

# Winter Readiness 2024 for Scheduling Coordinators (SCs)

**Today's Trainer**

**Dottie Vance**  
**Customer Readiness**  
**Trainer**

## Updates as of 12/14/24

- Slide 10 – AET stands for Assistance Energy Transfers
- Slide 33 – Users can self subscribe/unsubscribe to receive notifications (link on slide).

# Housekeeping



## REMAIN MUTED

Keep yourself muted to  
minimize background noise



## ASKING QUESTIONS

Unmute to ask verbal  
questions or write  
in the chat pod

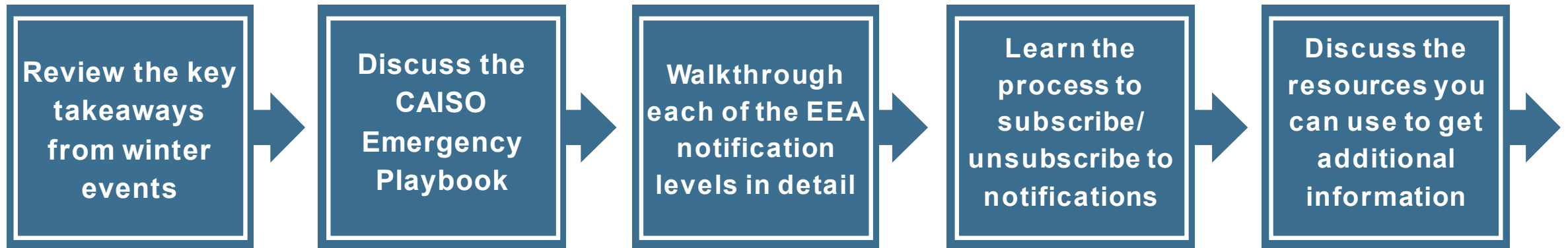


## RAISING HAND

Raise your hand using WebEx  
interactivity tools

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# Agenda





# Poll Question



How familiar are you with winter readiness activities?

**A**

**Extremely familiar**

I have a lot of knowledge

**B**

**Moderately familiar**

I know the key details

**C**

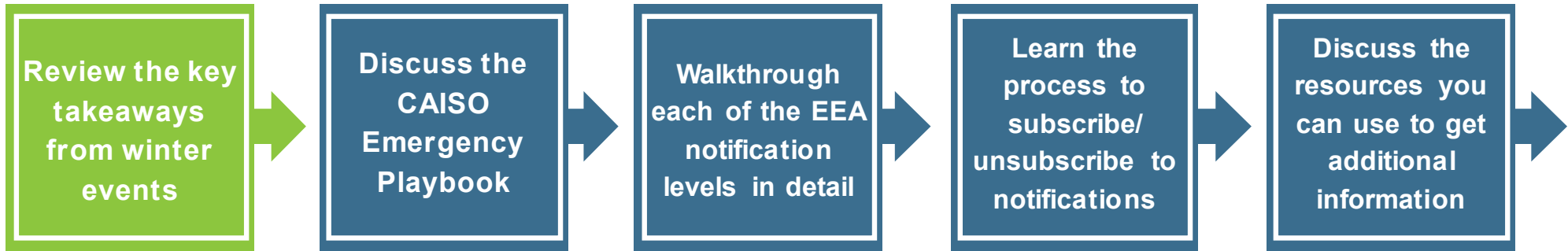
**Somewhat familiar**

I know a little about the topic

**D**

**Not at all familiar**

I have not learned about this yet



# WINTER EVENTS

# Key Takeaways from February 2021 Winter Event

A **extreme cold weather event** between February 8 and 20, 2021 impacted the Bulk Electric System (BES) reliability in Texas and the South Central United States (*ERCOT, SPP, and MISO South*).



Impacting nearly  
4.5 million  
electricity customers



Largest controlled  
firm load shed even  
in U.S. history



Third largest  
quantity of outaged  
megawatts (MW)  
of load



Estimated losses  
of between \$80  
to \$130 billion

Additional information: [FERC, NERC, and Regional Entity Staff Report.](#)

# Key Takeaways from January 2024 Winter Event

An **extreme cold weather event** gripped the Pacific Northwest and northern Rocky Mountain states over the Martin Luther King Jr. Day weekend, January 13 to 15, 2024 (*record low temps*).

