Workshop Slides and Recording

Group 2 Workshop on 2025 Wildfire Mitigation Plan Updates of Liberty Utilities, PacifiCorp, Horizon West Transmission, Trans Bay Cable, & LS Power Grid California

The Office of Energy Infrastructure Safety held a public workshop on the 2025 Wildfire Mitigation Plan (WMP) Updates of Liberty Utilities (Liberty), PacifiCorp, Horizon West Transmission (HWT), Trans Bay Cable (TBC) and LS Power Grid California (LS Power) on July 31, 2024. A recording of the meeting can be found on Energy Safety's YouTube channel.

Workshop Recording: 2025 Wildfire Mitigation Plan Update Workshop (youtube.com)

The slides presented during the meeting are attached to this document and include answers to questions that electrical corporations were unable to immediately respond to during the workshop.

2025 WILDFIRE MITIGATION PLAN UPDATE PUBLIC WORKSHOP

For Group 2 Submissions

July 31, 2024

WELCOME & INTRODUCTION

SAFETY MESSAGE

- Be aware of your surroundings
- Know your emergency exits and evacuation route(s)
- Feel something, say something
- Take regular breaks; get up and stretch
- Keep emergency contact information readily available

OPENING REMARKS – WMP BACKGROUND

- Electrical corporations (ECs) are required to prepare and submit Wildfire Mitigation Plans (WMPs) to Energy Safety.

- WMPs describe how the EC is constructing, maintaining, and operating its electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfires.

OPENING REMARKS – WMP CYCLE

- Base WMPs are submitted every three years, ECs submit WMP Updates in each interim year.
- ECs submitted 2023-2025 Base WMPs in spring of 2023.
- Energy Safety evaluated, and approved, ECs plans for 2023 and 2024.
- Group 1 ECs submitted 2025 WMP Updates in March 2024.
- Group 2 ECs submitted 2025 WMP Updates in July 2024.
- This workshop focuses on Group 2 ECs' 2025 WMP Updates.

OPENING REMARKS – 2025 WMP UPDATES

In its WMP Update Guidelines, Energy Safety defined five categories of changes ECs may include in WMP Updates, referred to as 'reportable updates':

1. Updates to Risk Models
2. Changes to Approved Targets, Objectives, and Expenditures
3. Quarterly Inspection Targets for 2025*
4. New or Discontinued Programs
5. Progress on Areas for Continued Improvement

* Vegetation management and asset inspections only

WORKSHOP OBJECTIVES

- Receive presentations from each Group 2 EC* on reportable updates from its 2025 WMP Update.
- Provide the public and other stakeholders with the opportunity to ask questions about the ECs' WMPs.
- Provide stakeholders information to inform written comments on the 2025 WMP Updates, due August 12, 2024.

** Group 1 ECs (SCE, PG&E, SDG&E, & Bear Valley) took part in an April Workshop*

WORKSHOP STRUCTURE

- This workshop is structured to hear from each EC about its 2025 WMP Update and reportable updates therein.
- Each EC will present on its updates, followed by a question-and-answer (Q&A) session when stakeholders and the public may ask questions specific to that ECs presentation.
- There will be two 15-minute breaks and an hour lunch period.
- 1 hour will be held after all presentations for an open Q&A when questions may be asked about any ECs WMP Update or topic.

AGENDA (1/2)

9:00am – 9:15am	Introduction & Opening Remarks
9:15am – 9:45am	TBC Presentation
9:45am – 10:00am	TBC-specific Q&A
10:00am – 10:15am	15-minute break
10:15am – 10:45am	PacifiCorp Presentation
10:45am – 11:00am	PacifiCorp-specific Q&A
11:00am – 11:30am	HWT Presentation
11:30am – 11:45am	HWT-specific Q&A

AGENDA (2/2)

11:45am – 12:45pm	Lunch
12:45pm – 1:15pm	LS Power Presentation
1:15pm – 1:30pm	LS Power-specific Q&A
1:30pm – 2:00pm	Liberty Presentation
2:00pm – 2:15pm	Liberty– specific Q&A
2:15pm – 2:30pm	15-minute break
2:30pm – 3:30pm	Open Q&A

WORKSHOP LOGISTICS

Asking Questions

- Ask written questions in the Zoom chat at any time.
- Raise your hand during the Q&A sessions to verbally ask a question.
- Ask questions specific to each EC's presentation during the Q&A session following the presentation.
- Ask questions applicable to all ECs during the open Q&A at the end of the day.


TRANS
BAY CABLE
(TBC)

Trans Bay Cable LLC
2025 Wildfire Mitigation Plan Update

Group 2 Workshop

July 31, 2024

Lenneal Gardner – lenneal.gardner@nexteraenergy.com
Dan Mayers – d.j.mayers@nexteraenergy.com

Trans Bay Cable (TBC) (U934-E) is a resiliency resource for San Francisco and the Greater Bay Area grid

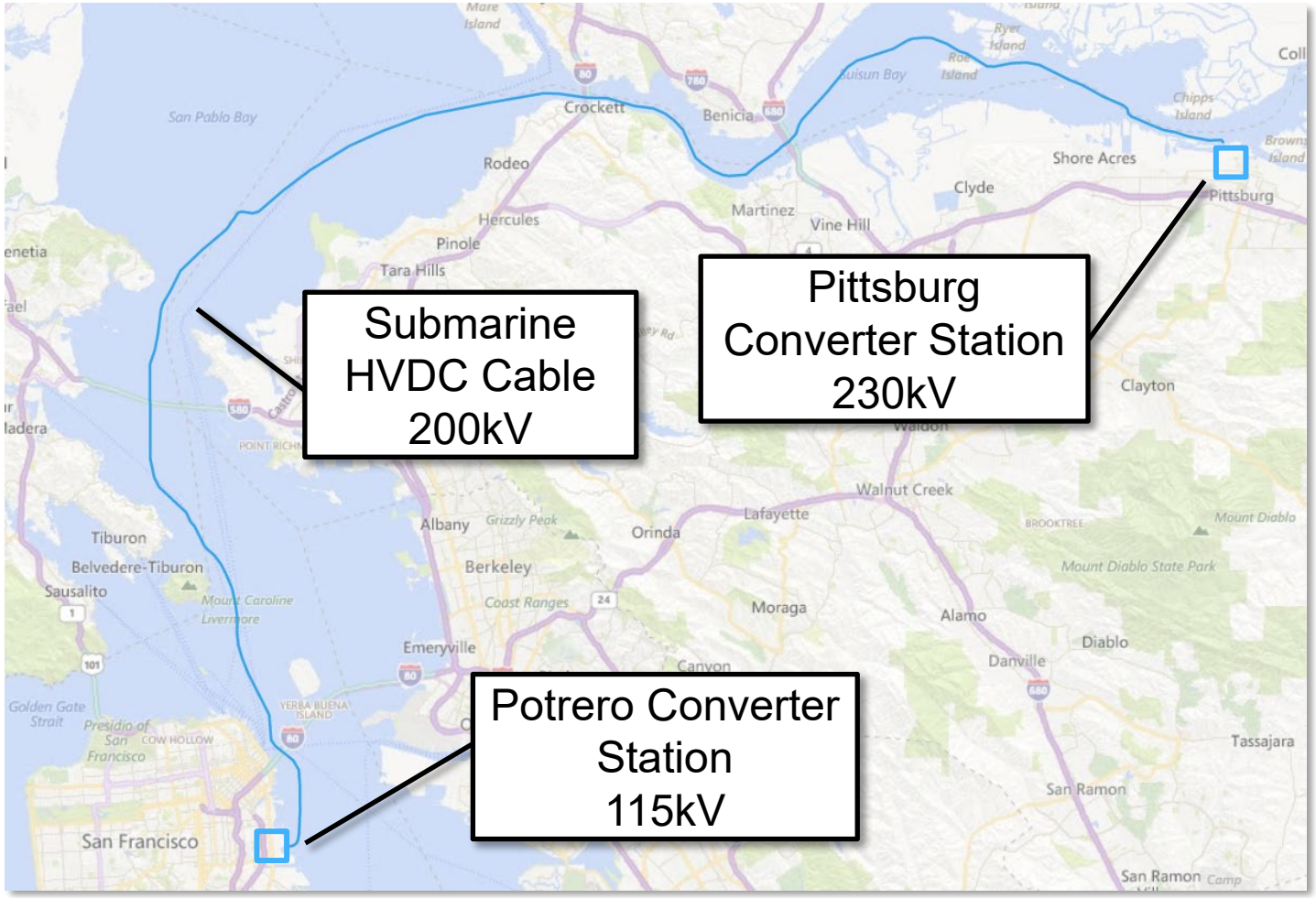
Trans Bay Cable System

- **High voltage DC transmission system**
  - 53-mile submarine cable
  - Two AC/DC Converter Stations
    - -- Pittsburg Converter Station
    - -- Potrero Converter Station (located in San Francisco)
- **Capable of providing 400 MW – up to 40% of the City's power**
- **Provides voltage support to Greater Bay Area grid**
  - +/- 145 MVar in Pittsburg
  - +/- 170 MVar in San Francisco
- **Resiliency to San Francisco by providing additional power path**
- **No distribution / no loads / no generation / no retail customers - solely transmission**
- **TBC has not had any utility-instigated ignitions in its 13-year operational history**
- **No. of Employees: 17**

TBC Trans Bay Cable

Operating territory is limited to three elements of infrastructure supporting the Greater Bay Area grid

Operating Territory

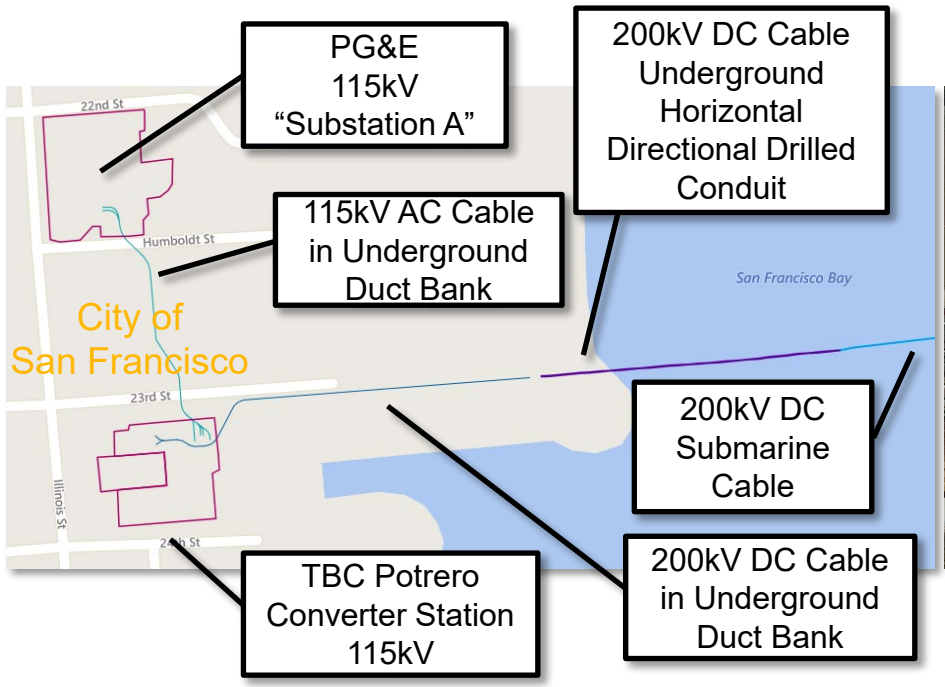


TBC Trans Bay Cable

Trans Bay System replaced last carbon emitting generation station in San Francisco with transmission link

