Workshop Slides and Recording

Group 1 Workshop on Wildfire Mitigation Plans of SCE, PG&E, SDG&E, and BVES

The Office of Energy Infrastructure Safety held a public workshop on the 2025 Update Wildfire Mitigation Plans of Southern California Edison (SCE), Pacific Gas and Electric (PG&E), San Diego Gas & Electric (SDG&E), and Bear Valley Electric Service, Inc. (BVES) on April 25, 2024. A recording of the meeting can be found on Energy Safety's YouTube channel.

Workshop Recording: https://youtu.be/eqjun3Ps8Kw

The slides presented during the meeting are attached to this document.

2025 WILDFIRE MITIGATION PLAN UPDATE PUBLIC WORKSHOP

For Group 1 Submissions

April 25, 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.
- ECs submitted their 2025 WMP Updates in March 2024.
- This workshop focuses on 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 1 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 May 7, 2024.

* Group 1 ECs are SCE, PG&E, SDG&E, & Bear Valley. Group 2 ECs (PacificCorp, Liberty, Horizon West, Trans Bay Cable, and LS Power) will submit 2025 WMP Updates in July, with a public workshop in late-July.

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.
- 2 hours 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 – 9:55am	SCE Presentation
9:55am – 10:15am	Q&A on SCE's Presentation
10:15am – 10:30am	15-minute break
10:30am – 11:10am	PG&E Presentation
11:10am – 11:30am	Q&A on PG&E's Presentation
11:30am – 12:10pm	SDG&E Presentation
12:10pm – 12:30pm	Q&A on SDG&E's Presentation

AGENDA (2/2)

12:30pm – 1:30pm	Lunch
1:30pm – 2:00pm	Bear Valley Presentation
2:00pm – 2:15pm	Q&A on Bear Valley's Presentation
2:15pm – 2:30pm	15-minute break
2:30pm – 4:30pm	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.


SCE

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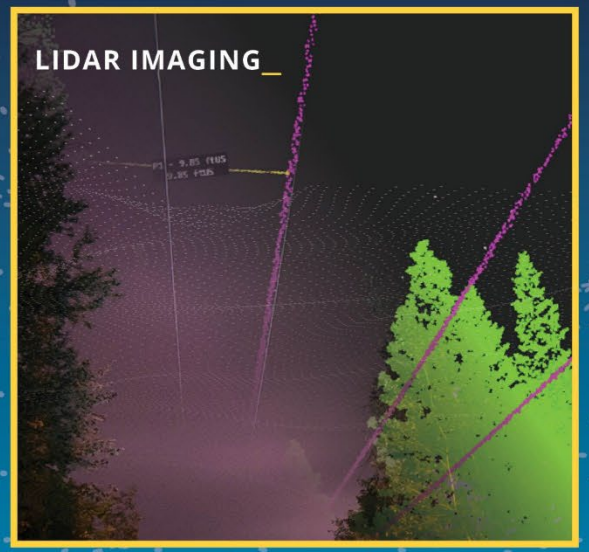
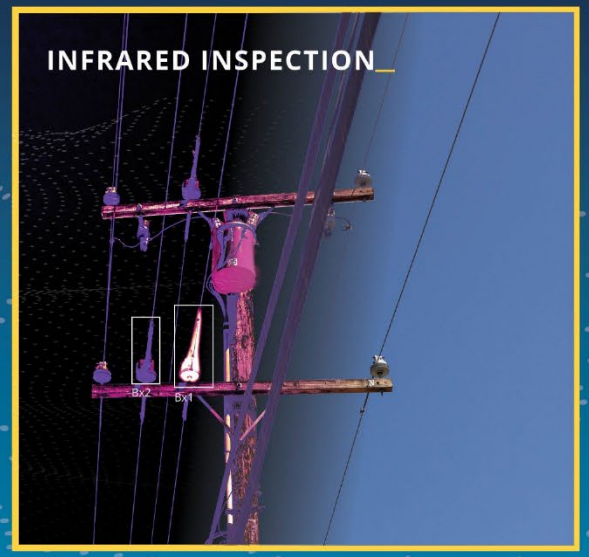
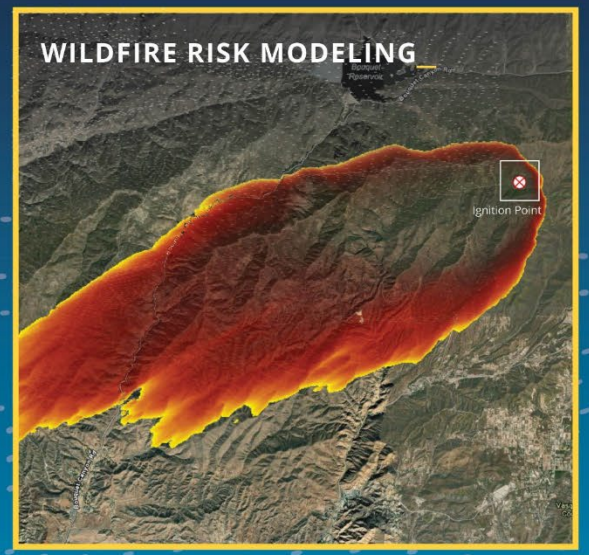
OFFICE OF ENERGY INFRASTRUCTURE SAFETY
2025 WILDFIRE MITIGATION PLAN UPDATE WORKSHOP
APRIL 25, 2024







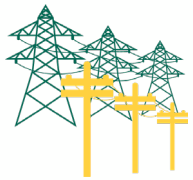
AGENDA

Topic	Duration	Speaker
Service Area & HFRA Overview	5 min.	**Ray Fugere** Director, Wildfire Safety
Integrated Wildfire Mitigation Strategy & Hardening Strategy (IWMS)	5 min.	
Risk Model Changes	10 min.	
2025 Target Changes	10 min.	

SCE SERVICE AREA & HIGH FIRE RISK AREAS

50,000 SQ. MI.
of SCE service area across southern, central and coastal California

14,000 SQ. MI.
of high fire risk areas



51,000 MI.
of SCE overhead distribution and transmission lines

14,000 MI.
in high fire risk areas

5M
customer accounts or 15M residents in SCE's service area

1.3M
customer accounts or 3.9M residents served by circuits in high fire risk areas

