

Pre-Season Briefings for 2023 PSPS Events

California Public Utilities Commission

August 3, 2023



California Public
Utilities Commission

Pre-Season Briefings for 2023 PSPS Events - Agenda

1:00 – 1:15 PM	Opening Remarks
1:15 – 2:15 PM	Pacific Gas and Electric Presentation & Questions from Dias
2:15 – 3:00 PM	PacifiCorp Presentation & Questions from Dias
3:00 – 3:15 PM	Break
3:15 – 4:00 PM	Liberty Utilities Presentation & Questions from Dias
4:00 – 4:30 PM	Public Comment

Opening Remarks

President Reynolds

Commissioner Reynolds

Daniel Berlant, CAL FIRE

Caroline Thomas Jacobs, OEIS



California Public
Utilities Commission

Pacific Gas and Electric

Pacific Gas and Electric Company

California Public Utilities Commission
2023 Public Safety Power Shutoff Pre-Season Workshop

August 3, 2023





Introductions and Agenda

- 1** Monitoring, Analyzing and Forecasting Wildfire Risk and Public Safety Power Shutoff (PSPS) Overview
- 2** Engaging with Customers and Public Safety Partners
- 3** Providing Customers Resources and Support

PG&E Participants

Dave Canny

Senior Director, Wildfire Mitigation

Scott Strenfel

Director, Meteorology and Fire Science

Dave Meier

Senior Manager, Local Customer Experience

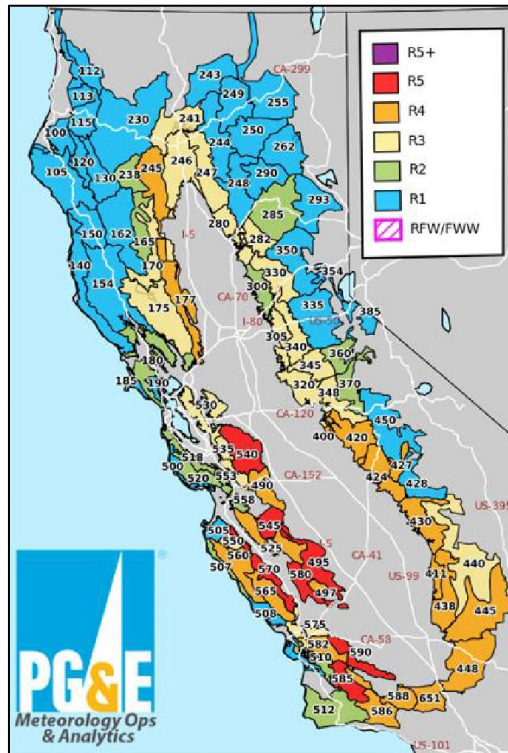
Wildfire Risk and Public Safety Power Shutoff (PSPS) Overview



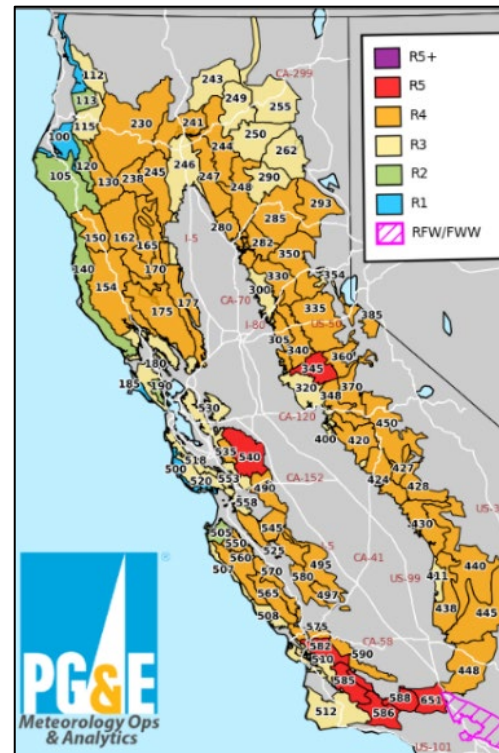
Wildfire Risk Across Our Service Area

2022

PG&E Utility Fire Potential Index Ratings



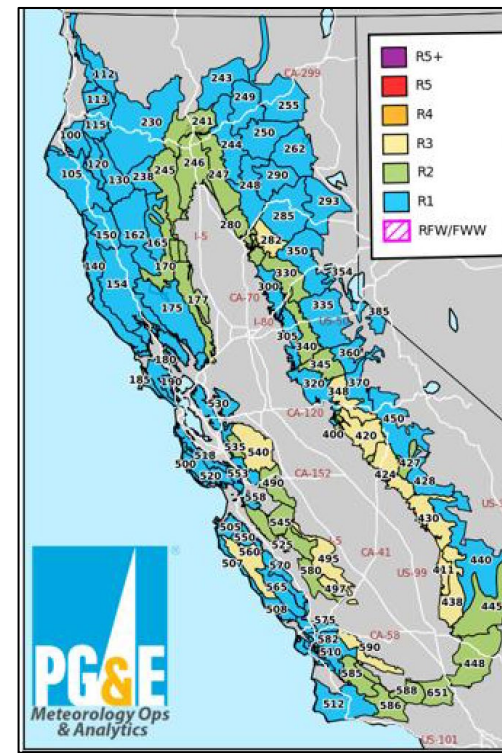
Valid for 05/22/2022



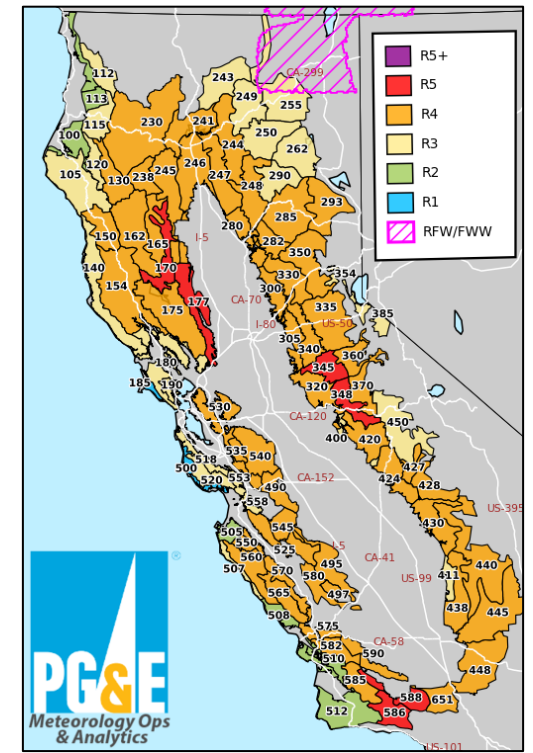
Valid for 07/23/2022

2023

PG&E Utility Fire Potential Index Ratings



Valid for 05/22/2023



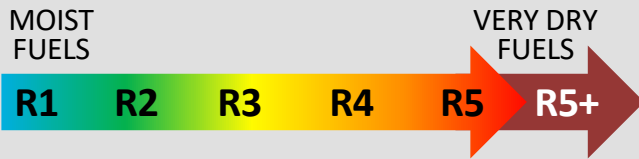
Valid for 07/23/2023

Advanced Tools to Help Us Analyze Fire Risk

We use state-of-the-art machine learning models to identify when the risk of a catastrophic fire is greatest.

PG&E Fire Potential Index (FPI)

Daily ratings across our entire service area.

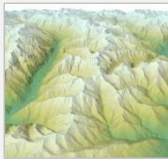


BY MEASURING:

Weather



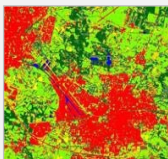
Topography



Fuel Moisture



Fuel Model Type

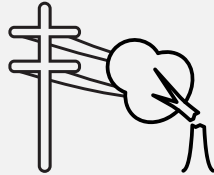


Outage and Ignition Probability Weather Models (IPW, OPW)

Potential for an ignition from damage during weather events.

BY MEASURING:

Vegetation Risk



Local Outage Trends



Equipment Failures/ Malfunctions



Animal/ 3rd Party Damage

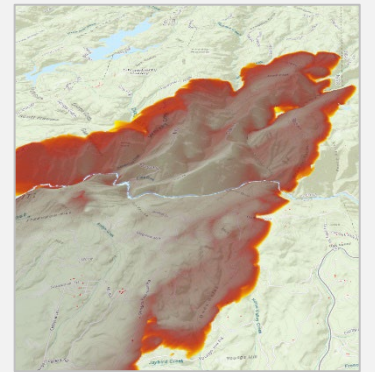


Catastrophic Fire Behavior Modeling

Technosylva fire spread simulations to predict risk.

BY MEASURING:

- ▶ Flame length
- ▶ Rate of spread
- ▶ Containment difficulty
- ▶ Historical fires





Year-Over-Year PSPS Comparison

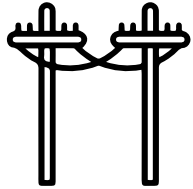
PSPS impacts have declined significantly through new, advanced technologies and improvements to the electric system infrastructure. However, using PSPS as a tool of last resort will continue to be dependent on weather conditions.

Event Details	2019	2020	2021	2022
PSPS Events	7	6	5	0
Customers Impacted	2,014,000	653,000	80,400	-
Average Number of Counties Impacted	17	17	10	-
Average Outage Duration (hours)	43	35	31	-
Average Outage Restoration Time (hours)	17	10	12	-
Damage/Hazards	722	257	442	-
Peak Wind Gusts	102 MPH	89 MPH	102 MPH	-
Potential Impacted Acreage Prevented	3.5M	912K	691K	-
Potential Damaged Structures Prevented	280K	196K	86K	-
Potential Customers Impacted Using Current PSPS Protocols*	744,000	503,000	85,000	-

** All estimates are based on a 5-year PSPS lookback assuming the completion of all forecasted grid improvements in 2023. Using our current protocols, we average roughly 4 PSPS events per year with an average size of ~83,000 customers impacted per outage and a largest potential customer impact of ~460,000”.*

Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.

System Hardening and Other Improvements



We are hardening the electric grid in high fire-risk areas to reduce wildfire risk and PSPS impacts. We completed a substantial amount of this work in 2022 and are on track to meet our goals for 2023.

Improvement/Hardening Method	2022 Complete	2023 Complete	2023 Total Forecast
Overhead Hardening	335 miles	79 miles	110 miles
Undergrounding	180 miles	39 miles	350 miles
Line Removal	29 miles	7 miles	30 miles
Sectionalizing Devices and Transmission Switches	181	N/A	27

Systemwide Grid Resilience Efforts

We are continuing to build upon our distribution microgrid and remote grid programs and plan to continue to utilize our previously identified islanding locations when possible.

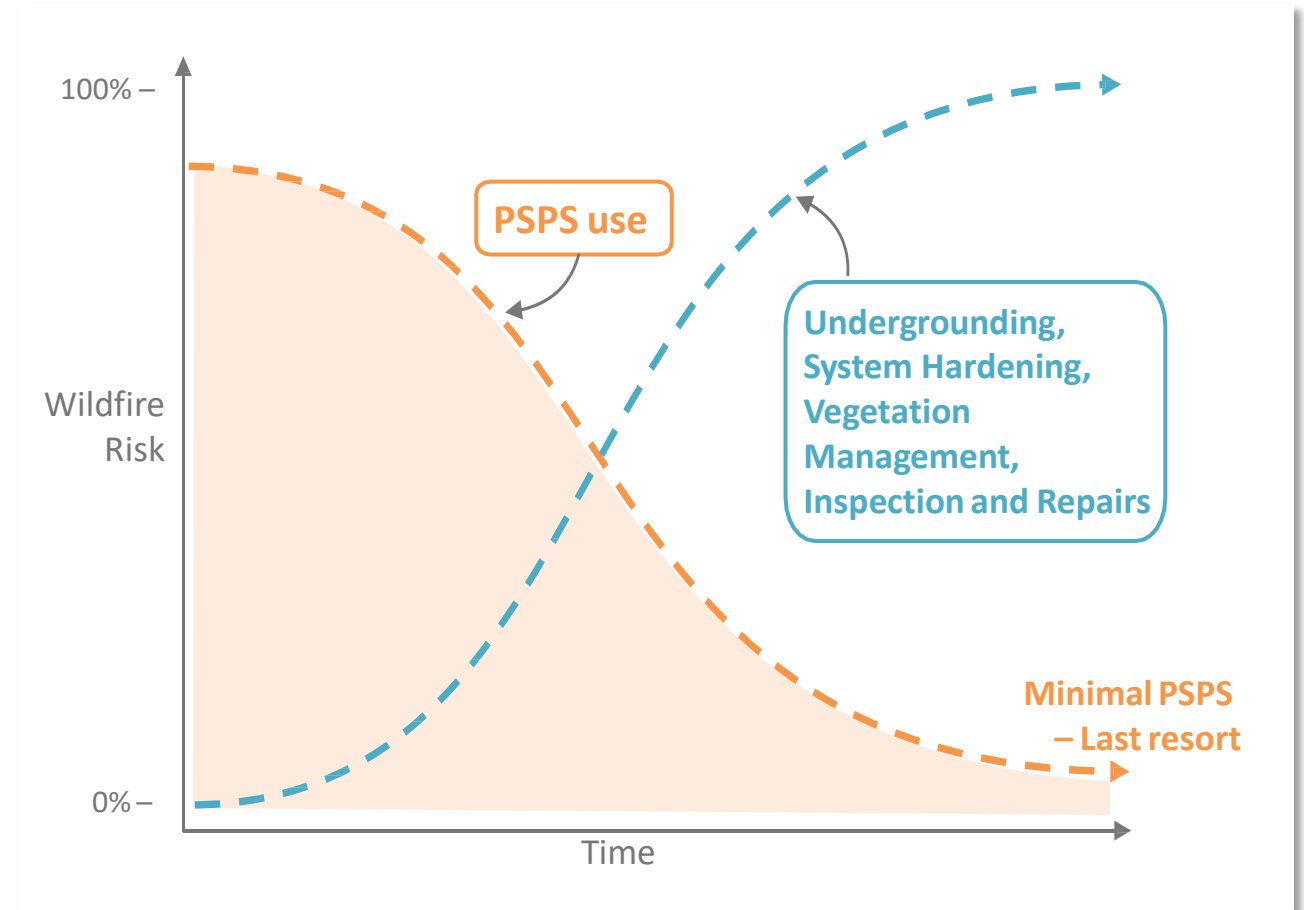
Program	Description	Completed Through 2022	2023 Complete	2023-2024 Complete/Forecast
Distribution Microgrids	Prepared to energize “main street” corridors, central community resources and critical facilities in areas that frequently experience PSPS.	14	8	6
Remote Grids	Use a combination of solar power, battery storage and propane generation to provide energy to customers independent from the larger electric grid.	2	2	8
Islanding Locations	Reconfigure local generation sources to allow certain areas to be separated from the larger electric grid and remain energized during a PSPS.	6	N/A	N/A