Potrero Converter Station

Infrastructure Elements



Overhead View

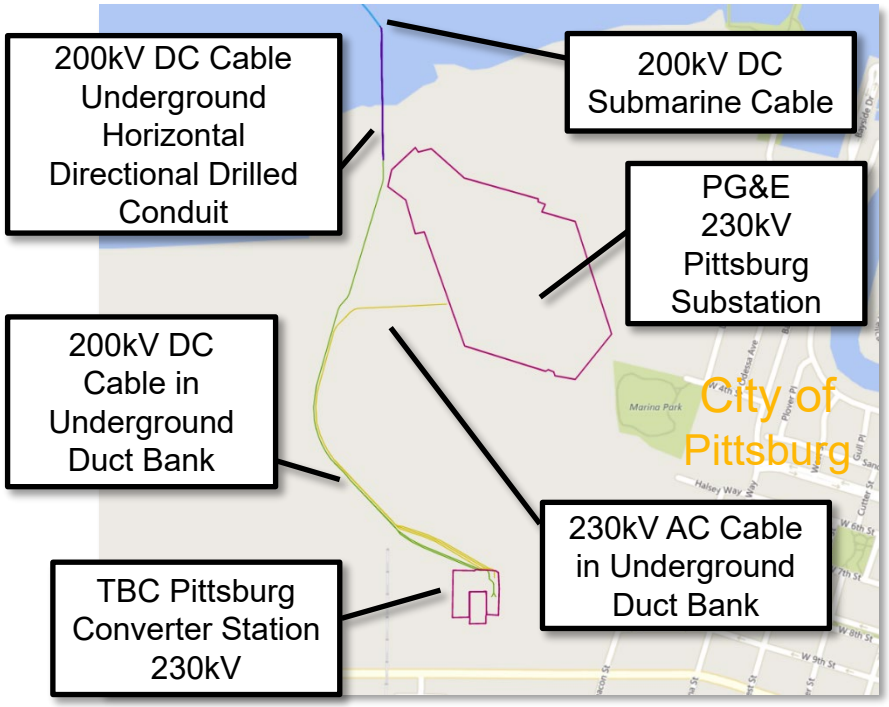
Located within San Francisco urban area – no material wildfire risk

TBC
Trans Bay Cable

Pittsburg Converter Station is closely coupled to generation in Sacramento delta

Pittsburg Converter Station

Infrastructure Elements



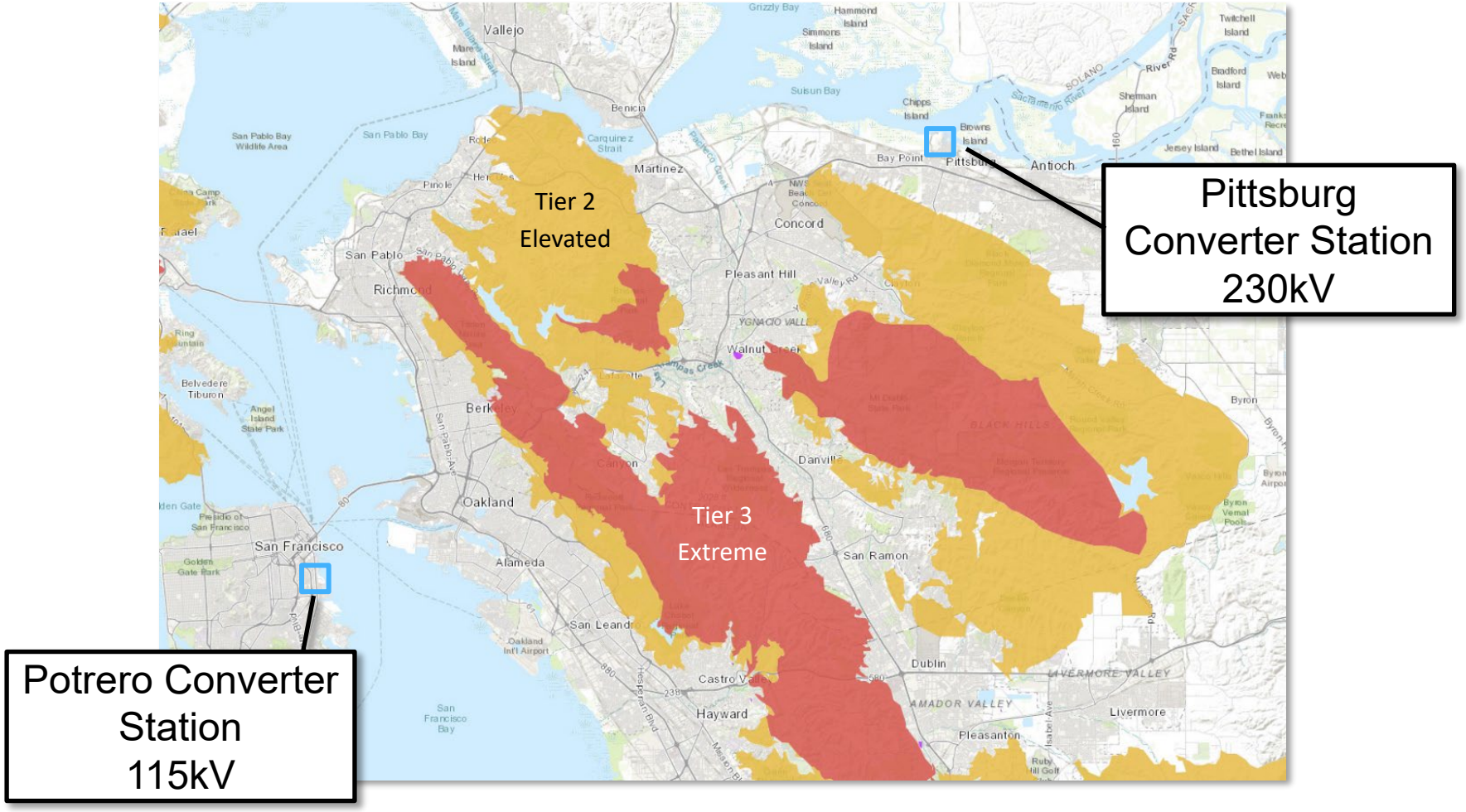
Overhead View

Located proximate in an urban area but proximate to vegetative fuels

TBC Trans Bay Cable

TBC facilities located proximate to Tier 2 (Elevated) High Threat Fire District but not in wildlands or WUI

Proximate Fire Risk Areas



TBC had limited applicable changes to its 2025 Wildfire Mitigation Plan (WMP) Update*

TBC 2025 WMP Update

- **1) Updates to Risk Models**
  - No reportable updates
- **2) Changes to Approved Targets, Objectives and Expenditures**
  - No reportable updates
- **3) Quarterly Inspection Targets for 2025**
  - No reportable updates
- **4) New or Discounted Programs**
  - No reportable updates

*TBC reported no plans for improvements during years 2024 and 2025 of the 2023-2025 WMP Cycle (See TBC Base 2023-2025 WMP, Section 1.2 (pg.14)

TBC Trans Bay Cable

TBC provided response to Area of Continued Improvement as required per Energy Safety's Decision approving 2023-2025 Base WMP*

TBC 2025 WMP Update Cont.

- **5) Progress on Areas for Continued Improvement**
  - Progress Item #1: Reporting on QA/QC Process (required reporting period 2025 WMP Update)
    - -- Provided documentation related to QA/QC procedures and checklists
    - -- Provided description and analysis of QA/QC process relating to asset inspections and management
  - Progress Item #2: Documenting Share of Best Practices (required reporting period 2026-2028 Base WMP Submission)
    - -- No report required in 2025 WMP Update

*See Decision on Trans Bay Cable's 2023-2025 Wildfire Mitigation Plan Section 11 (pg. 51)

Trans Bay Cable


TBC
Trans Bay Cable


TBC
Q&A


PACIFICORP

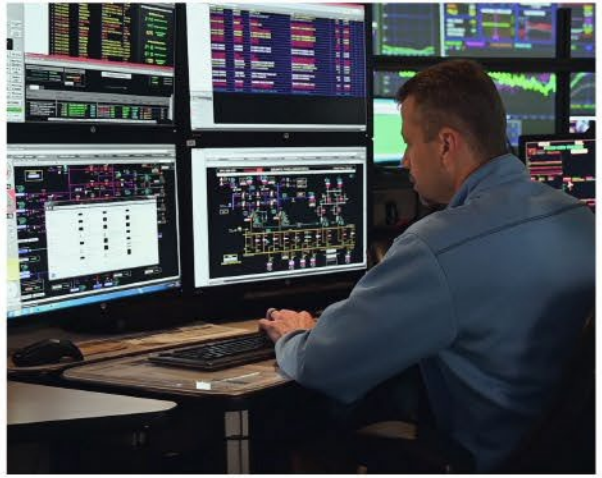
OEIS Group 2 WMP Updates Workshop

July 31, 2024






PACIFIC POWER



Agenda

- Summary of 2025 Updates
- Updates to Risk Models
- Changes to Approved Targets, Objectives, and Expenditures
- Quarterly Inspection Targets for 2025
- New or Discontinued Programs
- Progress on Areas for Continued Improvement
- Questions

PACIFIC POWER

Summary of 2025 Updates

Updates to Risk Models

- Implemented FireSight model
  - Modeling both eight-hour & 24-hour periods
- Updated high fire risk areas (HFRA), Tier 2 and Tier 3 high fire threat districts (HFTD)
- Identified the top five percent of highest risk circuits

Changes to Approved Targets, Objectives, & Expenditures

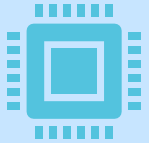
- Increased Initiative activity
- Established a new encroachment policy
- Scope change for weather forecasting
- Five Objective changes
- Updated 2025 projected expenditures

Quarterly Inspection Targets for 2025

- Updated Asset Inspection table
  - 2025 end of Q2
  - 2025 end of Q3
- Updated Vegetation Inspection table
  - 2025 end of Q2
  - 2025 end of Q3

New or Discontinued Programs

- Discontinued:
  - Enterprise System for Risk Assessment
  - Smoke and Air Quality Sensors
- New:
  - Microgrids



Progress on Areas for Continued Improvement

- Provided response to 18 areas for continued improvement
- Preparing to provide an update on two areas for continued improvement in 2026-2028 Base WMP

Updates to Risk Models

Significant Updates – Updated methodology and models in:
6.1.1 Overview
6.2.1 Risk and Risk Component Identification
6.2.2 Risk and Risk Components Calculation
6.2.3 Key Assumptions and Limitations
6.4.1 Top Risk Areas within the HFRA
6.4.2 Top Risk-Contributing Circuits/Segments/Spans
6.5 Enterprise System For Risk Assessment
6.6.1 Independent Review
6.6.2 Model Controls, Design, and review
Table 6-12 Risk Assessment Improvement Plan
7.1.3 Risk-Informed Prioritization
7.1.1 Mitigation Selection Process
7.2.2 Anticipated Risk Reduction

Updates to Risk Models

- Implementation of the FireSight model to provide data to calculate the composite (ignition) risk scores for overhead assets.
  - Risk Associated w/ Ignition Location (RAIL)
  - Risk Associated w/ Value Exposure (RAVE)
- RAIL and RAVE outputs a set of attributes for ignition risk score use.

