

# 2024 Post-Season/Pre-Season Public Briefings on Utility Public Safety Power Shutoffs (Day 1)

California Public Utilities Commission

August 7, 2024



California Public  
Utilities Commission

# Day 1 - Agenda

9:00 – 9:15 AM	Opening Remarks
9:15 – 10:30 AM	Liberty Presentation & Questions from Dias
10:30 – 10:40 AM	Break
10:40 – 11:55 AM	PacifiCorp Presentation & Questions from Dias
11:55 – 12:25 PM	Morning Public Comments
12:25 – 1:25 PM	Lunch Break
1:25 – 2:55 PM	Southern California Edison Presentation & Questions from Dias
2:55 – 3:10 PM	Break
3:10 – 3:40 PM	Afternoon Public Comments
3:40 – 4:00 PM	Closing Remarks

# Opening Remarks

President Reynolds and CPUC Commissioners

Shaun Fairbanks, Deputy Chief, CAL FIRE

Patrick Doherty, Program Manager, Office of Energy Infrastructure Safety



California Public  
Utilities Commission

# 2024 Public Safety Power Shutoff Briefing

Presented to the California Public Utilities Commission  
August 7, 2024



# Liberty

- ❑ ~49,000 customers
- ❑ ~1,400 miles of overhead lines
- ❑ ~300 miles of underground lines
- ❑ ~23,000 utility poles
- ❑ 12 substations
- ❑ Connected to Nevada Balancing Authority (not CAISO)
- ❑ 125 employees



# 2024 Public Safety Power Shutoff (“PSPS”) Pre-Season Planning and Preparation

- ❑ Continue collaboration with CBOs
- ❑ Support AFN communities
  - Continue to build and expand networks and engage resources (e.g., 211)
  - Increase ability to track and record data
  - Continue AFN-specific survey
- ❑ PSPS training and planned exercises
- ❑ Continue PSPS forecasting
- ❑ Continue grid hardening
- ❑ Implement Sensitive Relay Profile (“SRP”) Program
- ❑ No significant changes made to Liberty’s CRC plan, critical facilities and infrastructure plan, notification plan and education and outreach plan.



# Overview of Prior Years PSPS Performance and Lessons Learned

- ❑ Liberty has not executed a PSPS event from 2019–2023.
- ❑ Lessons learned and planned improvements resulting from PSPS exercises:
  - Additional real time play scheduled for 2025 exercises to test operational response times.
  - Identify additional back-ups for incident Command positions and train them.
  - Implement improved audio system for exercises to improve communication with IMT members who are participating virtually



# Grid Hardening

## ❑ In 2023, Liberty advanced system hardening efforts by:

- Completing five planned covered conductor projects (5.7 miles), four traditional overhead hardening projects (9.2 miles) as part of its Topaz Resiliency Project, and a combination of undergrounding and covered conductor at Cascade Lake (0.37 miles)
- Completing 292 pole replacements, as part of: G.O. 165 Level 2 pole replacements, Test and Treat pole replacements, storm damage pole replacements, and covered conductor projects
- Completing 4.4 miles of open wire/grey wire
- Systematically replacing equipment that creates ignition risk, such as expulsion fuses (4,122 fuses replaced) and tree attachments (37 tree attachments removed)
- Improving substation infrastructure by installing four substation animal guards
- Installing five automatic reclosers to support Liberty's Sensitive Relay Profile ("SRP") Program

## ❑ In 2024, Liberty plans to complete the following system hardening efforts:

- Implement SRP on 15 circuits, including the installation of fault indicators and automatic reclosers
- Three planned covered conductor projects (3.7 miles) and 3.5 miles of traditional overhead hardening
- 400 pole replacements as part of Liberty's Resiliency Program
- 5.1 miles of open wire/grey wire
- 60 tree attachment removals
- Two substation animal guards





# 2023 Wildfire Mitigation Funding

Liberty spent \$62M (\$49.8M Capital and \$12.3M O&M) in 2023

Approx. \$49M Capital spend on grid hardening activities

- 5.7 miles of covered conductor
- 9.2 miles of traditional overhead hardening
- 292 pole replacements
- 4.4 miles of open wire/grey wire secondary lines
- 4,122 fuses replaced with non-expulsion fuses

Approx. \$10.5M O&M spend in vegetation management activities

- 1,016 miles of ground-based and LiDAR inspections
- 702 miles of tree clearance pruning
- 313 miles of hazard tree removal
- Fuel reduction projects (4,957 poles cleared & 625 acres treated)



# 2024 Wildfire Mitigation Funding

Per its approved 2023 WMP, Liberty planned to spend \$56M in 2024; however, based on more current information and a shift in strategy to pursue expedited SRP implementation, Liberty now plans to spend \$38M, as reflected in Liberty's 2024 Change Order Request to Energy Safety

Approx. \$23.5M planned Capital spend on grid hardening activities

- Implement Sensitive Relay Profile ("SRP") Program on 15 circuits, including the installation of fault indicators and automatic reclosers
- 3.9 miles of covered conductor
- 3.5 miles of traditional overhead hardening
- 400 pole replacements
- 5.1 miles of open wire/grey wire secondary lines
- 500 fuses replaced with non-expulsion fuses

Approx. \$13.9M in planned O&M spend on vegetation management activities

- 920 miles of ground-based and LiDAR inspections
- 700 miles of tree clearance pruning
- 220 miles of hazard tree removal
- Fuel reduction projects (4,960 poles cleared & 280 acres treated)



# Meteorology/Weather

## ❑ **La Nina pattern affect on PSPS**

Precipitation anomalies are not strongly correlated with La Nina / El Nino cycles in Northern California. For that reason, we do not see La Nina having a forecastable influence on PSPS.

## ❑ **Notable meteorological trends or patterns happening this year that affect PSPS**

Liberty's Fire Potential Index ("FPI") remained low through June. Energy Release Component ("ERC") percentiles exceeded 97th percentile by mid-July but have since dropped.

## ❑ **Accuracy of meteorology and fire science predictive models over time**

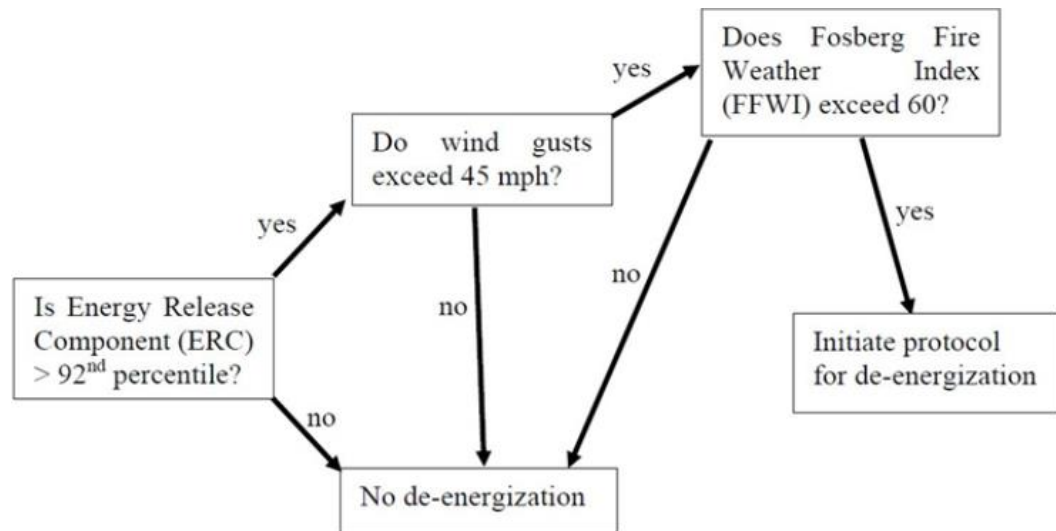
Liberty is an end user of NOAA/NWS operational weather models. The accuracy of weather models is assessed by comparing weather forecasts (particularly wind gust) to weather station observations.



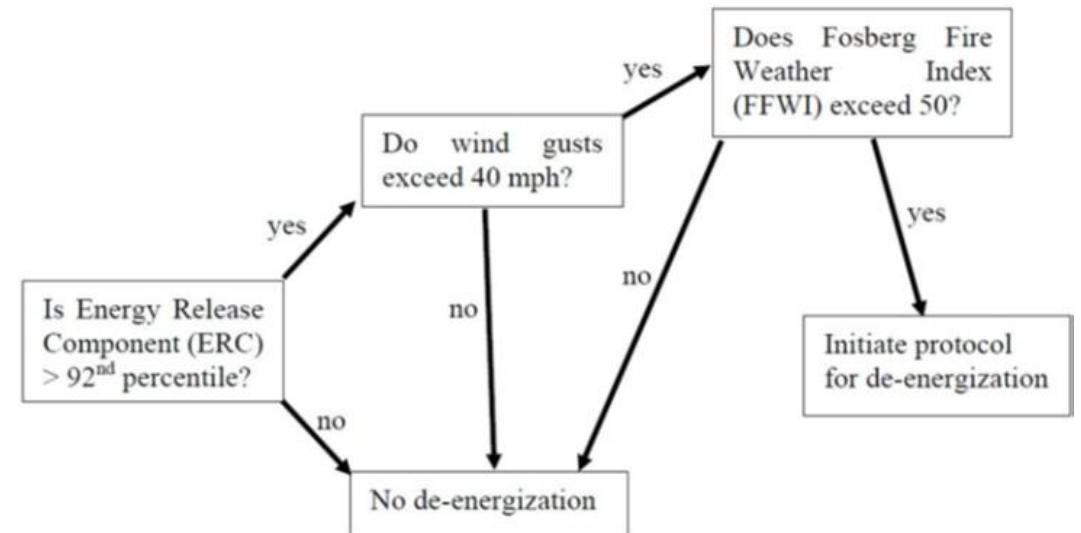
# PSPS Forecasting & Decision-Making

- Liberty has made no changes in de-energization thresholds in 2024.

*De-energization Decision Tree for Topaz and Muller 1296 r3 PSPS Zones*



*De-energization Decision Tree for other PSPS zones*



# Sensitive Relay Profile Program

## ❑ Liberty piloted its Sensitive Relay Profile (“SRP”) Program on two circuits in 2022 and is adding 22 additional circuits in 2024 and 2025

- ❑ Relay Profiles are used on breakers and reclosers on a per circuit basis.
- ❑ The settings are engineered in a way to limit nuisance trips and outages as much as possible.
- ❑ Adding fault indicators to better determine fault location and expedite restoration times. These are placed along main line taps to help crews patrol smaller sections of line.
- ❑ Collaborative research with the Electrical Engineering Dept at the University of Nevada, Reno on engineering of settings, and program improvements to reduce risk and maintain reliability.
- ❑ May lead to reduced use of PSPS depending on pilot results.



# PSPS Outreach

## ❑ PSPS awareness survey results

- ❑ 84% have taken action to prevent wildfires or to prepare their home or business for the event of a wildfire.
- ❑ Liberty remains the primary source for wildfire preparedness information, and Email remains the most cited channel for wildfire preparedness communication.
- ❑ 54% of surveyed customers recall seeing, hearing or reading the phrase “Public Safety Power Shutoff or PSPS.”
- ❑ 56% are aware of wildfire safety communications.

## ❑ PSPS outreach

- ❑ Collaborative outreach opportunities with CBOs remain one the strongest ways to conduct PSPS outreach.
- ❑ Customer outreach campaign via web, social media, bill inserts, and advertisements.

## ❑ Updating customer information

- ❑ All events and communications with CBOs and customers are seen as an opportunity to update contact information.