Local work plans are subject to change

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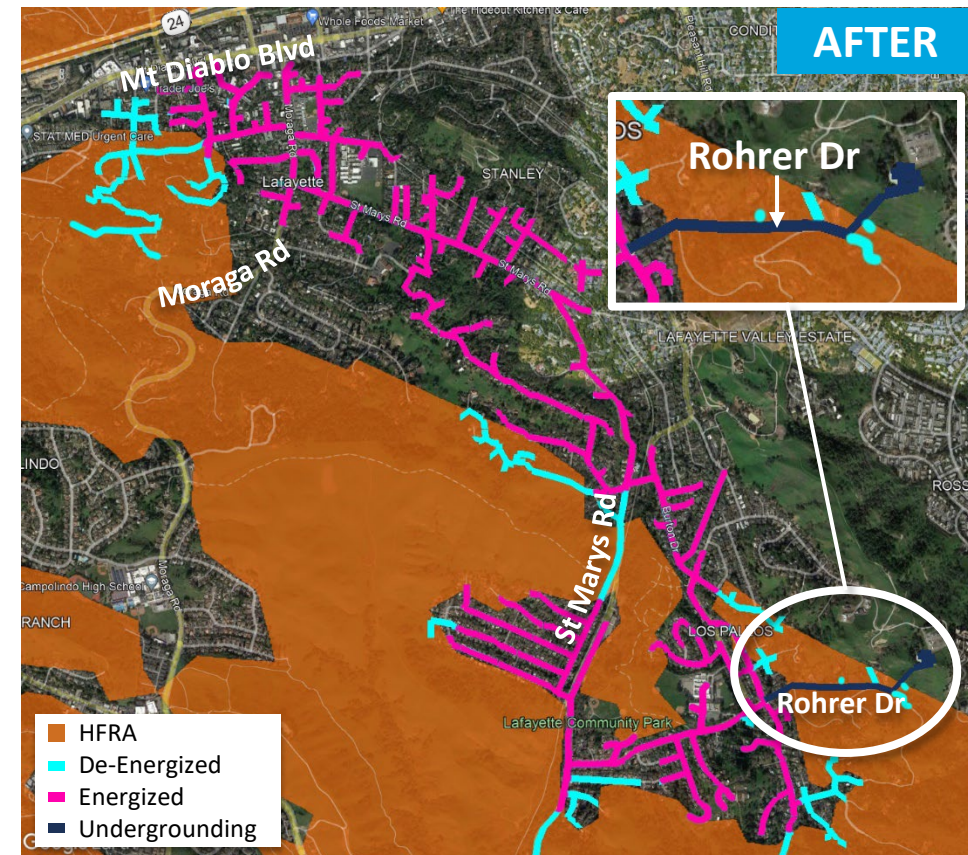
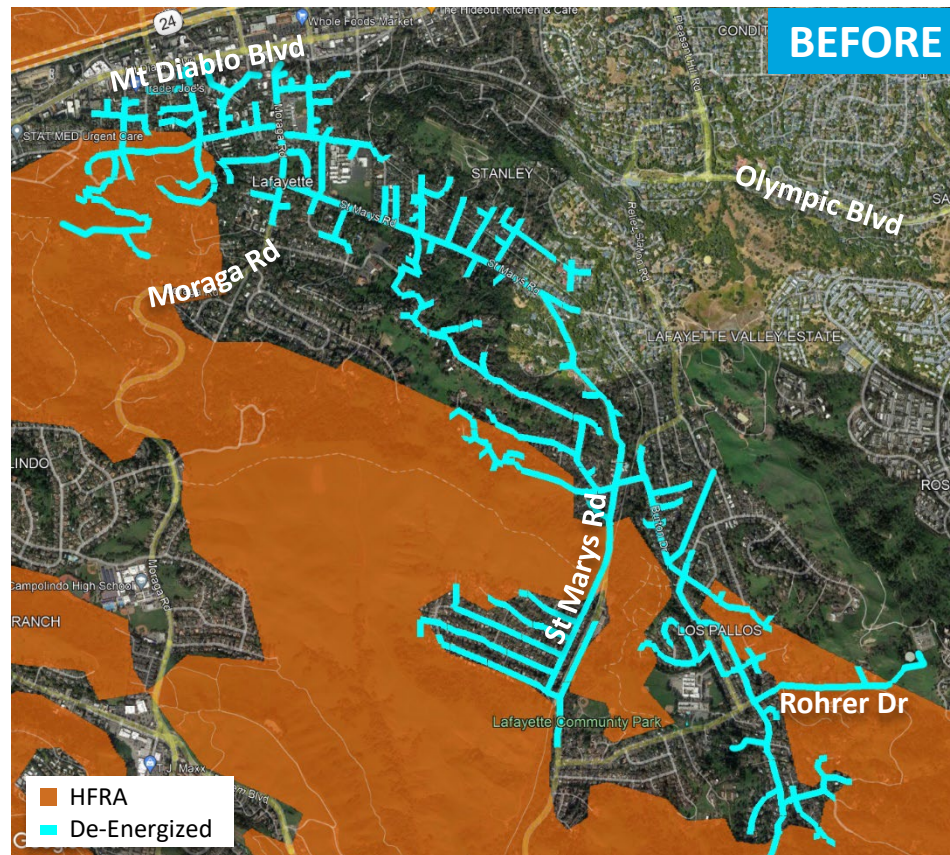
Reducing PSPS Over Time

With efforts like undergrounding and system hardening, **PSPS as a measure of last resort** will continue to decline.



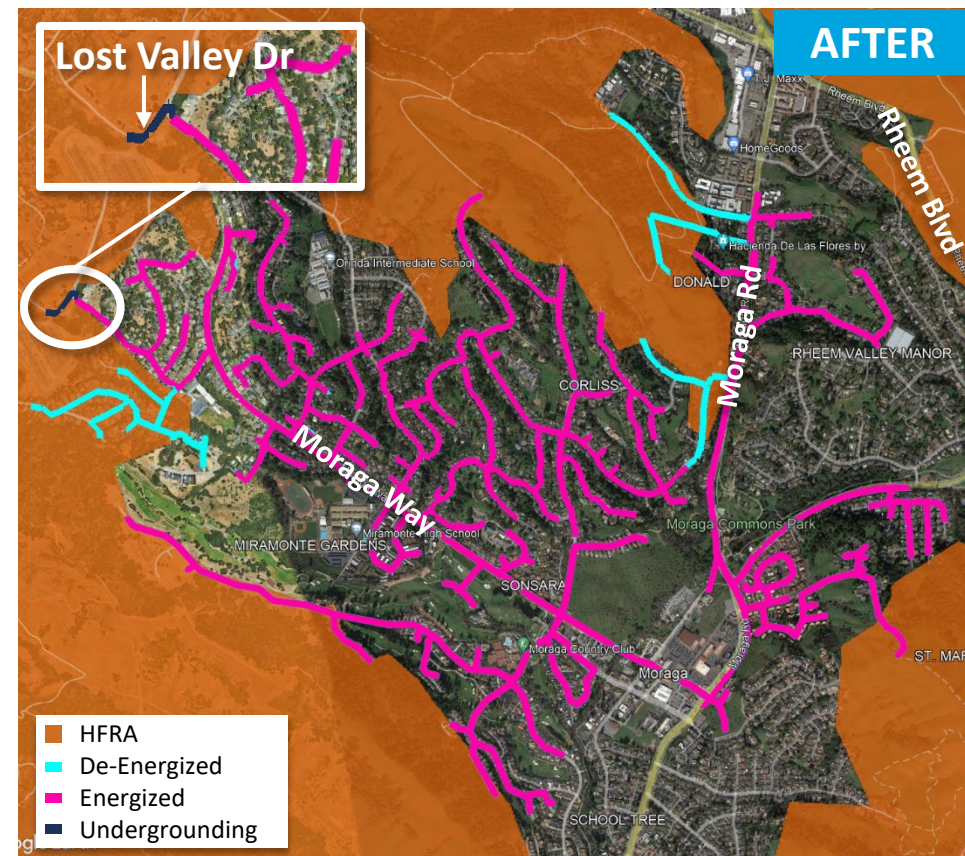
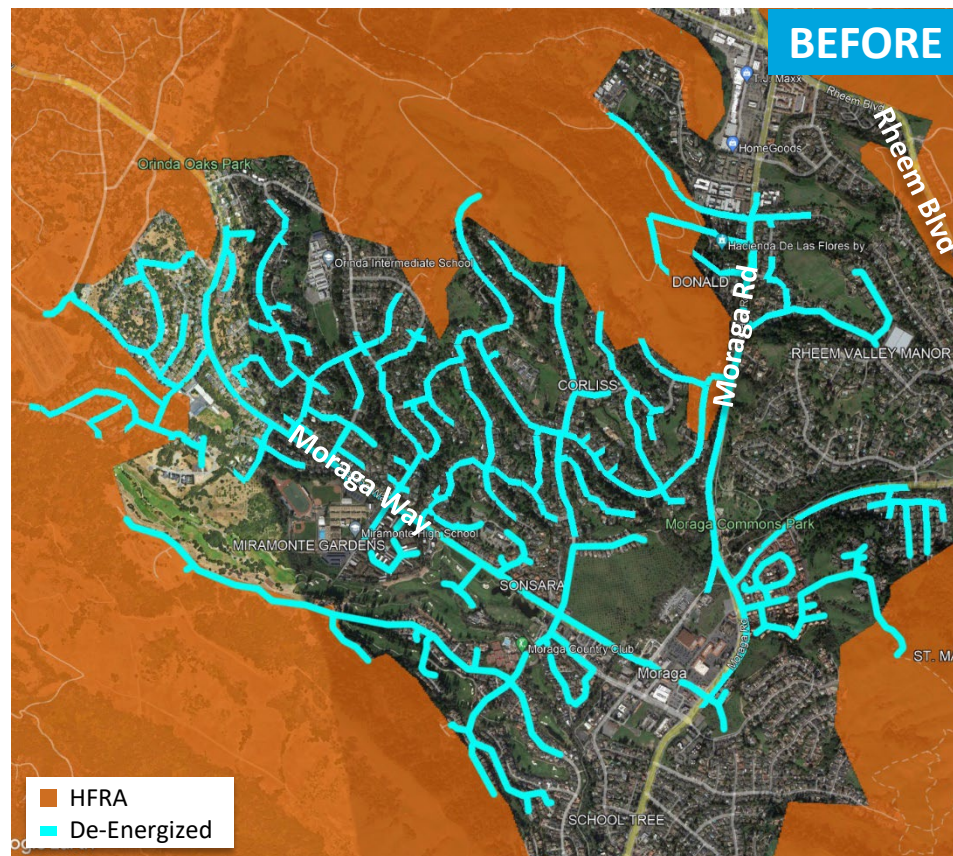
Reducing Wildfire Risk and PSPS Impacts: Walnut Creek (Rossmoor)

Our work to move this Walnut Creek powerline underground will **keep up to 2,618 customers energized** during distribution-level PSPS outages.