1.4M
power poles and towers

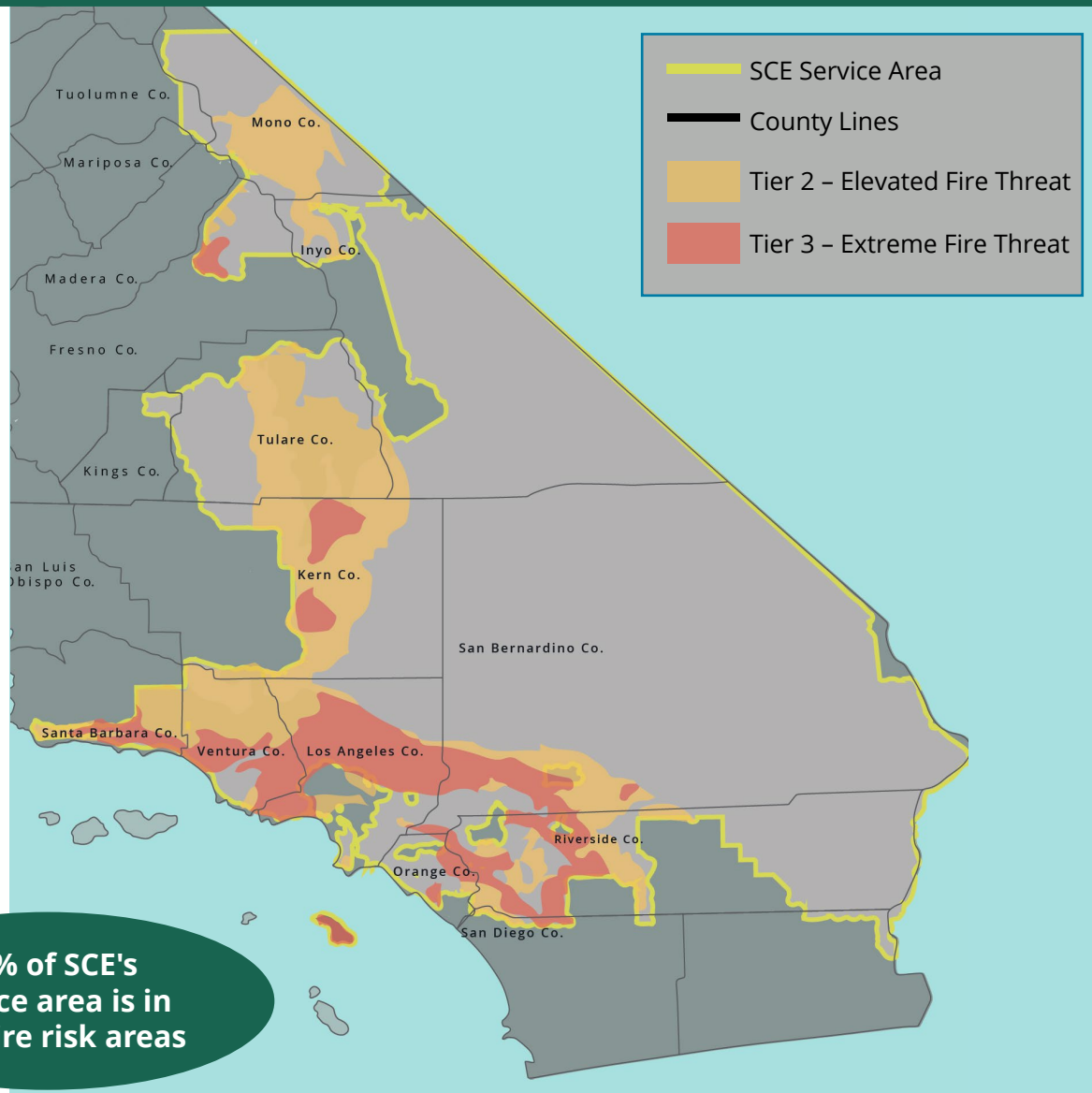
311,000
in high fire risk areas

Counties with high fire risk area served by SCE

Fresno
Inyo
Kern
Los Angeles
Mono
Orange
Riverside
San Bernardino
Santa Barbara
Tulare
Ventura

Counties with no or limited high fire risk areas served by SCE

Imperial
Kings
Madera
Tuolumne



27% of SCE's service area is in high fire risk areas

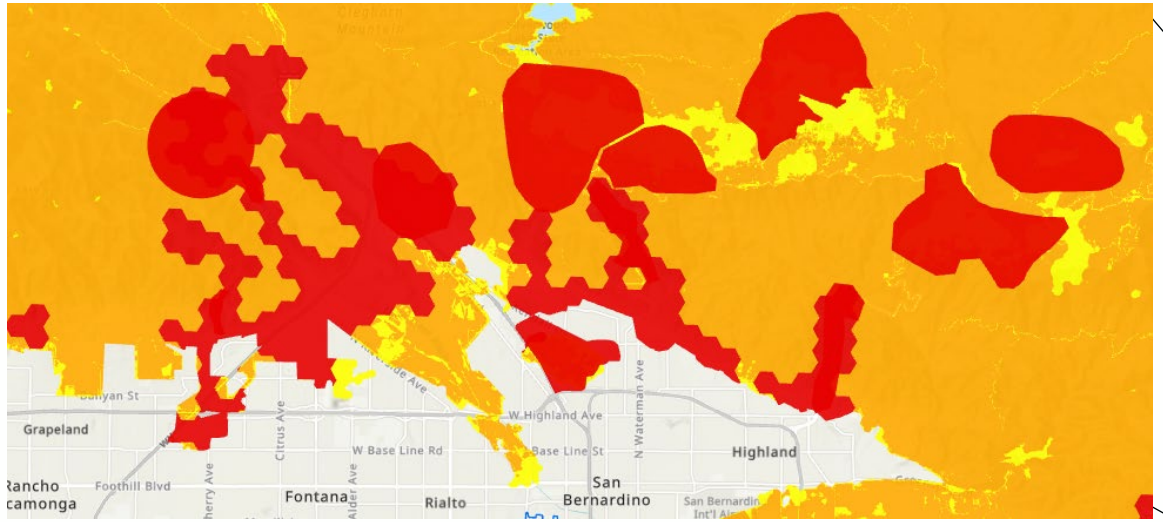
INTEGRATED WILDFIRE MITIGATION STRATEGY

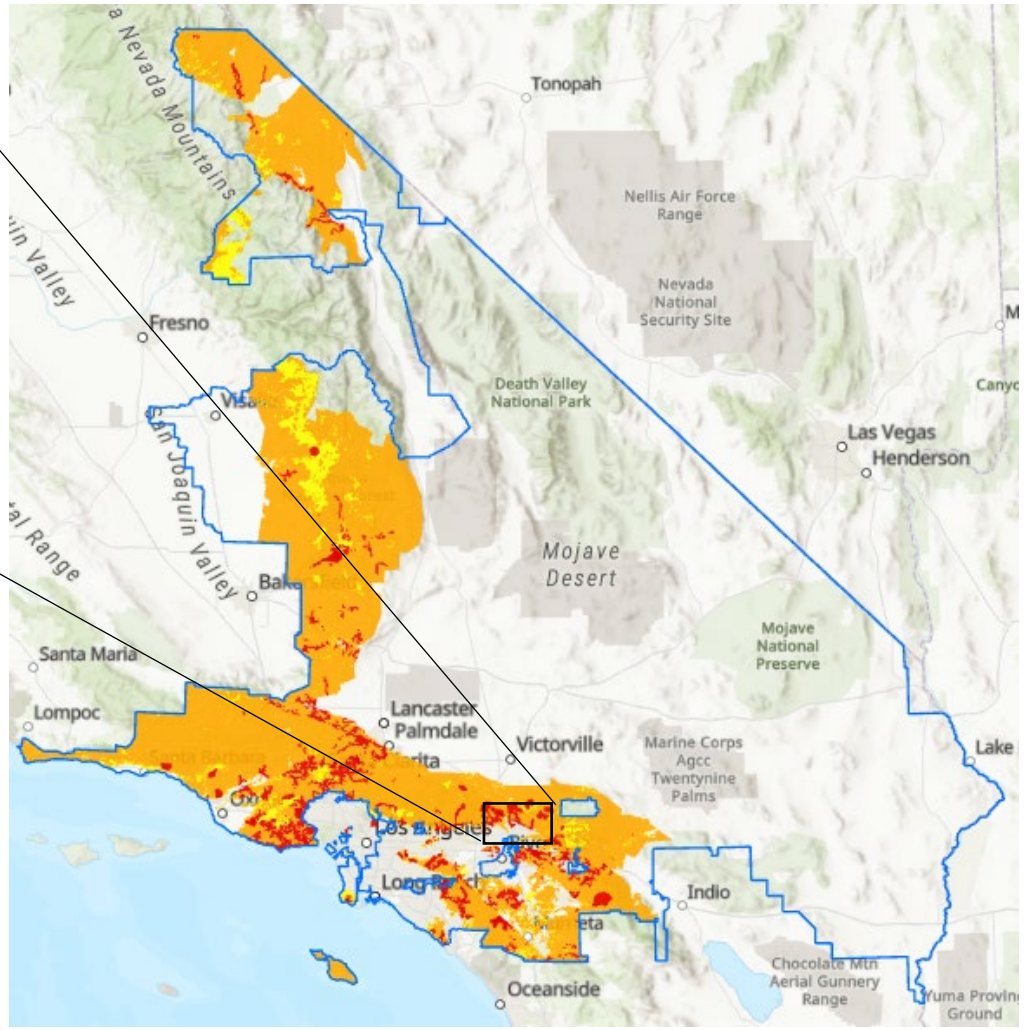
SCE's refined integrated wildfire mitigation strategy (IWMS) considers wildfire risk drivers and PSPS risk at circuit segments and mitigations that cost effectively addresses those risk drivers. We continue to prioritize hardening our riskiest areas first.