# PSPS Customer Resources and Notifications

## ❑ **Community Based Organization (“CBO”) coordination**

- ❑ Development of CBO partnerships remains a critical aspect of Liberty’s communication and outreach strategy.
  - ❑ CBO contact lists are a vital resource.
- ❑ Focus on increasing customer awareness of AFN Self-ID and assistance programs.

## ❑ **Community participation and inclusion**

- ❑ Increased participation in councils and working groups.
  - ❑ Participation in community collaborative groups in South and North Lake Tahoe.
  - ❑ Establish connections, share information on assistance programs and PSPS preparedness with local networks.

## ❑ **Medical Baseline (“MBL”) and Access and Functional Needs**

- ❑ New role on Liberty’s Customer Care team focusing on Medical Baseline customers, CARE, and outreach planning.
- ❑ Backup battery program for eligible Medical Baseline customers.



# Break



# CPUC Public Safety Power Shutoff Workshop - 2024

Hallie Frazee - Program Manager, Wildfire Mitigation Communications Program Manager

Melissa Swenson - Director, Wildfire Mitigation Program Delivery

Chris Walsh - Meteorology Manager

Nora Yotsov - Director, Emergency Management



# Agenda

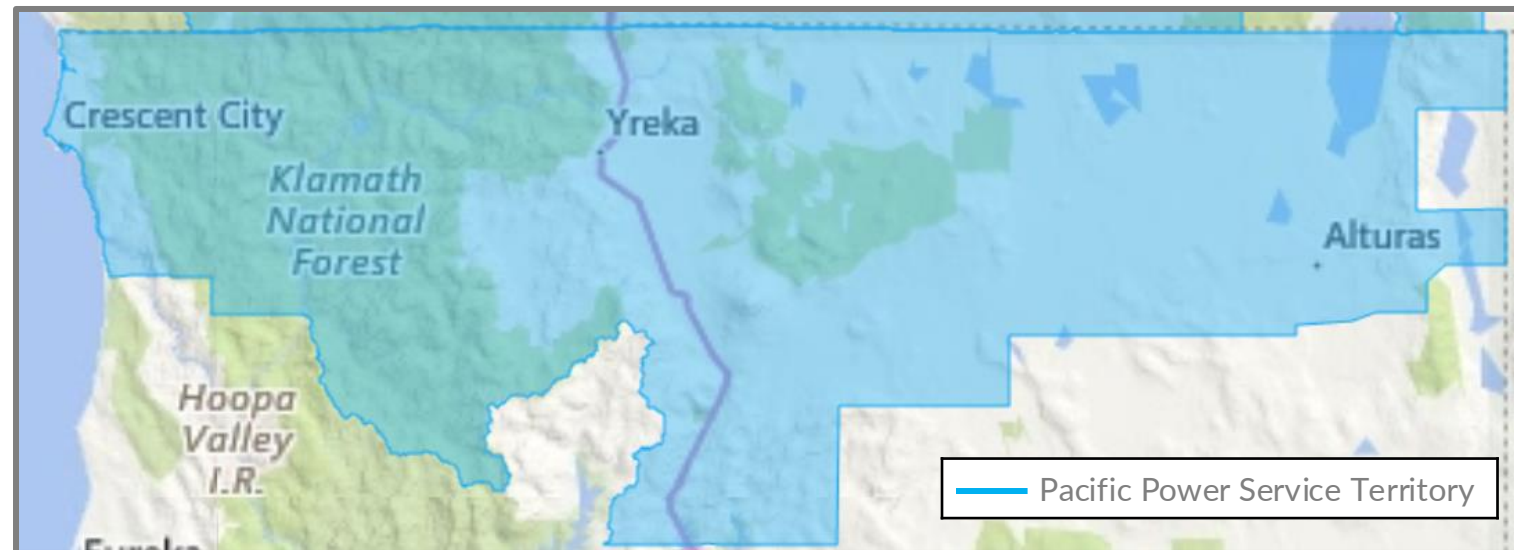
- 2023 Results
- 2024 Public Safety Power Shutoff Readiness
- Risk Modeling and Situational Awareness
- Customer Outreach and Insights
- Operational Practices and Grid Hardening



# Pacific Power's Service Area

- PacifiCorp serves ~2 million customers across six states in the west as Pacific Power and Rocky Mountain Power
- Pacific Power provides electricity to approximately **45,000 California customers** via **60 substations**, **3,100 miles** of distribution lines, and about **730 miles** of transmission lines across nearly **11,000 square miles**.

## California Service Area



# 2023 Results

## Accomplishments

- Replaced **95+** miles of bare conductor with **insulated** covered conductor
- Replaced **five** miles of bare conductor with **underground** conductor
- Upgraded **35+** reclosers, **relays**, and **circuit breakers** for enhanced protection and control
- Installed **4,000+** non-expulsion fuses

## Program Improvements

- **Increased** frequency of asset inspections
- **Enhanced** vegetation management
- Covered conductor installation
- **Advanced** protection and control
- Expulsion fuse **replacements**

## System-Wide Initiatives

- Improved risk modeling tools
- Situational awareness
- Weather station network
- Operational practices
- Community education and outreach

Planned and Actual Spend 2023-2025 <sup>1</sup>			
	2023	2024	2025
Planned	\$128.1m	\$116.8m	\$146.4m
Actual	\$137.7m		

<sup>1</sup> Includes Capital and Expense. Data from Second 2024 Quarter Quarterly Data Report and 2023 Annual Report on Compliance.



# 2024 Public Safety Power Shutoff Readiness

# PSPS History

Year	# of Events	Event Duration (hours)	Restoration Time (hours)	Counties	Total Customers Affected	# Missed Notifications	AFN/ Medical Baseline Customers Affected	Critical Facilities Affected	Customer Resource Centers Activated
2019	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2020	1	7.9	2	Siskiyou	2,557	UNK	5	13	0
2021	1	9.6	5.53	Siskiyou	1,953	305	11	19	1
2022	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2023	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

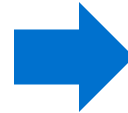
- Pacific Power had no PSPS events in 2023
- The Company has had two PSPS events, one each in 2020 and 2021 and a PSPS watch in 2020

# 2024 PSPS Goals

Continue using PSPS as a temporary measure while:

## Reducing the scale, scope and frequency of PSPS events through:

- Grid hardening to make the system more resilient
- Installation of new devices to support sectionalization
- Situational awareness to facilitate a surgical approach



## Monitoring Metrics

- Number of PSPS events
- Duration of events
- Customer impact
- Restoration time

## Mitigating impacts of PSPS with:

- Enhanced planning and preparations
- Advanced warning and notifications
- Community Resource Center (CRC) activation to provide services
- Customer generation programs



## Monitoring Metrics

- Percent of customers notified
- Percent of Access and Functional Needs (AFN) positive customer notifications
- CRC activations
- Portable battery deliveries

# PSPS Improvements

## Improve community resource centers and outreach to customers with access and functional needs

- Moving to mobile and self-contained CRCs
- Partnering with Community Based Organizations (CBOs) to increase the number of identified AFN and Medical Baseline customers
- New AFN Program Manager

## Improved customer communications

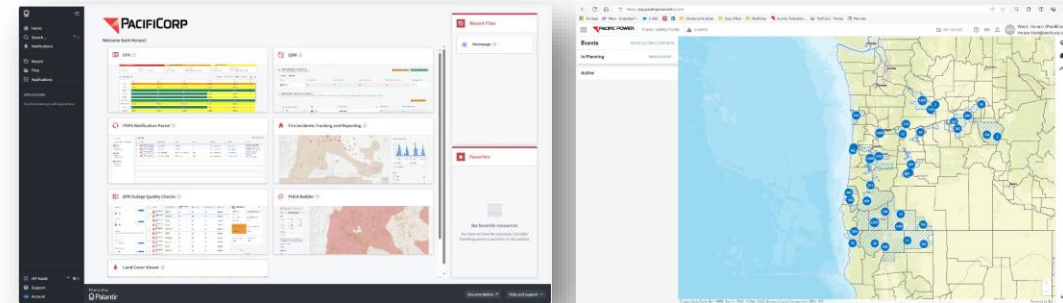
- Implemented new customer notification tracking tools
- New California Regional Business Manager

## Collaboration with local public safety partners

- Public safety partner portal
- New Tribal Liaison Representative position
- Modoc County tabletop and functional exercise; Siskiyou County workshop

## Improved Situational Awareness Tools

- U.S. Forest Service's Severe Fire Danger Index
- Development of wind-related outage prediction model





# Notification Improvements

## Customer Notifications

- Partnered with CBOs to identify and reach customers with medical baseline needs and other with access and functional needs
- Positive or affirmative PSPS communications for AFN and Medical Baseline customers, including in-person notifications if required
- Automated tracking of all customers who have received notifications during a PSPS event

## Critical Facility and Infrastructure Plan updates

- Public safety portal implementation in 2024 to support safety partners during PSPS events with maps of critical infrastructure and contact information

PSPS Notification Protocols	
48-72 hours prior	De-energization warning to Public Safety Partners
24-48 hours prior	De-energization warning <b>Phone call to customers with MBL/AFN</b>
1-4 hours prior	De-energization imminent <b>Phone call to customers with MBL/AFN</b> <b>Additional outreach to uncontacted customers with MBL/AFN</b>
Event begins	De-energization begins <b>Wellness check call for customers with MBL/AFN during extended events</b>
Re-energization begins	Re-energization begins
Re-energization completed	Re-energization completed <b>Wellness check call for re-energized customers with MBL/AFN</b>
Cancellation of event	De-energization event canceled

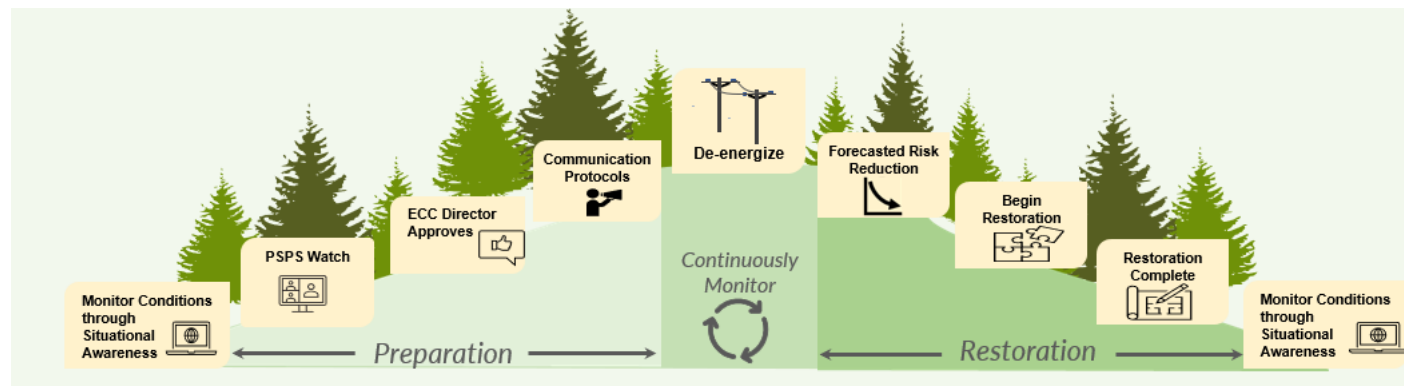
# De-energization and Restoration Improvements