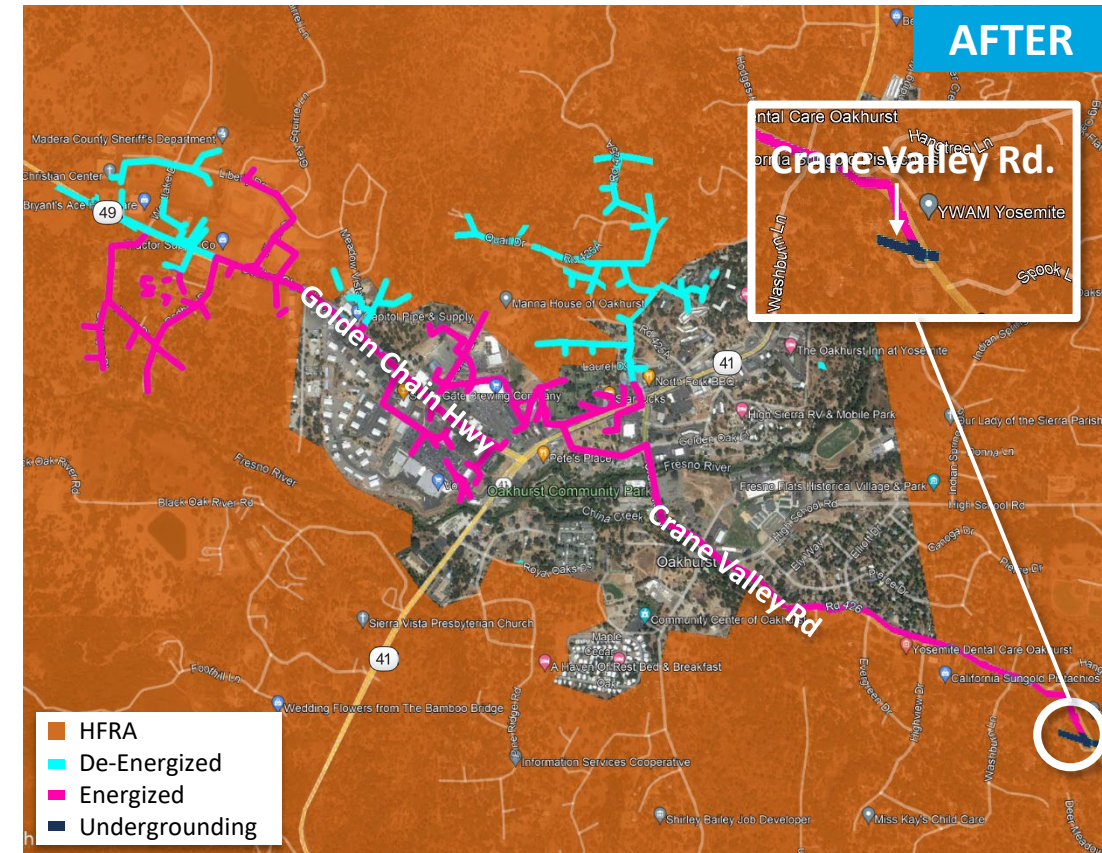
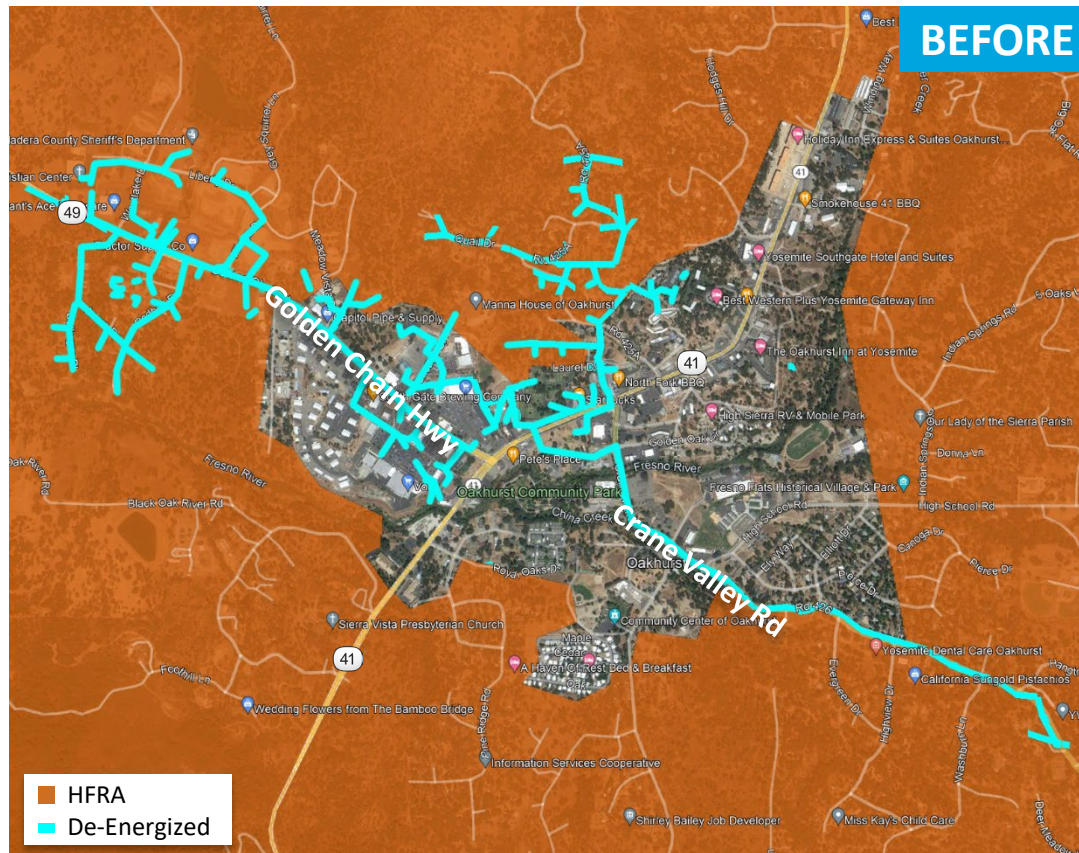
Reducing Wildfire Risk and PSPS Impacts: Moraga/Orinda

Our work to move these Moraga/Orinda powerlines underground will **keep up to 2,623 customers energized** during distribution-level PSPS outages.



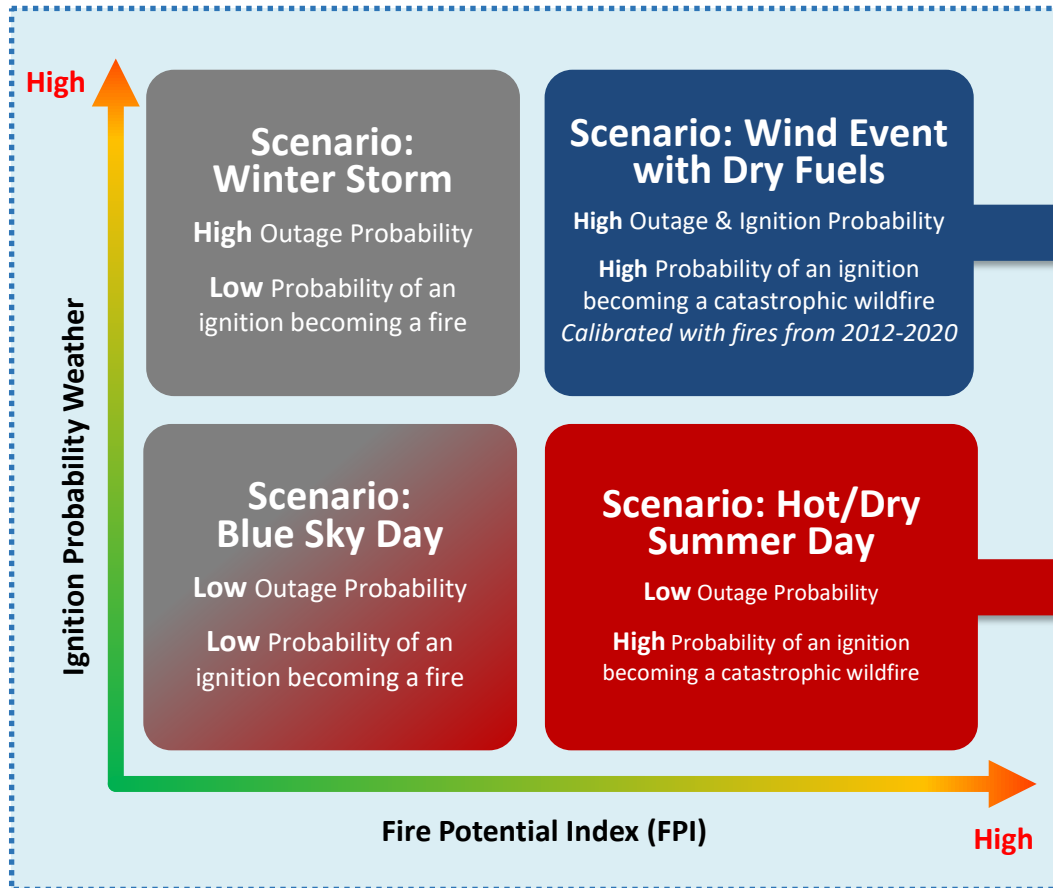
Reducing Wildfire Risk and PSPS Impacts: Oakhurst

Our work to move this Oakhurst powerline underground will **keep up to 320 customers energized** during distribution-level PSPS outages.



Safety For All Weather Conditions

We use different mitigations for a weather-driven response to forecasted fire danger.



Weather-Driven Response

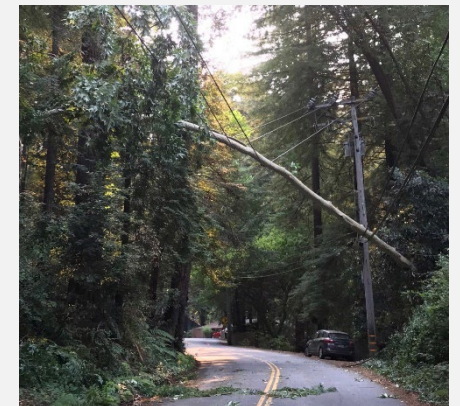
Public Safety Power Shutoff (PSPS)

Turning off power during severe weather to prevent tree branches and debris from contacting energized lines.



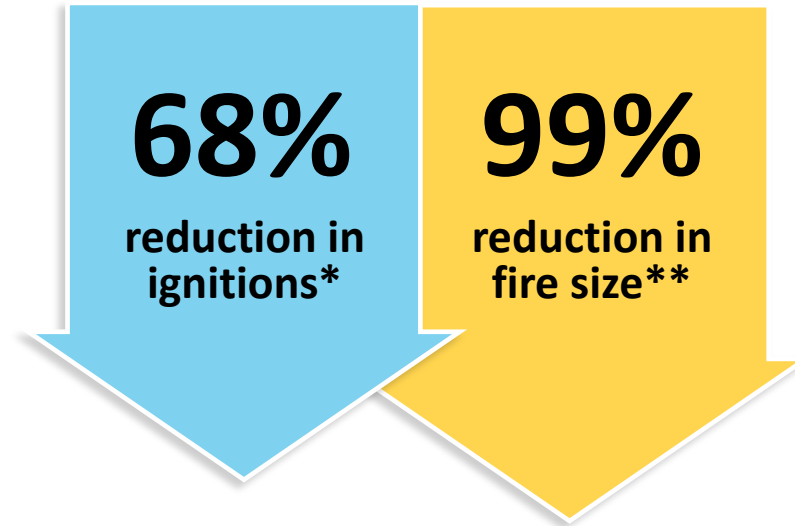
Enhanced Powerline Safety Settings (EPSS)

Multi-pronged enhanced and automatic settings that can turn off power within one-tenth of a second if a wildfire threat is detected.



EPSS Improvements: Turning Learnings into Action

By turning 2021 learnings into action, we simultaneously expanded and improved the EPSS Program last year.



	2021	2022	Improvements
Average outage length	~7 hrs	<3 hrs	56% decrease
Average customers impacted per outage	~1,100	877	20% decrease
Customers protected	~380,000	~1.82M	374% expansion
Miles protected	45% of HFRA	100% of HFRA	122% increase

Data is approximate; *Based on 2022 performance for CPUC-reportable ignitions in HFTD compared to 2018-2020 weather-normalized performance; **Relative to the 2018-2020 average
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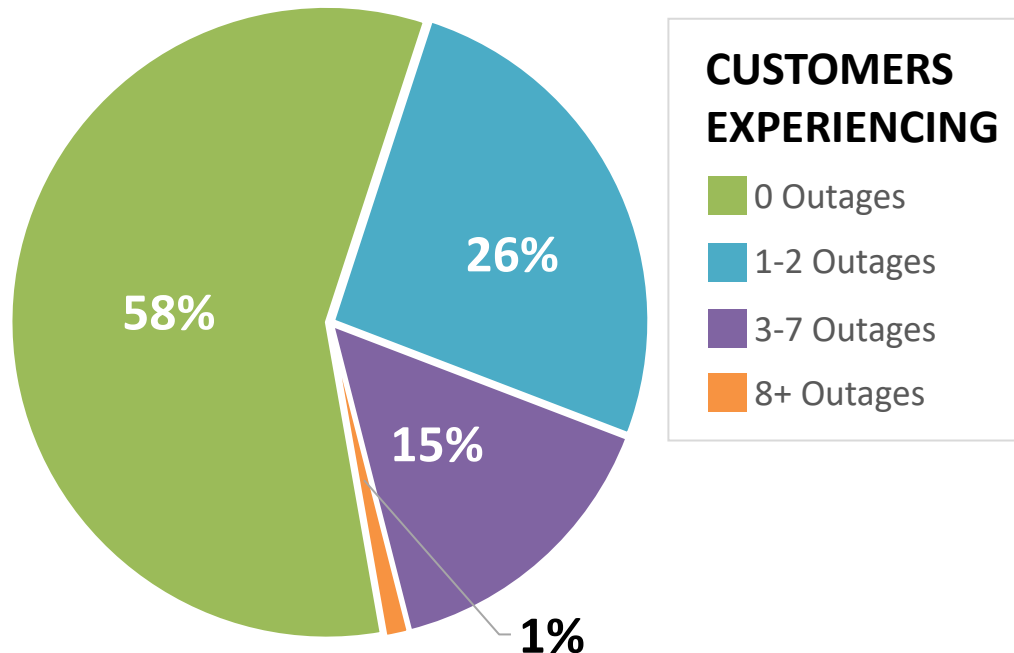
Minimizing Customer Impacts

2022 EPSS Performance

Through real-time and continuous improvements, we mitigated customer impacts without compromising the wildfire prevention benefits of EPSS.



1.82M Customers Protected



2023 EPSS Improvements

Continuing to improve reliability for all customers protected by EPSS and taking additional actions for the most impacted customers.

We are targeting mitigation efforts on the most impacted devices, these include:

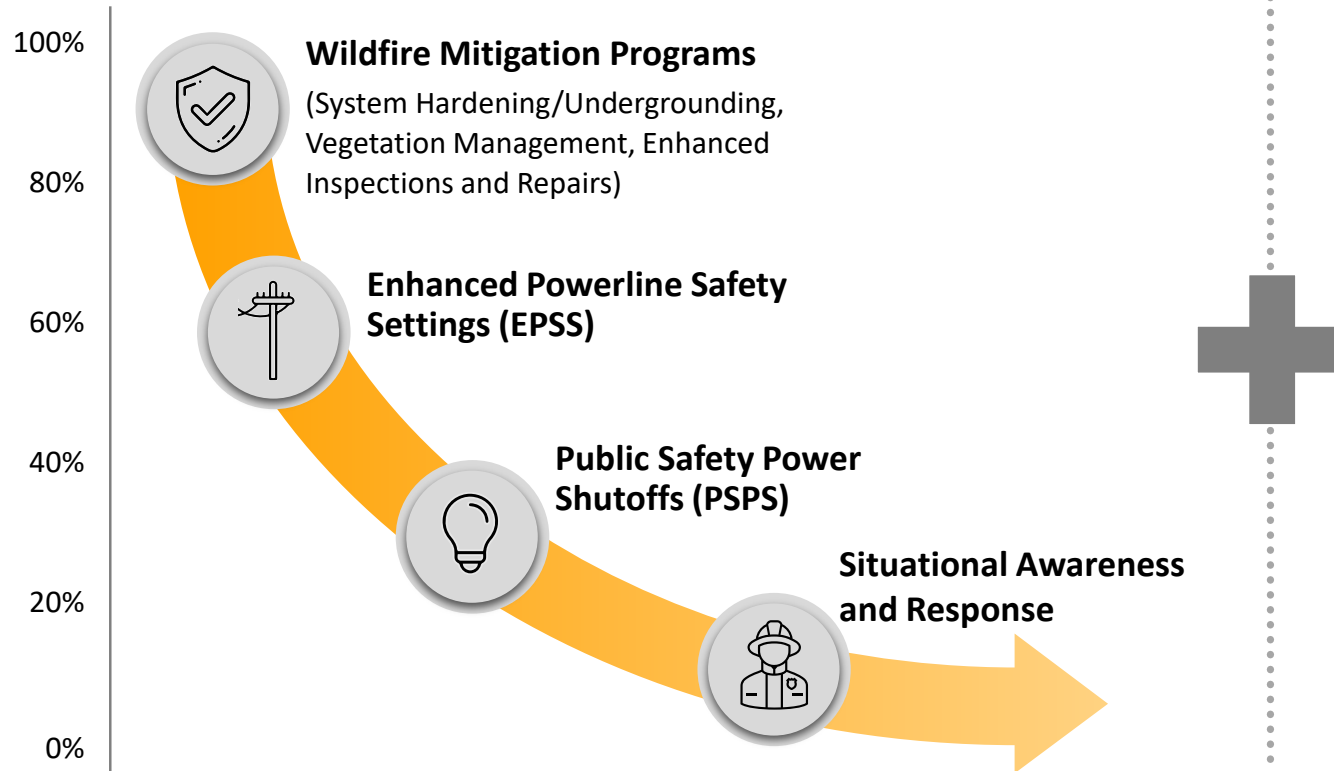
- ✓ Proactive animal mitigation consisting of bird retrofitting and critter abatement
- ✓ Proactive expanded vegetation management work
- ✓ Additional training and data driven support to target patrols
- ✓ Expanded access to customer resiliency programs

Building on Layers of Protection

We are building on existing layers of protection to reduce more wildfire risk in 2023.