## NERC

### Communication

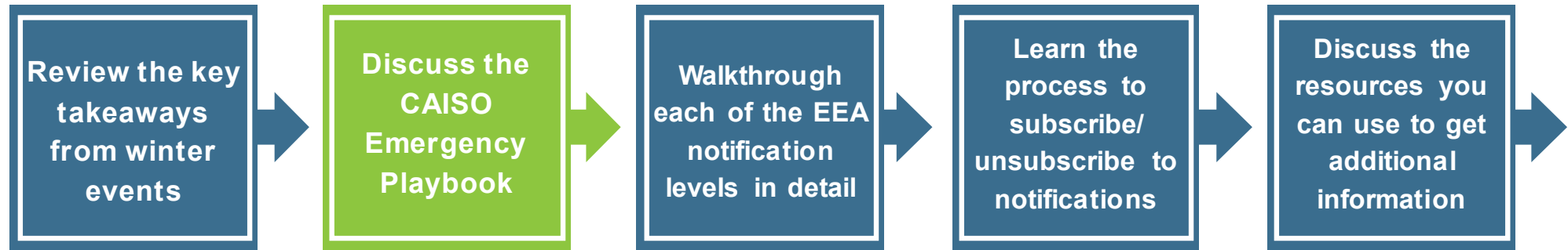
- Recommended to evaluate energy adequacy and for load-serving entities to review their demand projections to ensure the highest level of reliability.

## CAISO

### Communication

- [Notice](#) to all customers.
- Emails sent to evaluate potential impacts on their resources
- Opt-in reminders to WEIM entities for Assistance Energy Transfer (AET) request (*if needed*)
- Energy Emergency Alerts (EEAs)





# EMERGENCY PLAYBOOK REVIEW



## Emergency Playbook: 4 – 7 days out

<b>Operational Assessments</b>	Monitors demand forecast 7 days out, assesses resource adequacy, system conditions, weather, and other potential grid impacts, and plans for next possible steps
<b>Operational Coordination with External Entities</b>	<p>Depending on actual and potential system conditions, outreach and coordination re: possible extreme event to:</p> <ul style="list-style-type: none"><li>• Governor's Office (GO)</li><li>• Heads up to Long-start strategic reserve resource scheduling coordinators (LS-SRR SCs)</li><li>• Water agencies</li></ul> <p>Consider need for Department of Energy (DOE) 202c orders and whether other government agency assistance may be needed</p>
<b>Public and Customer Communications</b>	<p>CAISO may issue extreme temperature heads up via</p> <ul style="list-style-type: none"><li>• CAISO website</li><li>• CAISO social media</li></ul>

# Emergency Playbook: 1-4 Days Out

<b>Operational Assessments</b>	Reviews and validates most current information on actual and potential system conditions, resource adequacy, weather, and other potential factors impacting the grid.
<b>Operational Coordination with External Entities</b>	<p>To prepare entities for possible conservation efforts and free up additional supply, CAISO may take the following actions</p> <div> <div> <u>Initiate communication to:</u> <ul style="list-style-type: none"> <li>• Water agencies (<i>CDWR, MWD</i>)</li> <li>• Neighboring Balancing Areas</li> <li>• LS-SRR SCs</li> <li>• Emergency Load Reduction (ELRP) Board</li> <li>• Utilities</li> <li>• RC West</li> <li>• Regulatory Agencies</li> </ul> </div> <div> <u>Coordinate the following:</u> <ul style="list-style-type: none"> <li>• Requests for DOE 202c Orders</li> <li>• Emergency supply above approved permit and/or Generator Interconnection Agreement (GIA)</li> <li>• GO Proclamation of a State of Emergency and/or GO Executive Orders</li> <li>• WEIM entities can opt in for <b>Assistance Energy Transfers (AETs)</b></li> </ul> </div> </div>
<b>Public and Customer Communications</b>	<p>CAISO may issue Restricted Maintenance Operations (RMO) via:</p> <ul style="list-style-type: none"> <li>• ISO Today mobile app</li> <li>• Market Notification System (MNS)</li> <li>• Email</li> <li>• Today's Outlook</li> </ul> <p>Also publicly posted:</p> <ul style="list-style-type: none"> <li>• DOE Orders</li> <li>• GO Proclamations and Orders</li> </ul>