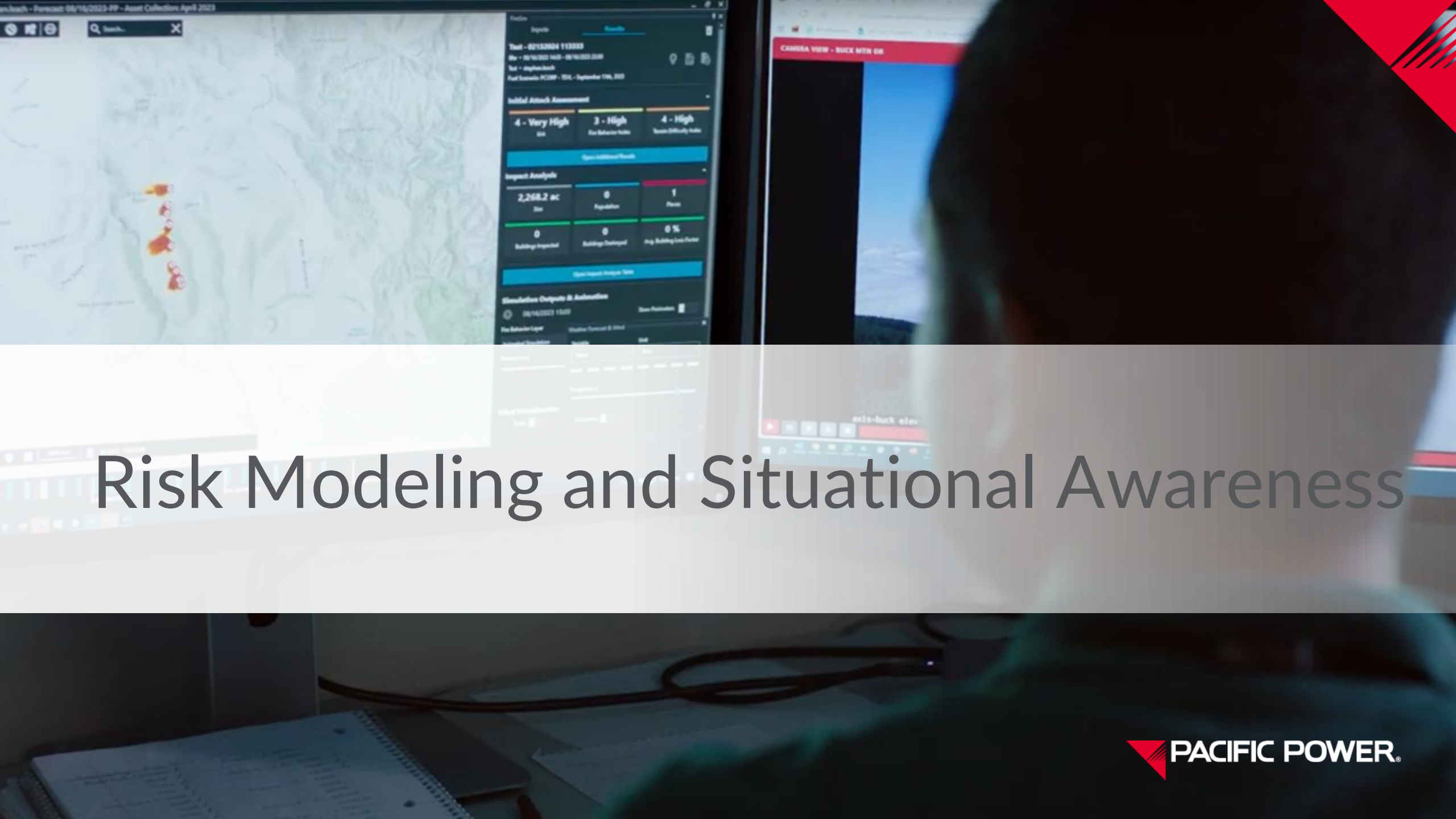
## De-Energization Improvements

- The U.S. Forest Service's Severe Fire Danger Index is now used to inform wildfire potential decisions
- Pacific Power has a wind-related outage prediction model to better identify the need for a PSPS

## Technology to Enable Faster Restoration

- Situational awareness models and tools provide real-time information to enable quicker decision-making with better information
- Aerial inspections for difficult to access areas
- Isolating devices to reduce the number of customers impacted





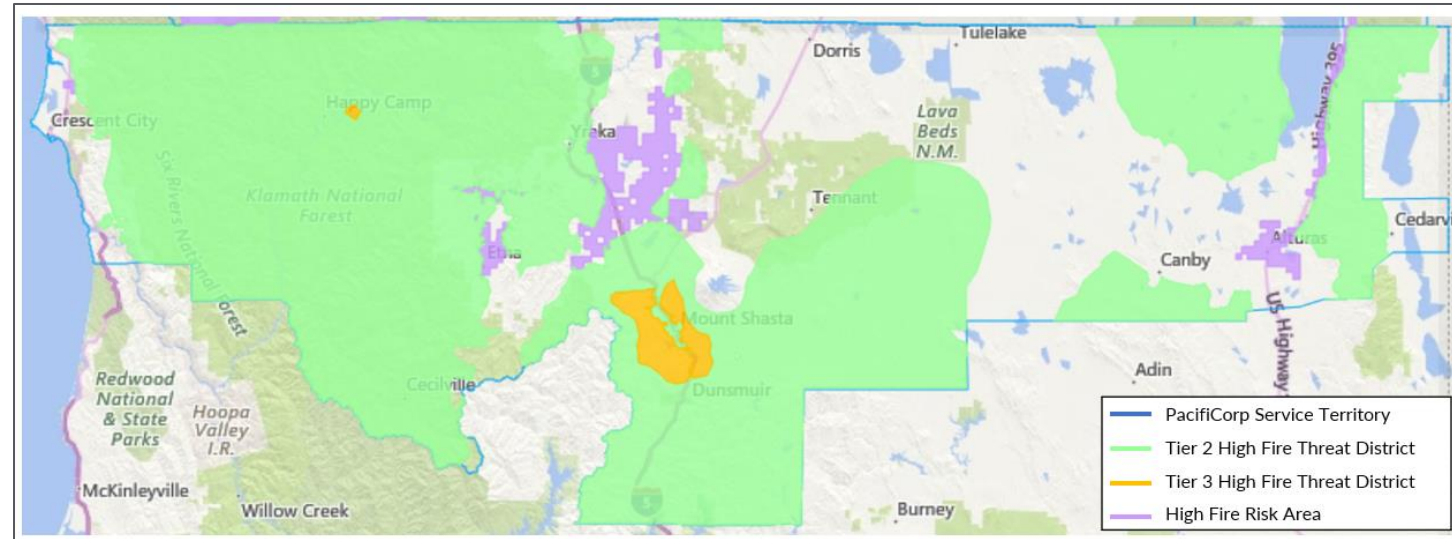
# Risk Modeling and Situational Awareness

# Risk Modeling Update

## New Risk Modeling Tools

- In 2023, implemented the FireSight model to identify areas of heightened fire risk and consequence
- Applying the FireSight risk model scores, identified a new **High Fire Risk Area (HFRA)**
- The new HFRA and the existing High Fire Threat Districts encompass approximately 1,700 overhead line miles and 54% of Pacific Power's service territory in California

## High Fire Threat Districts and High Fire Risk Area

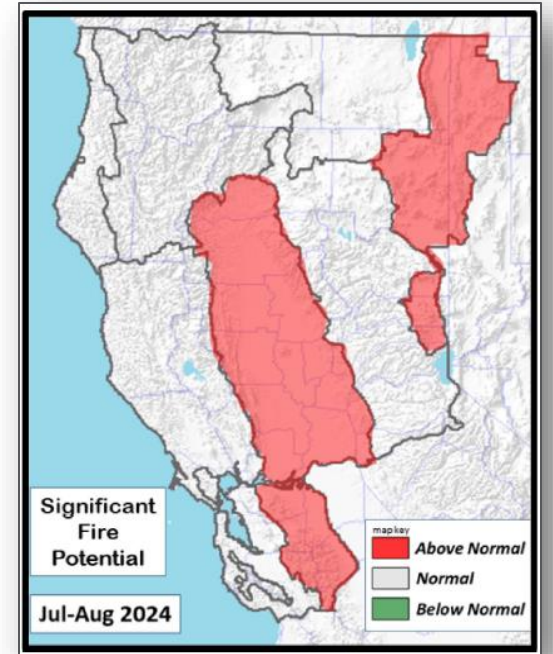


## Mitigation Selection Process

- FireSight risk scoring used as an input for prioritization
- Additional selection criteria including technical assessment, permitting, and environmental factors

# 2024 Fire Season Outlook

- In general, fuel loading does not significantly impact the likelihood of PSPS due to the nature of wind-driven wildfire scenarios
  - Dry dead and live fuels are expected to occur earlier
- The transition to La Niña is expected to create a weaker monsoon weather pattern for the western U.S., potentially leading to a decrease in lightning ignitions
- A significant heat wave could lead to a faster onset of wildfire conditions requiring expedited preparedness efforts



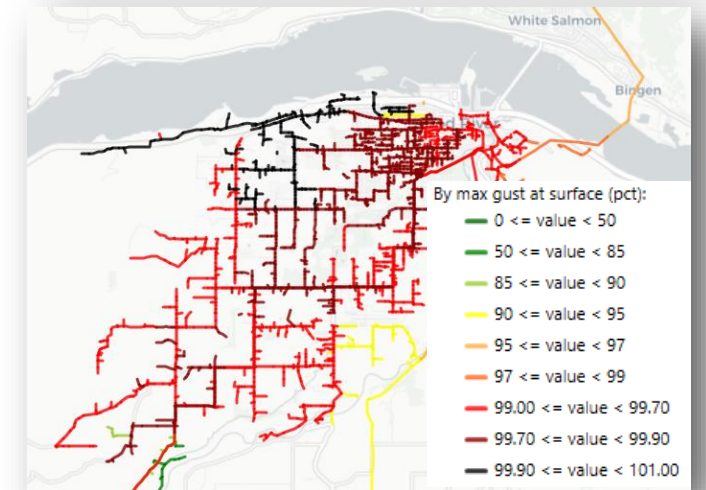
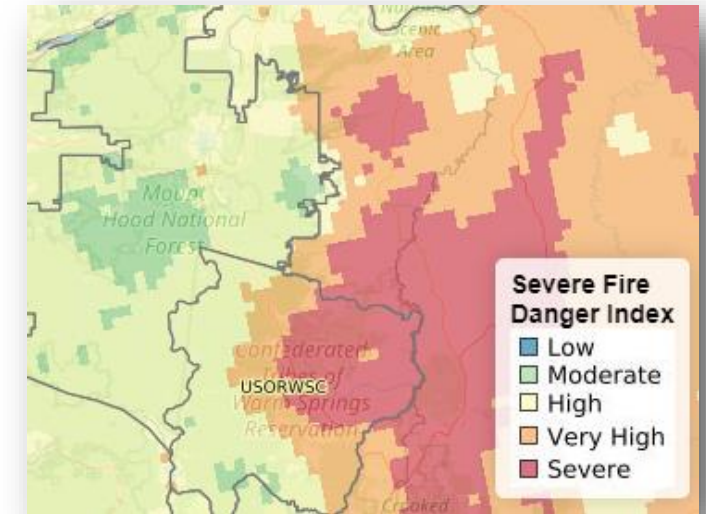
# 2024 PSPS Forecast Improvements

## Improved Identification of Wildfire Danger

- The U.S. Forest Service's Severe Fire Danger Index is used to assess the fire environment and diagnose fire danger
- PSPS is possible when fire danger is Very High or Severe

## Advanced Modeling to Identify Wind-Related Outages

- A high-resolution numerical weather prediction model assessing winds hourly for 96 hours twice daily
- Wind forecasts are compared to a 30-year historical weather reanalysis to identify impactful winds



