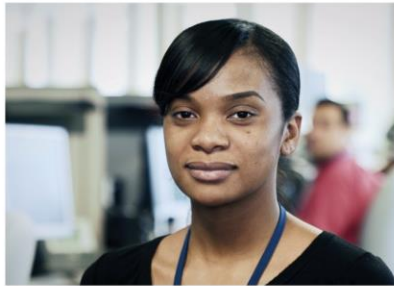


# 2024 Enhanced Safety Settings & Daily Situational Awareness



# Objectives for OWEC Presentation

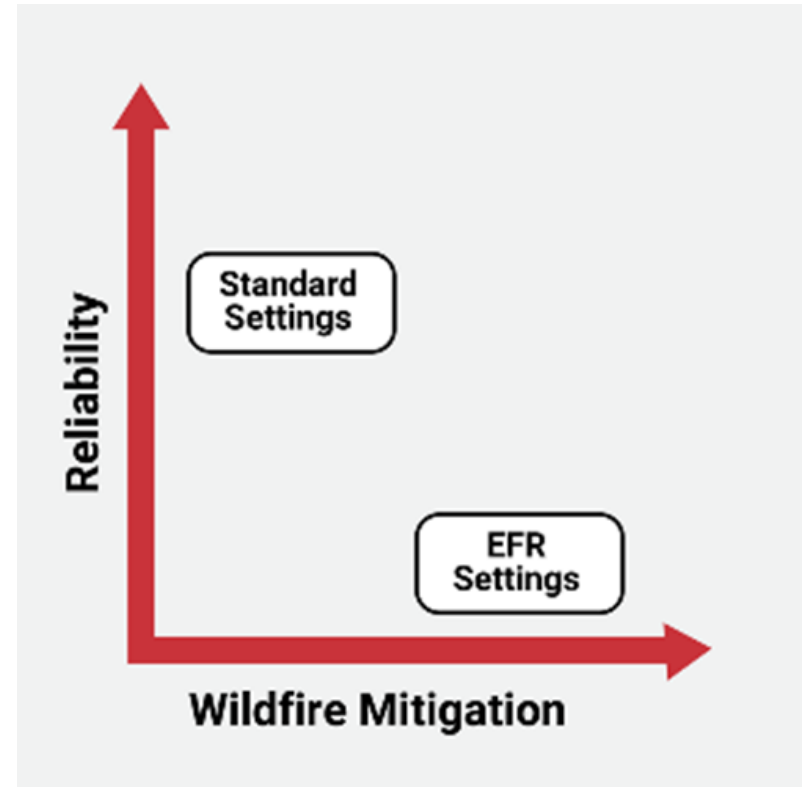
- How Enhanced Safety Settings Work
  - *How are circuits recommended to go into ESS?*
    - *What type of skillset or resource is needed to make this recommendation?*
- Operational Practices
  - *How are circuits taken out of ESS?*
  - *How do we change our patrol when we are in ESS?*
- Education and Outreach
  - *What education have we provided to our customers on going into ESS and when we come out of ESS?*

# Enhanced Safety Settings – How They Work

## Objective

- Detect and clear all faults quickly
- Reduce fuse operation
- Reduce Arc energy during restoration using second harmonic blocking
- Enhance detection of high impedance faults on capable devices
- Substation relays, field reclosers and fuse savers are capable of fast

[PacificPower.net/Settings](http://PacificPower.net/Settings)



# Operational Practices – Service Territory Wide

## Metrics that Inform Daily Fuels Forecast

- Wildfire Consequence Modeling (WFA-E)
- Energy Release Component (ERC)
- Burning Index (BI)
- Geographic Area
- Coordination Centers (GACC)
- National Weather Service Watches and Warnings
- High Resolution Fire Weather Forecasts
- Evaporative Demand Drought Index (EDDI)
- Fuels Conditions (Live and Dead Fuels)
- Current or Recent Wildfire Activity
- Hot-Dry-Windy Index (HDWI)
- Vapor Pressure Deficit (1-month running average)
- Severe Fire Danger Index
- Fire Potential Index

## Fire Season is a condition... not a date

Modeling is completed daily through the entire year to determine conditions of risk

Enhanced safety settings are **enabled across the service territory**; well in advance of weather conditions that have historically been related to catastrophic fires.

### Enhanced Safety Settings Enabled in high fire risk areas

- **Modified Hot-Dry-Windy Index** above the 60<sup>th</sup> percentile
- Windy weather relative to normal above 60<sup>th</sup> percentile (~20 to 30 mph gusts)
- Slightly dry vegetation, dead fuel moisture 14-16%
- Vegetation grasslands curing

### Enhanced Safety Settings Enabled on all Circuits

- **Modified Hot-Dry-Windy Index** above the 80<sup>th</sup> percentile
- Abnormally windy relative to normal above 80<sup>th</sup> percentile (~30 to 35mph gusts)
- Dry vegetation, dead fuel moisture 12-14%

### PSPS Potential

- **Modified Hot-Dry-Windy Index** above the 95<sup>th</sup> percentile
- Very strong winds relative to normal above 95<sup>th</sup> percentile (> 40 mph gusts)
- Very dry vegetation, dead fuel moisture lower than 10%

Probability of Catastrophic Wildfires



# Situational Awareness

## Experienced Meteorology Team

- Six full-time meteorologists provide 24/7/365 support
- Supports the company's Emergency Operations Center for all hazards including fire weather and PSPS