# Emergency Playbook: 1 Day Out

<b>Operational Assessments</b>	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.
<b>Operational Coordination with External Entities</b>	Operational coordination with: <ul style="list-style-type: none"><li>• Utilities</li><li>• Neighboring BAs</li><li>• ELRP Board</li><li>• RC West</li></ul>
<b>Public and Customer Communications</b>	CAISO may issue Flex Alert and/or EEA Watch notice via: <ul style="list-style-type: none"><li>• ISO Today mobile app</li><li>• MNS</li><li>• Email</li><li>• News release</li><li>• Daily Briefing notice</li><li>• Social media</li><li>• FlexAlert.org</li></ul>

# Emergency Playbook: Operating Day

<b>Operational Assessments</b>	Reviews and validates most current information on actual and potential system conditions, resource adequacy, weather, and other potential factors impacting the grid.	
<b>Operational Coordination with External Entities</b>	CAISO may issue Restricted Maintenance Operations (RMO) via: <ul style="list-style-type: none"><li>• ISO Today mobile app</li><li>• MNS</li><li>• Email</li><li>• Today's Outlook</li></ul> Also publicly posted: <ul style="list-style-type: none"><li>• DOE Orders</li><li>• GO Proclamations and Orders</li></ul>	
<b>Public and Customer Communications</b>	<u>CAISO may issue Flex Alert and/or EEA Watch notice via:</u> <ul style="list-style-type: none"><li>• ISO Today mobile app</li><li>• MNS</li><li>• Email</li><li>• Today's Outlook</li><li>• News release</li><li>• Daily Briefing notice</li><li>• Social media</li><li>• FlexAlert.org</li></ul>	<u>De-escalate/ all-clear notices issued via:</u> <ul style="list-style-type: none"><li>• ISO Today mobile app</li><li>• MNS</li><li>• Email</li><li>• Today's Outlook</li><li>• Social media</li></ul>

## What Questions Do You Have?



Unmute yourself

or



Raise your hand



# ENERGY EMERGENCY ALERTS (EEA) OVERVIEW

# Energy Emergency Alert (EAA) Levels

Emergency Alert Levels
Flex Alert
Restricted Maintenance Operations
Transmission Emergency
EEA Watch
EEA 1
EEA 2
EEA 3 – (Preparing for Potential Rotating Outages)*
EEA 3 – Firm Load Interruption*



# Emergency Notification Levels

**Please note:** If an SC knows that their resource will have a difficult time starting up, please communicate with the ISO as soon as possible (*e.g., starting in advance to the event*).

Notifications Levels	BA What is happening?	What's Needed?	By When?
<b>Flex Alert</b> <i>(not just for summer)</i>	Potential energy shortages or gas curtailments, ongoing grid issue (fire, natural disaster), variable or uncertain temperature forecast, cloud cover, etc.	Public awareness to reduce the demand for energy by voluntary means	Ideally issued in advance – day ahead
<b>Restricted Maintenance Operations</b>	Actual or potential impacts to balancing and/or transmission operations	Reschedule planned work to keep equipment and resources in service if outages could threaten grid reliability	Give advanced notice (1 day+) if possible
<b>Transmission Emergency</b>	Could be system wide or could be local transmission limitation  DR/interruptible/non-firm load dispatched-off	Load management procedures may be in effect in impacted area  Additional bids, incremental dispatch, emergency assistance, evaluate transmission limitations	Issued in real time – current/next hour(s)

# Energy Emergency Alert Notification Levels

NERC EEA Levels	BA What is happening?	RC Confirm/ Translate	What's Needed?	By When?
<b>EEA Watch</b>	<u>Day ahead</u> analysis is forecasting one or more hours energy deficient	All available generation projected to be in use	Additional bids, incremental dispatch	Issued in advance – day ahead by 1500
<b>EEA 1</b>	<u>Real time</u> analysis is forecasting one or more hours energy deficient	All available generation in or projected to be in use	Be prepared for dispatch of DR resources	Issued in real time, ideally hours ahead
<b>EEA 2</b>	The BA is no longer able to provide its expected energy requirements and is energy deficient	Load management procedures in effect	Additional bids, incremental dispatch, incrementally reduce exports, emergency assistance, evaluate transmission limitations	Issued in real time – current/ next hour(s)