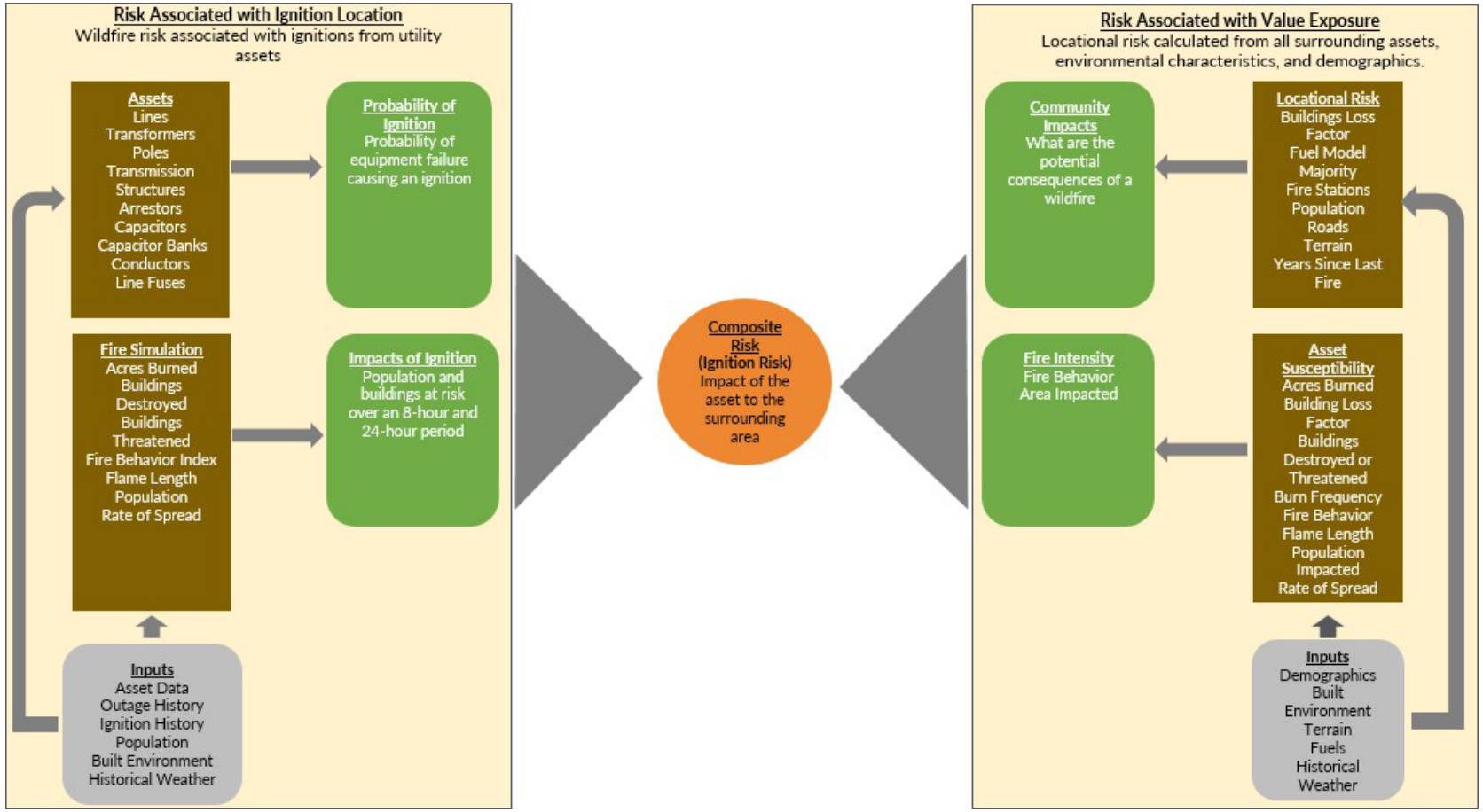
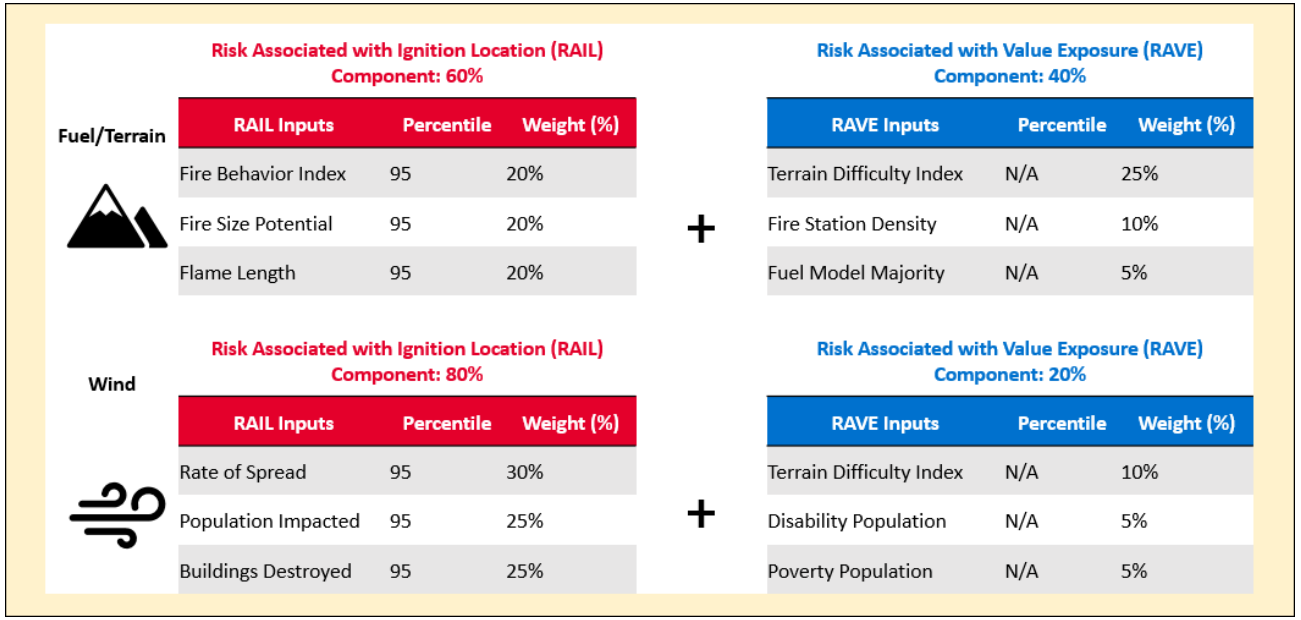


Figure 6-5: FireSight Model Components

Updates to Risk Models

- Pacific Power calculates a wind-driven and fuel/terrain-driven risk score for circuits and circuit segments
- Pacific Power selects the attributes, percentiles, and weightings used in the composite risk score calculation the wind-driven and fuel/terrain-driven risk scores, then performs calculation, to create a composite risk score.
- The wind-driven and fuel/terrain-driven risk score can then be combined to create a combined composite risk score
- Each composite score is on a scale of 0-1



Fuel/Terrain

Risk Associated with Ignition Location (RAIL) Component: 60%				Risk Associated with Value Exposure (RAVE) Component: 40%		
RAIL Inputs	Percentile	Weight (%)		RAVE Inputs	Percentile	Weight (%)
Fire Behavior Index	95	20%	+	Terrain Difficulty Index	N/A	25%
Fire Size Potential	95	20%		Fire Station Density	N/A	10%
Flame Length	95	20%		Fuel Model Majority	N/A	5%

Wind

Risk Associated with Ignition Location (RAIL) Component: 80%				Risk Associated with Value Exposure (RAVE) Component: 20%		
RAIL Inputs	Percentile	Weight (%)		RAVE Inputs	Percentile	Weight (%)
Rate of Spread	95	30%	+	Terrain Difficulty Index	N/A	10%
Population Impacted	95	25%		Disability Population	N/A	5%
Buildings Destroyed	95	25%		Poverty Population	N/A	5%

Figure 6-11: Attributes, Percentiles and Weightings for Risk Calculations

Figure 6-15: Combined Composite Risk Score Calculation

Updates to Risk Models

- Identified additional geographical areas, of elevated risk as established a High Fire Risk Area (HRFA)
- Establishment of a HFRA will inform mitigation initiatives
- Implementing asset inspection and vegetation management programs in the HFRA
- Wildfire risk scoring is used to inform prioritization of future grid hardening initiatives

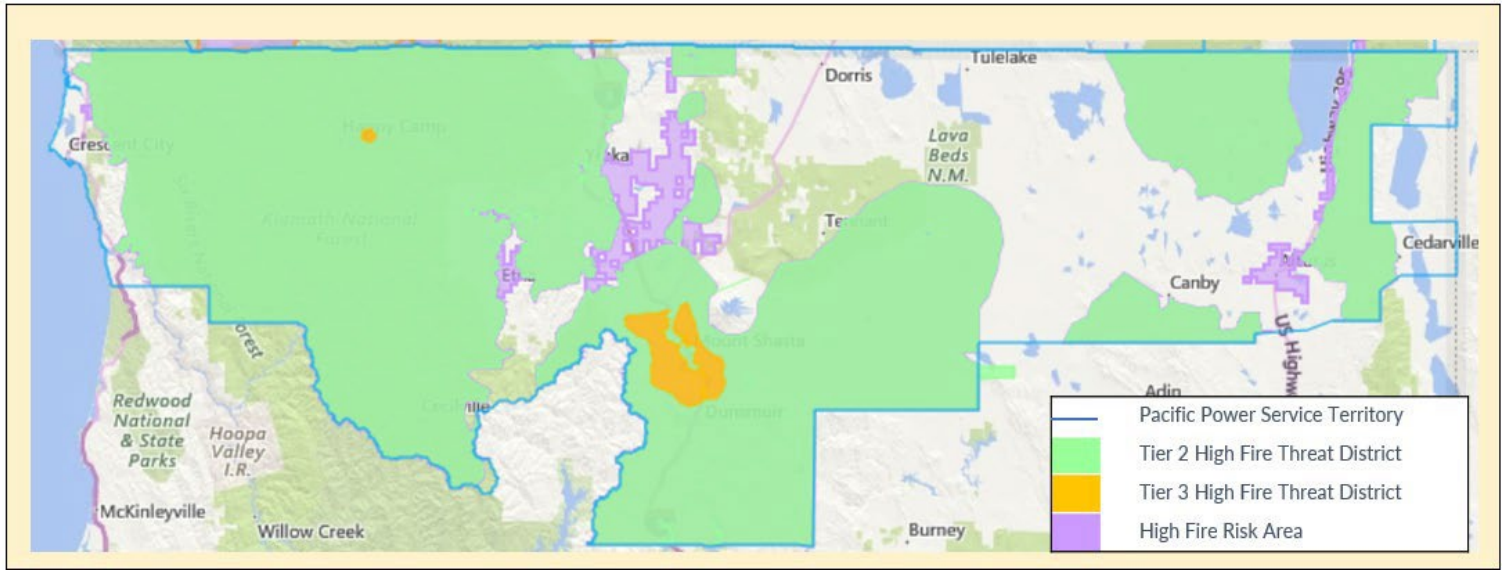


Figure 6-16: 2024 High Fire Threat Districts and High Fire Risk Area

Updates to Risk Models

- Discussed in Section 7.1.3, Pacific Power prioritizes circuits for mitigation:
  1. In the HFTD or HFRA and
  2. The maximum fuel/terrain ignition risk score on that circuit.