	Risk Designation	Risk Criteria	Mitigation Selection
Total High Fire Risk Area (HFRA) Overhead Distribution Segments	**Severe Risk Areas**	Fire risk egress constrained locations, extreme high wind areas, and extreme consequence areas	Pursue undergrounding unless covered conductor already installed or specific terrain not practical for undergrounding and necessitates feasible alternative mitigations
	High Consequence Segments	Locations that meet 300-acre consequence threshold at 8 hours or at risk of Public Safety Power Shutoff (PSPS)	Pursue covered conductor plus other mitigations such as asset inspections, vegetation management, and fast curve settings
	Other HFRA Segments	Locations that are not in a Severe Risk Area and do not meet High Consequence criteria	Naturally replace retired or damaged bare wire with covered conductor per high fire risk area standard; continue mitigations such as asset inspections, vegetation management, and fast-curve settings

Data as of 12/31/2023

SCE IWMS RISK TRANCHES & HARDENING STATUS





Data as of Jan. 2024	Hardened[1]	Unhardened
Severe Risk Areas	~2,350	~900
High Consequence Areas	~2,700	~1,750
Other High Fire Risk Areas	~600	~1,200

1. "Hardened" refer to the miles of bare overhead lines replaced with covered conductor or underground cable and the associated infrastructure to complete those installation (i.e., FR pole as part of covered conductor installation). In some cases, alternatives such as REFCL, aerial bundled cable, or spacer cable are utilized. Values rounded to nearest 50-mile increment.

RISK MODEL CHANGES

WILDFIRE CONSEQUENCE RISK MODEL UPDATES

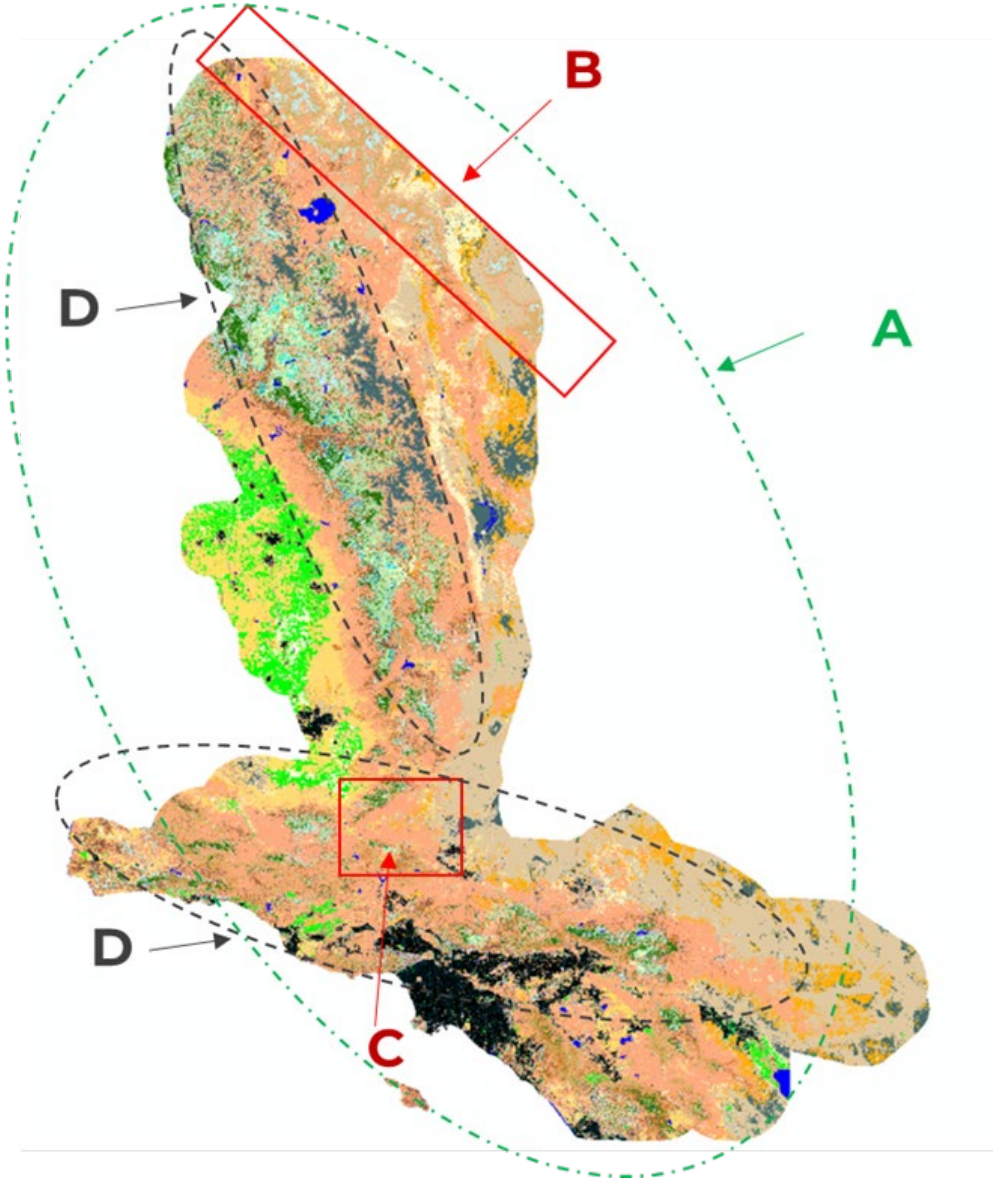
Surface Fuel Updates

A) **Areas within and adjacent to High Fire Risk Areas (HFRA):** Updated based on historical fire analysis

B) **California/Nevada border:** Adjusted fuel models to remove the sharp transition in fuel types along the states' boundary lines

C) **High Desert:** Adjusted fuels in the Antelope Valley area

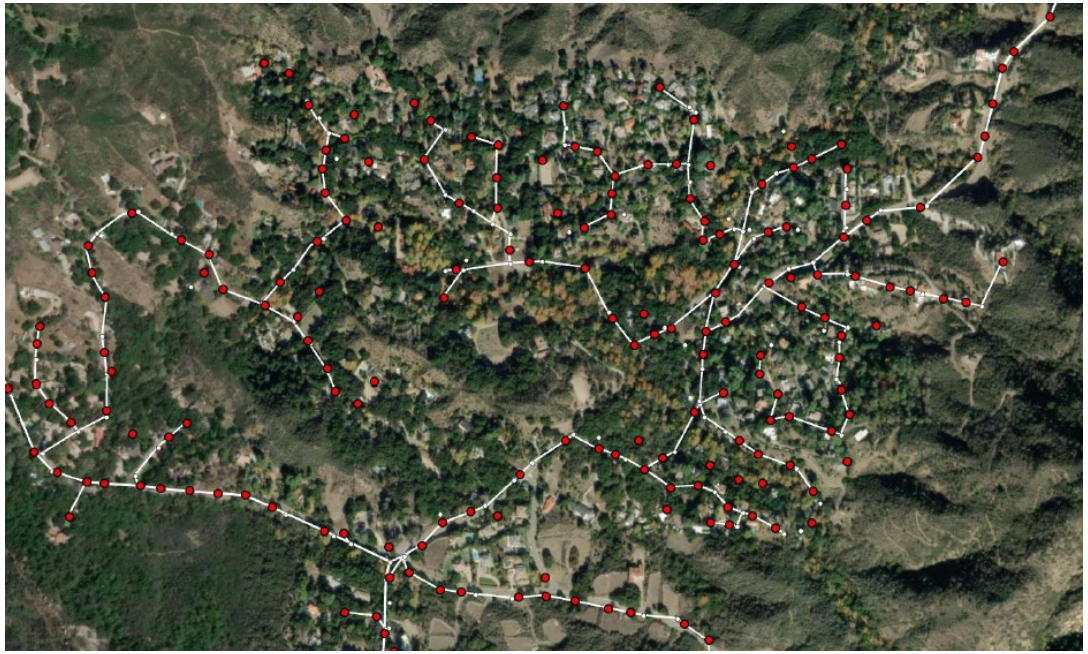
D) **High Sierras:** Replaced Scott and Burgan (2005) timber fuel model with new model calibrated with information from California Fire Guard data



