent of California, and a part of Nevada.

The lines deliver energy to investor-owned and public utilities, and community choice aggregators.

ISO PUBLIC - © 2023 CAISO

Historical statistics and records (as of 9/9/2026)

PEAK DEMAND

52,061 MW

Sept. 6, 2022 at 4:57 p.m.

Second highest:
50,270 MW, July 24, 2006

New record

SOLAR PEAK

23,896 MW

Aug. 19, 2026 at 12:04 p.m.

Previous record:
23,367 MW, Aug. 3, 2026

WIND PEAK

8,312 MW

May 15, 2026 at 1:41 a.m.

Previous record:
7,748 MW, May 4, 2026

PEAK NET IMPORTS

11,894 MW

Sept. 21, 2019 at 6:53 p.m.

STEEPEST 3-HOUR AVERAGE RAMP

24,567 MW

Mar. 16, 2026 starting at 3:50 p.m.

Second highest:
24,378 MW, Oct. 5, 2025

Resources

Resource adequacy net qualifying capacity (NQC) = **62,806 MW**

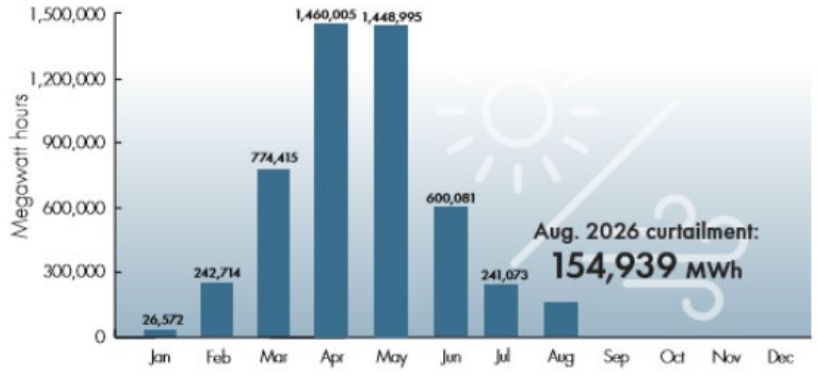
As of 9/9/26. Does not include current outages.

Installed battery capacity[4]
17,225 MW

As of 9/2/26; subject to change.

Wind and solar curtailment totals

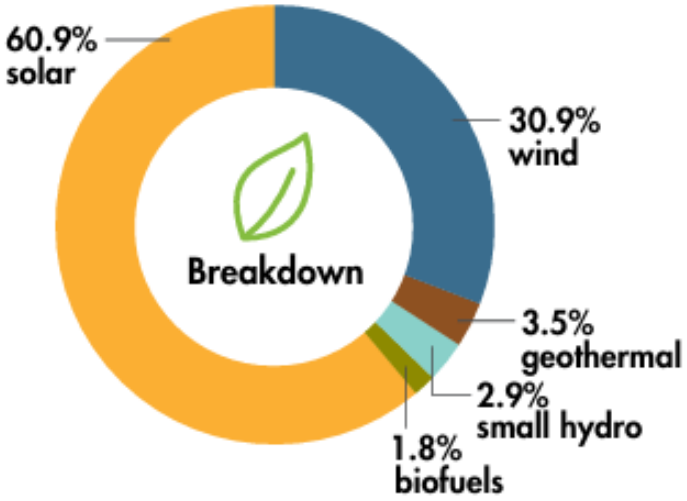
Learn about curtailment and managing the evolving grid.



ISO PUBLIC - © 2023 CAISO

KEY STATISTICS

Installed renewable resources (as of 9/10/2026)



	Megawatts
Solar	24,270
Wind	12,326
Geothermal	1,410
Small hydro	1,140
Biofuels	722
TOTAL	**39,869**

See Today's Outlook

NOTE — The ISO is using updated methodology to generate data. Only fully commercial units are now counted; units that are in test mode or partially online are excluded. For that data, view the Master Control Area Generating Capability List in the Master Generating File on OASIS under "Atlas Reference."