90% reduction in wildfire risk from PG&E equipment*

94% reduction in wildfire risk from PG&E equipment in 2023*



New or expanded measures in 2023:

- ✓ Downed Conductor Detection
- ✓ Partial Voltage Force Out
- ✓ Transmission Operational Controls
- ✓ Transmission Pole Clearing

*Based on a comparison in the Utility's GRC testimony of the wildfire risk score for a baseline risk level to a risk level reflecting the Utility's mitigation work. Risk scores are calculated using the scoring methodology established by the CPUC in the Safety Model Assessment Proceeding, which reflects the frequency with which various risks are expected to occur and the potential safety, reliability, and financial impacts of varying degrees of wildfire severity.

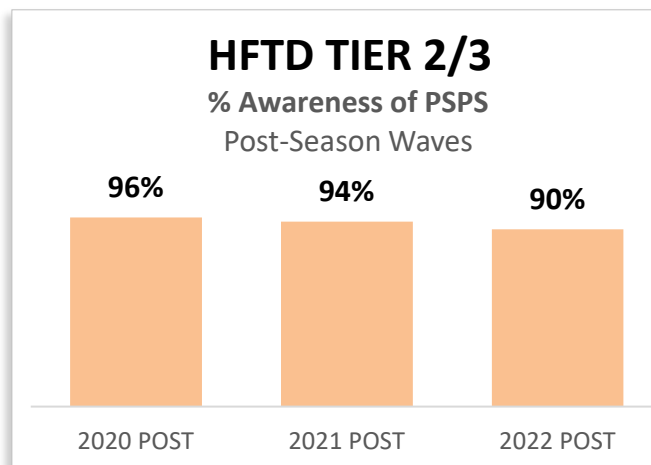
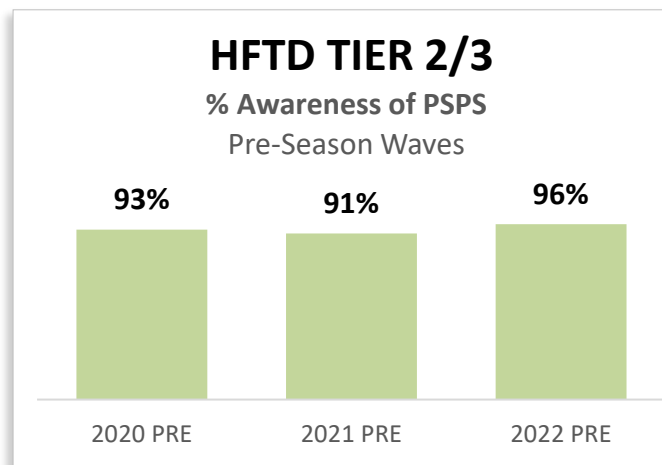
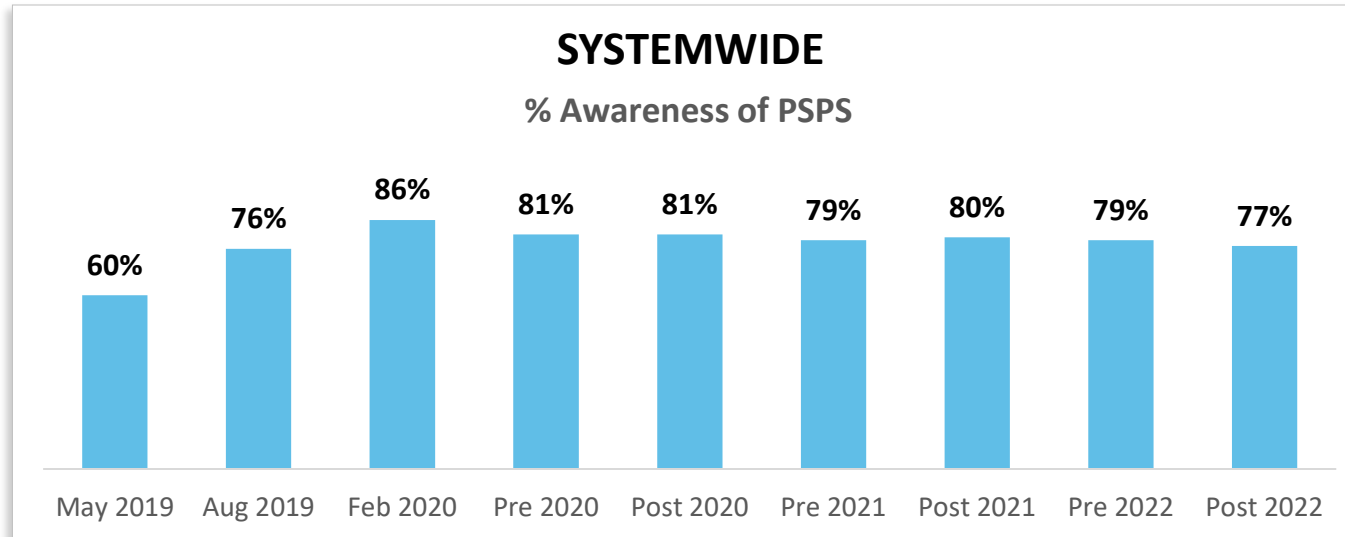
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Engaging with Customers and Public Safety Partners



Listening to Customers

Twice a year, we survey customers to gather their feedback and identify ways to improve.



2022 pre-season outreach was successful

- PSPS awareness remains high despite zero outages in 2022
- Communication recall, PSPS awareness, and feelings of preparedness were significantly higher in HFTDs
- Significant improvements in attitude toward PG&E's efforts



Sharing Information with Customers

We continue to share information with customers through various channels.

- 107M** Digital and social media impressions
- 11M** Radio and television ads impressions
- 69** Social media posts, reaching 1.3M customers
- 24** Emails and direct mail
- 18** Customer webinars and town halls completed
- 13** Collateral and fact sheets
- 1** Bill insert

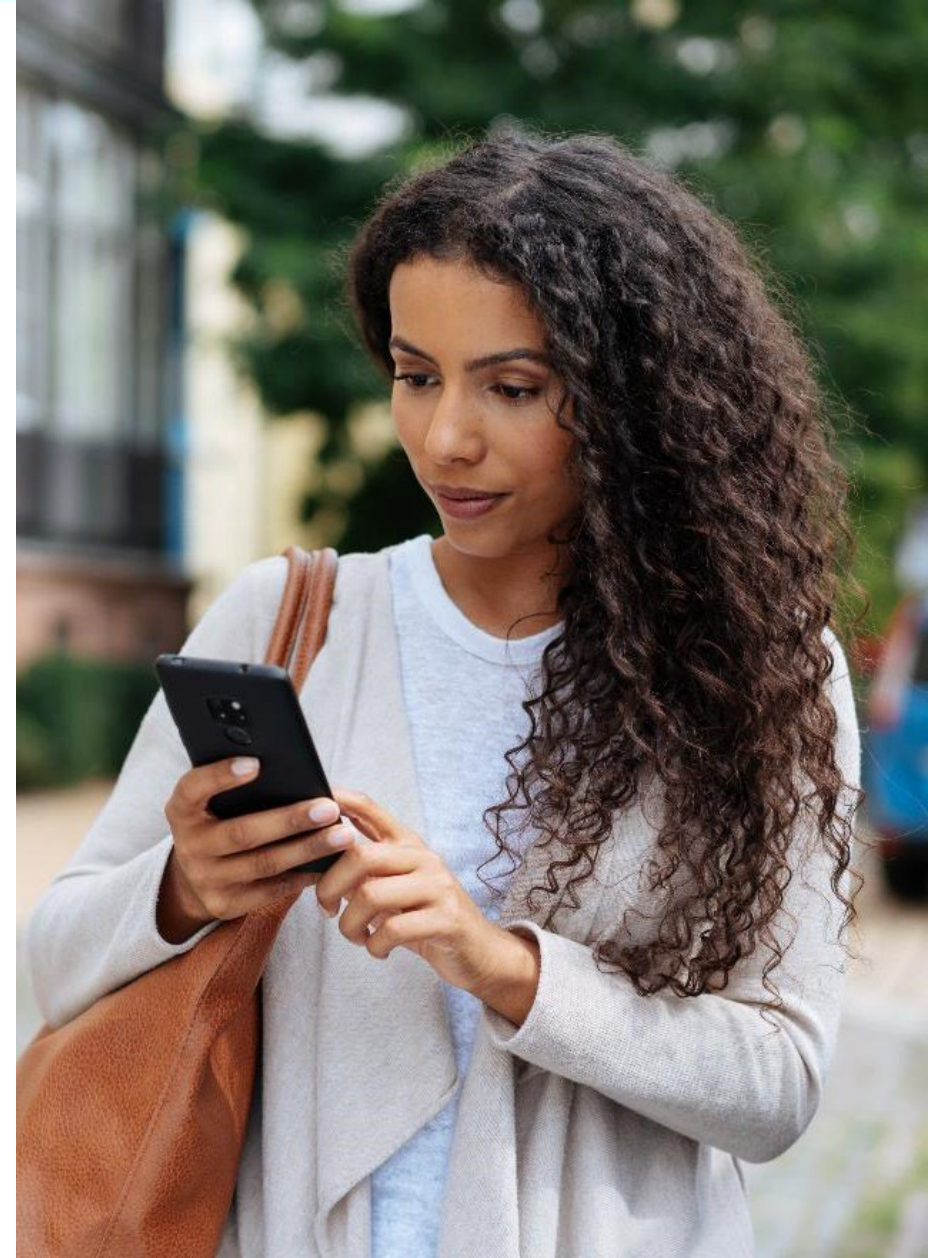
This year, we've enhanced our outreach and engagement efforts.

- Conducting in-language, targeted and in-person wildfire safety events
- Enhancing our interactive wildfire safety progress map
- Targeted Medical Baseline outreach through broadcast and cable television in high fire-risk areas
- Offering communications in large print or Braille and PSPS outreach translated into 16 languages

Updates to PSPS Notifications

We improved our notifications last year based on feedback received.

- Providing additional notifications, including doorbell rings, for customers who depend on durable medical equipment or assistive technology
- Adding two new customer notifications
- Distributing notifications around the clock
- Making sure customers cannot accidentally opt-out
- Updating internal process in an effort to meet 2-hour cancellation notification requirement





Sharing Information with Public Safety Partners

We share information with Public Safety Partners throughout the year and will continue consistent engagement to help them plan and prepare.

2023 TARGETED ENGAGEMENTS	COMPLETED IN 2023
Local Government Forums	88
Regional Working Groups	10
Public Safety Partner Webinars	10
PSPS Exercises and Seminars	7
Regional Tribal CWSP Webinars	4
CWSP Advisory Committee Meetings	2
Data Portals Trainings	1
Additional Ad-Hoc Meetings and Events	160

During a Public Safety Power Shutoff, we share information through multiple channels:

- Texts, emails and phone calls
- Agency Portal with situation reports, outage maps and customer lists
- State Executive Briefings
- Systemwide Cooperators Calls
- Cooperators Communications
- Agency Representatives
- Third-party representatives
- Notifying Public Safety Answering Points (PSAP)
- Critical Infrastructure Leads

Data is approximate and as of 07/27/2023

Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.

Updates to Our PSPS Post-Event Report

-  Utilizing PSPS event scoping tool to translate data into required post-event report formatting
-  Prioritizing enhancements based on CPUC feedback to 2021 and 2022 post-event reports
-  Adjusting responses to more fully explain event dynamics and details



Providing Customers Resources and Support



Improved Support for Our Most Vulnerable Customers

We improved support for our Medical Baseline (MBL) customers and customers with Access and Functional Needs (AFN).

Medical Baseline

- Enabled Medical Baseline customers to apply online and complete their application process remotely
- Requested approval to work with customers on program improvements to make renewal easier
- Launched paid media TV, radio and Search Engine Marketing ads promoting program enrollment

Access and Functional Needs

- Implemented a self-identification campaign to assess a customer's disability and equipment-dependent status
- Secured multiple agreements to provide accessible transportation to and from Community Resource Centers
- Launched paid radio, digital and social media ads promoting Disability Disaster Access and Resources (DDAR), 211 and other resources

Community Resource Centers (CRCs)

We continue to maintain a robust CRC Program that is prepared to provide customers with resources and up-to-date information during a PSPS outage.

How we've improved the CRC Program this year:

- Improving data mapping tools to ensure CRCs are located as close as possible to impacted customers
- Enhancing processes and procedures to ensure CRCs can open quickly and safely, when needed
- Recruiting and training additional staff
- Emphasizing tools to serve customers with Access and Functional Needs during staff trainings

We are prepared for a PSPS outage with:

**405**

CRC Ready Sites*

**290**

Outdoor Sites

**115**

Indoor Sites

* As of 7/18/23

Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.

Providing Customers with Resiliency Support

We are providing resiliency resources with expanded support for customers significantly impacted by 2022 safety outages.

	Program to Date	2023 Target (Through Q2, 2023)
 Portable Battery Deliveries	23,040	514 (5,500)
 Generator Battery Rebates	4,914	1,360 (2,500)
 Self-Generation Incentives	16,033	1,791 (2,800)
 Backup Power Transfer Meters	2,761	1,336 (3,000)
 Residential Storage Initiative	93	64 (650)



MBL and AFN Resiliency Program Participation

PG&E's battery programs are primarily targeted at customers who have experienced more recent or more frequent wildfire safety outages.