# Energy Emergency Alert Notification Levels (cont.)

NERC EEA Levels	BA What is happening?	RC Confirm/Translate	What's Needed?	By When?
<b>EEA 3</b> (Prepare for Potential Rotating Outages)	Counting armed firm load as non-spin contingency reserves	BA unable to maintain CR, firm load interruption is imminent	Emergency assistance, evaluate transmission limitations	Issued in real time - current/ next hour(s)
<b>EEA 3 – Firm Load Interruption</b> (Ordering Rotating Outages)	Unable to maintain CR, manual load shedding is starting/ in progress	Unable to maintain CR, firm load interruption is in progress	Receive firm load shed operating instructions (rotating outages) via blast call.	Issued in real time – “w/ in 10 minutes” current/ next hour(s)

## Energy Emergency Alert Notification Levels (cont.)

How do EEAs levels end?	Can there several EEAs?
<p>When an EEA is issued, that EEA level stays in effect until it is either:</p> <ul style="list-style-type: none"><li>• <b>Cancelled</b> (manual action by CAISO operator) or</li><li>• <b>Terminated</b> (when the time period for the EEA ends)</li></ul> <p>EEA 0 - Termination</p> <ul style="list-style-type: none"><li>• When the energy deficient BA is able to meet its load and operating Reserve requirements, it will request to terminate the EEA</li></ul>	<p><b>Yes!</b> You can have more than one EEA in effect at any given time.</p> <ul style="list-style-type: none"><li>• Please note exception: Only one EEA Watch should be in effect at any time</li></ul>

# Poll Question



True or false – Flex Alerts are only for summer

**A** True

**B** False

# Extreme Cold Weather Event Scenario Overview

7 day outlook  
indicating  
record low  
temperatures  
across the  
Western U.S.

CAISO BA  
Peak load  
forecast is  
50,000 MW

CAISO RA  
capacity is  
below forecast  
load

Rest of WECC\*  
reporting  
potential record  
high loads

No major  
transmission  
or generation  
outages

**\*Western Electricity Coordinating Council (WECC)**

## D+7 through D+2 processes

*CAISO BA actions include but not limited to the following:*



### EXTERNAL COMMUNICATIONS

Issue a “Extreme Weather Bulletin” [news release](#)



### RESOURCES

Display a [7 day outlook graph](#) on website with load forecast & resource adequacy (RA) capacity trends



### ISSUE RMO

Issue a Restricted Maintenance Operations (RMO) notice



### EXTERNAL COORDINATION

Coordinate with all California water agencies and other BAs re: their forecasted conditions



# D +1 Actions

*CAISO BA actions include but not limited to the following:*



## FLEX ALERT

Notification issued before or after day-ahead market (DAM)



## ISSUE AN RMO

If this hasn't already happened, issue a Restricted Maintenance Operations (RMO) notice



## EEA WATCH

If market results are unable to meet DA forecasted load, an EEA watch is issued per procedure by 1500

- Request RC West issue EEA Watch for next day



## EXTERNAL COORDINATION

Send messaging regarding infeasibilities and possible export & wheel curtailments and communicate with Emergency Load Reduction Board (ELRP) Board

# Day of Process – EEA 1

*CAISO BA actions include but not limited to the following:*



## EEA 1 NOTICE

When system conditions require CAISO BA issues EEA 1 notice.

- Request RC West issue EEA 1 for CAISO BA



## EXTERNAL COMMUNICATIONS

Continuous communication with CAISO LSEs and neighboring BAs of conditions including forecasted deficiencies

- If there is potential for counting firm load as Contingency Reserves or firm load removal, System Status Update emails will include prorata share estimates by hour.

## EEA 2

*CAISO BA actions include but not limited to the following:*



### **DISPATCH OF:**

- Reliability Demand Response Resource (RDRR)
- All unloaded generation above RA designation
- All available remaining interruptible load is called upon and any pump load that can be dropped is called on
- Excess contingency reserves while still maintaining required contingency reserves
- All available energy from load following MSS resources



### **EXTERNAL COMMUNICATIONS**

Allows CAISO BA to arrange for any emergency assistance

# EEA 3 (Prepare for Potential Rotating Outages)

*CAISO BA actions include but not limited to the following:*



## EEA 3 - PREPARE FOR POSSIBLE ROTATING OUTAGES

Notice issued by Operations, posted on social media, and news releases will indicate “EEA 3 – Prepare for Possible Rotating Outages”



## EXTERNAL COORDINATION FROM CAISO BAA

CAISO BA will contact the UDC/MSS entities capable of interrupting load (rotating outages) in 10 minutes

- Could be needed if a contingency occurs to help keep the grid stable



## PLEASE REVIEW IMPORTANT REMINDERS

**This is not an instruction to interrupt firm load**

CAISO will issue Operating Instructions for firm load removal –  
do not act based on System Status Update emails.