Table 6-7 Summary of Top-Risk Circuits, Segment, or Spans

Rank	Circuit ID	Total Circuit Risk	Percent Contribution to 5% of Overall Risk
1	5G31	233	35.5%
2	5G33	93	14.2%
3	5G21	68	10.3%
4	5G83	65	9.9%
5	5G149	43	6.6%
6	5G5	35	5.3%
7	5L83	33	5.0%
8	5G45	23	3.5%
9	5L97	22	3.4%
10	4G1	18	2.8%
11	5G151	15	2.3%
12	7G81	5	0.8%
13	7G73	2	0.3%
14	5L87	2	0.3%
	Totals	**656**	**100%**

Changes to Approved Targets, Objectives, and Expenditures

Initiative Activity	Initiative ID	Original Value	Updated Value	Target Percentage Change	Target Change Description
Transmission Intrusive Pole Inspections	AI-05	960	1,257	31%	Increase due to the inspection cycle and what poles are identified to be completed
Line Rebuild - Covered conductor installation	GH-01	80	120	50%	Increase due to on-boarding a contractor to handle resourcing and installation of covered conductor
Distribution pole replacements and reinforcements	GH-02	1,600	2,400	50%	Increased due to the increase of covered conductor installation the number of poles to replace increased
Transmission pole/tower replacements and reinforcements	GH-03	160	240	50%	Increased due to the increase of covered conductor installation the number of poles to replace increased
Expulsion Fuse Replacement	GH-05	0	500		Increase due to updates to the risk model additional fuses identified for replacement
Active Wildfire De- Energization	-	Protocols as discussed in Grid Response Procedures	Added new encroachment policy in decision making.		New emergency de-energization policy will prompt de-energization based on an active wildfire's proximity to company assets
Weather Forecasting	SA-05	Continued maintenance on one High Performance Computer Cluster (HPCC)	Expanded to delivery of five HPCC's		Increase due to additional HPCC devices needed to increase the weather modeling functionality

Changes to Approved Targets, Objectives, and Expenditures

Initiative Activity	Initiative ID	Original Forecasted Completion Date	Updated Forecasted Completion Date	Reason for Change
Risk and Risk Component Calculation	RA-01	Completion of PSPS Risk Assessment Solution by Q4 2023	Implementation expected by Q2 2024	Previously, it was expected that completion of the PSPS Risk Assessment Solution would occur in Q4 2023. This has been updated to an expected completion date of Q4 2024. Please see Section 6.1 of the WMP for additional information.
Risk and Risk Component Calculation	RA-01	Quantification of Overall Utility Risk Completed by Q4 2024	Implementation after 2025.	Quantification of the overall utility risk was originally planned to be complete by Q4 2023. This work has been updated with expected completion after 2025. Please see Section 7.2.2.1 of the WMP for additional information.
Create Subject Matter Expert process & procedure for Vegetation Management database review four times a year	QA/QC, VM-11	December 2024	Deferred	Deferred due to GeoDigital database upgrade.
Develop audits to provide understanding of the data collection process	QA/QC, VM-11	December 2024	Deferred	Deferred due to GeoDigital database upgrade.
Install Wildfire Detection Cameras	SA-04	November 2025	December 2024	The installation timeline for wildfire detection cameras is aligned with the expectations communicated in Table 8-29 – Fire Detection Systems Currently Deployed.

Changes to Approved Targets, Objectives, and Expenditures

Initiative Activity	Original 2025 Expenditure ($ thousands)	2025 Projected Expenditure ($ thousands)	Difference ($) ($ thousands)	Difference %	Cost Change Description
Engagement with access and functional needs populations	$0	$4	$4	100%	Increase: updated to $4K
Emergency preparedness plan	$50	$320	$270	540%	Increase: the gross value for the entire emergency management team.
External collaboration and coordination	$30	$10	$(20)	-67%	Decrease: costs for performing workshops and tabletops have reduced the forecast
Customer support in wildfire and PSPS emergencies	$0	$281	$281	100%	Increase: rebates for batteries and generators
Transmission Detail Inspections	$137	$20	$(117)	-85%	Decrease: cycle work planned has reduced this forecast
Transmission Intrusive Pole Inspections	$171	$64	$(107)	-63%	Decrease: cycle work has reduced this forecast
Distribution Intrusive Pole Inspections	$90	$175	$85	94%	Increase: cycle work has increased this forecast
Line Rebuild - Covered conductor installation	$62,000	$120,000	$58,000	48%	Increase: due to increased cost with the contracting firm handling covered conductor
Expulsion Fuse Replacement	$0	$1,000	$1,000	100%	Increase: due to the increased widgets from 500 to 1000
Top Risk Areas within the HFRA	$0	$4	$4	100%	Increase: for ongoing labor for map updates
Maintenance: Weather Station	$325	$410	$85	26%	Increase: recalculated to more accurately reflect the weather station maintenance, data plan, and spares.
Weather Forecasting	$115	$670	$555	483%	Increase: for the HPCC buildout and weather modeling.
Pole clearing	$374	$599	$225	60%	Increase: for updated cycle work
Clearance - Transmission	$1,416	$2,285	$869	61%	Increase: for Updated cycle work
Wildfire Mitigation Strategy Development	$544	$845	$301	55%	Increase: to include the independent evaluator
Identifying and Evaluating Mitigation Initiatives	$100	$280	$180	180%	Increase: for continued grant application work

Quarterly Inspection Targets for 2025

Initiative Activity	Initiative ID	Target End of Q2 2025 & Unit	Target End of Q3 2025 & Unit	X% Risk Impact 2025
Transmission Patrol inspections	AI-01	5,942	9,735	TBD
Distribution Patrol Inspections	AI-02	13,020	36,062	TBD
Transmission Detail Inspections	AI-03	90	361	TBD
Distribution Detail Inspections	AI-04	3,811	7,617	TBD
Transmission Intrusive Pole Inspections	AI-05	0	754	TBD
Distribution Intrusive Pole Inspections	AI-06	0	1,907	TBD
Enhanced IR Inspections in transmission lines	AI-07	0	700	TBD
Quality assurance / quality control	AI-12	303	530	TBD
Vegetation Inspections: Detailed Inspection – Distribution	VM-01	400	600	TBD
Vegetation Inspections: Detailed Inspection - Transmission	VM-02	100	200	TBD
Vegetation Inspections: Patrol Inspection - Distribution	VM-03	500	800	TBD
Vegetation Inspections: Patrol Inspection - Transmission	VM-04	150	329	TBD

New or Discontinued Programs

Program Status	Initiative Name/ID	Section	Table or Figure	Page Number	Description of Redline	Reason for Change
Discontinue	RA-04 Enterprise System for Risk Assessment	6.7	N/A	126	This program will be removed from future WMP filings.	The objective of this initiative was to improve ignition data collection processes to ensure the collection of additional information so that Pacific Power could analyze trends and areas of concern. This initiative was implemented, and employees are receiving updated training, by the end of Q2 2024, on reporting outages and ignitions.
Discontinue	SA-03 Smoke and Air Quality Sensors	8.3.4.1	Table 8-29	256	The program will be removed from the table and no future targets will be installed.	The installation of smoke and air quality sensors was to support the Department of Homeland Security's Smart Cities Internet of Things Lab's wildland fire sensor program. The technology is still being developed and is not currently at a stage for implementation. The currently installed sensor will be removed, and the program will not continue further.
New	GH-12 Microgrids	8.1.27	N/A	169	Adding program to complete feasibility studies.	Pacific Power previously stated that it did not have any microgrids. However, there is a change in scope as Pacific Power will be completing feasibility studies to determine if there are certain areas where microgrids could be utilized.

Progress on Areas for Continued Improvement

ID#	Description	WMP Section	2025 WMP Update Response
PC 23-01	Cross-Utility Collaboration on Risk Model Development	Section 6	Collaborative efforts described in 6.1.1 (RMWG) and 6.2.1 (joint IOU workgroups)
PC 23-02	Calculating Risk Scores Using 95th Percentile Values	Section 6	In discussion with FireRisk vendor on how to address the requirement
PC 23-03	PSPS and Wildfire Risk Trade-Off Transparency	Section 6 & 7	As described in 6.7 the PSPS Risk Assessment solution is expected to support quantification of PSPS risk, and the Annual Mitigation Selection Planning Process will provide a framework for evaluating proposed projects. RSE in 7.1.4.1 will enable comparison of alternatives for select mitigations
PC 23-04	Collaboration Between Vendor and Utility Risk Teams	Section 6	In section 6.2.2.3 Technosylva performs the calculations of the model attributes listed in Table 6-4 FireSight Attributes
PC 23-05	Independent Review Plan Transparency	Section 6	Two initiatives described in 6.7; develop a policy & procedure for review internal planning models and an independent review of planning risk models wit ha 3rd party
PC 23-06	Vendor Fire Risk Model Implementation Milestones and Dates	Section 7	Section 8.3.4, Fire Growth Potential Software describes After the 2024 wildfire season Meteorology will assess the performance of the metrics output by models and evaluate if there are opportunities to use WFA-E to improve the risk-informed decision-making operational practices. This evaluation will begin in Q4 2024 with scoping
PC 23-07	Cross-Utility Collaboration on Best Practices for Inclusion of Climate Change Forecasts in Consequence Modeling, Inclusion of Community Vulnerability in Consequence Modeling, and Utility Vegetation Management for Wildfire Safety	Section 6	Collaborative efforts described in 6.1.1 (Risk Modeling Working Group) and 6.2.1 (joint IOU workgroups)

Progress on Areas for Continued Improvement

ID#	Description	WMP Section	2025 WMP Update Response
PC 23-08	Covered Conductor Installation Progress	Section 8.1	In section 8.1.2.1, Pacific Power has contracted with a large construction services company to manage and complete line rebuild projects including project management, controls, reporting, engineering, estimating, permitting, surveying. Material management, construction, and post construction inspections
PC 23-09	QA/QC Pass Rate Targets for Rural Areas	Section 8.1	New contract starting in 2025 will align pass rate target to 95% in alignment with industry standards
PC 23-10	Covered Conductor Inspection Maintenance	Section 8.1	Pacific Power has developed specific condition codes for conditions associated with covered conductor. In application of these condition categories, a detailed inspection identifies any damage with the covered conductor such as splice covers and surface damage. A detailed inspection also identifies symptomatic conditions resulting from water intrusion, such as conductor sag, corrosion, or insulation damage.
PC 23-11	Distribution Detailed Inspection Frequency	Section 8.1	Pacific Power performed a review of the number of A-priority conditions as shown in the table below, which includes Level 1 conditions, and found that detailed inspections found more conditions than patrol inspections. Therefore, Pacific Power is planning to perform detailed inspections on HFTD Tier 3 areas on an annual basis starting in 2025 and will evaluate increasing the frequency of inspections in Tier 2 locations in future years.
PC 23-12	Priority A/Level 1 Remediation and Imminent Threat Designation	Section 8.1	Starting in 2025, all Level 1 conditions will be tracked separately from priority A conditions.

Progress on Areas for Continued Improvement

ID#	Description	WMP Section	2025 WMP Update Response
PC 23-13	Priority A/Level 1 Condition Remediation	Section 8.1	Delays related to permitting have been mitigated to some extent by moving the permitting process into a parallel path with job design.
PC 23-14	Asset Management and Enterprise Systems	Section 8.1	Pacific Power is currently in the process of replacing its mainframe systems. Once the RCMS and FPI data has been migrated to Maximo, the mainframe will be retired
PC 23-15	Continued Monitoring of Enhanced Fire Risk (EFR) Settings	Section 8.1	The daily risk assessments mean that the settings are enabled when the local weather conditions meet the criteria in which the more sensitive settings should be used.
PC 23-16	Vegetation Management Priority Tagging	Section 8.2	Vegetation conditions are corrected or mitigated in accordance with established timelines based on priority of the condition. Results of these inspections are provided to Vegetation Management who will coordinate correction of the conditions within the timelines identified
PC 23-17	Weather Station Maintenance and Calibration	Section 8.1	Weather station maintenance is completed on an annual basis, and the status is tracked within the QDR under initiative ID MA-01
PC 23-18	Emergency Resources Availability	Section 8.4	Pacific Power invests in and stages fire suppression tools and equipment for use throughout its California service territory. Resources are not used to respond to wildfires. They are dispatched to the field with field personnel to proactively mitigate wildfire risk in conditions that are identified as elevated, significant or extreme

Progress on Areas for Continued Improvement

ID#	Description	WMP Section	2025 WMP Update Response
PC 23-19	Lessons Learned Narratives	Section 10	Narrative added to discuss lessons learned as outlined in Table 10-1
PC 23-20	Lessons Learned from Past Wildfires	Section 10	Based on the data collected in the new Fire Incident Tracker, Pacific Power will assess if there is a trend of increased ignition incidents developing specialized processes. Given the limited ignition history, there may be no discernable trends in the short term, but Pacific Power will monitor and continue assessing if there is a need.