	MBL in HFTD	MBL on EPSS Protected Circuits	AFN in HFTD	AFN on EPSS Protected Circuits
Total Population*	36,141	105,158	120,650	413,898
Total Program Participants**	11,407	15,590	13,348	18,226
% of Population	32%	15%	11%	4%

Program participants include Medical Baseline (MBL) or customers with Access and Function Needs (AFN) who participated in at least one of the following Customer Resiliency programs:

Portable Battery Program, Disability Disaster Access and Resources Program, Self-Generation Incentive Program, Residential Storage Initiative, Generator and Battery Rebate Program, Back-up Power Transfer Meter.

**Data as of 7/19/23 and accounts for connected/adjacent EPSS protected circuits; **Program inception to date through June 2023*

Some of the measures included in this presentation are contemplated as additional precautionary measures intended to further reduce the risk of wildfires.

Q&A



Thank You



Appendix





Providing Customers with Resiliency Support

Program	2023 Year-To-Date*	Total Inception-To-Date	2023 Target	2023 Program Eligibility and Changes
Portable Battery Program (PBP)	156	18,640	4,700 portable batteries	- Expanded eligibility to customers enrolled in MBL or Self-Identified as Vulnerable and have assistive technology or durable medical equipment - Must have experienced at least one PSPS outage in 2021 or 5 or more EPSS outages in 2022
Generator and Battery Rebate Program (GBRP)	1,360	4,914	2,500 rebates for portable generators or batteries	- Residential or business PG&E electric account and - Located in a Tier 2/3 HFTD or served by an EPSS-protected circuit and - Products purchased must be on the qualified products list
Generator and Battery Rebate Program (GBRP) Expansion	New offering: launched July 2023	38 interest forms submitted by eligible customers	1,000 rebates for permanent battery storage installations	- New Program: Offering a \$5,000 rebate for installing a qualified permanent back-up battery - Must have a residential PG&E electric account and - Experienced 8+ EPSS outages in 2022
Disability Disaster Access and Resources (DDAR)	429 batteries 1,354 assessments - As needed in-event support	4,471 batteries 7,754 assessments 898 hotels** 1,248 food vouchers** 86 gas cards** 32 transportation**	800 portable batteries	- Customers with disabilities and independent living needs living in Tier 2/3 HFTD or experienced 2+ PSPS since 2020 - Provides portable back-up batteries and in-event PSPS support (hotels, food vouchers, transportation, and fuel cards)
Self-Generation Incentive Program (SGIP) Interconnections	467 ERB 609 other SGIP	4,830 ERB 11,074 other SGIP	950 ERB 1,850 other SGIP	- ERB = MBL and well-pump customers in Tier 2/3 HFTDs, or 2+ PSPS events, or 1 PSPS event and 1 wildfire outage - Other: general market customers
Fixed Power Solutions: Residential Storage Initiative	64 permanent battery storage installations	93 permanent battery storage installations	650 permanent battery storage installations	- Expanded eligibility to residential customers enrolled in MBL or CARE - Experienced 8+ EPSS outages in 2022
Backup Power Transfer Meter Program	1,336 installations	2,761 installations	3,000 truck roll attempts (Installs, Can't Get Ins, Cancellations)	- Customers who live in Tier 2 or 3 High Fire Threat District or - Served by an EPSS protected circuit

*As of June 2023, YTD, **No PSPS events in 2023

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PacifiCorp



2023 CPUC Public Safety Power Shut Off (PSPS) Workshop

August 3, 2023

Presenters:

Amy McCluskey, Vice President, Wildfire Safety and Asset Management

Steve Vanderburg, Meteorology Manager

Jonathan Connelly, Director, Asset Management

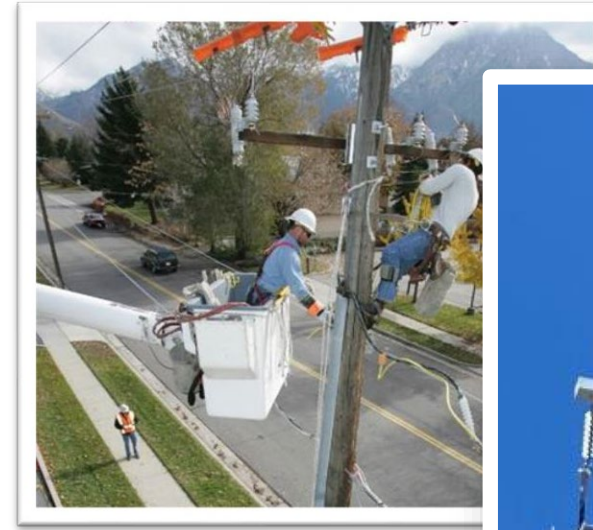
Nora Yotsov, Director, Emergency Management

Simon Gutierrez, Senior Communications Specialist



Agenda

- PacifiCorp's CA Service Territory (Refresher)
- PSPS History and 2023 Goals
- Grid Hardening Update
- Situational Awareness to Inform Decision Making
- Elevated Fire Risk(EFR) Settings
- PPS Program
 - *CRC Plan and Critical Facilities & Infrastructure Plan*
 - *PSPS Exercise Reports*
 - *Notification Plan*
- Medical Baseline / Access and Functional Needs
- Customer Resources



PacifiCorp's Service Territory (*refresher*)

General Stats

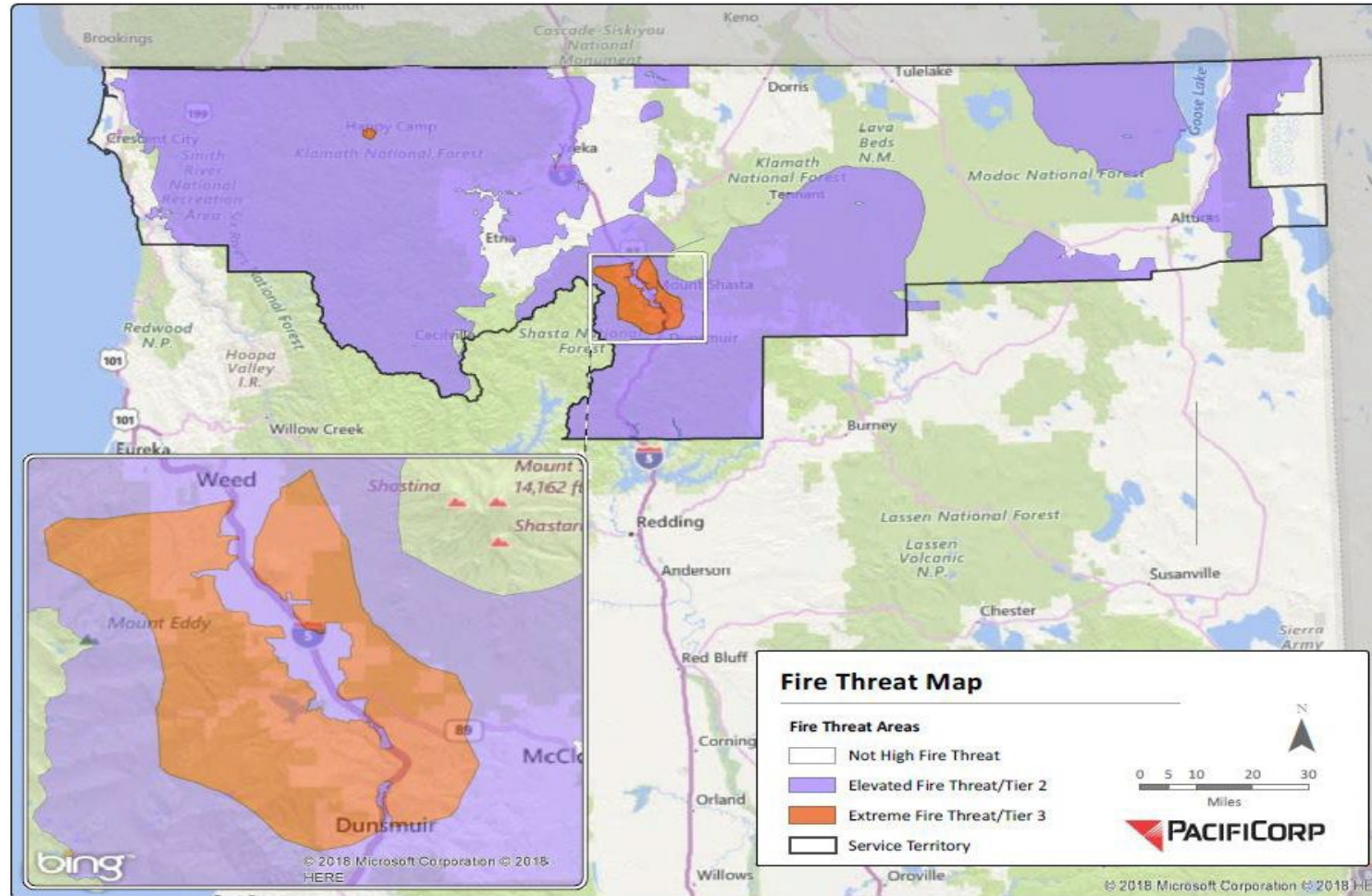
PacifiCorp provides electricity to approximately **45,000 California customers** via **62 substations**, **2,500 miles** of distribution lines, and about **780 miles** of transmission lines across nearly **11,000 square miles**

System Wide Initiatives

- ✓ Weather Stations
- ✓ Situational Awareness
- ✓ **Operational Protocols**
- ✓ Community Education and Outreach



California Service Territory



HFTD

Heightened Risk of Wildfire

Approximately **1,200 miles** or 36% of all **overhead lines** are located within the HFTD
850 miles of overhead distribution in the HFTD
350 miles of overhead transmission in the HFTD

Program Changes

- ✓ Asset Inspections
- ✓ Vegetation Management
- ✓ Prioritized Grid Hardening (covered conductor, fuse replacement, pole replacement, etc.)

PSPS History & 2023 Goals

PSPS History

Year	# of Events	Event Duration	Total Customers Affected	AFN/ Medical Baseline Customers Affected	Critical Facilities Affected	CRCs Activated
2020	1	7.9 hours	2,559	5	13	0
2021	1	9.6 hours	1,953	11	19	1
2022	0	N/A	N/A	N/A	N/A	N/A

2023 Goals

Continue using PSPS as a temporary measure while:

Reducing the Scale, Scope, & Frequency through:

- ☐ Grid Hardening to make the system more resilient
- ☐ Installation of new devices to support sectionalization
- ☐ Situational Awareness to facilitate a surgical approach

Mitigating Impacts of PSPS with:

- ☐ Enhanced planning & preparations
- ☐ Advanced warning and notifications
- ☐ CRC Activation to provide community services
- ☐ Customer Generation Programs

Metrics Trending Down (OUTPACING RISK INCREASE)

of PSPS Events
Duration of Events
Customer Impact
Restoration Time



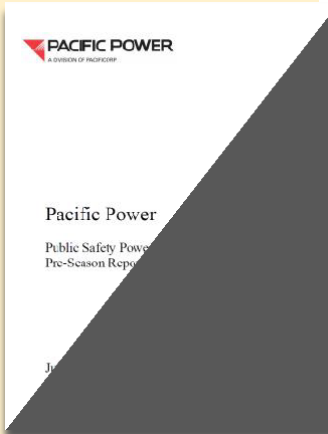
Metrics Trending Up (CONSISTENT WITH PSPS ACTIVITY)

% Customers Notified
% AFN Positive Customer Notifications
CRC Activations
Portable Battery Deliveries



2023 PSPS Pre-Season Report

- 2022 Experience
- Community Resource Center Plan
- Critical Infrastructure Plan
- PSPS Exercises
- Notification Plan
- Education & Outreach Plan



Additional tables available on the CPUC's website: [Utility Company PSPS Reports: Post-Event, Post-Season and Pre-Season \(ca.gov\)](https://www.cpuc.ca.gov/utility-company-psps-reports)



Grid Hardening Update

Grid Hardening Update

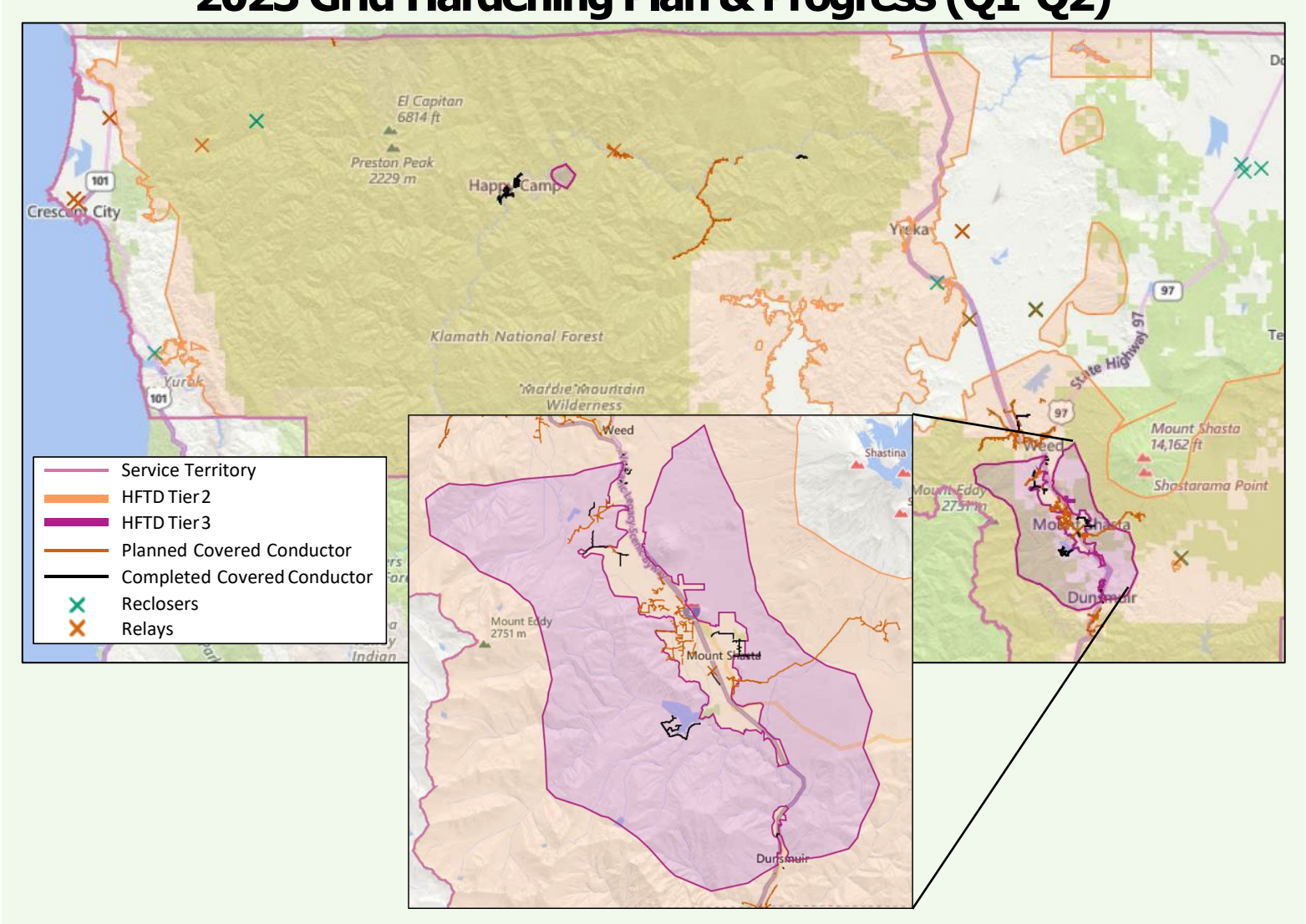
In 2022, as part of Wildfire Mitigation efforts, **Grid Hardening installed:**