WILDFIRE CONSEQUENCE RISK MODEL UPDATES

Modifications to Ignition Point Spacing

In previous versions of SCE's wildfire consequence model, ignition points were spaced within a 200-meter grid around assets to mitigate or reduce misaligned asset geolocation data



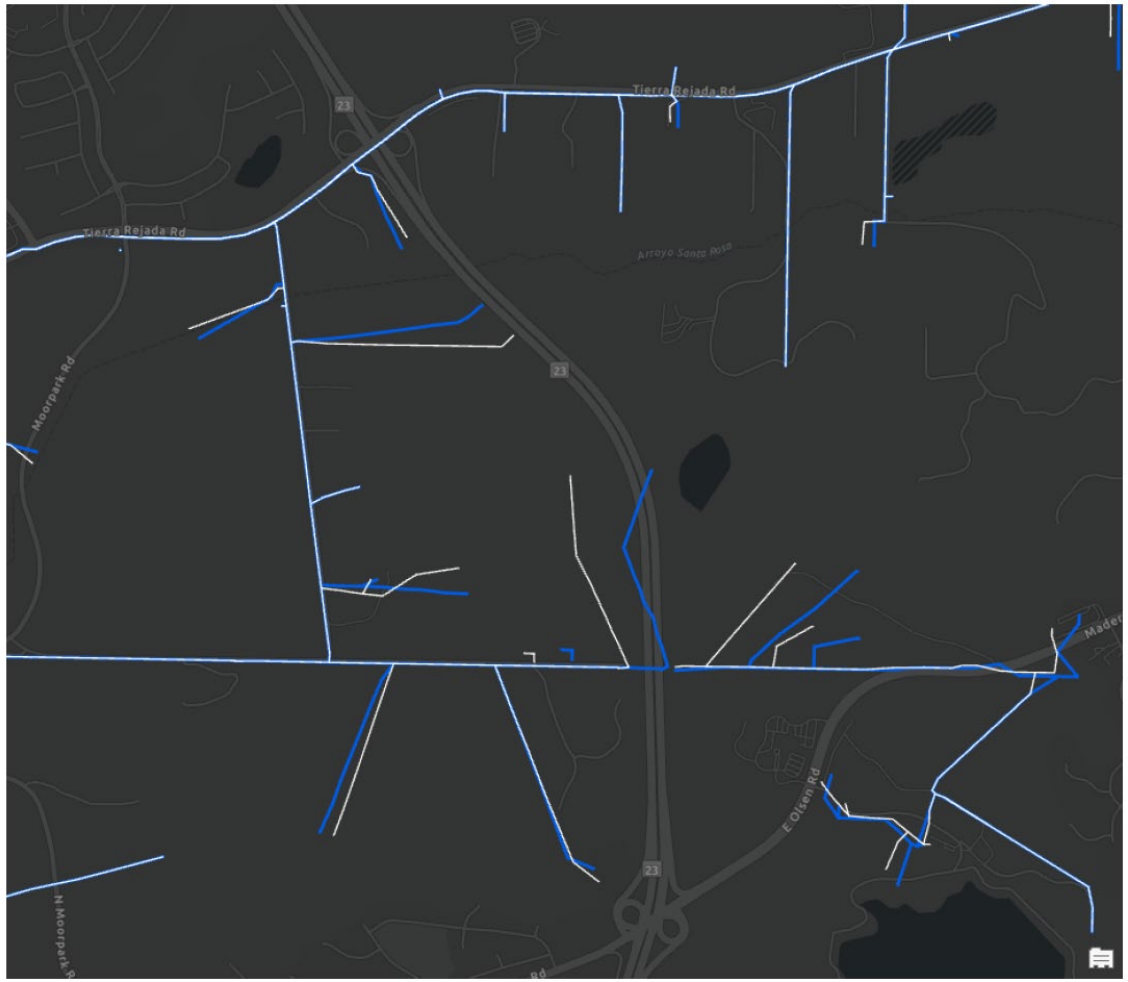
In the updated model, ignition points are spaced within a 100-meter grid along overhead distribution assets.

Supplemental ignition points were added to represent asset locations, in addition to existing simulations for overhead distribution lines. Ignition points that were more than 100 meters away from ignitable fuel were removed.

WILDFIRE CONSEQUENCE RISK MODEL UPDATES

Modifications to Asset Geometry

- Asset geometry was revised to better represent asset locations to improve the fidelity and accuracy of simulations in proximity to surface fuels
- The previous version of the wildfire consequence model used geospatial asset data from March 2021 for overhead distribution and transmission lines, FLOCs (functional locations), poles (distribution) and towers (transmission)
- SCE has taken steps to refine the geospatial locations for overhead assets with increasing accuracy through various data collection methods
- The latest version of the wildfire consequence model uses geospatial asset data from June 2022 (lines) and July 2022 (FLOCs)



Distribution lines from March 2021 (blue) and June 2022 (white)

PROBABILITY OF IGNITION (POI) UPDATES

ASSET SUB MODEL INFORMATION

Asset sub models for POI (overhead conductor, transformer, switch, and capacitor) were refreshed in mid-2023 with updated asset inventories, historical failure, inspection and remediation data, mitigations deployed as of mid-2023, along with updates to other input data (e.g., weather information).

ASSET DATA REFRESH

Asset data updates include new and replacement components, outage information and new circuit configurations.

Meter loading data incorporated into the transformer sub model.

By looking at the past five years of daily meter data, SCE can calculate the number of days the transformers experienced overloading and the percentage of time overloading.

REFRESHED CORROSION AND FLOOD ZONES

Corrosion and flood zone data were refreshed as a result of Federal Emergency Management Agency (FEMA) updating their flood zone and corrosion data.

This dataset is an input for the predictive models in determining probability of failure of assets, which could lead to ignition.

REFRESHED TREE AND AVIAN DATA

Each year, new trees near conductor are monitored, trimmed and removed. The spatial proximity of each tree to segments is found using ArcGIS, and each tree within 50 feet of a segment is assigned to that segment.

Avian data is collected based on field observations of outages. Avian data is aggregated into a spatial density model, then the location of each segment is extracted from the kernel. This assigns a relative density of avian incidents to each segment.