# EEA 3 – Firm Load Interruption (Ordering Rotating Outages)

*CAISO BA actions include but not limited to the following:*



## EEA 3 – ORDERING ROTATING OUTAGES

The notice issued by Operations, on social media and news releases will be titled “EEA 3 – Ordering Rotating Outages”



## BLAST CALL OPERATING INSTRUCTIONS

CAISO BA no longer able to meet demand and will initiate firm load shed operating instructions (rotating outages) **via blast call**.

- Will still require load armed as contingency reserve to be available for contingency

Year 2022 MW Shed 500 Display Load Colum			
Shed Values CAISO			
	Zone	Fixed Pro-Rata Share	MW Curtailed
<input checked="" type="checkbox"/>	Pacific Gas and Electric	46.38%	232.06
<input checked="" type="checkbox"/>	Southern California Edison	39.09%	195.59
<input checked="" type="checkbox"/>	San Diego Gas & Electric	8.50%	42.52
<input checked="" type="checkbox"/>	NCPA	2.30%	11.51
<input checked="" type="checkbox"/>	Riverside	1.22%	6.11
<input checked="" type="checkbox"/>	Anaheim	1.00%	5.01
<input checked="" type="checkbox"/>	Pasadena	0.51%	2.55
<input checked="" type="checkbox"/>	Vernon	0.36%	1.80
<input checked="" type="checkbox"/>	Valley Electric	0.30%	1.50
<input checked="" type="checkbox"/>	Azusa	0.13%	0.66
<input checked="" type="checkbox"/>	Banning	0.10%	0.50
<input checked="" type="checkbox"/>	Corona	0.04%	0.20

**Utilities communicate with customers and rotate load blocks hourly and/or in accordance with your respective emergency plans**

# Restoration – Emergency Downgrade Return to Normal

- ✓ If firm load shed was required, CAISO BA will restore firm load as soon as system conditions allow
- ✓ MW restoration values will be determined by Shift Manager prorata



## EEA 3 TO EEA 2

Operating Instructions to restore firm load

Operating Instructions to no longer “arm” firm load as Contingency Reserves



## EEA 2 TO EEA 1

Operating Instructions/ dispatch ended for RDRR and all available energy from UDC/ MSS



## EEA 1 TO EEA WATCH

No concerns serving load and meeting CR requirements



## EEA 0

Continued updates to RC until event over and CAISO BA returned to EEA 0 with all Emergency notices cancelled

## What Questions Do You Have?



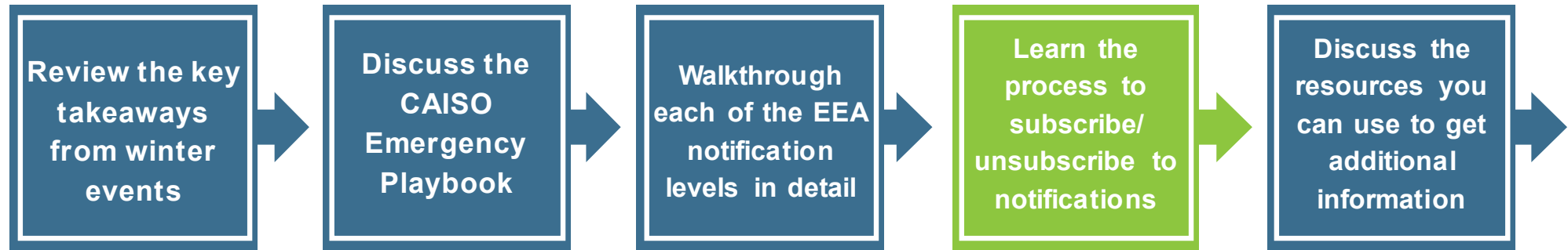
Unmute yourself

or



Raise your hand






# SUBSCRIBING TO EMERGENCY NOTIFICATIONS

# ISO Communication Methods

The **ISO Communications Method** document houses information on all of the ways that we send out emergency notification information



### ISO communication methods

The ISO offers various communications methods to keep stakeholders and customers informed of grid events. The following communication methods are available on a subscription basis or publicly available.