# Evolution of Wildfire Forecasting to Inform Decisions

## New for 2024 Fire Season

- Differentiating between complex fuel & terrain circuits and grass & rangelands circuits for wildfire risk
- Leveraging the U.S. Forest Service's **Severe Fire Danger Index** to identify with wildfire danger
- Use of a **Wind-Related Outage Prediction Model** to better identify potential for a PSPS at a more granular level

PACIFIC POWER SYSTEM IMPACTS FORECAST MATRIX										
WEATHER-RELATED OUTAGE POTENTIAL (Wx) and WILDFIRE RISK (F)										
		7/13 (Thu)				7/14 (Fri)	7/15 (Sat)	7/16 (Sun)	7/17 (Mon)	
		Wx	F	CIRC	CUST	Response	Wx	F	Wx	F
<b>NORTH WIRES</b>										
Clatsop Area	Clatsop									
Enterprise Area	Enterprise			1	18	EFR				
Hood River Area	Hood River			3	3,576	EFR				
Pendleton Area	Hermiston			1	536	EFR, GP				
	Pendleton			2	845	EFR				
Portland Area	Portland									
Walla Walla Area	Walla Walla			2	480	EFR				
	Sunnyside			2	325	EFR				
Yakima Area	Yakima			3	1,652	EFR				
<b>CENTRAL WIRES</b>										
	Albany									
	Corvallis			3	2,520	EFR				
	Cottage Grove			1	1,540	EFR				
Albany Area	Dallas			5	4,279	EFR				
	Junction City			1	309	EFR				
	Lebanon			6	6,918	EFR				
	Stayton			2	2,145	EFR				
Bend Area	Bend			2	470	EFR				
	Madras			1	385	EFR				
	Prineville			1	353	EFR				
	Redmond			1	367	EFR				
Coos Bay Area	Coos Bay									
Lincoln City Area	Lincoln City									
Roseburg Area	Roseburg			31	26,606	EFR				
<b>SOUTH WIRES</b>										
Crescent City Area	Crescent City									
Grants Pass Area	Grants Pass			25	33,717	EFR				
	Alturas			1	1,389	EFR				
Klamath Falls Area	Klamath Falls									
	Lakeview									
	Tulelake									
Medford Area	Medford			22	22,029	EFR				
	Mt. Shasta			9	4,215	EFR				
Yreka Area	Yreka			16	8,885	EFR				

Left: Example of the Daily System Impacts Forecast Report that informs decision making.  
Right: Color key for the report.

WEATHER-RELATED OUTAGE POTENTIAL (Wx)

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OUTAGE POTENTIAL

- Widespread Outages with Extended Restoration
- Scattered to Widespread Outages
- Isolated to Scattered Outages
- No System Impacts Expected

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WEATHER-RELATED HAZARDS

- L Thunderstorms (Lightning, Hail, Wind)
- I Freezing Rain and Ice
- W Wind
- S Snow
- F Flooding

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WILDFIRE RISK (F)

- Extreme Wildfire Risk
- Significant Wildfire Risk
- Elevated Wildfire Risk
- Low Wildfire Risk
- Non-Fire Season

An aerial photograph showing a utility worker in a white hard hat and dark uniform working from a white bucket truck. The worker is positioned on a wooden utility pole, surrounded by residential houses and green trees. A silver pickup truck is parked on the street below. The scene is captured from a high angle, looking down at the worker and the surrounding neighborhood. A semi-transparent white banner is overlaid across the middle of the image, containing the text "Customer Outreach and Insights".

# Customer Outreach and Insights



# Medical Baseline and AFN Customers

## Outreach to Potentially Eligible Customers

- CARE applications and re-certification forms
  - Updated so customers can self-identify if someone in the household has a disability, or requires access, financial or language support during a public safety power outage
- **New positions supporting coordination with agencies that serve people with AFN, Tribal communities, critical facilities and enhanced wildfire communications**
  - CA Regional Business Manager
  - Tribal Liaison
  - Wildfire Mitigation Communications Manager
  - AFN Program Manager
- Medical certificate information translated
  - Website: 1:1 Spanish
  - Handouts: Spanish and Hmong

June 2024 AFN Customer Counts			
Medical Baseline AFN	Non-Medical Baseline AFN	Total AFN	Increase from 2023
86	1,250	1,336	64%

2023 CARE Program		
Average CARE Participants	Estimated Eligible	Participation Rate
11,185	13,244	84.5%

# 2024 AFN Program Improvement Plan

## **Goal: Increase Number of Self-Identified AFN and Medical Baseline Customer Enrollments**

- Expand coordination beyond CBOs by targeting
  - County public health agencies
  - United Way 2-1-1 where available
  - Organizations serving AFN communities
- Evaluate off-season communication strategy
- Continue to promote generator rebate program
- Increase traffic to Company's website
- Evaluate additional program offerings

## **Survey Improvements in 2025**

- Most recent results showed a large percentage of customers surveyed stated they were AFN
  - Revisit survey questions and improve definition
  - Indicates an opportunity to better educate customers about definition of AFN

# Customer Backup Generation Programs

## Marketing Campaign

**PACIFIC POWER.**

**Helping you stay safe and prepared**

Keeping our grid strong and resilient to deliver safe, reliable power is our top priority, but power outages can still occur.

Whether they're caused by storms or accidents, or are necessary as a [safety measure](#), we know outages impact you – which is why we work to restore power quickly and safely.

To help you prepare for potential outages, we're offering eligible California customers a **rebate of up to \$300** on the purchase of a generator or portable power station. Customers who qualify for [CARE](#) or [medical baseline](#) programs are eligible for an **additional \$500**.

To claim a rebate, you must be an active Pacific Power residential customer. Your generator or portable power station must also be a qualified product that was purchased on or after January 1, 2024.

**To learn more and apply, please [visit our website](#).**

Have questions? [Contact Us](#) | 1-888-221-7070 | Español 1-888-225-2611

[Unsubscribe](#) | [Update Profile](#)

This email was sent by Pacific Power, 825 NE Multnomah St., Portland, OR 97232

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### REBATES SUPPORT *preparedness*



To support readiness and resiliency for our customers, we offer rebates on backup power equipment.

You may earn a rebate of up to \$300 on the purchase of a qualifying portable generator or portable power station. Customers enrolled in the CARE or the medical baseline program are eligible for an additional \$500.

Be sure to follow the manufacturer's instructions for safe and proper use of backup power equipment. Apply for rebates and learn more at [PacificPower.net/BackupPower](#).

To help our California customers prepare for emergency and potential power outages, Pacific Power's Medical Certificate and Medical Baseline programs offer the following for qualifying customers:

- Extra notifications whenever possible during Public Safety Power Shutoff events.
- A rebate of up to \$800 on the purchase of a generator or backup power supply.
- A free portable battery for customers enrolled in Medical Baseline Program and California Alternate Rates for Energy (CARE) program.
- An increase in the baseline allowance at the lower on their monthly energy bill.

Enrollment in the medical programs does not guarantee power will not be interrupted by a weather-related outage, other circumstances outside of Pacific Power's control or a service disconnection due to bill nonpayment.

*(Customers at risk of service disconnection due to bill nonpayment can access resources at Pacific Power's [Bill Payment Assistance](#) webpage at [PacificPower.net/assistance](#))*

## Generator Rebate Program

- Rebate offered on the purchase of a portable generator or portable power station to customers who reside in Tier 2 or 3 area
- **Additional rebates available to AFN customers**

2022 Applications	2023 Applications	2024 Applications	Total Applications	% AFN Customers Enrolled
8	510	86	604	19%

## Free Portable Battery Program

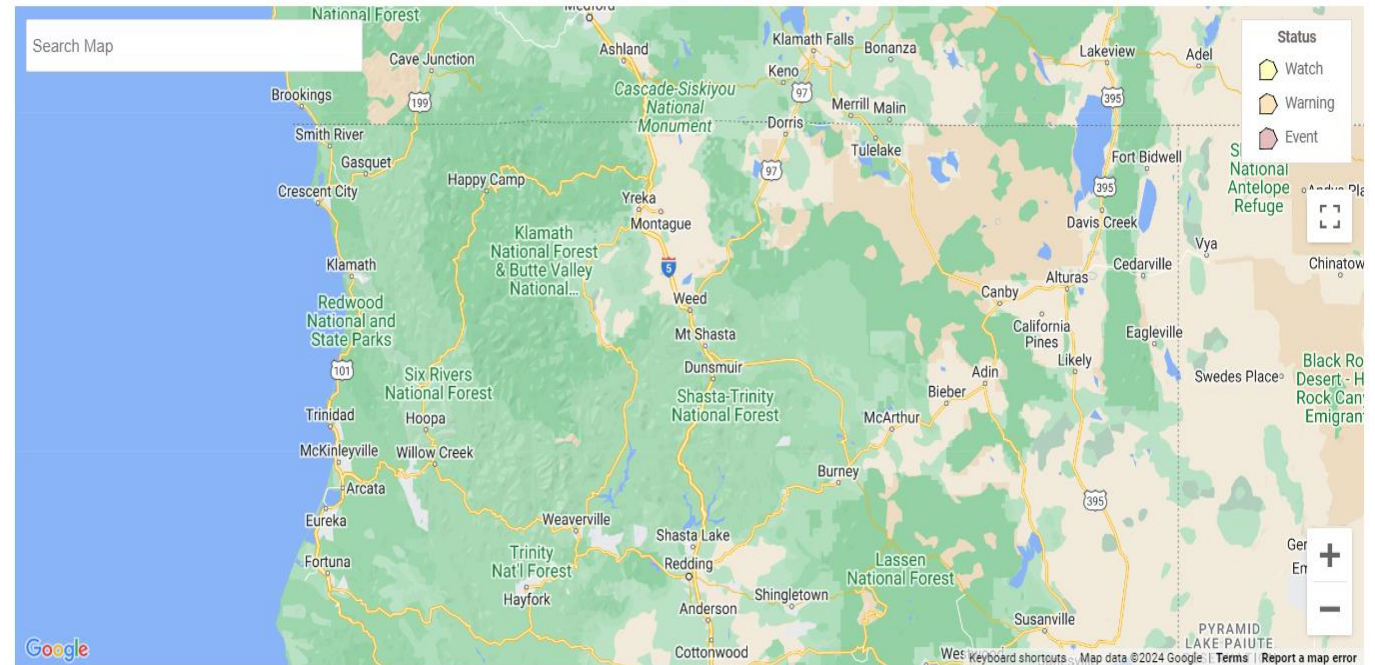
- Implemented in 2021 to provide back-up batteries – at no cost – to medical baseline customers. Program includes:
  - Technical assessment of needs
  - Training
  - Free-to-the customer portable batteries
  - Customer Support

2023 Program Results		
Customers Reached	Identified as Battery Eligible	Received Batteries
13	7	5

# Customer Resources

## Public Safety Power Shutoff

- Customers can enter their address on the [Public Safety Power Shutoff Map](#) to see if they are under a PSPS watch, warning, or event
- **Informational video** available on PSPS process and what to expect
- **Downloadable collateral** on PSPS, Enhanced Safety Settings, Emergency De-energization in English and Spanish



*\*Some customers outside of Public Safety Power Shutoff areas could be impacted by a Public Safety Power Shutoff due to the interconnected nature of the electrical grid.*

### Public safety power shutoff forecasting

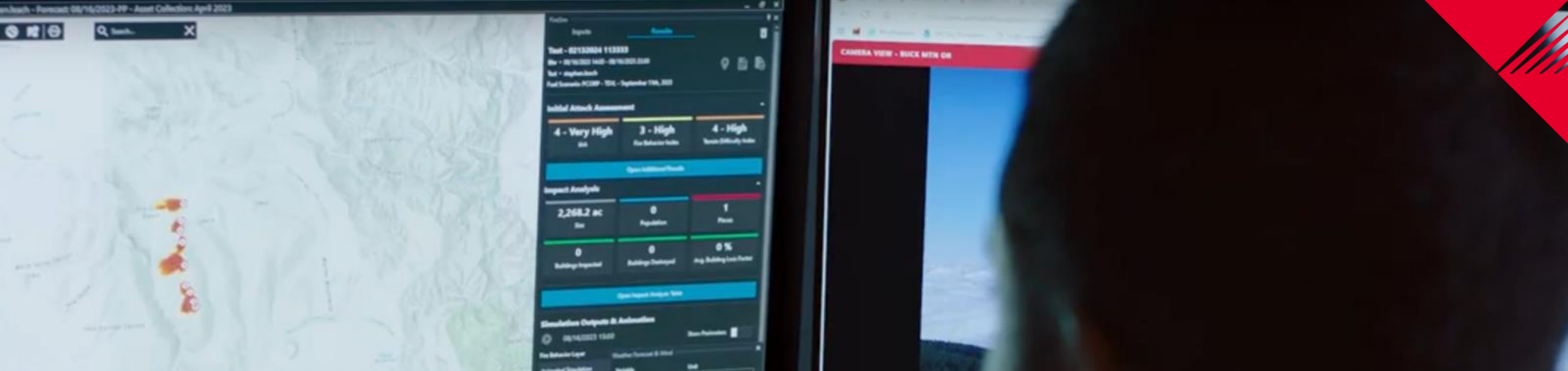
This table shows the Public Safety Power Shutoff status.