- ✓ Installed 61 miles of covered conductor
- ✓ Installed 1 mile of underground
- ✓ Upgraded 57 relays, reclosers, and circuit breakers
- ✓ Replaced 2,095 expulsion fuses
- ✓ Installed 50 WeatherStations

In 2023, as part of Wildfire Mitigation efforts, **Grid Hardening:**

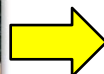
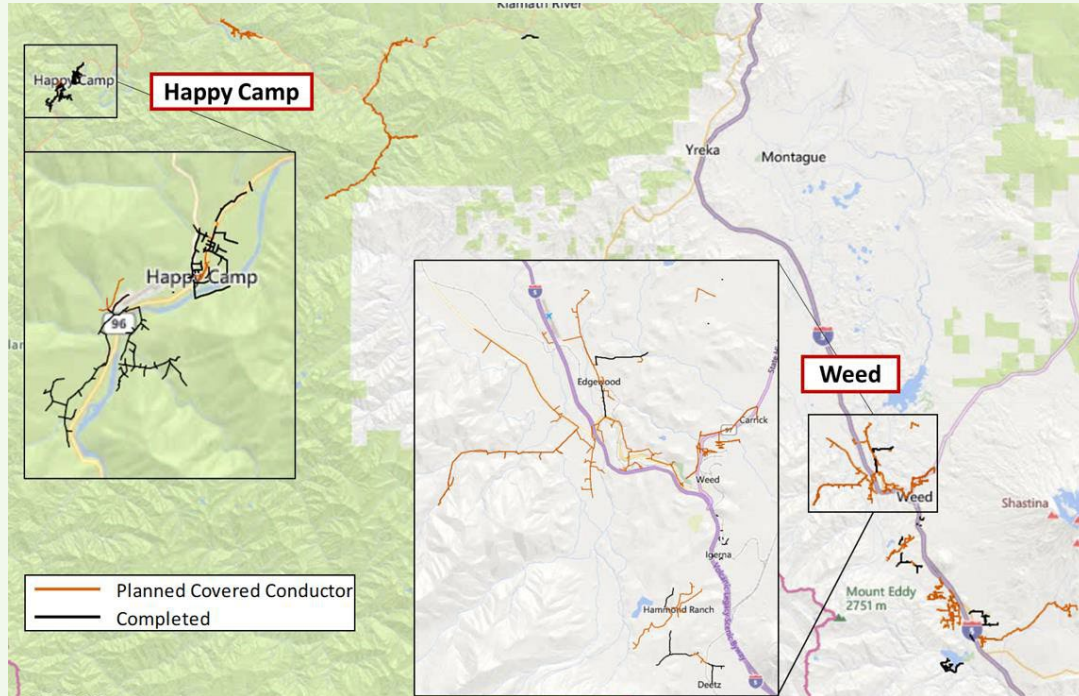
	2023 Progress/ Plan
☐ Covered Conductor	40 of 122 miles
☐ Undergrounding	1 of 8 miles
☐ Relays, Reclosers, Circuit Breakers	20 of 40 devices
☐ Weather Stations	9 of 12 stations
☐ Expulsion Fuse Replacements	2,081 of 5,212 fuses

2023 Grid Hardening Plan & Progress (Q1-Q2)



Grid Hardening Update

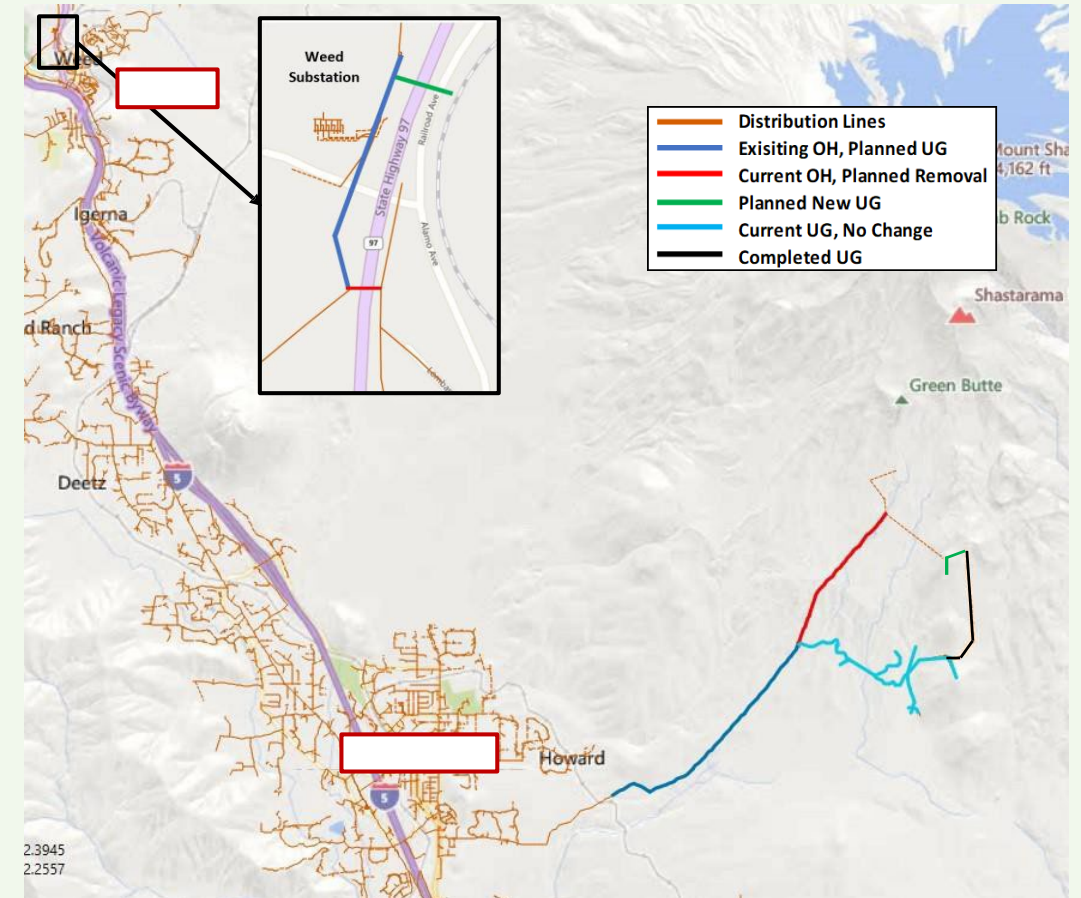
2023 Covered Conductor Planned Work



- 122 miles planned for replacement in 2023
- 40 miles completed



2023 Undergrounding Work



- 8 miles planned for 2023
 - 1 mile completed
- [Mt. Shasta & Weed]



- Heavy tree canopy with limited access
- High elevation with high pole loading requirements
- No customer meter replacements required



Situational Awareness to Inform Decision Making

2022 Fire Season Lookback & 2023 Preparations

Looking Back

- Wetter-than-normal conditions during winter 2022-2023 in combination with the mild spring and early summer delayed the onset of fire season in Northern CA as compared to recent years.
- The wet winter and mild spring & early summer resulted in both opportunities and challenges moving into the 2023 fire season.
 - Early season access to some assets were challenging in higher elevation areas due to a lingering, record snowpack.
 - Additional time to perform pre-fire season inspections, weather stations maintenance, etc.



Looking Forward

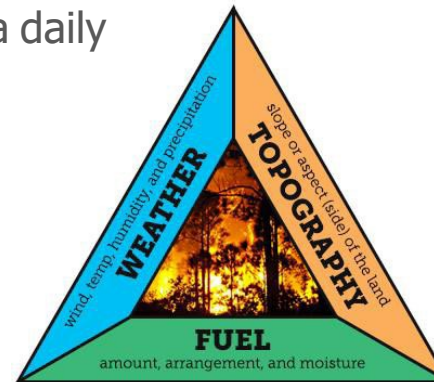
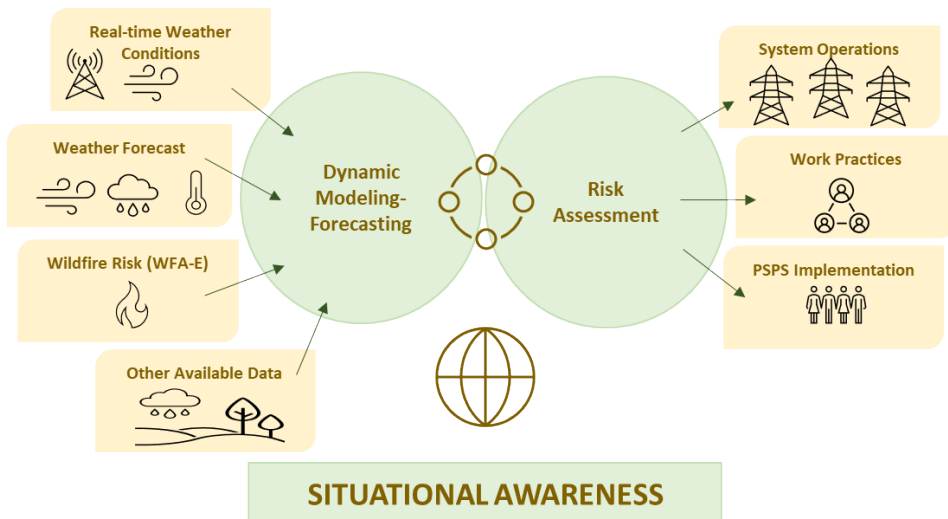
- In general, fuel loading does not significantly impact the likelihood of PSPS due to the nature of wind-driven wildfire scenarios.
- It is unclear how the developing El-Nino will impact the potential for PSPS, however PacifiCorp monitors weather forecasts year-round, and the company is prepared to initiate a PSPS in response to critical fire weather conditions regardless of seasonal outlooks.



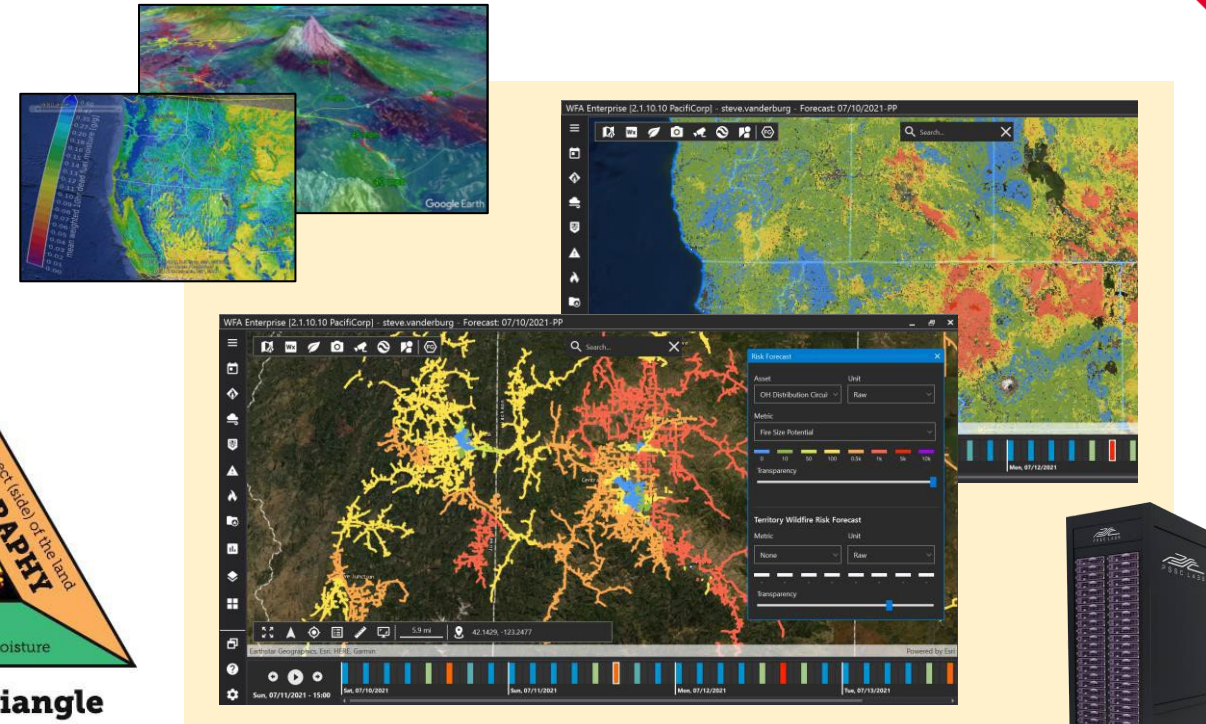
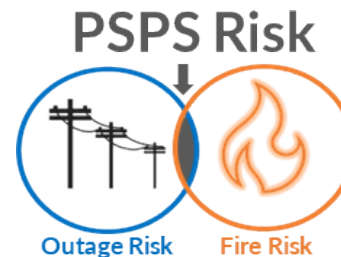
Situational Awareness

Weather Forecast Models

- In-house Weather Research & Forecast (WRF) model
 - 2km, 96-hour weather and fuels forecasts
 - Generates one terabyte of forecast data daily
- Building and Training Outage Impact Models
 - 48-hour impacts (outage) forecast
- Detailed 30-year Weather Reanalysis
 - Foundation for risk-based forecast