2025 TARGET UPDATES

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2025 PROGRAM TARGET CHANGES

Initiative Activity	Initiative ID	Change Category	Original Value (Compliance or Strive)	Updated Value
Covered Conductor	SH-1	Lessons Learned, Other	700 circuit miles (compliance) 850 circuit miles (strive)	500 circuit miles (compliance) 600 circuit miles (strive)
Undergrounding Overhead Conductor	SH-2	Lessons Learned, Other	48 circuit miles (compliance)	30 (circuit miles compliance)
REFCL – GFN	SH-17	Lessons Learned, Other	4 substations w/completed construction (compliance)	2 substations w/completed construction (compliance)
Transmission High Fire Risk-Informed (HFRI) Inspections and Remediations (Ground and Aerial)	IN-1.2	Lessons Learned, Other	28,000 structures (compliance)	24,500 structures (compliance)
Expanded Clearances for Generation Legacy Facilities	VM-3	Other	60 sites (compliance) 70 sites (strive)	48 sites (compliance) 56 sites (strive)
Transmission Conductor & Splice Assessment: Spans with LineVue	IN-9a	Not applicable	Target to be developed based on an engineering analysis to be performed in 2023 and 2024	Sunsetting activity. Based on the 0% find rate in 2022 and 2023, and the cost and complexity of performing the inspections, SCE determined that resources can be used more effectively for other inspection programs.
Transmission Conductor & Splice Assessment: Splices with X-Ray	IN-9b	Not applicable	Target to be developed based on an engineering analysis to be performed in 2023 and 2024	50 (compliance) 100 (strive)

APPENDIX

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AREAS FOR CONTINUED IMPROVEMENT (ACI)

SCE-23-01: Cross-Utility Collaboration on Risk Model Development

SCE-23-02: Calculating Risk Scores Using Maximum Consequence Values

SCE-23-03: PSPS and Wildfire Risk Trade-Off Transparency

SCE-23-04: Incorporation of Extreme Weather Scenarios into Planning Models

SCE-23-05: 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

SCE-23-06: [intentionally left blank]

SCE-23-07: Continuation of Grid Hardening Joint Studies

SCE-23-08: Vibration Dampers Retrofit

SCE-23-09: Hardening Severe Risk Areas

SCE-23-10: Transmission Conductor Splice Assessment

SCE-23-11: Covered Conductor Inspection and Maintenance

SCE-23-12: Asset Maintenance and Repair Maturity Level Growth

SCE-23-13: of Work Order Due Dates Based on Risk Assessment Addressing Backlogged Work Orders

SCE-23-14: Modification

SCE-23-15: Continued Monitoring of Fast Curve Settings Impact

SCE-23-16: Implementation of SCE's Consolidated Inspection Strategy, Use of Its Tree Risk Index, and its Satellite-Based Inspection Pilot

SCE-23-17: Continuation of Effectiveness of Enhanced Clearances Joint Study

SCE-23-18: Weather Station Maintenance and Calibration

SCE-23-19: Early Fault Detection Implementation

SCE-23-20: Evaluation of and Plan to Address AFN Needs

SCE-23-21: Community Outreach 3- and 10-Year Objectives - Verification Methods

SCE-23-22: Consideration of PSPS Damage in Consequence Modeling


SCE Q&A

15-MINUTE BREAK

Back at 10:30 am


PG&E

Pacific Gas and Electric Company

OFFICE OF ENERGY INFRASTRUCTURE SAFETY
2025 WILDFIRE MITIGATION PLAN UPDATE

April 25, 2024

Agenda

1. Building on Layers of Wildfire Protection
2. 2025 Wildfire Mitigation Plan Update
3. Detailed Updates
   - Wildfire Risk Model
   - System Hardening & Undergrounding
   - Portable Batteries
   - Distribution Backlog Tags
   - Transmission Conductor Segment Replacement

PG&E Participants

ANDREW ABRANCHES
SENIOR DIRECTOR,
Wildfire Preparedness and Operations

JON ERIC THALMAN
DIRECTOR,
Risk Management and Analytics

MEGAN ARDELL
SENIOR DIRECTOR,
Undergrounding PMO Customer Experience and Regulatory Strategy