NAME	TODAY	TOMORROW	2 DAYS OUT	3 DAYS OUT	4 DAYS OUT	5 DAYS OUT	6 DAYS OUT
Azalea / Glendale / Wolf Creek / Sunny Valley	Normal	Normal	Normal	Normal	Normal	Normal	Normal

Left: Example of the forecast that will be displayed with the map during a PSPS Event.

# Pre-Season Customer Survey Key Findings

- The most recalled channels were **email, social media and TV news**
- The **Pacific Power website** remains rated as the **most useful** and clear source
- **55% reported to be aware** of wildfire safety communications
- **57% recall** seeing, hearing, or reading the phrase **“Public Safety Power Shutoff or PSPS,”** down from November 2023 (66%) and up from March 2023 (51%)
- **67% have taken action** to prevent wildfires or to prepare their homes or business
- Among those reporting that they rely on electricity for medical needs, **36% are aware of additional notices**, up from November 2023 (25%)



# Operational Practices and Grid Hardening

# Enhanced Safety Settings and Reliability

- Observed an increase in outage duration and frequency with Enhanced Safety Settings enabled in 2021 and 2022, measured by CAIDI and SAIFI
- In 2023, outage duration measured by CAIDI shows no difference with and without Enhanced Safety Settings enabled
- The setting standards remain consistent in 2024

	SAIDI (minutes)			SAIFI (minutes)			CAIDI (minutes)		
	2021	2022	2023	2021	2022	2023	2021	2022	2023
With Enhanced Safety Settings Enabled	158	155	269	1.67	2.19	2.37	95	71	113
Without Enhanced Safety Settings Enabled	113	119	162	1.38	2.03	1.38	82	58	117
<b>Difference (+ Increase)</b>	<b>45</b>	<b>36</b>	<b>107</b>	<b>0.29</b>	<b>0.16</b>	<b>0.99</b>	<b>13</b>	<b>13</b>	<b>(4)</b>

# Grid Hardening and Vegetation Management Update

## Grid Hardening

	2023	2024	
	Complete	Plan	Progress
Covered conductor	96 miles	73 miles	47 miles
Undergrounding	5 miles	7 miles	1 mile
Relays, reclosers, circuit breakers	36 devices	20 devices	2 devices
Expulsion fuse replacements	4,297 fuses	1,000 fuses	793 fuses
Weather stations installed	15 stations	8 stations	5 stations
2024 Progress through end of Second Quarter			

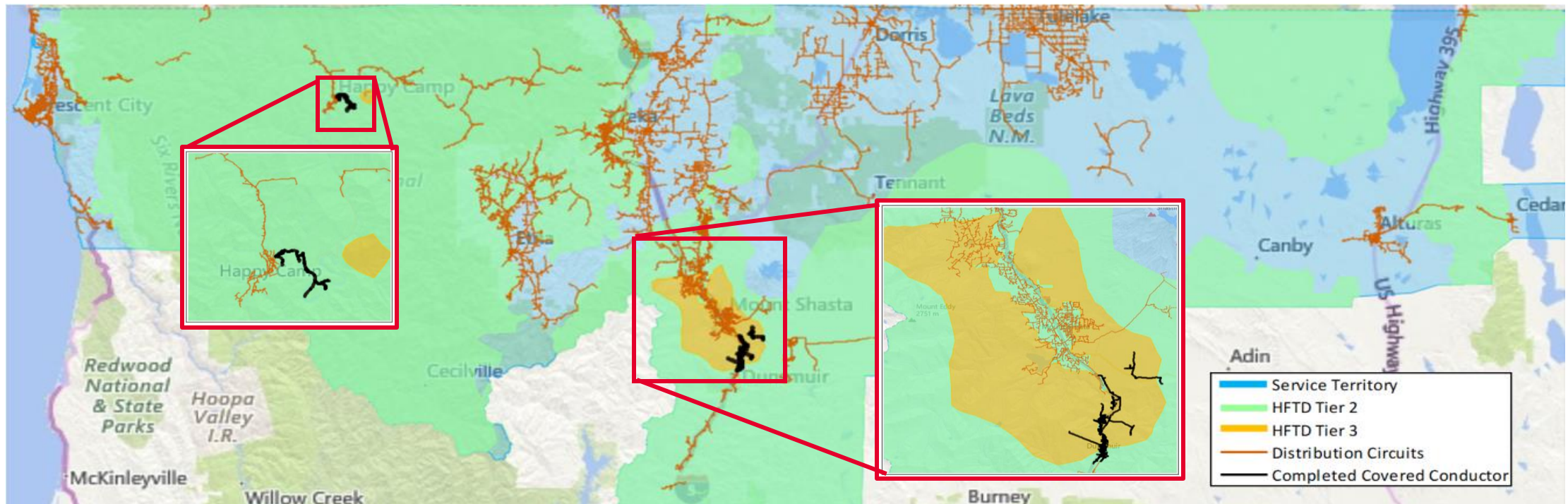
## Vegetation Management

	2023	2024	
	Complete	Plan	Progress
Distribution			
Detailed	830 miles	875 miles	515 miles
Patrol	1,027 miles	1,035 miles	1,016 miles
Transmission			
Detailed	276 miles	602 miles	360 miles
Patrol	329 miles	119 miles	119 miles
2024 Progress through end of Second Quarter			



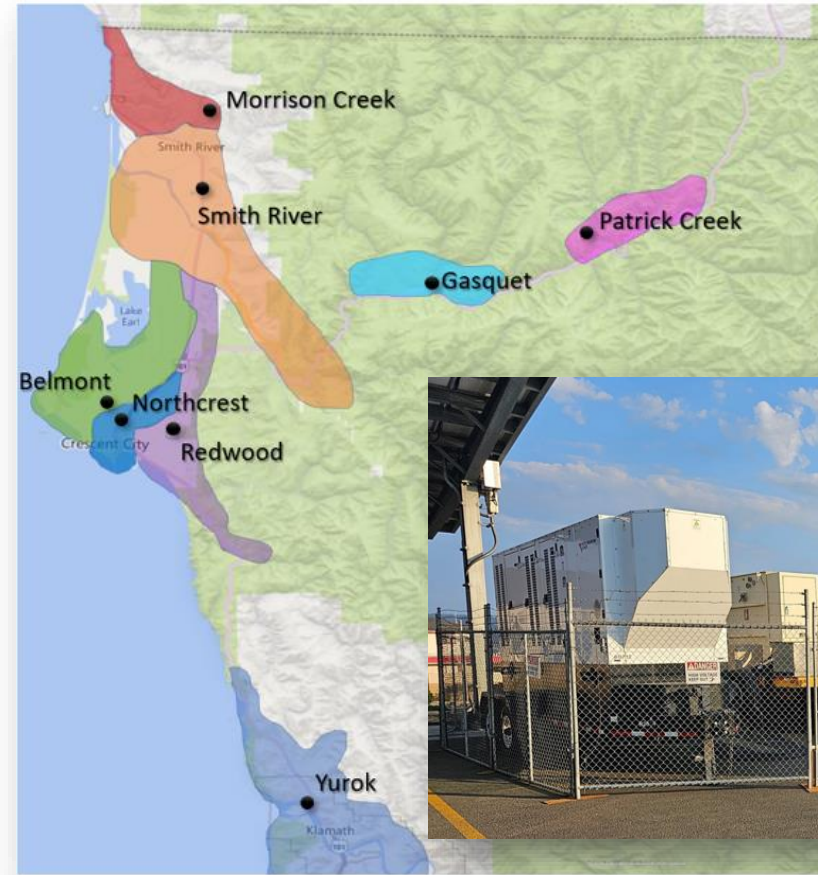
# Impact of Grid Hardening on Circuits

Pacific Power has completed full circuit covered conductor rebuilds on six circuits as of December 2023. With a limited history of PSPS events, the company is evaluating how to measure the impacts of hardening on mitigating the possibility of a PSPS on specific circuits.



# Backup Generation and Microgrids to Support Extended Outages

- Primary portable generators were sourced through mutual aid and deployed at substations in Northern California in response to the Smith River Complex
- Pacific Power has contracted with a rental company to supply primary generators if there is a future need
- A feasibility study is underway to evaluate microgrids



Left: Substations where backup generation was installed during the Smith River Complex Fire in August 2023  
Right: Backup generators staged for installation, August 21, 2023



THANK YOU



# Morning Public Comments

- Any member of the public may make public comments. Comments shall not exceed two minutes.
- In person comments: your name will be called in the order written down at the comments sign-up table.
- Comments by phone: please unmute your phone, press \*1, and record your first and last name slowly and clearly when prompted. You will be placed into a queue in the order that you have identified yourself. When it comes time for you to speak, the operator will announce your name and open the line. You will have two minutes to speak. To withdraw your request, please press \*2.