- **Daily Briefing** is a summary of the day's notices; [subscribe here](#)
- **Twitter**; follow the ISO via the following handles
  - @ISONotices all ISO notices
  - @California\_ISO primary channel
  - @FlexAlert Conservation tips and Flex Alerts when a grid warning or emergency is in effect
- **MNS** – Market notification system; system status update email sent at 8:00 a.m., 10:00 a.m., 12:00 p.m., and then hourly until warning has ended
  - Publicly via [QASIS](#), click "System Status Update Email"
  - By [registering for MNS service](#)
  - In CIDI tool, upper right corner of the "My Profile" page
  - In the [Market Participant Portal](#) (free)
- **GMS** – Grid messaging system. Messages sent to all balancing authorities.
- **Customer service emails**, primary contact for each scheduling coordinator, transmission operators, public information, Emergency Services as provided to the public.
- **Emergency notifications** (formerly AVE). If you want to receive emergency notifications, you must be added to the distribution list. Emergency notifications are auto-published.
- **System status update e-mails**. This is an operations distribution list for operational staff. To be added to this list, you must request to be added.

**Day-ahead Warnings are sent through**

- Notices (Daily Briefing)
- GMS
- Customer service e-mail to all primary contact
- System status update e-mail sent at 3:00 p.m.

### Energy Emergency Alert (EEA) Watch are sent through

- Twitter
- MNS, EN e-mail, Today's Outlook & ISO Today mobile app

**EEA 1 notifications are sent through**

- Notices (Daily Briefing)
- MNS, EN e-mail, Today's Outlook & ISO Today mobile app

**EEA 2 notifications are sent through**

- Notices (Daily Briefing)
- MNS, EN e-mail, Today's Outlook & ISO Today mobile app

**EEA 3 notifications (preparing for rotating outages and or ordering rotating outages) are sent through**

- Notices (Daily Briefing)
- MNS, EN e-mail, Today's Outlook & ISO Today mobile app
- Twitter

**EEA 1 notifications are sent through**

- GMS
- System status update e-mail sent at 8:00 a.m., 10:00 a.m., 12:00 p.m., and then hourly until warning has ended
- Twitter
- GMS
- System status update e-mail hourly from time EEA 1 is called until event has ended

**EEA 2 notifications are sent through**

- Twitter
- GMS
- System status update e-mail hourly from issuing EEA 2 until event has ended

**EEA 3 notifications (preparing for rotating outages and or ordering rotating outages) are sent through**

- GMS
- System status update e-mail hourly from issuing EEA 2 until event has ended
- Load serving entity blast call – a single call to all load serving entities

Cancellation or downgrading of events will have the same communication method as the original issuance.

	Twitter	GMS	Emergency notification, MNS, EN e-mail, Today's Outlook & ISO Today mobile app	Notice	Customer service e-mail	System status update e-mail	Blast call
Restricted Maintenance Operations		X	X				
Flex Alert (day ahead)	X		X	X			
Flex Alert (day of)	X		X	X			
EEA Watch (day of)	X	X	X	X		X	
EEA 1	X	X	X	X		X	
EEA 2	X	X	X	X		X	
EEA 3	X	X	X	X		X	X
All clear	X	X	X	X	X		

California Independent System Operator  
www.caiso.com | 250 Outcropping Way, Folsom, CA 95630 | 916.351.4400  
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CS/OG/05/2023



# Notification Methods

To locate: CAISO.com > [Subscriptions button \(bottom of webpage\)](#)

	Twitter	GMS	Emergency notification, MNS, Today's Outlook, ISO Today mobile app	Notice	Customer service email	System status update email	Blast call
Restricted Maintenance Operations		X	X				
Flex Alert (day ahead)	X		X	X			
Flex Alert (day of)	X		X	X			
EEA Watch (day of)	X	X	X	X		X	
EEA 1	X	X	X	X		X	
EEA 2	X	X	X	X		X	
EEA 3	X	X	X	X		X	X
All clear	X	X	X	X	X		