Updates for Non-Substantial Errata Submission

- Section 2: Responsible Persons
- Adding Table number and name to p.137
- Fixing typos, grammar, spelling, formatting
- Correcting Pacific Power to PacifiCorp
- Updating FireCast to FireRisk
- Replacing the word ‘below’ and stating name and number of table/image it references

Non-Substantial errata to be submitted within 30 days from 2025 update filing (8/19/24).

THANK YOU

PACIFIC POWER®

Questions

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15-MINUTE BREAK

Back at 10:15 am

HORIZON WEST TRANSMISSION (HWT)

HORIZONWEST
TRANSMISSION

Horizon West Transmission, LLC
2025 Wildfire Mitigation Plan Update

Group 2 Workshop

July 31, 2024

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Dan Mayers – d.j.mayers@nexteraenergy.com

Horizon West Transmission (HWT) operates the Suncrest SVC, a resiliency resource to the Greater San Diego County grid

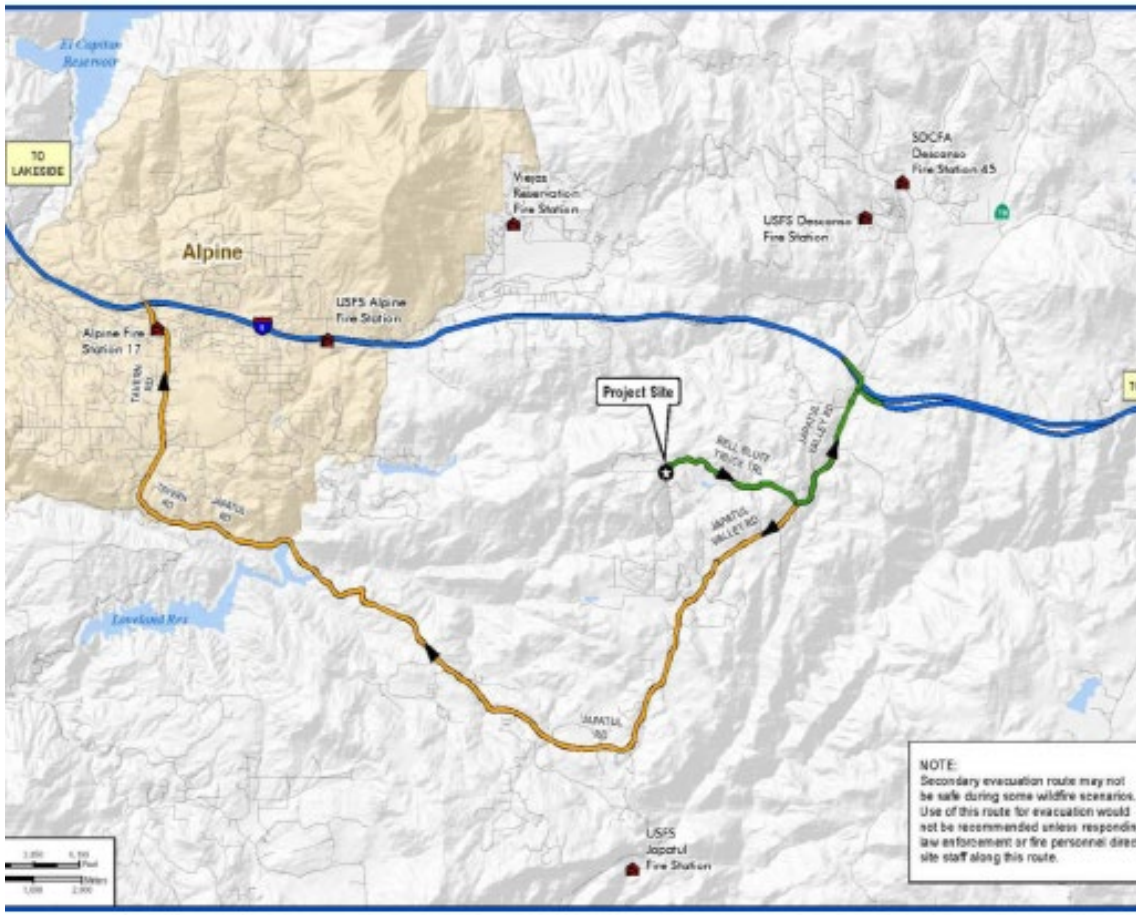
Suncrest Overview

- **Began commercial operations February 29, 2020**
- **The 230 kV Suncrest Static Var Compensator (SVC) consists of:**
  - +300/-100 MVar SVC substation
  - Approximately one (1) mile 230kV underground transmission line
- **Above ground infrastructure: one substation, one riser pole**
- **Interconnects to SDG&E-owned Suncrest Substation**
- **Provides voltage support to:**
  - Increase delivery of renewable generation from the Imperial Valley
  - Additional system resiliency
- **No distribution / no loads / no generation / no retail customers - solely transmission**
- **HWT has not had any utility-instigated ignitions in its 3-year operational history**
- **No. of Employees: 2 part-time Operations Engineers**

HORIZONWEST TRANSMISSION

Operating territory limited to the Suncrest SVC Project which consists of a 230 kV SVC substation and one (1) mile of underground interconnection line

Suncrest SVC Project Location



HORIZONWEST TRANSMISSION

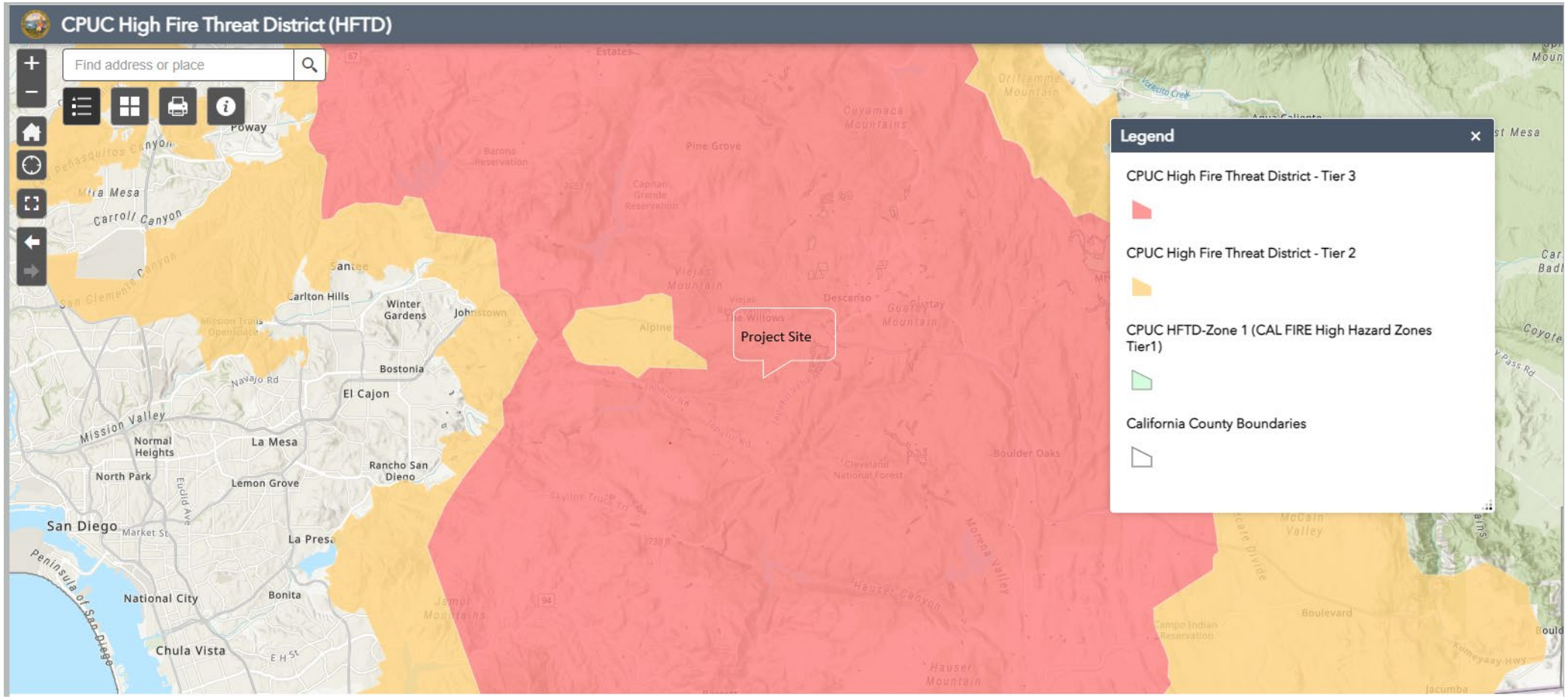
Suncrest SVC is completely hardscaped facility with a concrete perimeter wall

Suncrest SVC Facility

HORIZONWEST TRANSMISSION

Suncrest SVC Project is wholly sited in Tier 3 HFTD

Suncrest SVC Tier 3 HFTD



HORIZONWEST TRANSMISSION

HWT had limited applicable changes to its 2025 Wildfire Mitigation Plan (WMP) Update*

HWT 2025 WMP Update

- **1) Updates to Risk Models**
  - No reportable updates
- **2) Changes to Approved Targets, Objectives and Expenditures**
  - New expenditure related to anticipated 2025 participation in two wildfire mitigation industry groups
    - -- Results in greater than 20% expenditure change as not included in Base 2023-2025 WMP
- **3) Quarterly Inspection Targets for 2025**
  - No reportable updates
- **4) New or Discounted Programs**
  - No reportable updates

*HWT reported no plans for improvements during the 2023-2025 WMP Cycle (See HWT Base 2023-2025 WMP, Section 1.2 (pg.14)

HORIZONWEST TRANSMISSION

HWT provided response to Area of Continued Improvement as required per Energy Safety's Decision approving 2023-2025 Base WMP*

HWT 2025 WMP Update Cont.