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

Building on Layers of Wildfire Protection

Who We Serve

By The Numbers

16M
PEOPLE SERVED

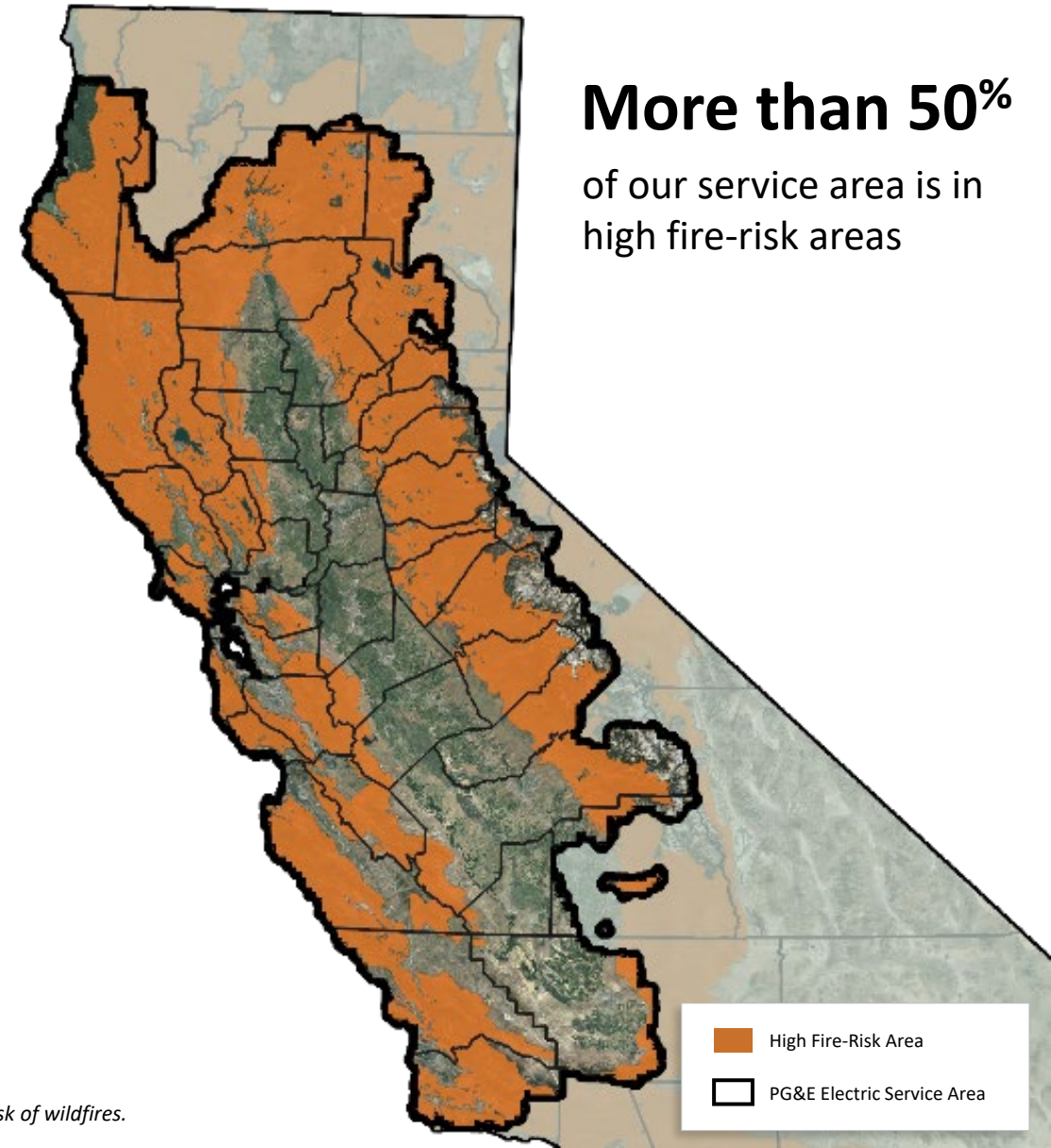
5.5M electric accounts

4.5M gas accounts

70,000
SQUARE MILE SERVICE AREA

106,700 circuit miles of electric distribution lines

42,100 miles of natural gas distribution pipeline



More than 50%

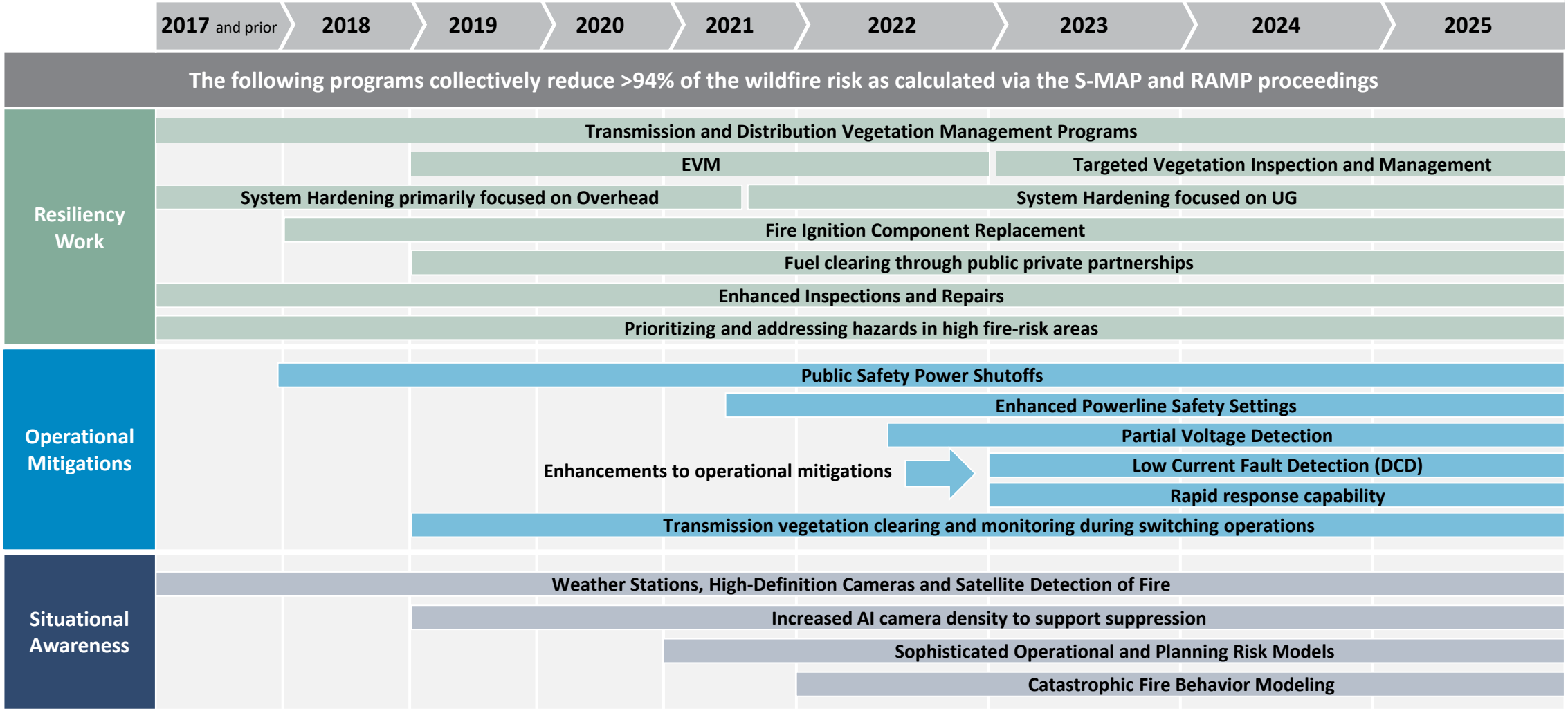
of our service area is in high fire-risk areas

Data is approximate

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

Building on Layers of Wildfire Protection

Adapting our layers of protection based on an improved understanding of wildfire risk to better serve our customers and in alignment with input from our regulatory agencies.



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2025 Wildfire Mitigation Plan Update

2025 WMP Updates

We have made minor updates to our 2025 plan.

2 Updates to Risk Models

- Update Distribution (WDRMv4) and Transmission (WTRMv2) risk models
- WDRMv4 is updated to incorporate ingress and egress attributes, 24-hour simulations, updated dry wind data sets, and community vulnerabilities
- WTRMv2 is updated to incorporate new machine learning models for avian and veg risk, model refinements for wind caused outages and polymer degradation, and account for updated Applies Technology Services/Field data

6 Changes to Approved Targets

- Align System Hardening and Undergrounding to the GRC (GH-01, GH-04)
- Revise downstream commitment that rely on undergrounding mileage (PS-07)
- Expand portable battery target to include permanent batteries and account for 2023 outperformance (PS-06)
- Increase distribution ignition backlog tag Areas of Continuous Improvement (ACI) by committing to 154,200 tags across the WMP period (GM-03)
- Introduce new conductor segment replacement target to address two transmission lines in 2025 (GH-11)

21 Quarterly Inspection Targets

- Provide quarterly targets for 2025 asset and vegetation management inspections, as approved in the Base 2023-2025 WMP
- Where needed/possible provide update risk impact percentages

21 Progress on ACIs

- OEIS provided 26 ACIs in the 2023 – 2025 WMP Decision of which 21 require a progress response in the 2025 WMP Update

**PG&E is not proposing any New or Discontinued Programs that meet criteria.*

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

Detailed Updates

Wildfire Risk Model

Wildfire Risk Model Updates

Distribution (WDRM v4)

- Added workplan specific sub models
- Switched equipment sub models from pixel to asset level
- Added capacitor banks, voltage regulators, switches, fuses, and dynamic protection devices sub models
- Implemented risk per line mile for system hardening prioritization
- Improved vegetation model sensitivity to tree health and wind conditions

Transmission (WTRM v2)

- Added vegetation hazard model
- Added avian hazard model
- Updated atmospheric corrosion model based on field validation
- Updated wood pole model reinforcements
- Updated polymer insulator degradation model
- Expanded data for calibration method for wind-caused outages (bayesian update)

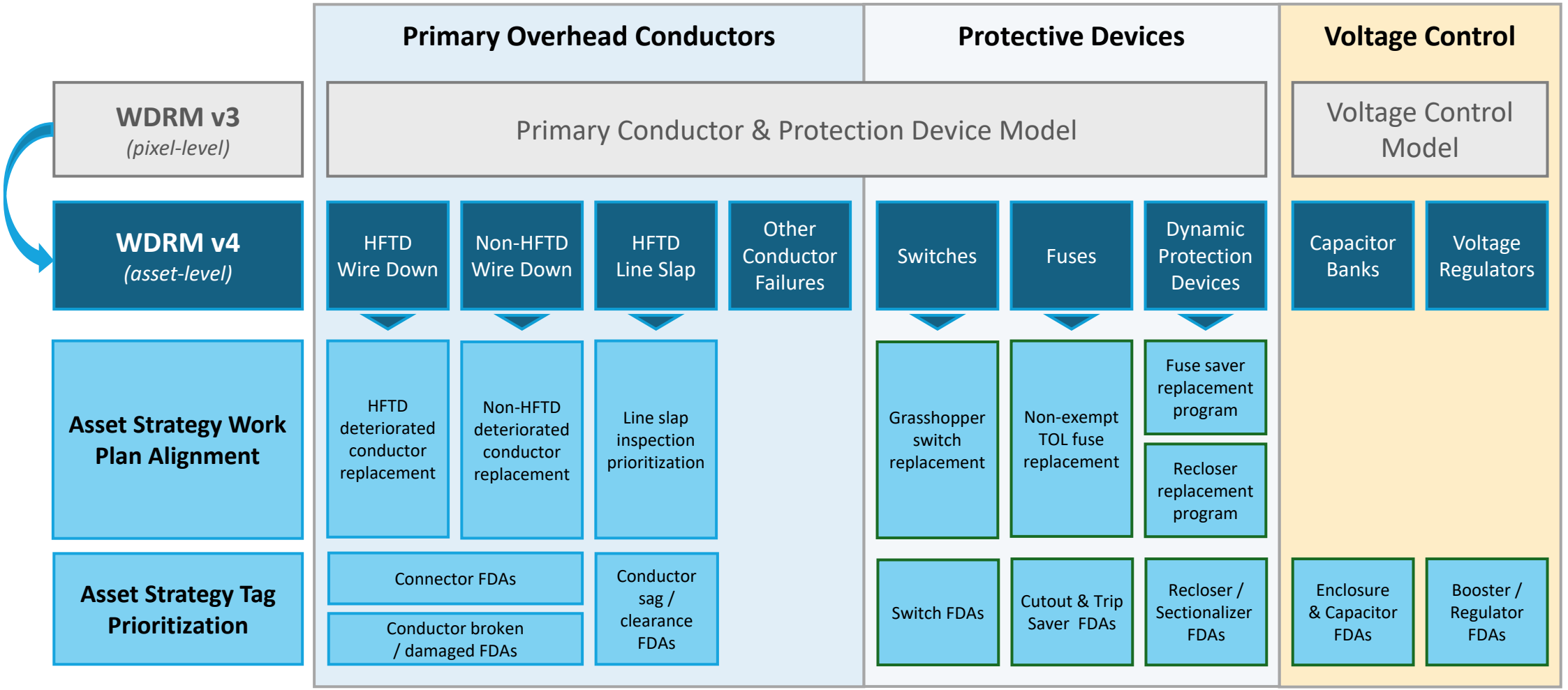
Wildfire Consequence (WFC)