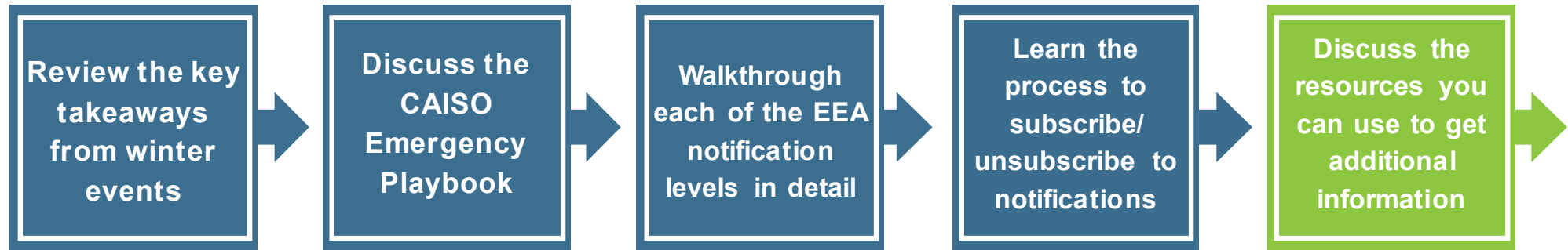
<http://www.caiso.com/Documents/ISOCommunicationMethods.pdf>

# Subscribing and Unsubscribing

- If you **would like to be added** to the EA notification distribution list:
  - Self subscription is available! Check it out here:  
<https://www.caiso.com/subscriptions/subscription-emergency>
- If you **would like to be removed** from the EA notification distribution list:
  - At the bottom of each notification level, there is an opt out link users can select.



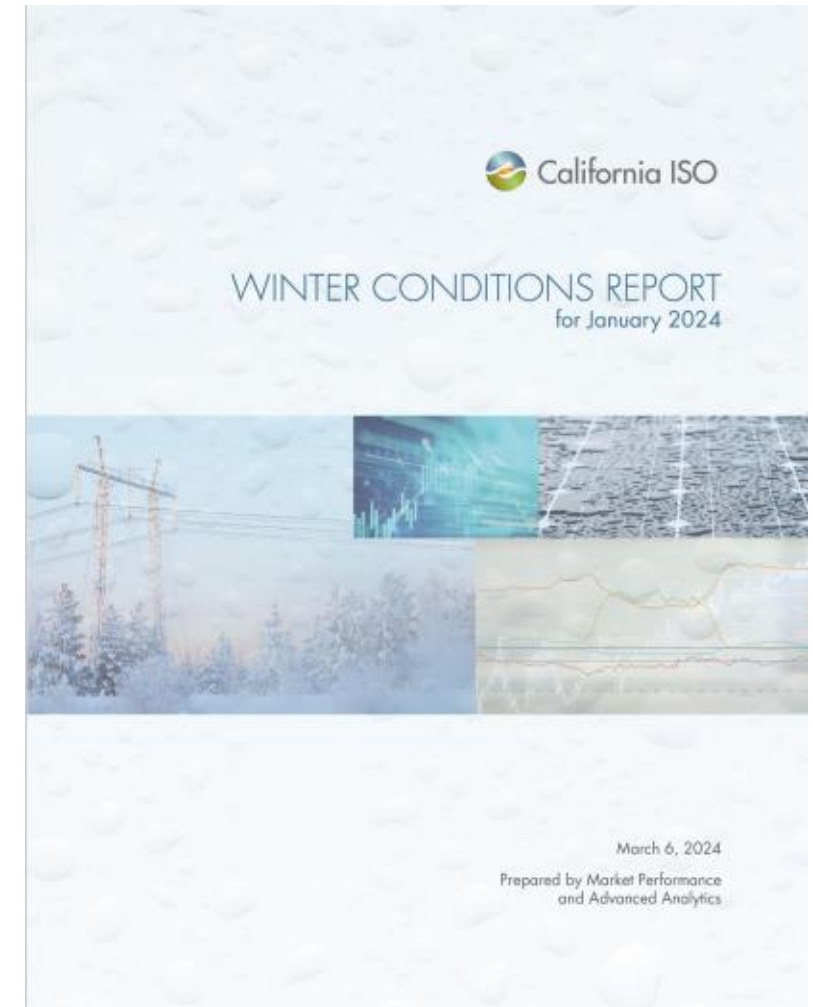
Make sure you check your junk/trash folders in case the notification emails ends up in those folders!