# Lunch Break

# CPUC PUBLIC BRIEFING

## **PUBLIC SAFETY POWER SHUTOFF**

CEC Rosenfeld Hearing Room  
1516 9th Street  
Sacramento, CA

Aug. 7, 2024





Jill C. Anderson  
Executive Vice President and  
Chief Operating Officer  
Southern California Edison

FOCUS AREAS	PRESENTER
Opening Remarks	<b>Jill C. Anderson (remote)</b> Executive Vice President and Chief Operating Officer
Wildfire Safety	<b>Ray Fugere</b> Director, Wildfire Safety
PSPS Operations	<b>Tom Brady</b> Principal Manager, Business Resiliency
PSPS Customer Service	<b>Michael Williams</b> Principal Manager, Customer Engagement Division
Fast Curve Settings/ Closing Remarks	Ray Fugere
Q&A	Team

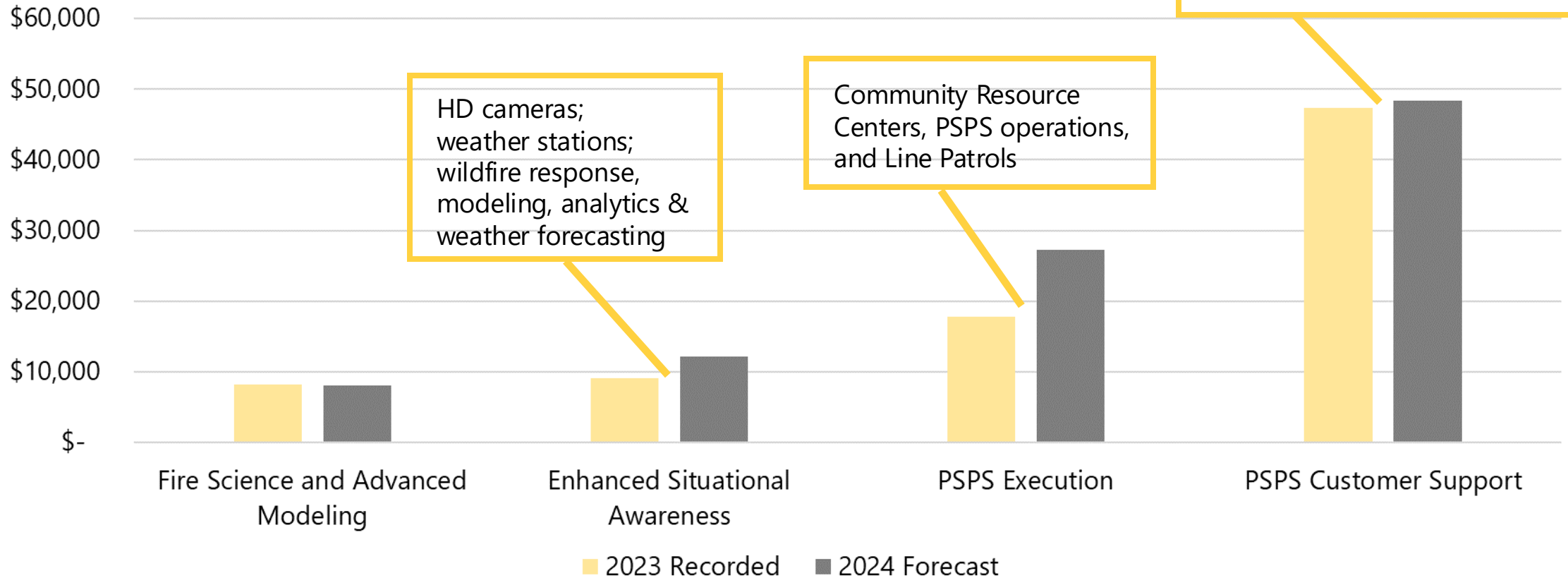




# ACCOUNTABILITY OF PSPS & RELATED ACTIVITIES FUNDING

## PSPS SPENDING

**PSPS Spending - 2023 & 2024 (In Thousands \$000)**



\*Please note that activities in each category only represent a sub-set of PSPS activities. See [A.24-04-005](#) (for 2023 Recorded Costs information on CPUC.ca.gov); [SCE Q1 2024 WMP Quarterly Report](#) (for 2024 Forecast information on sce.com).

# GRID HARDENING AND MITIGATION MEASURES TO REDUCE PSPS IMPACTS

## WILDFIRE MITIGATION (Progress in HFRA since 2018)

~**5,900 miles** of covered conductor  
More than 60% of SCE's overhead distribution lines in high fire risk areas

~**26 miles** of undergrounding

**2 million+** trims and removals

**1 million+** equipment inspections

**14,200+** fast-acting fuses installed or replaced

**160+** remote-controlled sectionalizing devices, thousands installed prior to 2018

**40+**  
PSPS Circuits Targeted in 2023

**≥61%** Incremental reduction in CMI\*

**≥56%** Incremental reduction in frequency\*

**≥76%** Incremental reduction in customers impacted\*

\* Assuming same weather conditions as 2022 and 2023

## TEMPORARY GENERATION

Exploring opportunity to deploy 740KW Mobile Battery Energy Storage System in Ridgecrest area to support customer interconnection request in 2025

## PLANNED MEASURES ON FREQUENTLY IMPACTED CIRCUITS IN 2024

### Covered Conductor

**420+ miles planned**

- **220+ miles**  
North Coast, San Jacinto, Orange, Rural, San Joaquin region
  - **200+ miles on 19 circuits**  
Desert and North Valley area
- 309 miles completed in 2024**  
(as of 7/24/2024)

### Switches

- 14 switches planned
- 0 switches completed  
(as of 7/24/2024)

**PSPS will continue to be a tool of last resort**

# PLANNING AND PREPARATION FOR 2024



## MICROGRIDS

**Added Facilities Microgrids:** To achieve enhanced resiliency for critical customers

- Yucaipa Water District (waste-water plant),
- USC Catalina (university)
- Project Status: Interconnection and microgrid study in progress
- Project Completion: 2025

**Shadow Mountain Community Microgrid:** Demonstration project for future community microgrids

- Two residential communities, 219 homes, no critical facilities
- Project Status: Interconnection study completed, microgrid study in progress
- Project Location: Menifee, CA
- Project Completion: 2026

**Microgrid Incentive Program:** Develop community microgrids in disadvantaged and vulnerable communities (DVCs) most impacted by grid outages due to severe weather or wildfires (such as PSPS)

- Program Status: Technical consultation in progress, application window open for 2024
- Project Location: TBD

# OVERVIEW COMPARISON OF PRIOR YEAR PERFORMANCE AND EXECUTION OF PSPS

## COMPARISON OF PERFORMANCE AND EXECUTION FROM 2019 TO 2023

2019-2021 data reflects unique customers per year, while 2022-2023 data reflects unique customers per event.

EVENT DETAILS	2019 <sup>1,2</sup>	2020 <sup>2,3</sup>	2021 <sup>3</sup>	2022	2023	2024 <sup>4</sup>
Total PSPS events	16	12	10	6	8	2
PSPS events with de-energization	9	10	8	3	5	0
Counties in scope	9	9	8	11	11	6
Counties impacted	9	9	8	5	5	N/A
Customers de-energized	198,826	229,800	179,502	15,784	33,938	0
Customers notified	1,448,000	310,074	404,886	181,323	252,429	5,157
Number of missed notifications	23,543	29,479	227,637	33,897	80,113	0
Average outage duration (in hours)	21	18	18	14	21	N/A
Average restoration time (in hours)	6	6	9	6	6	N/A

<sup>1</sup>Data collection started mid year.

<sup>2</sup>Data calculated based on notification campaigns missed and total customer count within campaign.

<sup>3</sup>January 2021 event is included in 2021 totals.

<sup>4</sup>Data through July 21, 2024.

# LESSONS LEARNED

## OVERVIEW OF LESSONS LEARNED IN 2023

1. **Advance and in-event notifications** during the 2023 PSPS events **were missed** due to system workflow issues
2. **Errors, discrepancies and delays in post-event reporting** were caused by incorrect data definitions, corresponding logic errors, lack of automation, and unclear ownership of responsibilities
3. **Maps** of in-scope/de-energized areas and impacted **customer metrics contained errors** and/or were inconsistent across sce.com, the Public Safety Partner Portal (Portal), and REST Service and **require system enhancements**
4. **Back-end IT system failures** resulted in notification and maps/metric failures
5. Some performance **deficiencies and gaps** that were experienced in 2023 were **not identified** in exercises

## HOW LESSONS LEARNED HAVE BEEN INCORPORATED INTO THE 2024 PSPS PLANNING AND PREPARATION

- 2024 preparation focused on fixing systems and processes
- Conducted end-to-end stress testing of operational systems using worst-case events and emergent grid anomalies from prior years. Largely focused on:
  - **Programming** Central Data Platform (CDP) **improvements** to enhance notification workflows
  - **Reducing the latency** between operational decisions and notification campaign releases
  - **Creating system health checks** in the operational systems responsible for notifications
  - **Aligning data processing** between sce.com and the Public Safety Partner Portal (PSPP) to ensure more timely and accurate updates
  - **Automating** and codifying the **flow of data** to post-event reporting tables
- Stress testing identified additional system gaps. We are addressing these gaps and will test and implement improvements in August 2024

# PLANNING AND PREPARATION FOR 2024

## 2024 EXERCISES

**700+**

IMT members participated in at least one exercise

**4**

Operations-based exercises

**60**

External public safety partners participated in exercises

## 2024 TRAINING

**166**

PSPS IMT members completed 2024 re-qualification training

**720+**

IMT members in-training or fully qualified

## IMPROVEMENTS IN 2024 TO ADDRESS POST-EVENT REPORTING ISSUES

- **Refresh logic** to standardize data generation for report tables
- Increase automation to populate post-event report data
- Additional **quality assurance** measures during post-event report development

## COORDINATION WITH OTHER IOUS TO SOLVE PROBLEMS AND ADDRESS ISSUES

- Aligning on the timing and language used by telecommunication providers to message customers during PSPS events
- Coordinating the process for notifying and communicating with customers on shared circuits
- Aligning on recommendations to update the Statewide Executive Briefing deck for PSPS events

# METEOROLOGY/WEATHER FOR 2024 PSPS SEASON

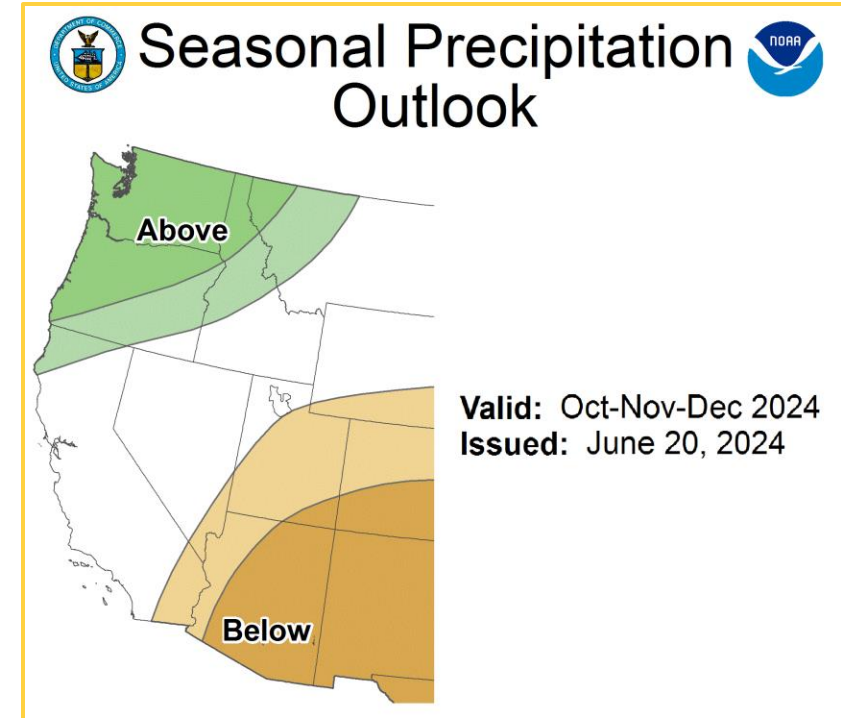
## NOTABLE METEOROLOGICAL TRENDS AND PATTERNS HAPPENING THIS YEAR THAT AFFECT PSPS PREPARATION, PSPS LIKELIHOOD, OR PSPS SCOPE

- No significant meteorological patterns or trends identified to date will have a significant impact on 2024 PSPS activity
- However, heavy precipitation over the last several years has increased fuel loading across the territory
- Fire activity and fire size will continue increase in the coming weeks as fuels continue to dry

## EXPECTATIONS OF THE FORTHCOMING LA NINA PATTERN TO AFFECT PSPS

La Niña is just one indicator of weather variability--other atmospheric and oceanic conditions can have a larger impact. On average, La Niña events in Southern California yield:

- Lower overall precipitation totals
- Cooler conditions
- Increased number of offshore wind days
- Could result in PSPS conditions extending later into the fall and winter seasons and increased total number of PSPS events