- **5) Progress on Areas for Continued Improvement**
  - Progress Item #1: Reporting on QA/QC Process (required reporting period 2025 WMP Update)
    - -- Provided documentation related to QA/QC procedures and checklists
    - -- Provided description and analysis of QA/QC process relating to asset inspections and management
  - Progress Item #2: Documenting Share of Best Practices (required reporting period 2026-2028 Base WMP Submission)
    - -- No report required in 2025 WMP Update

*See Decision on Horizon West Transmission's 2023-2025 Wildfire Mitigation Plan Section 11 (pg. 49)

HORIZONWEST TRANSMISSION

HORIZONWEST

TRANSMISSION™


HWT
Q&A

LUNCH BREAK

Back at 12:45pm


LS POWER
GRID
CALIFORNIA

LS Power Grid California 2025 Wildfire Mitigation Plan Group 2 Workshop

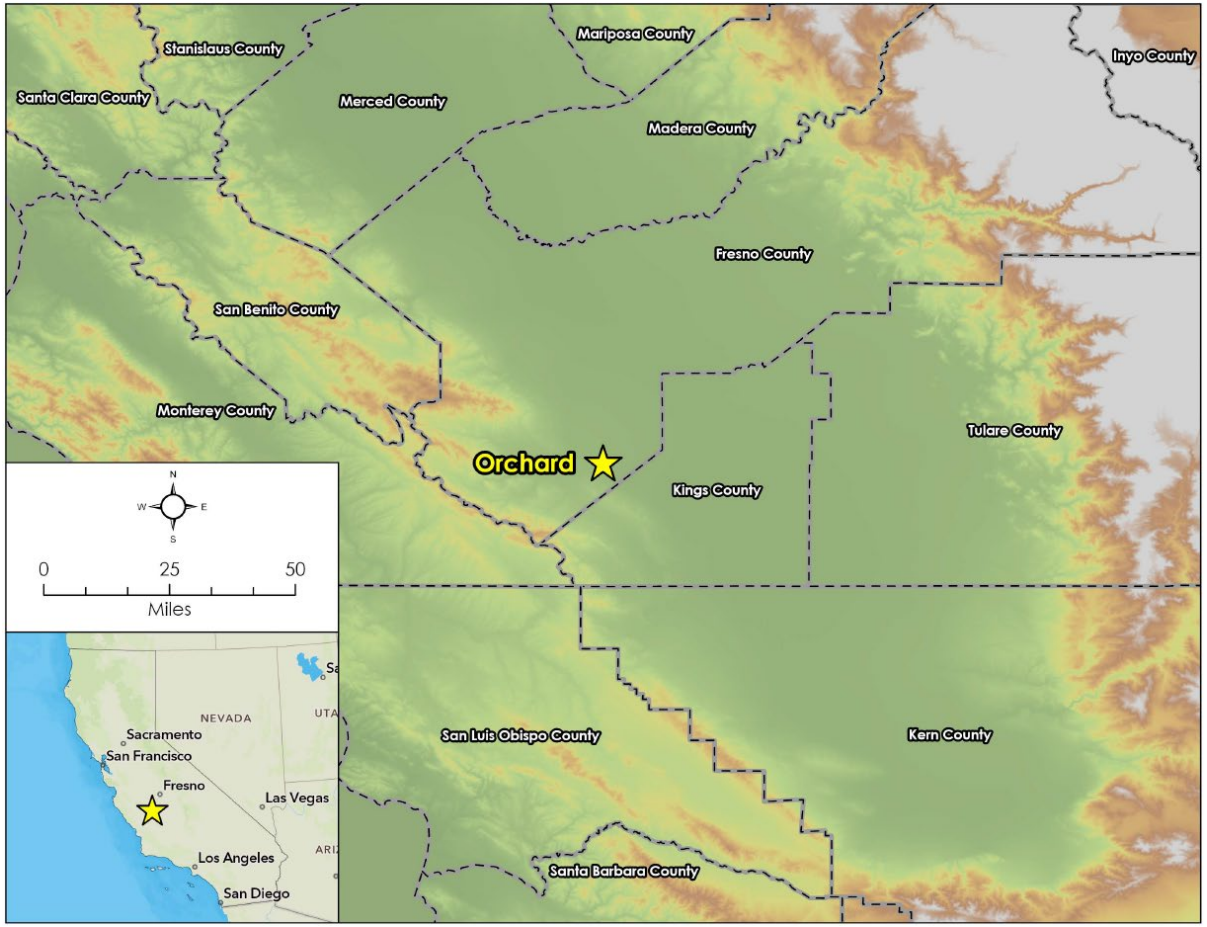
July 31, 2024

Agenda

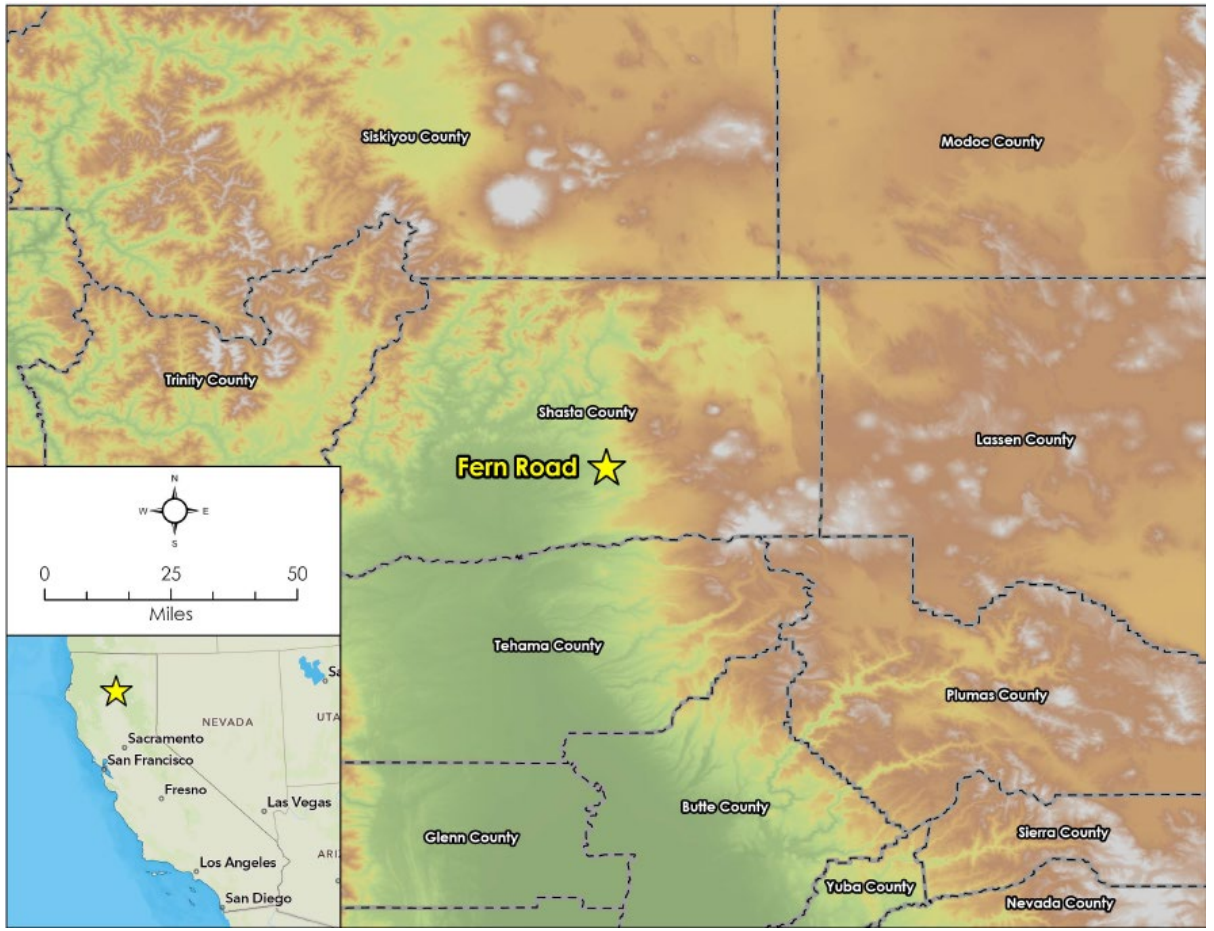
- Asset Overview
- Risk Assessment
- Reportable Changes to Targets and Objectives
- New Programs
- Progress on Areas for Continued Improvement
- Key Takeaways
- Q&A

Asset Overview

The Orchard Substation is expected to be energized Q1 2025 and is located on the valley floor of the Central Valley of California in western Fresno County County.



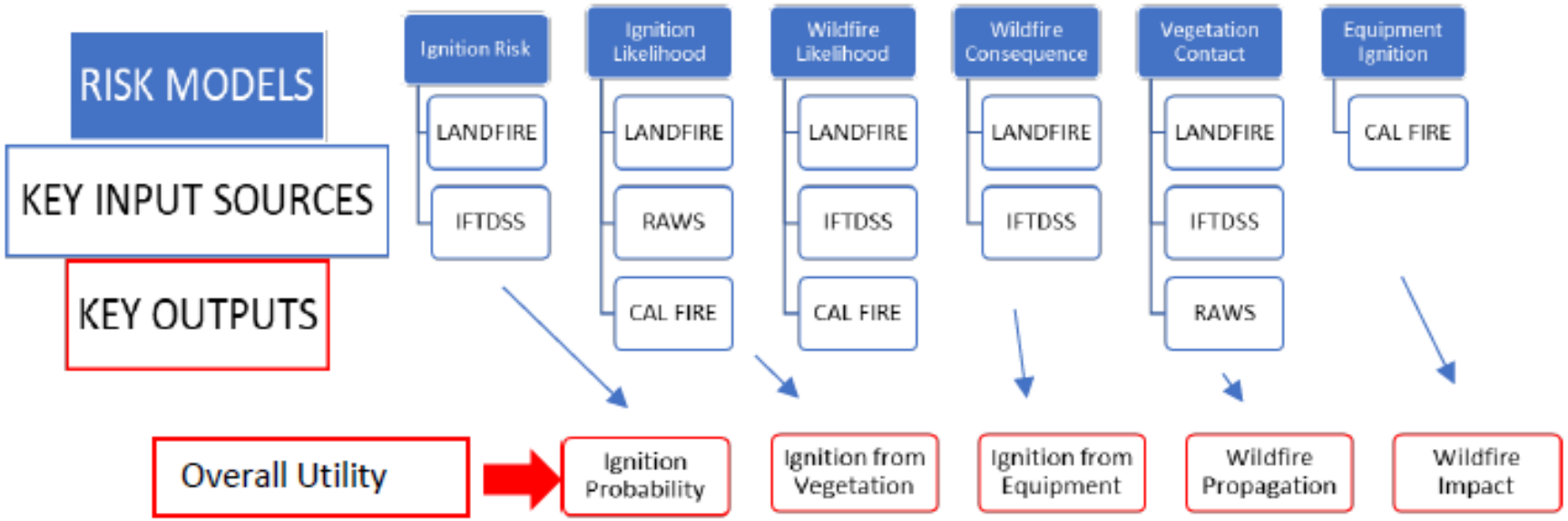
The Fern Road Substation is expected to be energized in Q4 2025 and is located in Shasta County on the western slope of the Sierra Nevada foothills.



Risk Assessment

A Wildfire quantitative risk assessment was performed utilizing Industry-standard modeling platforms, national data sources, and the best available science on Wildfires. **No updates to risk models were made since the 2023-2025 Base WMP.** The assessment provides information on the following:

- Wildfire Probability
- Expected Fire Behavior
- The Scale Of Probable Wildfires
- The Hazards Of A Utility Caused Wildfire
- Overall Risk Categorization Rating (Low, Moderate, High, Extreme)



Reportable Changes to Targets & Objectives

Due to construction and permitting delays the energization dates of both Fern Road and Orchard have been deferred.

Orchard Energization Date	Fern Road Energization Date
Q2 2024	Q4 2024
Q1 2025	Q4 2025

Substation Inspection Program (LSP-02)	Vegetation Inspection Program (LSP-04)	Integrate StormGeo, a weather forecasting support tool (LSP-05)	Install Substation Cameras (LSP-06)
Target schedule pushed back	Target schedule pushed back	Completion pushed back to 2025	Completion pushed back to 2025

New Programs

- One new program identified since the completion of the 2023-2025 Base WMP.