## ADDITIONAL RESOURCES

# Winter Resources

- **Winter Conditions Report for January 2024**
  - Located on the caiso.com website [here](#)
- **Energy Matters blog**
  - Located on the caiso.com website [here](#)
- **Market performance and planning forum**
  - Quarterly forum to discuss issues/dialogue on release planning, implementation and new market enhancements [here](#)



# Additional Resources – Operational Procedures

## **NERC Standards** (<https://www.nerc.com/pa/Stand/Pages/ReliabilityStandards.aspx>)

- [COM-002-4 - Operating Personnel Communications Protocol](#)
- [EOP-011-4 – Emergency Operations](#)
- [EOP-012-2 – Extreme Cold Weather Preparedness and Operations](#)
- [TOP-002-5 – Operations Planning](#)

## **RC West Procedures** (<https://www.caiso.com/rules/Pages/OperatingProcedures/Default.aspx>)

- [RC0410 – System Emergencies](#)

## **CAISO BA Procedures** (<https://www.caiso.com/rules/Pages/OperatingProcedures/Default.aspx>)

- [4420 – System Emergency](#)
- [4410 – Emergency Assistance](#)
- [4510 – Load Management](#)
- [4510A – Load Shed Calculation Guideline](#)
- [4100 – System Operations Emergency Plan](#)
- [4120 – Gas Transmission Pipeline System Limitations or Outages](#)





# Additional Resources

**Resource operations readiness – performance expectations**

[Training](#) | [Video](#)

**Resource operations readiness – battery performance expectations**

[Training](#) | [Video](#)

**Resource operations readiness – managing interconnections**

[Training](#) | [Video](#)

## What Questions Do You Have?



Unmute yourself

or



Raise your hand

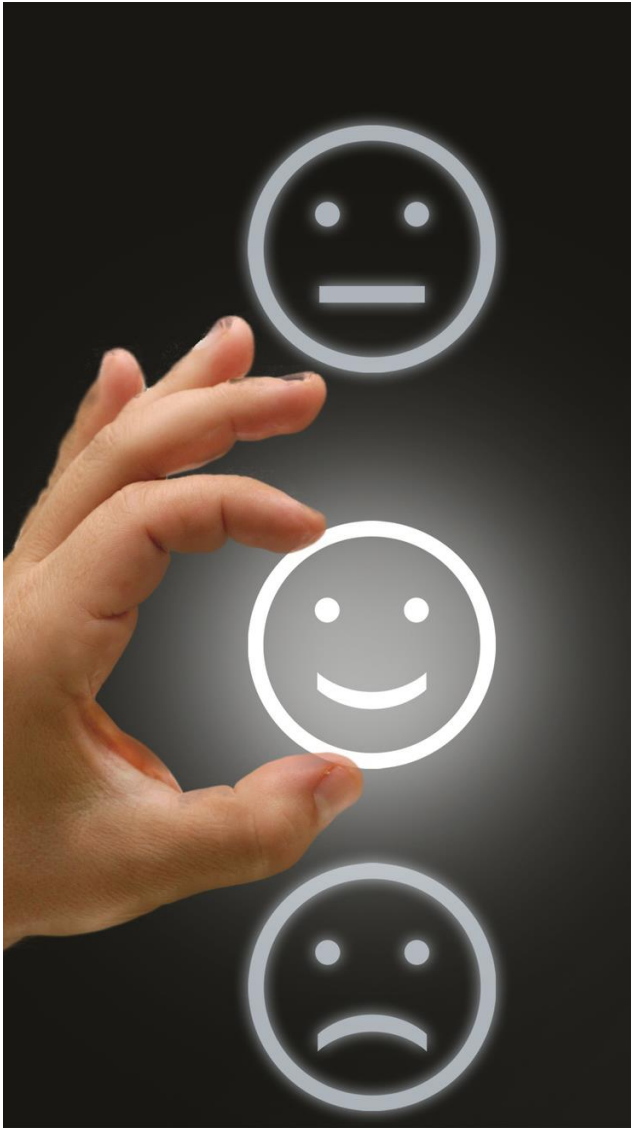
A photograph of a classroom with rows of desks and chairs, a large projection screen at the front, and two exit doors. The image is covered with a semi-transparent blue overlay.

# Wrap Up

## Summary, Q&A

# Wrap-up





## Tell us How we Did

Takes 3-5 minutes to complete

Helps us improve future training

Link: <https://www.surveymonkey.com/r/caisocoursesurvey>

Instructor Dottie  
Training course Other: Winter Readiness

# Thank you for your participation!



For clarification on anything presented in this training, send an email to:  
[CustomerReadiness@caiso.com](mailto:CustomerReadiness@caiso.com)

For other questions or stakeholder specific questions or concerns use one of these methods:

- Submit a [CIDI ticket](#)
- Contact your Scheduling Coordinator
- Use the “[Contact us](#)” page on [caiso.com](https://www.caiso.com) to submit questions