- RA-01: Incorporate ingress/fire suppression attributes into the Wildfire Consequence (WFC) Model
- RA-02: Incorporate egress attributes into the WFC Model
- RA-03: Evaluate an approach to incorporate community vulnerability attributes
- Improve the WFC model transparency and validity using 24-hour simulations
- Incorporate dry wind conditions into the WFC model

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

WDRM - Equipment Failures Alignment with Asset Strategy Work Planning

Segmentation of models by asset type results in better alignment with asset-specific work planning.



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

WRTM v2 Model Improvements

	Wind	Seismic	Flashover
Conductor	Atmospheric Corrosion Fatigue		
Foundation	UG Corrosion		
Steel Structures	Atmospheric Corrosion	Atmospheric Corrosion	
Wood Structures	Wood Decay	Wood Decay	
Insulators	Atmospheric Corrosion		Contamination
Above Grade Hardware	Fatigue Atmospheric Corrosion		
Below Grade Hardware	UG Corrosion		
Splice	Atmospheric Corrosion Fatigue		
Vegetation			
Avian			

Key Improvements to Hazard and Threat Model Components

Threats:

- Atmospheric Corrosion validation update

Hazards:

- Expanded Wind data

Models:

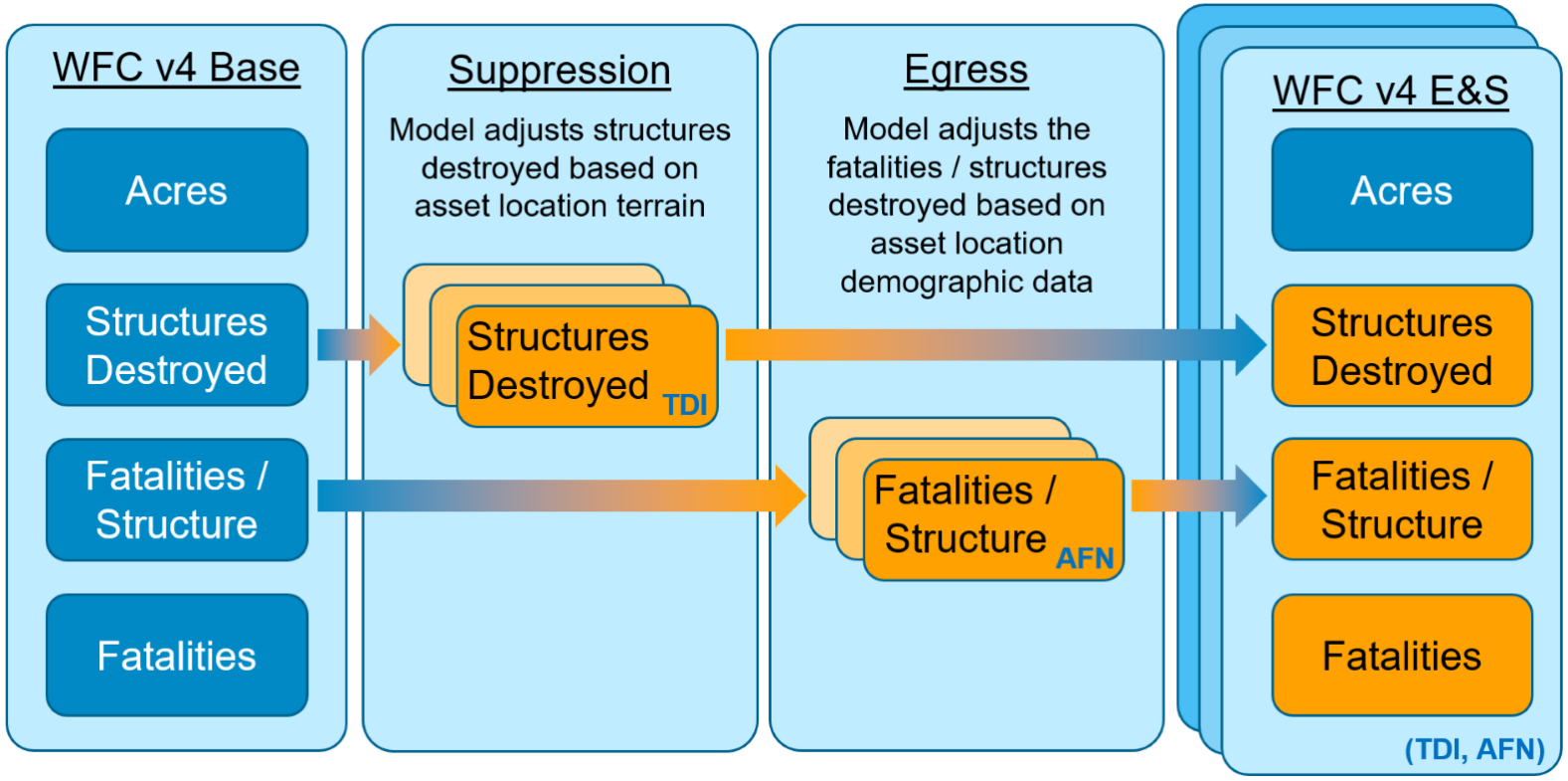
- Updated Wood Structures
- Updated Insulators
- New Vegetation
- New Avian

Model Improvement

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

Distribution and Transmission Wildfire Consequence Update

Suppression adjusts the number of structures lost based on terrain difficulty, while egress adjusts the ratio of fatalities per lost structure based on demographics.



A two-step approach is used to adjust the WFC for suppression and egress

1. Suppression is informed by Technosylva's simulation of Terrain Difficulty Index (TDI), which provides insight into the terrain difficulties for fighting a wildfire.
2. Egress is correlated with access and functional needs population due to mobility issues.