- All LSPG-CA substations will include dedicated weather stations on site.
  - Enhancing situational awareness of O&M personnel
  - Transmission of real-time weather conditions to LSPG-CA's system 24x7 system operations control center
  - This data, combined with other methods of situational awareness such as real-time video, will be used to guide operational decisions
    - Operating plans and procedures currently under development
    - Target completion in October 2024

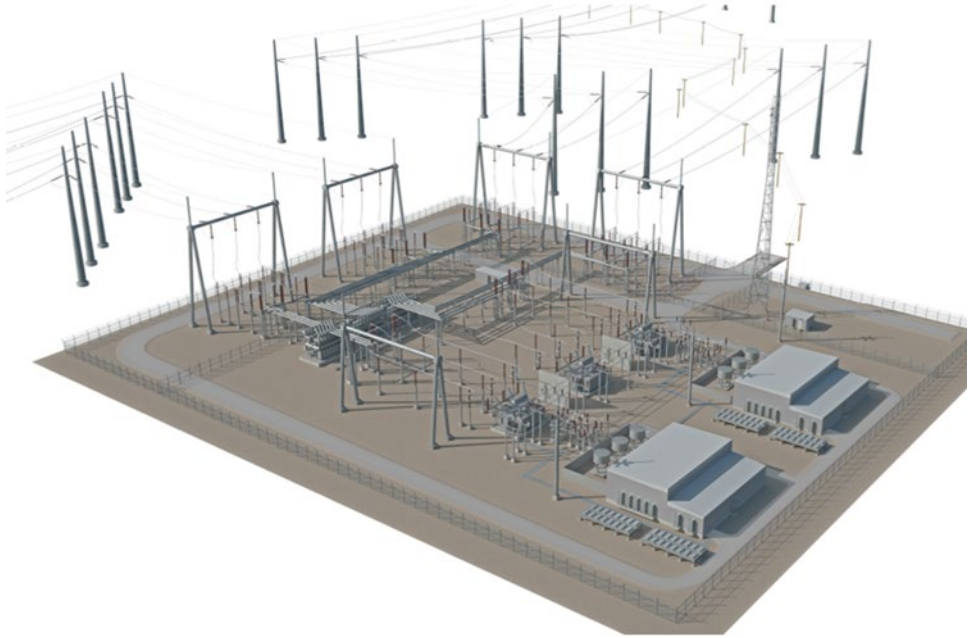
Progress on Areas for Continued Improvement

- Emergency Preparedness Tables
  - 2023-2025 WMP did not address many operational aspects of emergency preparedness
  - At time of WMP drafting, LSPG-CA was still a considerable amount of time from expected start of operations

- 2025 WMP Update Progress
  - LS Power Grid California is currently developing its Emergency Operations Plan. The plan will be finalized in Q4 2024 and ahead of energization. The following items were included in the 2025 WMP Update and related actions will be reflected in the final Emergency Operations Plan.
    - Reviewed and updated key gaps and limitations
    - Updated information on staffing, qualifications, and responsibilities
    - Updated training program, including drills and tabletop exercises
    - Reviewed key stakeholders and established protocols for emergency communication

Key Takeaways

- LSPG-CA continues progress towards becoming an operational utility
- One, potentially two substations will be energized in this WMP cycle
- No transmission line or distribution assets in current cycle
- Coordination with key operational stakeholders is ongoing
- Operations and maintenance plans and procedures addressing both normal and emergency conditions are in late-stage development



LS POWER GRID CALIFORNIA

Q & A


LIBERTY
UTILITIES

Wildfire Mitigation

PROTECTING OUR COMMUNITY FOR TODAY AND FUTURE GENERATIONS

Peter Stoltman
Senior Manager, Wildfire Prevention

Liberty Utilities

- ~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

Components of the Wildfire Mitigation Plan:

- Vegetation management
- Infrastructure hardening
- Situational awareness
- Public Safety Power Shutoffs (PSPS) and Emergency Response Efforts

Updates to Risk Models

Significant Updates to Liberty's Risk Models

- Development of Direxyon Risk Assessment Tool ("DRAT")
  - Updates to Data Sources
    - Asset Types (Poles, Conductor, Fuses, and Vegetation Management)
    - Utilization of Technosylva Wildfire Analyst product suite outputs
  - Key Outputs
    - Asset Failure Risk ("AFR")
    - Wildfire Risk ("WR")
    - Risk Spend Efficiency ("RSE")
    - Granular Quantified Risk Scores (System, Circuit, Segment, Asset levels)
  - Targeted Productionalization by the end of Quarter 3 2024
  - Liberty will continue to enhance DRAT to implement PSPS Risk and additional Asset Types
- Phasing out Risk scores from Reax Engineering and Arup

Risk Assessment and Mapping

Climatological & Operational Risk Analysis

Climatological Risk

A detailed analysis of utility wildfire risk using historical weather, outage analytics, and wildfire simulations

- 1. Select a representative sample of weather for each distinct weather region
- 2. Wildfire spread modeling from utility asset ignitions
- 3. Leverage outage analytics to assess the historical probability of each wildfire occurrence

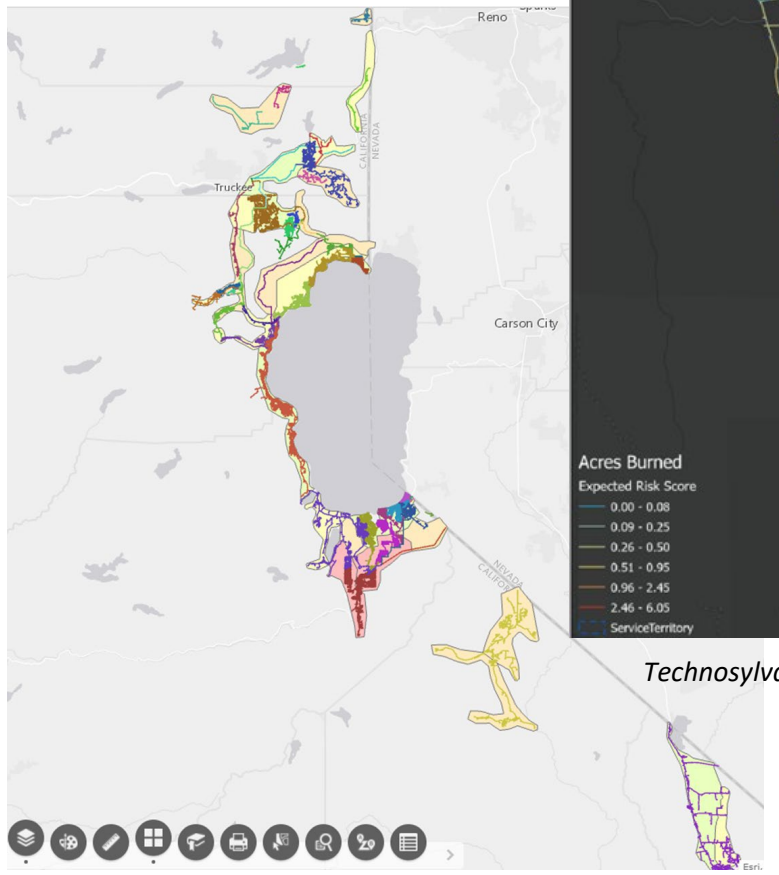
Provides a framework to make data driven decisions based on probability and consequence of an ignition.

Operational Risk

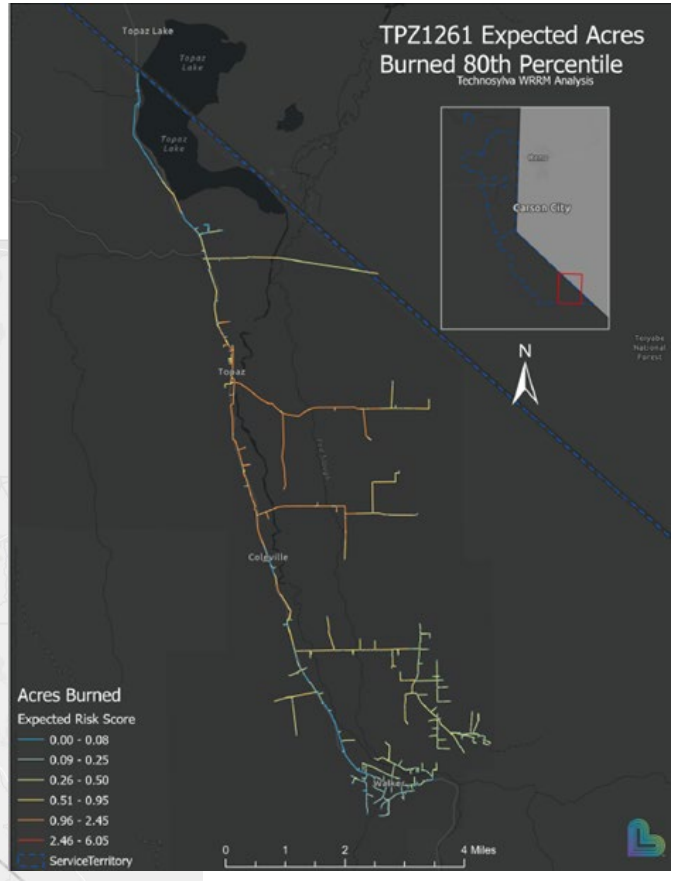
Ability to monitor and forecast weather and wildfire risk scenarios days in advance.

- Weather station & fuel moisture data
- Weather forecast models
- Joined with climatological analysis

Provides ability to plan PSPS events or adjust protective device settings based on risk forecast.



Fire Potential Index Zones for Liberty Service Territory



Technosylva's Wildfire Risk Reduction Model

Risk Assessment and Mapping

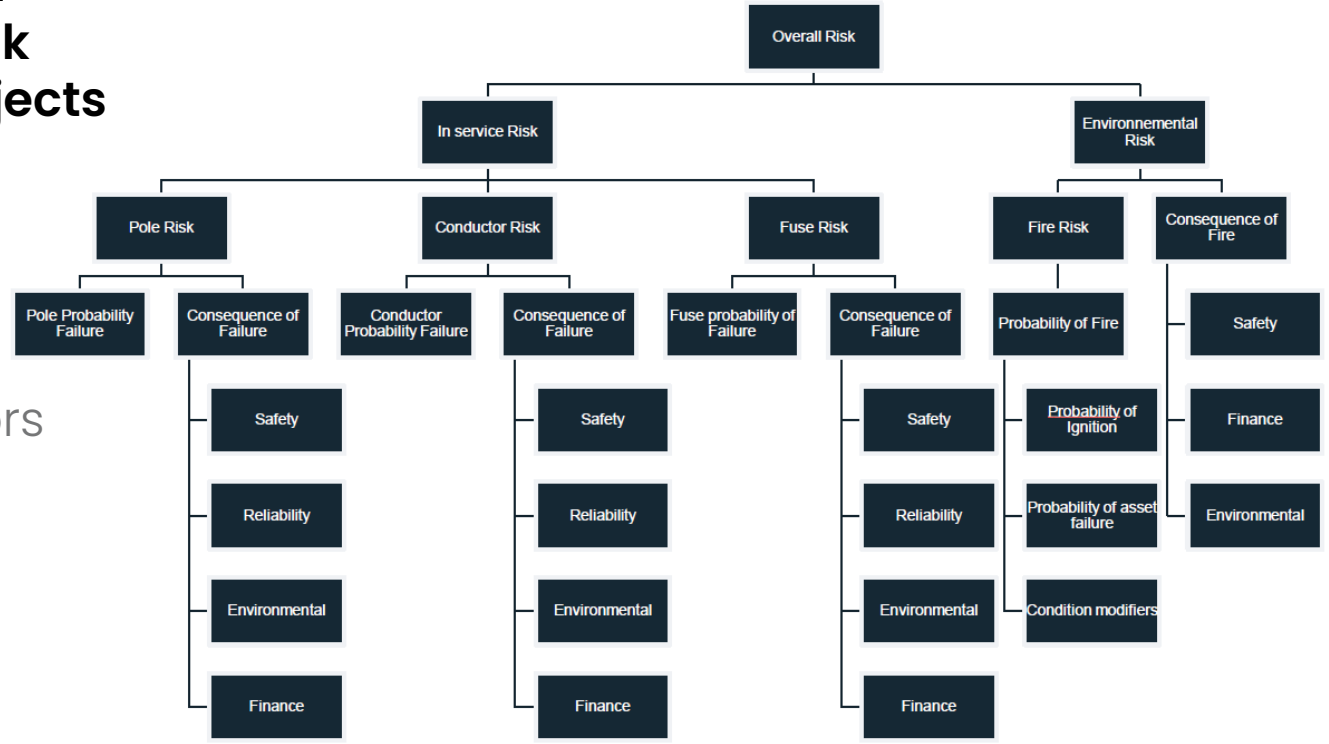
Asset Risk Assessment and Planning

Wildfire risk analysis combined with asset health and vegetation data to quantify risk reduction and risk spend efficiency of projects and to simulate WMP activity scenarios.