ISO PUBLIC - © 2023 CAISO

Role of the CAISO Generation Dispatcher

Mitigation

Manage and mitigate within System Limits

- ~26,000 circuit miles of transmission

Balancing

Manage Supply to meet Real-Time Demand

- Serve ~80% of California demand

Communication

- CAISO Transmission (TOP) to Utilities [Participating Transmission Owners (PTOs)]
- Scheduling Coordinators to Resources (GO/GOPs)

- Scheduling Coordinators to Resources (GO/GOPs)
- Reliability Coordinator (RC)

Grid Operations Role with New Resource Implementation (NRI)

- After Sync Prerequisites are met:
  - NRI Approval must be given prior to Resource Testing
  - One of our checks for approval is to verify OMS card in place for testing.

- CAISO Operating Procedure 5320 including preview of updates to be posted
  - Submit an outage type NEW_GENERATOR_TEST_ENERGY.
  - Duration of the card should have projected Start after Sync Approval and End time is the expected completion of all testing.
  - This will act as “Parent” card.

ISO PUBLIC - © 2023 CAISO

Preview to 5320 Updates

- Requesting resources submit a “Child” “UNIT_TESTING” card
- Improves visibility to operators
- Include:
  - Time of each of each testing block
  - Min/Max MW
  - Ramp Rate (MW/min)
    - Ramp Rate should not exceed $\frac{(Pmax-Pmin)}{5}$
    - VER Resources can submit “Varies”
  - Min/Max MVAR
  - Misc Notes: to be used if resource are going to have variable outputs
    - Ie. Ramp to -150MW, hold 10 minutes, then ramp to +25MW and hold 10 minutes. Repeat for duration.

***These updates are pending review and expected to be published by 10/30*

ISO PUBLIC - © 2023 CAISO

Test Schedule Review in Real-Time Horizon

- D+2 and D+1 Generation Work Review Process
  - Generation Dispatcher will review all Generation outages including NEW_GENERATOR_TEST_ENERGY and UNIT_TESTING cards for test schedule plans.
    - Test schedule should be entered into the “NOTES” tab in the External Notes section. It should not be in the Short Description.
      - If such test plans are not present, then testing will not proceed or be approved until provided.

ISO PUBLIC - © 2023 CAISO

Outage ID: 21100908 **FAN**

Resource Name: [redacted]

Resource Type: GEN

PMAX: 3.00

Start: 10/07/2026 00:00

Participant: [redacted]

Participant Outage ID:

Nature of Work: NEW_GENERATOR_TEST_

Short Description:*

Resource ID - [redacted]
Resource Name [redacted]
PTO/Transmission Operator - SCE
POD Description - Windhub 230 kV
Type Of Generator - solar
Resource Capacity - PMax - 210

Availability Date/Time	OOS	NDC	PMAX	Availability MW	Curtailment MW
10/07/2026 00:00	☐	☐	3.00	3.00	0.00
11/30/2026 00:00	☐	☐	3.00	3.00	0.00

Availability set to approved synch MW amount

Mkt Impacts | Availability | **Notes** | A/S Availability | PMIN Re-Rate | Ramp Re-Rate | Warnings | Max Energy | Min Energy | Load Max | Load Min | Use Limited | RI Da

External Notes:

03/31/2026
Time | Min / Max MW | Min / Max MVAR | Status

00:00 – 23:59 0 / 0 MW 0 / 0 MVAR (Maintain Energy)

04/01/2026: [redacted] Scenario 1 Testing - Page 10 & [redacted] Scenario 2 Testing - Page 12

Time	Min / Max MW	Min / Max MVAR	Status
00:00–09:00	-4 / 0 MW	0 / 0 MVAR	(Maintain Energy)
09:00–16:00	-4 / 0 MW	-29 / 29 MVAR	(Maintain Energy)
16:00–23:59	-4 / 0 MW	0 / 0 MVAR	(Maintain Energy)

Internal Notes:

External Notes ×

[redacted]