## Daily Fuels and Weather Forecast

- Covering circuit and device level fuels risk daily
- Forecast at circuit level is overlaid on policy to recommend operational practice = **Enhanced Safety Setting activation / deactivation**

## Enhanced Safety Settings & Outage Response

- Daily fuels and weather conditions drive enhanced patrol and risk mitigation
- Real-time Engineering support for troubleshooting, isolation and restoration procedures
- Technology enhancements aimed at reducing impact and improving fault location to support enhanced patrols - including aerial

The image displays a composite of three elements related to weather forecasting and power system impacts:

- Map:** A topographic map showing a power grid with yellow lines representing transmission lines and blue lines for water bodies. A red location pin is visible on the map.
- PacifiCorp Weather Forecast Slide:** A presentation slide with the PacifiCorp logo at the top. It includes a 'KEY TAKEAWAYS' section with bullet points about lightning risks and thunderstorms. Below this are sections for 'FIRE WEATHER', 'WIND', 'SNOW', 'FREEZING RAIN/ICE', and 'THUNDERSTORMS', each with a corresponding icon and a brief description of expected conditions and outage risks.
- Forecast Matrix Table:** A detailed table titled 'ROCKY MOUNTAIN POWER SYSTEM IMPACTS FORECAST MATRIX'. The table has columns for 'Area', 'Risk Level', and 'Forecast' for various days and times. The risk levels are color-coded: green for low risk, yellow for moderate risk, and red for high risk. The table lists numerous areas and their associated risk levels over a period of several days.

# Education and Outreach

- Oregon WMP Webinar
  - Webinar recording available on [Pacific Power YouTube](#)
- National Wildfire Awareness Month
- Oregon Wildfire Forums – 9 Forums
- Customer Communications
  - General Wildfire Information
- Customer Notification
  - Enhanced Safety Settings Enabled
- Media Interviews
- Website / Social Media Updates
  - [PacificPower.net/Settings](#)

## Plan Development and Journey



**Situational Awareness**

- Baseline risk modeling to inform strategic programs and investments
- Dynamic seasonal risk modeling to inform operational protocols

**Operational Practices**

- Deploy more sensitive protective coordination equipment
- Replace fuse locations
- Implement operational strategies during fire risk periods
- Installation of new fault indicators

**Engagement**

- Public safety partner engagement
- Customer engagement
- Industry collaboration
- Public Utility Commission

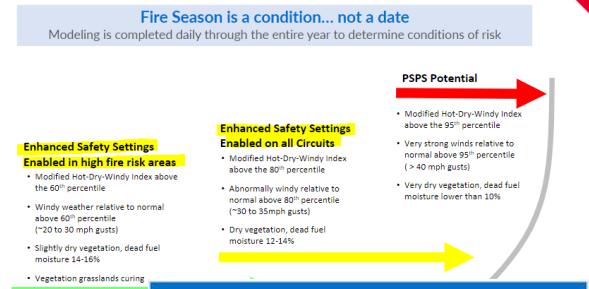
## Operational Practices – Service Territory Wide

**Enhanced Safety Settings**

- In 2023, 52% of all overhead distribution circuits within Oregon were placed in enhanced safety settings
- Enhanced safety settings are enabled across the service territory; well in advance of weather conditions that have historically been related to catastrophic fires

**Encroachment Strategy**

- Fires within a specified distance of assets (based on voltage and material) results in emergency de-energization



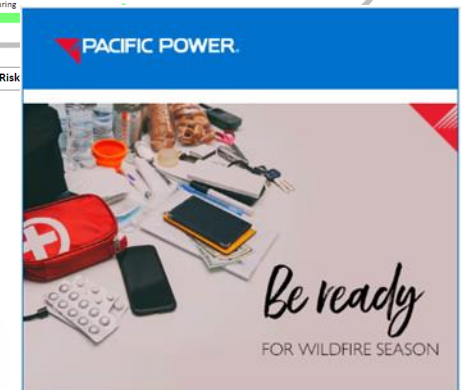
## Community Outreach and Education

- Tabletop exercises with public safety partners
- Wildfire safety and preparedness campaign
- Brochures, flyers and other collateral
- Customer service training
- Webpage
- Webinars



**Pacific Power**  
May 11, 2024

Pacific Power uses different forms of de-energization to help reduce wildfire risk. Learn more about our enhanced safety settings, Public Safety Power Shutoff and encroachment strategy in this video. For more wildfire mitigation information, visit: [www.PacificPower.net/Wildfire](#).



Safety is a community effort that takes all of us working together. At Pacific Power, we're taking steps to reduce wildfire risks by expanding our weather monitoring abilities, actively managing vegetation and strengthening our system.

The safety of our customers and communities is our top priority. Pacific Power may de-energize power lines as a preventative measure during periods of the greatest wildfire risk anywhere across our service area.

- **Enhanced Safety Settings:** These settings are used with devices that de-energize lines when a fault is detected, reducing the chance of a potential fire ignition.
- **Public Safety Power Shutoff:** The decision to implement a Public Safety Power Shutoff is based on extreme weather and area conditions, including high wind speeds, low humidity and critically dry fuels.
- **Encroachment Strategy:** When an active wildfire moves close enough to threaten burning into the area of our lines or equipment, we may complete an emergency de-energization of our power lines.