DIREXYON Model Inputs

- Climatological Wildfire Risk Output
- Asset Health
  - Poles, Fuses, & Overhead Conductors
  - Inspections & Repairs
- Vegetation
  - Remote Sensing Data
  - Inspections & Maintenance
- Financial Data
  - Grid hardening and Asset Inspections
  - Vegetation Management

Figure 1 – DIREXYON Utility Risk Framework



Key 2025 Targets and Expenditures

Per its 2025 WMP Update, Liberty plans to spend $45M in 2025

Approx. $30.5M planned Capital spend on grid hardening activities

- Implement Sensitive Relay Profile ("SRP") Program on 7 additional circuits (22 circuits total in 2024/2025), including the installation of fault indicators and automatic reclosers
- 2.7 miles of covered conductor
- 400 pole replacements
- 5.2 miles of open wire/grey wire secondary lines
- 500 fuses replaced with non-expulsion fuses
- 60 tree attachment removals
- 0.4 miles of undergrounding
- One substation upgrade

Approx. $12M 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 (4,900 poles cleared & 280 acres treated)

2025 WMP Highlights

Per its 2025 WMP Update, Liberty plans to spend $45M in 2025

Approx. $30.5M planned Capital spend on grid hardening activities

- Implement SRP Program on 7 additional circuits, including the installation of fault indicators and automatic reclosers
- 2.7 miles of covered conductor
- 400 pole replacements
- 5.2 miles of open wire/grey wire secondary lines
- 500 fuses replaced with non-expulsion fuses

Approx. $12M 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 (4,900 poles cleared & 280 acres treated)

2025 Quarterly Asset Inspection Targets

Liberty has established the following 2025 quarterly asset inspection targets:

WMP Initiative	Target End of Q2 2025	Target End of Q3 2025	Target End of 2025
WMP-GDOM-AI-01: Detailed inspections of distribution electric lines and equipment	65 miles	195 miles	260.4 miles
WMP-GDOM-AI-02: Intrusive pole inspections	0 poles	500 poles	2,652 poles
WMP-GDOM-AI-03: Patrol inspections of distribution electric lines and equipment	270 miles	540.9 miles	540.9 miles
WMP-GDOM-AI-04: Other discretionary inspections of distribution electric lines and Equipment	0.5 miles	0.75 miles	1.0 miles
WMP-GDOM-AI-05: Quality assurance / quality control of inspections	0% of detailed inspections	0% of detailed inspections	12% of detailed inspections
WMP-GDOM-AI-06: Substation inspections	10 substations	22 substations	42 substations

2025 Quarterly Vegetation Management Inspection Targets

Liberty has established the following 2025 quarterly VM inspection targets:

WMP Initiative	Target End of Q2 2025	Target End of Q3 2025	Target End of 2025
WMP-VM-INSP-01: Vegetation Management Inspection Program – Detailed	110 miles	165 miles	220 miles
WMP-VM-INSP-03: Vegetation Management Inspection Program – LiDAR	0 miles	700 miles	700 miles
WMP-VM-QAQC-01: VM QA/QC	120 miles	229 miles	229 miles

New Liberty WMP Programs in 2025

- In July 2023, Liberty initiated a new component of its Vegetation Management QA/QC program.
  - This includes a QA inspection of vegetation in vicinity of its power lines for adherence to regulatory minimum clearance requirements and conformance to Liberty standards.
  - The QA assessment sets a baseline for future audits and ability to measure compliance and conformance over time.
  - Liberty found that it was 98.87% compliant by span and 99.48% compliant by number of trees assessed within the sample spans.

Progress on Energy Safety Areas of Improvement

Progress on Energy Safety Areas of Improvement from 2023 WMP Approval

- Liberty's Sensitive Relay Profile ("SRP") Program
  - SRP is being implemented on 22 total circuits in 2024 and 2025 as an expedited mitigation strategy to provide additional risk reduction across Liberty's service territory, while covered conductor and traditional overhead hardening projects continue to be planned and permitted.
  - Summary of Liberty's evaluation of SRP, covered conductor and traditional overhead hardening:

WMP Initiative	Cost Per Mile	Time to Implement	Resource Needs	Effectiveness
SRP	Low	Low	Low	High
Traditional Overhead Hardening	Moderate	Moderate	Moderate	High
Covered Conductor	High	High	Moderate	High

Progress on Energy Safety Areas of Improvement

Progress on Energy Safety Areas of Improvement from 2023 WMP Approval

- Liberty's Asset Inspection Program
  - Liberty follows General Order ("GO") 95 overhead electric line construction standards and GO 165 minimum timing requirements for inspections and believes this adequately addresses risk.
  - Covered conductor inspections
    - Detailed inspections include common or known failure modes for all construction types including covered conductor. To account for specific issues related to covered conductor, Liberty is adding water intrusion, splice covers, surface damage/bulging, and bracket placement to its detailed inspection checklist
  - Asset Inspection QA/QC program
    - Liberty will QA/QC 12% of its detailed asset inspections and has established a target pass rate of 90% for 2025.

Progress on Energy Safety Areas of Improvement

Progress on Energy Safety Areas of Improvement from 2023 WMP Approval

- Liberty's Weather Station Program
  - After an optimization analysis for Liberty's weather station network, Liberty installed four additional weather stations.
  - Liberty commenced its weather station maintenance and calibration program in January 2024.
- Wildfire HD Cameras
  - Liberty is working with University of Nevada Reno ("UNR") to execute an agreement to provide funding for the maintenance of existing cameras, through the ALERT Wildfire program, within the view shed of Liberty's service territory.
  - As part of the new agreement, UNR is performing a view shed analysis to propose locations of existing cameras for Liberty to adopt or potentially install new cameras where current coverage is lacking for the service territory.

Progress on Energy Safety Areas of Improvement

Progress on Energy Safety Areas of Improvement from 2023 WMP Approval

- Other Grid Hardening Areas of Improvement
  - Liberty has established a target of 500 expulsion fuse replacements in 2024 and 500 expulsion fuse replacements in 2025.
  - Liberty has updated its asset tracking application to identify and track lightning arrestors and plans to pilot a selection of exempt lightning arrestors in Q3 2024 for implementation in 2025.
  - UNR completed a Fire Mitigation Protection System Study for Liberty. This report recommends that Liberty should no longer pursue HIFD and should pursue a fast trip or SRP scheme to reduce fire risk.

Thank you


LIBERTY
Q&A

15-MINUTE BREAK

Back at 1:55 pm

OPEN QUESTION AND ANSWER SESSION

Reminder to raise hand or use Q&A chat function in Zoom.

RISK METHODOLOGY & ASSESSMENT

GRID DESIGN, OPERATIONS, & MAINTENANCE

VEGETATION MANAGEMENT

SITUATIONAL AWARENESS

EMERGENCY PREPAREDNESS & COMMUNITY OUTREACH

PUBLIC SAFETY POWER SHUTOFF (PSPS)

OTHER/LAST CALL FOR QUESTIONS

PUBLIC PARTICIPATION

- Opening Comments for Group 2 ECs are due August 12, 2024

- Docket 2023-2025-WMPs is your primary source of information regarding WMP evaluations: https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=2023-2025-WMPs

- Data Request (DR) responses are available at each electrical corporation's website and summaries of DRs received by the utilities are available at: https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=2023-2025-WMP-DRs

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POST-PRESENTATION FOLLOW-UP Q&A

PacifiCorp

Q1. What were the technological barriers faced that resulted in the termination of the smoke and AQI sensor program planned for implementation with the federal initiative (department of homeland security program)?

ANS: Pacific Power was participating in the evaluation of the technology as a beta release. Per the latest Department of Homeland Security Fact Sheet about the program: “Beta Phase 1 launches in 2024 with significant enhancements to AI algorithms based upon 2023 data collected, integration of local wind sensors and updates to user interface, installation, and operation. The current plan is to deploy approximately 200 beta N5 wildfire sensors in 2024 for operational testing and evaluation with stakeholders across the U.S. and Canada (see attached fact sheet).” As discussed at the workshop Pacific Power is not participating in Beta Phase 1.

Q2. PacifiCorp states that it has identified access, material, permitting, and resource constraints as the root causes of asset repairs imminent threat condition code conditions that are not remediated within the required timeframe. And indicates that the delays of material are due to special order items not being kept in inventory, but states this accounts for a small number of cases. - IF not due to lack of materials in inventory, what accounts for most of the delays?

ANS: As discussed in the afternoon open comments session, permitting and access (ex: weather, US Forest Service land, private owner restrictions).

Q3. PacifiCorp increases its line-mile target from 80 to 120 line miles in 2025, and increases the cost from $62M to $120M, increasing the cost per line mile. Is the increased cost associated with the use of a contractor versus in-house workforce and resources?

ANS: As presented on the "Changes to Approved Targets, Objectives, and Expenditures" under GH-01 Line Rebuild – Covered conductor installation, this is the driver for the increase.

PacifiCorp

Q4. Will PC do any CC work with in-house resources or will all the work be allocated to the new contractor?

ANS: All the work in California will be performed by contractors.

Q5. What are the factors that inform CC work location and prioritization? Selected purely based on wildfire risk scores, or ease of access? Especially the increased the miles for contractor work?

ANS: As discussed in the meeting Pacific Power is transitioning how it selects work so that the circuits for mitigation based on being in the HFTD or HFRA and the maximum fuel/terrain ignition risk score on the circuit, this is also described on page 128 of the Redlined 2023-2025 Base WMP Redline, and the current prioritization of work is discussed in Section 7.1.4.2 Mitigation Initiative Prioritization. Sequencing of work that's been selected for mitigation is discussed in Section 7.1.4.3 Mitigation Initiative Scheduling.

Q6. How are the risk scores in the HFRA (FHCA) matching up with the risk scores in the HFTDs? – i.e.: What are we seeing for risk scores in Tier 2 and Tier 3 vs the HFRA and the distribution of risk scores?

ANS: Pacific Power looked at distributions and statistics for circuit segment scores in HFRA, HFTD Tier 2, and HFTD Tier 3. Overall HFTD Tier 2 and PacificCorp's HFRA look very similar

Trans Bay Cable

Q1. For Trans Bay Cable, do you have any experience with HVDC breakers and if yes, would you be amenable to working with the large utilities to share experience? I ask since HVDC breakers are much faster than conventional breakers and could be used with fast-trip.

ANS: TBC's HVDC system does not utilize DC breakers.