03/30/2026 (PST) – MPC Scenario Testing
Time | Min / Max MW | Min / Max MVAR | Status

00:00 – 09:00 -4 / 0 MW 0 / 0 MVAR (Maintain Energy)
09:00 – 15:00 -4 / 0 MW -29 / 29 MVAR (Maintain Energy)
15:00 – 23:59 -4 / 0 MW 0 / 0 MVAR (Maintain Energy)

Unit Testing cards outlining test schedules should not span longer than 3 days

03/31/2026
Time | Min / Max MW | Min / Max MVAR | Status

00:00 – 23:59 0 / 0 MW 0 / 0 MVAR (Maintain Energy)

04/01/2026 [redacted]C Scenario 1 Testing - Page 10 & [redacted] Scenario 2 Testing - Page 12

Time	Min / Max MW	Min / Max MVAR	Status
00:00–09:00	-4 / 0 MW	0 / 0 MVAR	(Maintain Energy)
09:00–16:00	-4 / 0 MW	-29 / 29 MVAR	(Maintain Energy)
16:00–23:59	-4 / 0 MW	0 / 0 MVAR	(Maintain Energy)

Additional Test Card Considerations from CAISO Operations

- Test schedule should be entered into "**NOTES**" tab in the External Notes section.
- In the test schedule, Avg Output or Cumulative day total is not needed. This information is not used and can cause confusion.
- Notification and schedule information is needed for **MVAR testing** in the card. All MVAR testing must be coordinated with the local **Transmission Operator (TO).**

ISO PUBLIC - © 2023 CAISO

Pre-Commercial (Pre-COD) Resource Testing

- **Communications**
  - Scheduling Coordinator (SC) must have good communications with CAISO and the resource (GOP) during testing.
  - **Verbal notification** is required for **any changes to scope** of the test in addition to updating the OMS card.
- **Telemetry**
  - CAISO must have good quality data from the resource during testing or testing will be denied, rescheduled, or terminated.
- Control of Resource ***(Must have control of resource(s) at all times)***
  - Ramping should always be across 5 minutes. Max ramp rate during testing should not exceed

$$\frac{(Pmax - Pmin)}{5}$$

ISO PUBLIC - © 2023 CAISO

Overall Expectations for Communications and Performance

Communications for Reliability

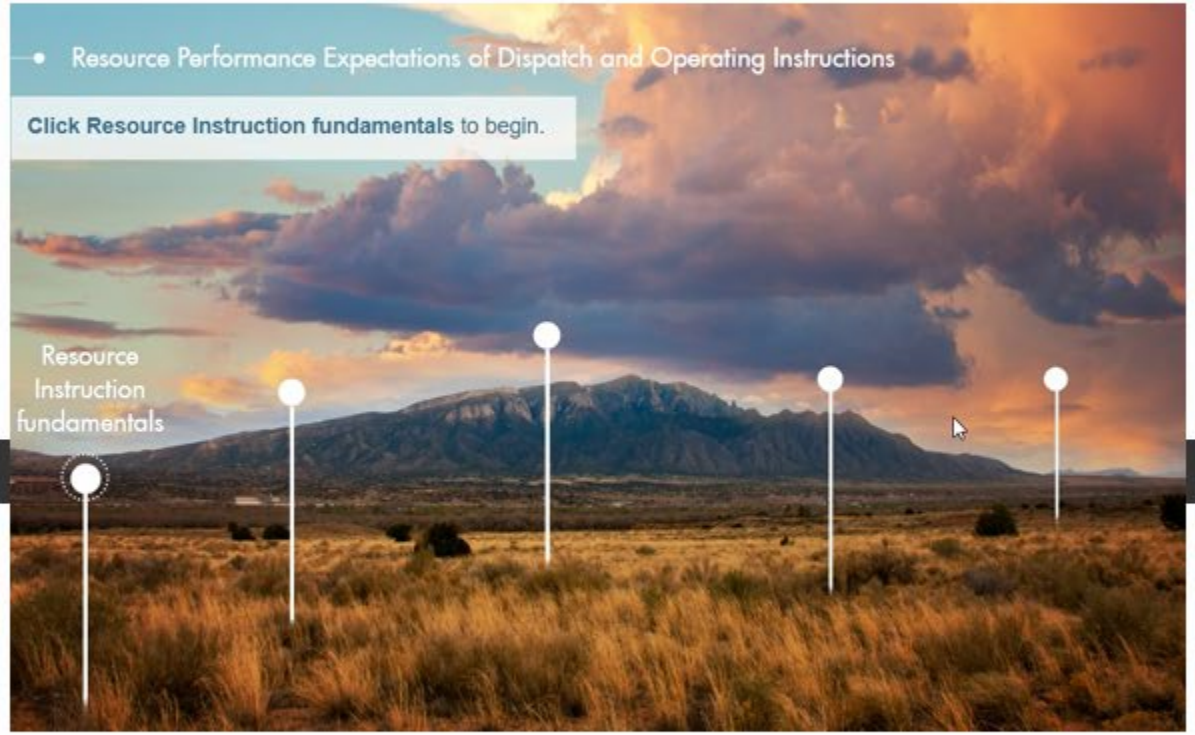
- The CAISO will not approve testing unless based on studies, there is sufficient transmission capacity is available to support test schedule.