Fire Behavior Triangle

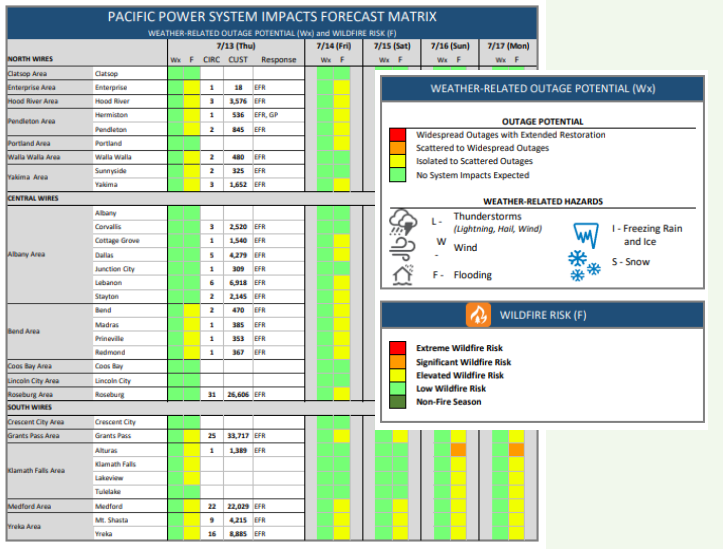


Advanced Wildfire Models

- Millions of territory-wide wildfire simulations performed daily
- Wildfire risk and consequence forecasts
- Used for real-time decision making and long-term planning of system hardening

Evolution of Risk Assessment to Inform Decisions

Daily Reports Inform Risk & Decision Making



New to 2023 Fire Season

Moving to differentiate between complex fuel & terrain circuits and grass & rangelands circuits

- Wind gusts $\geq 99^{\text{th}}$ percentile for grass & rangelands circuits
- Wind gusts $\geq 95^{\text{th}}$ percentile for complex fuel & terrain circuits
- Development and testing of a **modified Hot-Dry-Windy Index**
- Implementation of **Probability of Failure Model** based on WFR wind forecast and recently produced fragility curves
- Development and testing of a **Fire Potential Index**

2022 Considerations

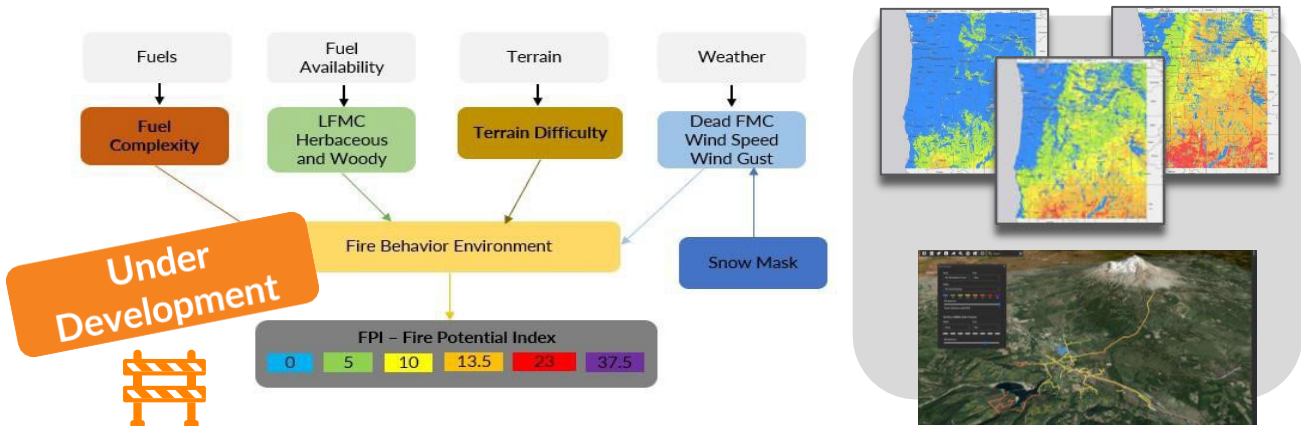
PacifiCorp Wildfire Risk	GACC 7-Day Significant Fire Potential	Fuels Considerations	Wind Gust Considerations
Little to No Wildfire Risk	Low or Little to No Risk		
Elevated Wildfire Risk	Low or Moderate	Dry	
Significant Wildfire Risk	Moderate	Very Dry	
Extreme Wildfire Risk	High Risk*	Dry or Very Dry	Max Gusts < 95th Percentile
	High Risk*	Dry or Very Dry	Max Gusts $\geq 95^{\text{th}}$ Percentile

* Excludes Lightning or Recreation High Risk triggers

PacifiCorp Fuels	100-hr Dead Fuel Moisture	1000-hr Dead Fuel Moisture	Energy Release Component
Dry	Near or Below Average*		Near or Above Average*
Very Dry	$\leq 10^{\text{th}}$ Percentile	$\leq 10^{\text{th}}$ Percentile	$\geq 90^{\text{th}}$ Percentile

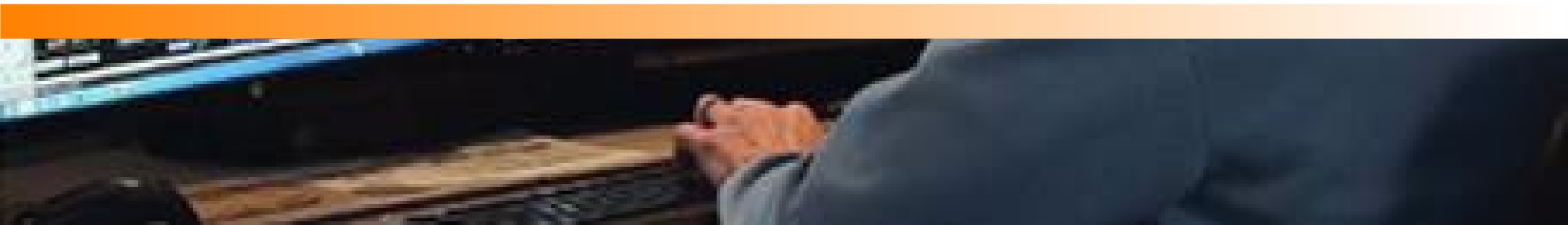
*Relative to the average fire season values for a given location

2023 Plan – Fire Potential Index





Elevated Fire Risk Settings (EFR)



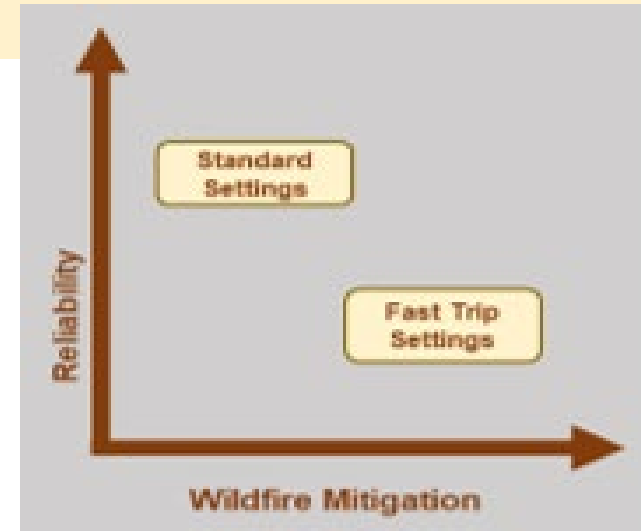
Elevated Fire Risk(EFR) Settings

What is EFR?

- Pacific Power is upgrading relays and reclosers (grid hardening)
- These upgraded devices have enhanced settings or “modes”, including Elevated Fire Risk(EFR).
- While no two circuits are the same, EFR settings are designed to clear faults in **<1 second** and limit arc energy, as compared to traditional schemes where clearing times can be 4-10 seconds

Risk-Based Application

- EFR Settings are deployed using a **risk-based** approach
- Daily reports are used to inform operational teams of elevated fuels risks, including any weather-related impacts
- Operations teams enable settings ahead of risk days on the circuits, or portions of circuits, identified
- If an outage occurs **enhanced patrolling** performed during step restoration



Elevated Fire Risk (EFR) Goals

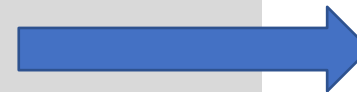
Improving Metrics

- Grid Hardening
- Proactive Asset / Vegetation Inspection and Correction
- Risk based deployment limiting circuit and customer exposure by installing more field reclosers in strategic locations
- Deployment of communication infrastructure and fault locating technology such as CFCIs (fault indicators). This **improves restoration time** and can **reduce impact** to customers.
- 24 x 7 enhanced engineering and technical support team
- Post-outage root cause evaluation and corrective actions to augment grid hardening objectives



Customer Communication

- Pre-EFR customer communications for those customers who will potentially be impacted by EFR settings
- Real-time outage communication



Wildfire safety precautions in place for your area

Due to elevated wildfire risk in your area, we are taking additional safety precautions. Among other measures, we may use protective devices on our lines with more sensitive settings that will de-energize power equipment when there is a short circuit detected.

A power outage is more likely to occur when these settings are utilized. For the 2023 wildfire season, based on elevated conditions in the region, we are using more sensitive protective settings in your area. As a result, if an outage occurs during the 2023 wildfire season, you may experience a longer-than-typical outage as our field personnel work to confirm that power can be safely turned back on. These measures are intended to promote public safety, and we appreciate your patience.

Our system is built to withstand extreme weather events and other unforeseen issues; however, outages can happen. It is important to:

- Plan ahead and [be prepared year-round](#).
- Create a plan with your medical provider for appropriate back-up power if you have medical devices that rely on electricity in your house.
- [Review your contact information](#), so we can reach you if necessary.
- If an outage does occur, find restoration information on the [Pacific Power outage map](#).

We appreciate your patience and understanding. Providing safe, reliable service is our highest priority at Pacific Power. If you have questions, please call us anytime at **1-888-221-7070** or visit [PacificPower.net/Ready](#) for emergency preparedness and wildfire safety information.



PSPS Program / Pre-Season Report (PRESR)

PRESR – CRC and Critical Infrastructure Plan

Community Resource Centers (CRCs)



- ✓ Shelter from environment
- ✓ Air conditioning
- ✓ Potable water
- ✓ Seating and tables
- ✓ Restroom facilities
- ✓ Refrigeration for medicine and/or baby needs
- ✓ Interior and area lighting
- ✓ On-site security
- ✓ Wi-fi access, Sat Phone, Radio, Cellular phone etc.
- ✓ On-site medical support (EMT-A at a minimum, Paramedic preferred)
- ✓ Televisions
- ✓ Charging stations
- ✓ Air Purifiers
- ✓ Air Quality Monitors
- ✓ Ice
- ✓ Non-perishable snacks
- ✓ Small Crates for Pets
- ✓ Portable ADA Ramp
- ✓ **Sensory tools**

Critical Facilities & Infrastructure Webpage

Critical facilities and infrastructure

[Back to wildfire safety](#)

The California Public Utilities Commission (CPUC) has defined facilities and critical infrastructure as entities "that are essential to the public safety and that require additional assistance and advance planning to ensure resiliency during de-energization events."

Pacific Power provides prioritized restoration, backup power evaluation, additional communications and other resources before and during **Public Safety Power Shutoff events** to critical facility customers who provide services that are essential to public safety. We recognize that these customers require additional assistance and advance planning to ensure resiliency. Entities that fall within the industry sectors listed below are considered "critical facilities and infrastructure," as defined by the CPUC.

Are you a public safety partner? If so, visit our [Public Safety Partner Portal](#).

Industry sectors

Emergency services sector	▼
Government facilities sector	▼
Healthcare and public health sector	▼
Energy sector	▼
Water and wastewater systems sector	▼
Communications sector	▼
Chemical sector	▼
Food and agriculture sector	▼

[Critical facilities and infrastructure \(pacificpower.net\)](https://www.pacificpower.net/critical-facilities-and-infrastructure)

PRESR– PSPS Exercises

Completed Exercises

- January 19: PSPS Workshop
- March 28: Siskiyou County Tabletop Exercise
- May 15-18: Siskiyou County Functional Exercise

Common Observation Themes

- AFN outreach and partnerships
- Gaps and duplications in internal checklists
- Communications/media limitations in rural areas

Identified Solutions

- AFN Liaison engagement expanded partnerships with Regional Centers
- Updated internal procedures to reflect lessons learned
- Presentations to City Councils, preparedness events and other outlets to augment limitations



Siskiyou County Functional Exercise

After-Action Report
June 13, 2023

The After-Action Report/Improvement Plan (AIR/IP) is a preparedness doctrine and tool for preparedness reporting, as additional sections as needed.