**Climate Prediction Center** is forecasting near average precipitation for SCE territory through the October – December period

# FORECASTING

## TECHNOLOGY IMPROVEMENTS' IMPACT ON PSPS DECISION-MAKING: WEATHER FORECAST MODELING IMPROVEMENT EFFORTS

### % OF SCE'S WEATHER STATION NETWORK COVERED BY MACHINE LEARNING MODELS

**34%**  **89%**  
 January 1, 2023      July 25, 2024



HOW ACCURATE AND EFFECTIVE ARE SCE'S MODELS OVER TIME?		# OF CIRCUIT PERIODS OF CONCERN	Predictive errors: sustained wind (MPH)	Predictive errors: wind gusts (MPH)
2023	Machine learning	280	5.1	6.2
	Ensemble model (2 KM NAM)	186	9.1	11
2022	Machine learning	48	5.3	6
	Ensemble model (2 KM NAM)	104	8.5	10.6
2021	Machine learning	43	10.2	13.1
	Ensemble model (2 KM NAM)	268	8.7	11.2

Machine Learning models are increasing in coverage and accuracy over time as we gather more data – demonstrated by increasing circuit periods of concern and decreasing error



# FORECASTING/MODELING

## WEATHER FORECAST MODELING IMPROVEMENT EFFORTS

### UC Santa Barbara academic research partnerships

2023:

- Created a gridded observations model leveraging AI and SCE weather station observations to improve situational awareness
- Created a very short-term forecast (nowcasting) capability

2024:

- Improve the gridded observations model based on 2023
- Evaluate technological advances in producing forecasts on a grid directly using machine learning

2024-2026:

- New techniques to generate forecasts using machine learning and other AI techniques

### Technosylva weather modeling and machine learning partnership

2023:

- Re-trained and expanded machine learning models to include 1183 stations

2024:

- Re-training existing machine learning models based on 2023 weather
- Expanding machine-learning forecasting capability to 1624 forecast weather stations by adding 441 new locations
- Implementing machine learning forecasting for additional variables that will allow for probabilistic Fire Potential Index (FPI) forecasts
- Adding new machine learning forecast scenarios based on SCE ensemble forecast data: new scenarios are 20% more accurate than initial models at predicting high wind conditions

## WILDFIRE AND PSPS RISK MODELING

### Update on consequence modeling:

No substantive changes to 2024 PSPS consequence models, although there are typically incremental updates based on refreshed customer counts

- Working with OEIS on updates to WMP risk models, but have not made any changes in 2024

### Integrating previous PSPS damage events within the ignition likelihood:

- PSPS damage events and other ignition and asset failure data are incorporated into our wildfire risk models on an annual basis, potentially resulting in changes to ignition likelihood for a given location

# PSPS DE-ENERGIZATION DECISION-MAKING /RESTORATION

## CURRENT PSPS THRESHOLDS REMAIN IN PLACE

- **FPI:** Currently set at 13 in most areas contingent on fire resource availability
- **Windspeed Threshold for Activation**
  - **Bare wire circuits:** 99th percentile historic windspeed for a given circuit or NWS Wind Advisory of sustained windspeeds of 31 mph or gusts of 46 mph
  - **Fully covered conductor circuits:** NWS High Wind Warning of sustained windspeeds of 40 mph or gusts of 58 mph
- **De-energization Threshold:** Wind speeds determined separately for each circuit based on specific risks of the event
  - Segment level de-energization

## REDUCING RESTORATION TIMELINES

- Pre-placement of aircraft **and** resources in impacted areas
- Continued progress using drones for restoration patrol: using Visual Line of Sight (VLOS) and working on opportunities for Beyond Visual Line of Sight (BVLOS)



# PSPS NOTIFICATION ENHANCEMENTS

## ENHANCEMENTS IN NOTIFICATION PRACTICE TO MITIGATE PAST NOTIFICATION FAILURES

Process		System	
<b>Streamlined Notification Process:</b>	Reorganized reporting structure to reduce delays in time-sensitive messaging	<b>Workflow Optimization:</b>	Improved workflow handling for faster response to circuit changes, with ~90% improvement
<b>Dynamic Staffing Model:</b>	Implemented scalable staffing to support events of varying sizes	<b>Interface Upgrade:</b>	Upgraded interfaces and reports for better user interaction and situational awareness
<b>Operational Workflow Alignment:</b>	Adjusted workflows to match CPUC naming conventions for better reporting	<b>Cancellation Workflow:</b>	Created six new workflows and four integrations for timely cancellation notifications
<b>Specialist Training Enhancement:</b>	Enhanced training to ensure expert-level experience for all team members	<b>Notifications</b>	
		<b>Improved Email Templates:</b>	Updating public safety partner email templates to include the date and time in the subject line and simplify language to highlight relevant information

# MISSING CUSTOMER DATA

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## WHAT HAS BEEN DONE TO OBTAIN/UPDATE MISSING CUSTOMER (ESPECIALLY AFN), PSP, AND CRITICAL INFRASTRUCTURE/FACILITY CONTACT INFORMATION?

### Access & Functional Needs

- **Bilingual (Spanish/English) mail sent to 97K MBL customers.** Included resources and tips for emergency preparedness. Requested updated contact information from customers.

### Critical Facilities and Critical Infrastructure (CFCI) and Public Safety Partners

- **Contact Update:** Annual request was made to Critical Facilities and Critical Infrastructure customers (June 2024) and to Public Safety Partners (August 2024) to update emergency contact information. Additional updates made in real time when notified of changes
- **Communication Test:** Test notifications sent to all HFRA customers including Critical Infrastructure and Public Safety Partners on April 17, 2024. Second test scheduled for August 2024
- **Workshop Engagement:** Annual workshop for Critical Facilities and Critical Infrastructure customers conducted in May to share resiliency plans and request updated contact information
- **Reviewing Undelivered Notifications:** After exercises and events, undelivered notifications are reviewed and remediation is attempted

# SERVING THE MEDICAL BASELINE (MBL) / ACCESS AND FUNCTIONAL NEEDS (AFN) COMMUNITIES

**HOW ARE YOU SERVING THE ACCESS AND FUNCTIONAL NEEDS POPULATION? HOW HAS THIS CHANGED/ EXPANDED FOR 2024?**

## Increasing and Expanding Awareness Efforts:

### **AFN Nurture Campaign:**

Leveraging Self-ID survey to message **80K** individuals about PSPS resources and programs

### **Accessible Hazard Alert**

**System:** Hosts notifications and program information in American Sign Language and other accessible formats

**Prepare for Power Down Website:** Joint IOU website built to streamline and centralize PSPS resources for customers statewide

**CBOs:** More than 70 Community Based Organizations onboarded to support customers with AFN

## Customer Care Support Services

<b>211</b>	19,280 care coordination engagements
<b>DDAR</b>	156 education events
<b>Hotel discounts</b>	121 participating hotels
<b>Food support</b>	2,656 food boxes since program inception

## **New personalized customer messaging:**

- New outage preparedness checklists
- Personalized emails to increase participation in resiliency programs
- Hyper-targeted follow up emails to customers who experience a PSPS outage

# COMMUNICATING TO THE MEDICAL BASELINE (MBL) AND ACCESS AND FUNCTIONAL NEEDS (AFN) COMMUNITIES

## 2023 IMPROVEMENTS TO MBL/AFN PROGRAMS

- Updated and streamlined MBL allowance landing page to improve accessibility
- Translated MBL program promotion video into ASL
- New program fact sheet available in large print
- Added an automated MBL renewal process via SCE IVR system
- Leveraged 211's Care Coordination process as well as DDAR staff to provide information and enrollment assistance

## SERVING THE AFN COMMUNITY WITH IMPROVED ACCESSIBLE NOTIFICATIONS

- PSPS notifications now available in 23 languages
- Notifications in American Sign Language available in 2024

## MBL PROGRAM COMMUNICATION AND OUTREACH

- **Annual Mailer** sent to nearly 108K enrolled MBL customers requesting updated customer contact information and providing resources and emergency preparedness tips
- **Marketing campaign** targeting 1,500 Catalina Island customers, Low-Income Home Energy Assistance Program participants and included information on the residential Home Energy Report
- **CBO engagement** conducting 70 community outreach events; Social media package developed for CBOs



**2024 Digital ad targeting MBL customers**

# BATTERY BACKUP PROGRAMS

## BATTERY BACKUP PROGRAM STATUS AND CRITERIA FOR QUALIFICATIONS

Critical Care Backup Battery Program	ELIGIBILITY CRITERIA	PERFORMANCE	UPDATES FOR 2024
	High Fire Risk Area + Enrolled in Medical Baseline Allowance program	2023 delivery: 4,149 Program total: 15,822	1,465 YTD Maintain program eligibility criteria in 2024
ADDITIONAL BATTERY AVAILABILITY PROGRAMS			
Disability Disaster Access and Resources Pilot	Tier 2/3 High Fire Risk Area + Use an electrically powered medical device or assistive technology + Have a disability or chronic condition that relies on electricity for independent living.	Delivered since launch: 85	Continue offering and evaluate effectiveness year-end 2024
In-Event Battery Loan Pilot	High Fire Risk Area + Escalate the need for backup power for medical device or assistive technology	Loaned since launch: 40	Continue offering and evaluate effectiveness year-end 2024
Portable Power Station/ Generator Rebate Program	Tier 2/3 High Fire Risk Area ~ Enrolled in Medical Baseline, CARE or FERA receive higher rebate amount	2023 rebates: 3,118 Total rebates: 10,989	Maintain program eligibility criteria in 2024

*"Life altering and positive thing you are doing here, cannot thank you enough"*

*"What you are doing is above and beyond"*

**"AMAZING PROGRAM"**

*"Gives a lot of peace of mind"*

*"Battery is a little miracle"*

### PERCENTAGE OF MBL/HFRA CUSTOMERS SUPPORTED VIA ANY SCE BACKUP PROGRAM

**35%** backup power program participants

# COMMUNITY RESOURCE CENTERS (CRC) AND COMMUNITY CREW VEHICLES (CCV)

## SPECIFICS ON CRC/CCV USAGE

	CRC DAYS ACTIVATED	CCV DAYS DEPLOYED	TOTAL GUESTS
2024 TO DATE	5	2	164
2023	84	12	2,089

**68**

**COMMUNITY  
RESOURCE  
CENTERS**

New sites in 2024

- Hacienda Heights (Los Angeles County)
- Palmdale (Los Angeles County)