Performance for Reliability

- If resource is causing a reliability situation on the Grid, then an Operating Instruction may be issued from CAISO to come offline within 10 minutes until further notice.
- *A resource may be subject to resource performance holds if not meeting expectations. Common hold reasons include:*
  - *Testing without an OMS card*
  - *Not ramping*
  - *Oscillations*
  - *Not able to respond to verbal OI*

ISO PUBLIC - © 2023 CAISO

Pre-COD Process: 1st Offender



Resource Performance Expectations of Dispatch and Operating Instructions

CAISO Generation Dispatcher Contacts Resource

→ Issue not resolved: OI to come offline

↓

Within in 2 BD Stop Letter issued from Queue Management

Note added to RIMS.

→ IC Complete Training in letter & sign affidavit

↓

Affidavit sent back

→ Operations review and hold released via Generation Desk.

Release added to RIMS.

ISO PUBLIC - © 2023 CAISO

Pre-COD Performance Issues: Repeat Offender

CAISO Generation Dispatcher Contacts Resource

→ Issue not resolved: OI to come offline

↓

Within in 2 BD, Customer Experience Reviews current and previous issues, organizes meeting with Operations.

Note added to RIMS.

→ Outcomes and agreements documented and agreed upon in meeting

↓

Operations give final approval

→ Hold Released

Release added to RIMS.

*Note: These repeat issues are taken very cautiously and need to be thoroughly investigated.

ISO PUBLIC - © 2023 CAISO

Expectations for Commercial (COD) Resources

Performance for Reliability

- Ability to follow DOTs (Five-minute Dispatch Operating Targets)
- Ramp to follow AGC DOPs (Dispatch Operating Points)
- Not exceed DOT when Follow DOT and Operating Instruction (OI) flags are “Y” in ADS (Automated Dispatch Instruction).
- Be able to follow manual instructions without the need to have a DOT/instruction be sent through ADS.

Ancillary Services (A/S) Certified Resources to provide Regulation

- Ability to ramp on and off Automatic Generation Control (AGC) to DOP.
- AGC awards and connectivity

ISO PUBLIC - © 2023 CAISO

Summary

- Ensure proper WebOMS Card submissions
  - New Updates to 5320 coming that outlines Parent-Child cards to improve operator testing visibility
- Timely communications between Scheduling Coordinators important to reliable testing
- Accurate Telemetry required for testing
- Resource Performance issues can delay testing and progress to COD, as well as jeopardize reliability of the system

Share information with your SC's and Operators

Wrap Up

Summary, Q&A

Thank you for your participation!

For more detailed information on anything presented, please visit our website at: www.caiso.com or send an email to: CustomerReadiness@caiso.com.

For resource specific questions or concerns, please submit a CIDI ticket.