EXERCISE OVERVIEW

Exercise Name	Siskiyou County PSPS
Exercise Dates	May 15-18, 2023, 9:00 am – 11:00 am daily
Scope	Functional Exercise, planned for eight hours, over four days home locations and virtually via MS Teams. Exercise play is limited to the identified affected area. No other incidents exist at exercise start.
Focus Area(s)	Response, Planning and Recovery
Capabilities	Public Information and Warning Operational Coordination
Objectives	1. Ensure communications channels are viable during PSPS event 2. Evaluate AFN/MBL customer notification process to include in person notification 3. Explore Pacific Powers plan for allocating resources during PSPS events
Threat or Hazard	Extreme fire weather
Scenario	Weather and environmental conditions are forecast to meet PSPS criteria initiating the PSPS playbook and response actions from the electric utility and public safety partners.
Sponsor	PacificCorp
Participating Jurisdictions/ Organizations	26 local, state, private, and tribal organizations have a role or have been invited to participate in this exercise. For a full list of participating agencies, see Appendix B.
Points of Contact	Primary Norm Yarnov Director of Emergency Management PacificCorp (503) 813-5253 eleonore.yarnov@pacificcorp.com Secondary Stephanie Beall Senior Meteorologist PacificCorp (360) 515-1232 Stephanie.Beall@pacificcorp.com



PRESR– Notification Plan

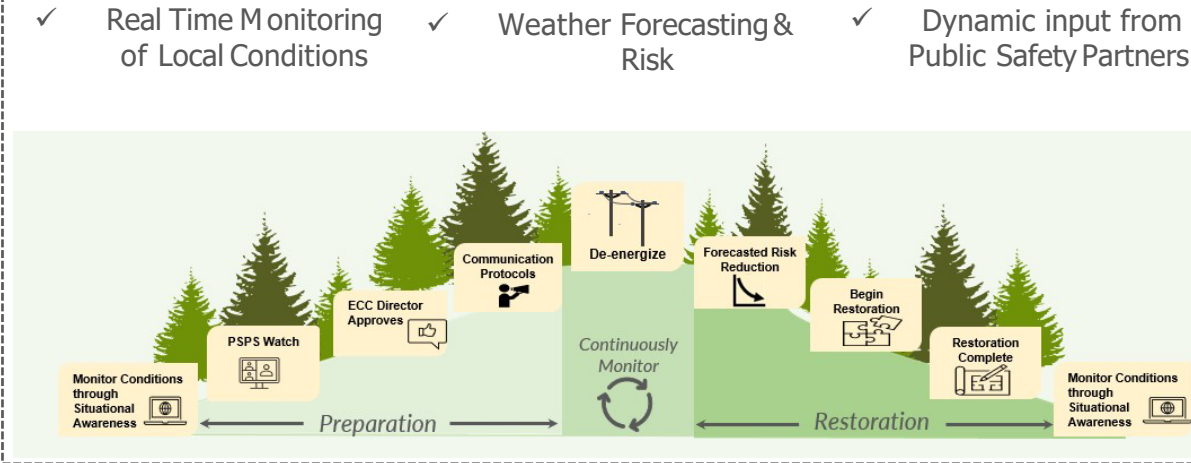
- Once the decision is made to implement a PSPS, Notification Protocols are initiated
- Pending any changes to dynamic weather factors and risk, notifications protocols generally include:

Notification Protocols	
48-72 hours prior	De-energization warning to Public Safety Partners
24-48 hours prior	De-energization warning
1-4 hours prior	De-energization imminent
Event begins	De-energization begins
Re-energization begins	Re-energization begins
Re-energization completed	Re-energization completed
Cancellation of event	De-energization event canceled

- During a PSPS event, notifications to medical baseline and AFN populations are managed separately from general notifications
- Pacific Power performs positive or affirmative communications using various methods:

- ☐ Personal Calls
- ☐ Text Messages
- ☐ Emails
- ☐ Home Visit

General PSPS Protocols



2023 Goals

- Enhance ability to reach and identify AFN and Medical Baseline Customers
- Strengthen relationships with CBOs



Example: Initiated contact with Regional Centers to better understand how to identify and serve AFN populations



Medical Baseline, AFN, & Customer Resources

Medical Baseline & AFN Customer Identification

2022 CARE Program

Average CARE participants	Estimated Eligible	Participation Rate
11,170	13,111	85.19%

✓ In 2021, All applications and re-certification forms were updated with the following:

- ☐ Check this box if someone in your household has a disability, or requires accessibility, financial or language support during a public safety power outage. Pacific Power will provide an additional notification prior to a public safety power shut off. For more information, visit pacificpower.net/wildfire.

✓ Forms are mailed to residential and master-meter customers to enroll in the discounted rate schedule or to re-certify and remain on the rate.

Medical Customers

- Due to the pandemic, customers can self-certify as a medical customer with no documentation.
- All medical customers are coded as AFN customers.
- All customers receiving an application for medical certification will receive information and will be able to identify as an AFN customer.

Medical Baseline Program

If you or a family member is on life support or has a serious medical condition, we can help. If you or someone who lives with you full time is required to use an electricity-dependent medical device, let us know. To make it easy, customers receive approximately \$50 additional kWh each month per month, which are billed at the lowest residential tiered rate to offset increases in cost and energy use due to medical equipment.

A Medical or Life Support Equipment Certificate must be completed by a qualified medical professional certifying that a member of the household is using medical equipment on a regular basis required to maintain life or has a medical condition that would be adversely affected if electric service is disrupted.

This Medical Baseline Certificate does not guarantee that power will not be interrupted from weather-related outages, other circumstances outside of our control, or service disruptions for bill management. It does help us to better assist you in managing your electricity bill, based on what is normally allowed. Learn more at pacificpower.net/med.

California Alternate Rates for Energy Program (CARE)

If you are having trouble paying your bill, you may be eligible for a 20 percent discount on your Pacific Power bill through CARE. CARE is available to residential customers who meet income requirements.

You may also be eligible for CARE if you are enrolled in public assistance programs such as Medi-Cal, CalWORKs, InHome Care Program (IHCP), Supplemental Security Income (SSI), Bureau of Indian Affairs Head Start Income Eligible (BIAHSI) or Temporary Assistance for Needy Families (TANF) or Tribal TANF.

For more information and to see if you qualify, visit pacificpower.net/care.



Outage preparedness

A storm, wildfire or other emergency can happen at any time. That's why it's important to have a plan ready, year-round, in case power goes out.

- Keep a two-week supply of shelf-stable food and water for all people and pets in your home.
- Gather a backup supply of essential medicines.
- Create an emergency kit with flashlights, fresh batteries, solar phone chargers, first aid, essential phone numbers and cash.
- Do not use candles. If oxygen equipment is in use.
- Check with your medical device supplier to assist with emergency backup plans for any medical equipment.
- Before having a generator, make sure it is appropriate for your home.

Update your contact information with Pacific Power

Communication is a big part of staying safe. In the event of a power outage, we will use all available options to keep you informed, including social media and by reaching out to you directly by phone, text or email.

Qualifying customers would also receive additional notifications prior to a Public Safety Power Shutoff due to severe weather conditions.

Please take a moment to update your contact information so we can reach you if we need to at pacificpower.net or by phone at 1-800-225-7070.



2023 Update

- Since February 2022, there has been **an increase** in total AFN customers of nearly **78percent**.
- PacifiCorp continues to seek improvements to identifying the electricity dependent customers with AFN through defining, mapping, and enabling self-identification, and has mapped their respective databases to code customer accounts accordingly
- As a part of the planning process, the team worked to identify the targeted individuals and benchmark with state agencies to create an informed estimate of the number and types of individuals with disabilities and others with AFN residing in the community
- All medical baseline customers are identified as AFN customers

June 2023 AFN Customer Counts

Medical Baseline AFN	Non-Medical Baseline AFN	Total
104	747	851

Backup Generation Programs

NEW Marketing Campaign



Email

Helping you stay safe and prepared

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

Whether they're caused by storms, accidents, or 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 customer and live in a Tier 2 or Tier 3 high-fire area on the [California High Fire Threat District map](#). Your generator or portable power station must also be a qualified product and have been purchased on or after September 1, 2022.

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

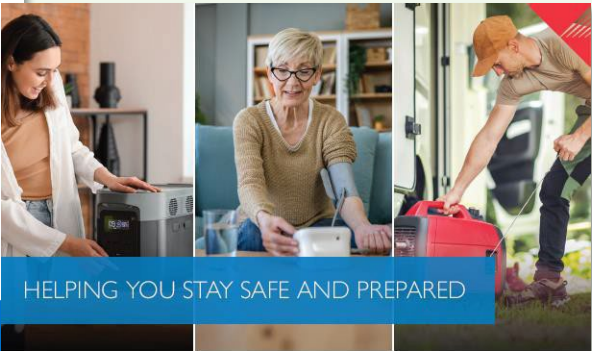
Have questions? Contact Us | 1-888-221-7070 | Español 1-888-225-2611



Unsubscribe

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HELPING YOU STAY SAFE AND PREPARED

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To claim a rebate, you must be an active Pacific Power customer and live in a Tier 2 or Tier 3 high-fire area on the California High Fire Threat District map. Your generator or portable power station must also be a qualified product that was purchased on or after September 1, 2022.

To learn more and apply, please visit [PacificPower.net/BackupPower](#)

Bill Insert



©2023 Pacific Power

Generator Rebate Program

- Rebate offered on the purchase of a portable generator or portable power station to customers who:
 - Reside in Tier 2 or Tier 3 area
 - **Additional rebate** to Access and Functional Needs (AFN) customers

2022 Applications	2023 Applications	Total Applications
8	143	151

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

2022 Program Results and Impact		
Customers Reached	Identified as Battery Eligible	Received Batteries
72	48	48

57 | PSPS Briefing | August 3, 2023

Customer Pre-Season Survey

Q1 2022 Survey Participation	2022: March 7th – March 21st	✓ 581 Total Surveys Completed ➤ 80 Phone Based Surveys ➤ 501 Web Based Surveys
Q4 2022 Survey Participation	2022: November 3rd – November 19th	✓ 576 Total Surveys Completed ➤ 80 Phone Based Surveys ➤ 496 Web Based Surveys
Q1 2023 Survey Participation	February 28th – March 14th	✓ 687 Total Surveys Completed ➤ 80 Phone Based Surveys ➤ 607 Web Based Surveys
➔		
Objectives		
• Measure awareness of Pacific Power messages related to wildfire preparedness • Identify recall of specific message topics • Identify recall of message channels • Measure recall and understanding of Public Safety Power Shutoff or PSPS • Evaluate sources customers are most likely to turn to for information about PSPS • Explore actions taken by customers to prepare for wildfire season • Measure awareness of Pacific Power's efforts to reduce the risk of wildfires • Evaluate PSPS notifications perception		
Key Findings		
✓ Most commonly recalled channels were email, social media and TV news ✓ The Pacific Power website remains rated as the most useful and clear source ✓ 52% reported to be aware of wildfire safety communications ✓ 51% recall seeing, hearing, or reading the phrase "Public Safety Power Shutoff of PSPS", consistent with November 2022 (56%) and March 2022 (52%) ✓ 69% have taken action to prevent wildfires or to prepare their homes or business ✓ Among those reporting that they rely on electricity for medical needs, 1/4 are aware of additional notices		
Recommendations		
✓ Continue to use email and social media to reach customers; TV news is also effective, with recall in line with social media. ✓ Promote the Pacific Power website as a resource for information, as this source is considered the most clear and useful of all sources evaluated. Bill inserts are also highly clear and useful, provide a cost-effective way to reach more vulnerable customers without access to email or the web. Promote the Generator Rebate Program. ✓ Maintain efforts to leverage local organizations or community centers to reach the community and encourage word of mouth. While these resources aren't as widely used as direct communications or mass media, they are considered useful. ✓ Evaluate off-season messaging cadence. ❖ Awareness of PSPS is down in March 2023 and mirrors March 2023. The wet and cold winter may be contributing to wildfire season not being a priority for customers. ❖ Continue to educate the public about the steps Pacific Power is taking to mitigate the risk of wildfires and helping customers to prepare.		

Thank You!

Q&A

Break

Liberty Utilities

2023 Public Safety Power Shutoff Pre-Season Briefing

Presented to the California Public Utilities Commission

August 3, 2023



Liberty

- ❑ ~50,000 customers
- ❑ ~1,400 miles of overhead lines
- ❑ ~300 miles of underground lines
- ❑ ~23,000 utility poles
- ❑ 15 substations
- ❑ Connected to Nevada Balancing Authority (not CAISO)
- ❑ 125 employees



2023 Public Safety Power Shutoff (“PSPS”) Pre-Season Report

- ❑ 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
- ❑ Analyze past weather station observations to improve forecasting
- ❑ Continue grid hardening
- ❑ Develop Sensitive Relay Profile triggers
- ❑ No significant changes made to Liberty’s CRC plan, critical facilities and infrastructure plan, notification plan and education and outreach plan.



Meteorology/Weather and PSPS Decision-Making

- ❑ In 2023, Liberty's Fire Potential Index ("FPI") did not exceed a rating of low until July and there was little fire risk or potential for PSPS in May and June. However, the highest fire risk in Liberty's service territory generally occurs from September through November, and fuel dryness from September onward is not expected to be significantly different this year than in years past.
- ❑ Most of the surface fuels in Liberty's service territory are timber understory with a low grass loading and fire behavior dominated by consumption of shrubs. In these areas, additional herbaceous loading is not expected to be impactful. However, in more arid areas such as Walker, Colville, Topaz, Floriston and Verdi, the above average grass crop does increase potential wildfire consequences.
- ❑ El Nino has historically led to wetter conditions in Southern California but not necessarily Liberty's service territory where some El Nino years have been wetter than average, and others have been drier than average. Liberty is not aware of correlation between wind patterns in Liberty's service territory and El Nino conditions.
- ❑ The North American Monsoon typically brings thunderstorms to the Sierras from June through September. In 2023, the monsoon is off to a slow start, but is showing signs of moderate strengthening in the coming weeks.
- ❑ Liberty has made no changes in de-energization thresholds in 2023.
- ❑ Liberty is developing and testing an improved technology for wind gust forecasting using Machine Learning (gradient boosting).



Sensitive Relay Profile Program

❑ Liberty piloted its Sensitive Relay Profile (“SRP”) Program on two circuits in 2022 and is adding 10 additional circuits in 2023

- 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.



Grid Hardening

❑ In 2022, Liberty advanced system hardening efforts by:

- Completing three planned covered conductor projects (9.6 circuit miles)
- Completing 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
- Systematically replacing equipment that creates ignition risk, such as expulsion fuses and tree attachments
- Improving substation infrastructure by installing substation animal guards and replacing oil circuit breakers
- Exploring and piloting new technologies to improve system resiliency

❑ In 2023, Liberty plans to complete the following system hardening efforts:

- Three planned covered conductor projects (2.4 circuit miles), four traditional overhead hardening projects as part of its Topaz Resiliency Project (8 circuit miles), and a combination of undergrounding and covered conductor at Cascade Lake (0.37 circuit miles).
- 50-75 pole replacements per month from July-September as part of the Resiliency Program to meet its target of 200 pole replacements.
- 60 tree attachment removals
- Four substation animal guard installations

❑ In 2023, Liberty is completing the design, permitting and procurement of the Angora Microgrid for a 2024 build

- Any OH/UG rebuild project with a long line and a small load will be evaluated as a microgrid moving forward.



Medical Baseline and Access and Functional Needs

□ 2023 Updates

- Medical Baseline Program (“MBL”)
- Access and Functional Needs (“AFN”)
- Customer Resiliency Application



Customer Resources

☐ **Community Based Organization (“CBO”) coordination**

- Collaborative outreach
- Community participation and inclusion
- Targeted strategy

☐ **PSPS awareness**



Thank you!

Q&A

Public Comment

- Any member of the public may make public comments. Comments shall not exceed two minutes. (1-800-857-1917 enter passcode 1765767#)
- If you wish to speak, 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, I will announce your name and open the line. You will have two minute to speak. To withdraw your request, please press *2



California Public Utilities Commission