**7**

**COMMUNITY  
SAFETY FAIRS**

~840 safety fair visitors

## CUSTOMER FEEDBACK/ LOCATION CHALLENGES

**~90%**

**SATISFACTION SCORE**

**0**

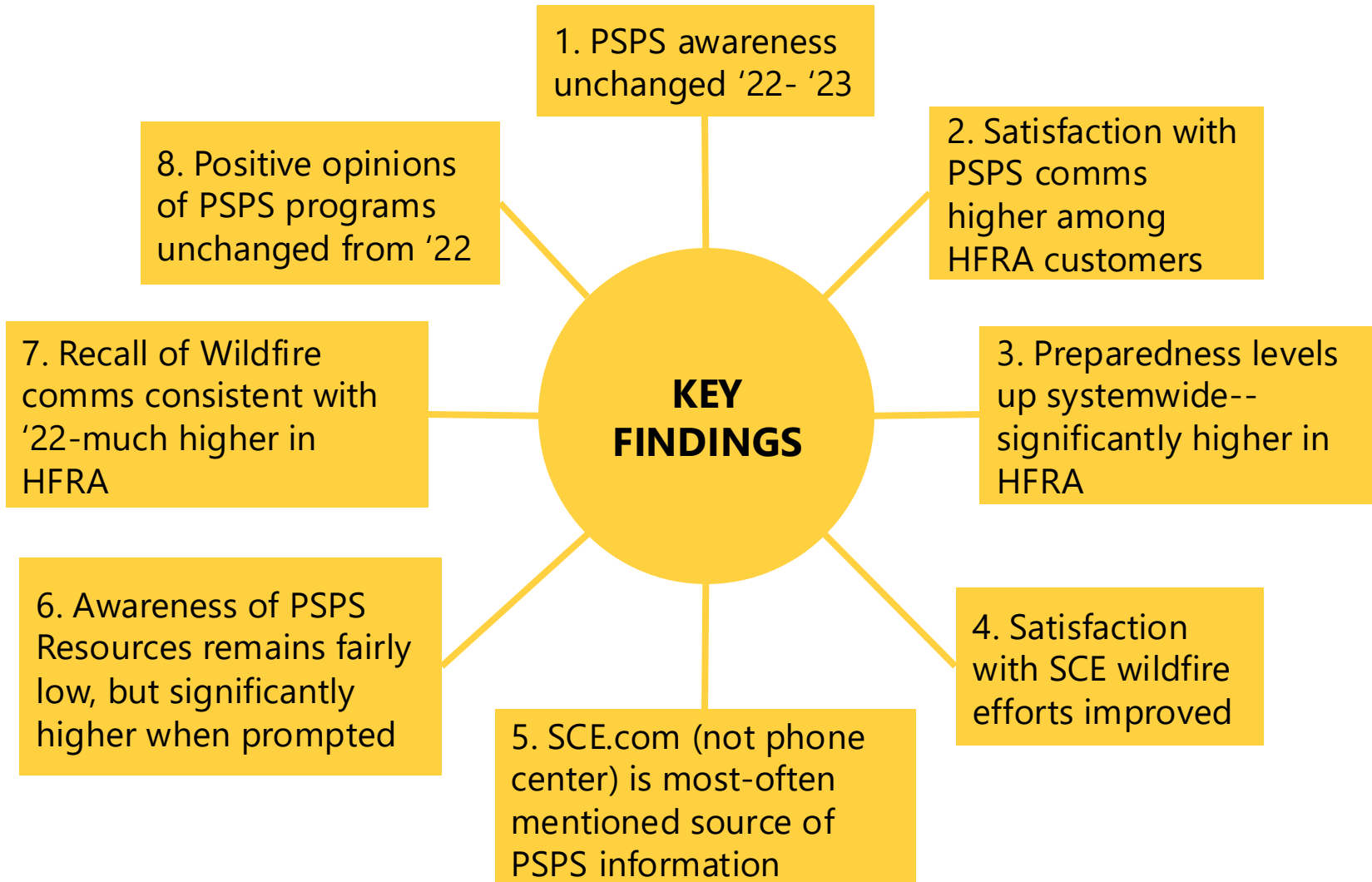
**CUSTOMER COMPLAINTS OR  
CHALLENGES REPORTED** about  
the CRC/CCV locations in the 2023  
PSPS post season report





# 2023 PSPS SURVEY RESULTS

## 2023 Pre-/Post- In-Language Wildfire Mitigation / PSPS Communications Effectiveness Surveys

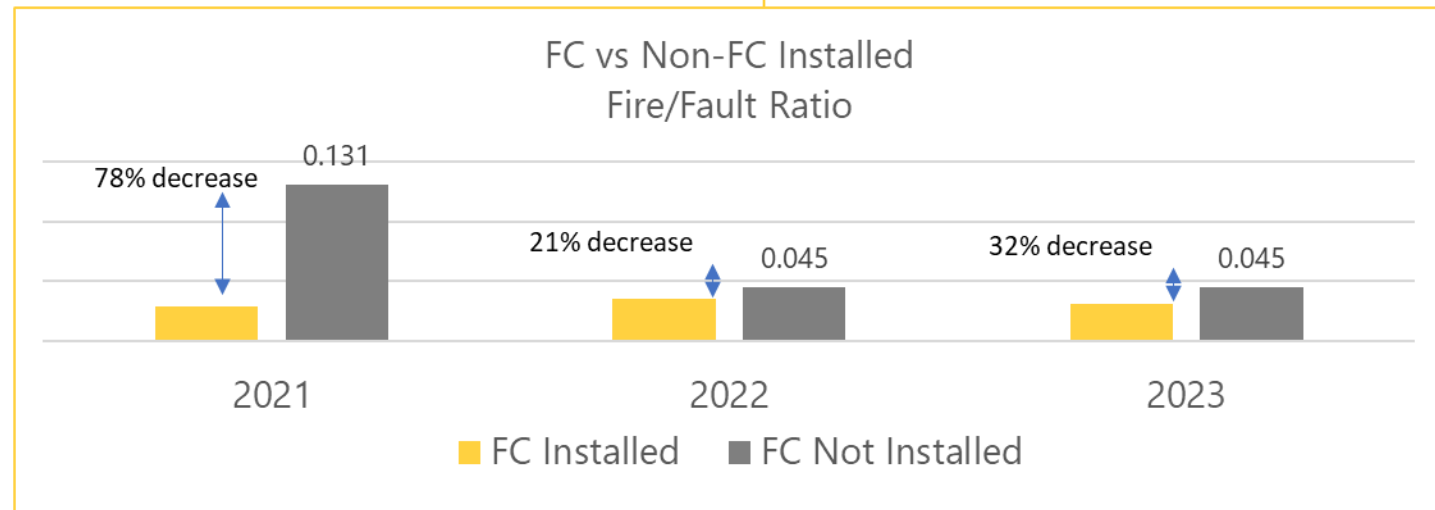
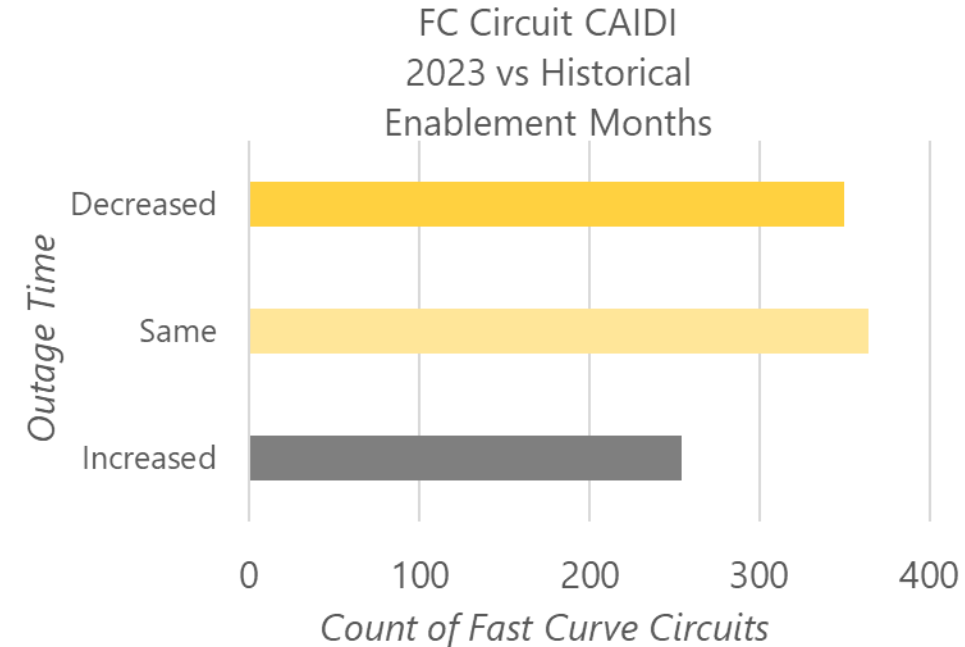
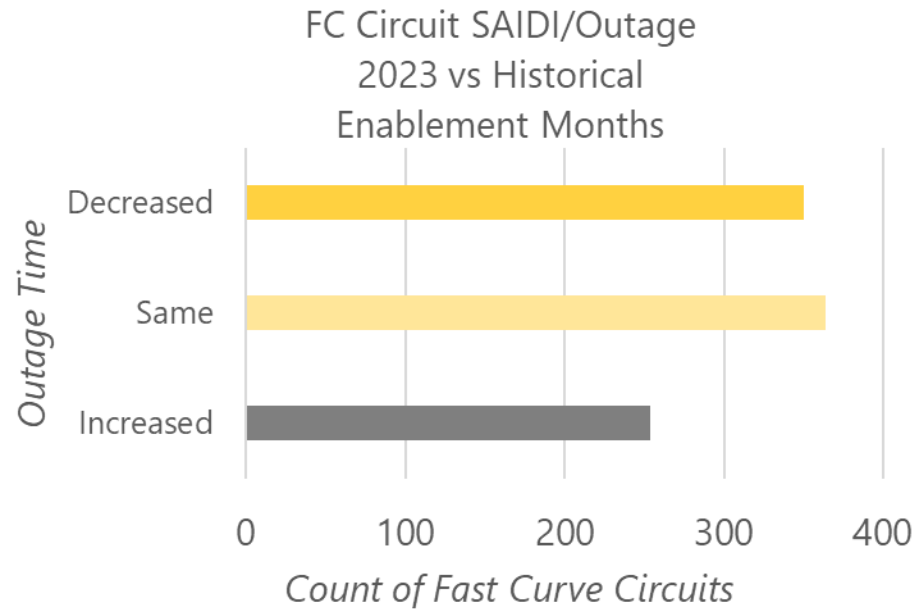


2023 Customer Complaints	
Category	Complaints
General PSPS Dissatisfaction/ Other	311
Communications/ Notifications	33
Outreach/Assistance	5
PSPS Frequency/Duration	32
Safety/ Health Concern	26
<b>Total</b>	<b>407</b>
2023 Complaint Sources	
Source	Complaints
Social Media	276
Call Center	92
Consumer Affairs	16
CRC/CCV	11
Customer Engagement Division	6
Local Public Affairs	6
<b>Total</b>	<b>407</b>

# EPSS/FAST TRIP/ FAST CURVE SETTINGS

## SAIDI/CAIDI CORRELATIONS BETWEEN PSPS USAGE, FAST TRIP APPLICATIONS AND IGNITIONS

- Number of outages has not gone up on circuits enabled with fast-curve settings compared to historical averages
- Fast-curve settings have not impacted SAIDI
- Increase in outage duration is due to implementation of recloser blocking and required circuit patrols prior to restoration during elevated fire conditions



# 2024 PSPS READINESS

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USE **PSPS** ONLY  
WHEN  
NECESSARY  
**TO PROTECT  
PUBLIC SAFETY**  
UNDER  
SIGNIFICANT  
FIRE-RISK  
WEATHER  
CONDITIONS

## OUR COMMITMENT

**REDUCE THE  
USE OF PSPS**

**EXECUTE PSPS  
EFFECTIVELY**

**MITIGATE PSPS  
IMPACTS**

**KEEP PARTNERS AND  
CUSTOMERS INFORMED**

**IMPROVE POST-EVENT  
REPORTING**



# Break

# Afternoon Public Comments

- Any member of the public may make public comments. Comments shall not exceed two minutes.
- In person comments: your name will be called in the order written down at the comments sign-up table.
- Comments by phone: please unmute your phone, press \*1, and record your first and last name slowly and clearly when prompted. You will be placed into a queue in the order that you have identified yourself. When it comes time for you to speak, the operator will announce your name and open the line. You will have two minutes to speak. To withdraw your request, please press \*2.

# Closing Remarks

President Reynolds and CPUC Commissioners

Shaun Fairbanks, Deputy Chief, CAL FIRE

Patrick Doherty, Program Manager, Office of Energy Infrastructure Safety





# California Public Utilities Commission