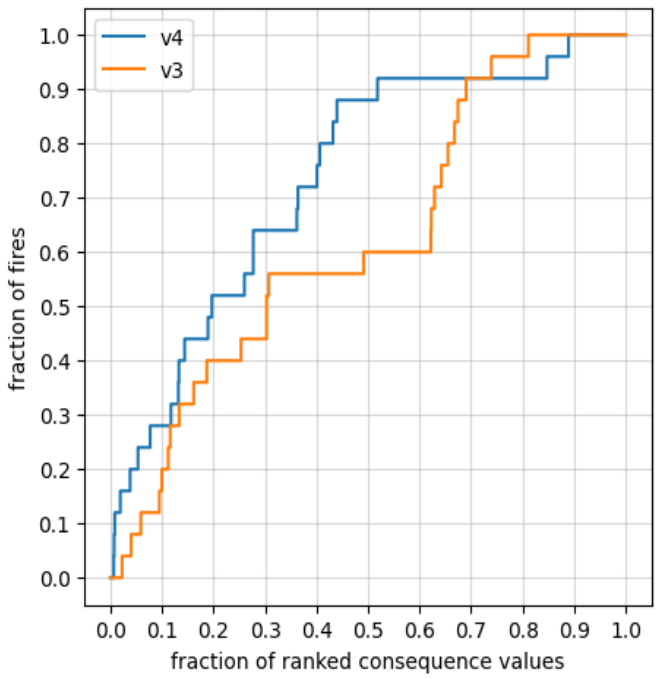
Suppression has a bigger impact on WFC than Egress.

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

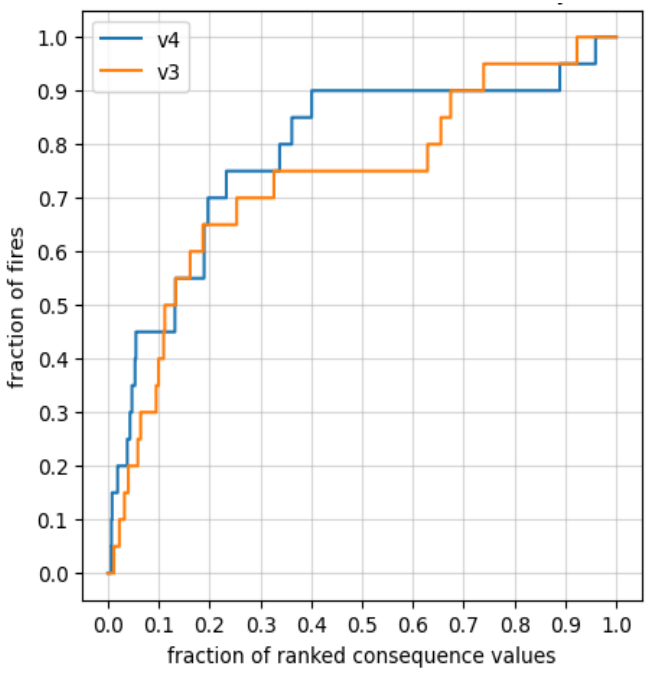
Wildfire Consequence Performance

Wildfire Consequence Model version four (v4) does a better job of prioritizing locations of high consequence by accounting for more fires than version three (v3).

Fire Counts
with > 300 Acres Burned



Fire Counts
with Structures Destroyed



Risk Models are statistical predictions of a dynamically variable event.

Traces represent the percentage of fires addressed by the percentage of prioritization grid locations.

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

System Hardening & Undergrounding

System Hardening and Undergrounding Target Changes

What's Changed

System Hardening – Distribution GH-01:
The change in number of distribution miles hardened between 2023 and 2026, as described in our Base 2023-2025 WMP, from 2,285 miles to an estimated 2,008 miles.

Undergrounding GH-04:
The change in number of underground circuit miles from 550 in 2025 to 330.

This change also impacts the PSPS risk impact mitigation target PS-07 for 2025 with changes to the customer events from 22,000 customer events to 13,000 customer events for 2025.

Why the Change

- Changes to align the with the mileage targets, risk reduction requirements and authorized amounts in the California Public Utilities Commission's (CPUC) final 2023 General Rate Case (GRC) decision.
- As the reduction of PSPS impacts on customers is directly correlated to completing the undergrounding program, the change to the undergrounding program target in 2025 also impacts the PSPS impact reduction target.

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

Aligning System Hardening and Undergrounding Programs with the GRC Decision

Our Wildfire Mitigation Plan System Hardening (includes undergrounding, overhead hardening and line removal) and Undergrounding annual mileage targets were updated to align with the November 2023 General Rate Case approval.

YEAR	SYSTEM HARDENING[a]		UNDERGROUNDING[b]	
	Base 2023-2025 WMP	2025 WMP Update	Base 2023-2025 WMP	2025 WMP Update
2023[c]	420	420	350	350
2024	470	280[d]	450	250[d]
2025	580	520	550	330
2026[e]	815	788	750	440
TOTAL	**2,285** UG MILES	**2,008** UG MILES	**2,100** UG MILES	**1,370** UG MILES

Target Exceeded

(a) System Hardening includes estimated overhead covered conductor, undergrounding, and line removal miles.
(b) Undergrounding includes estimated undergrounding and butte county rebuild miles.
(c) Miles provided for 2023 represent the original target miles and do no reflect the actual miles completed for that year.
(d) Miles assume that the target changes requested the 2024 Change Order are approved.
(e) The 2026 miles are provided as a forecast only. Exact target commitment will be included in PG&E's 2026-2028 WMP filing.

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

Wildfire Mitigation Plan Cumulative Updates

Cumulatively this means that PG&E will now be completing significantly less undergrounding than originally proposed and significantly more overhead hardening between 2023 and 2026.

	PG&E GRC/WMP Request	Updated GRC/WMP Total
Undergrounding	2,000	1,230
Overhead Hardening*	~285	778
Subtotal	**~2,285**	**2,008**
Butte Rebuild**	175	140
Total Miles	**~2,460**	**2,148**

**Includes installing strong poles, covered powerlines and line removal.*
**Butte County fire rebuild projects are not included in the 1,230-mile GRC undergrounding decision but are included in both the base 2023-2025 WMP filing and updated 2025 WMP filing.*

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

Portable Batteries

Portable Batteries Target Change

What's Changed

New or Replacement of Portable Batteries PS-06:
Adjusted the 2025 target from 4,000 units to 3,300 to account for outperformance in 2023.

Why the Change

- To ensure consistency with our 2024 change order plan, we will provide both permanent and portable battery solutions under this program to better serve our customers' needs.
- Aligning with our three-year strategy while remaining committed to cumulatively providing 12,000 batteries across the WMP period.

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

Distribution Backlog Tags

Distribution Backlog Tags Target Change

What's Changed

Distribution Backlog Tags GM-03:
Adjusted the target for distribution backlog tags from 55,000 to 63,747 units across the WMP period.

GM-03 Target	2023	2024	2025	Cumulative
ACI PG&E-23-12	29,000	46,000	79,200	154,200
PG&E's Response (Actuals and Updated Target)	44,453 Actual	46,000 Target	63,747 Target	154,200

Why the Change

- Aligning with our desire to work down the backlog as soon as possible and incorporate Energy Safety's feedback (ACI PG&E-23-12).
- We adjusted our 2025 target to cumulatively address 154,200 backlog ignition tags across the 2023-2025 WMP Period.

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

Transmission Conductor Segment Replacement

New Transmission Conductor Segment Replacement Target

What's Changed

New 2025 target (System Hardening): Transmission Conductor Segment Replacement (GH-11) to perform conductor segment replacement on two transmission lines.

Why the Change

- This program and new target, aims to improve the resiliency of our system by replacing spans of conductor where there is no foreseen need for major structure replacement.
- Acceleration of the program also addresses ACI PG&E-22-14, which sought improvements related to "Decreased Transmission Hardening Targets" and demonstrates progress in this area in 2025.

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

Appendix

Asset and Vegetation Inspections Quarterly Target Updates

There are no changes to the annual targets for 2025. Quarterly targets for the Asset and Vegetation Inspection programs are updated to align with execution plans.

Total	Inspection Type	Changes
21 **Quarterly Inspection Targets**	8 Asset Inspection Targets	• Provide updated quarterly targets for 21 inspections. • Where needed/possible provide updated risk impact percentages.
	13 VM Inspection Targets	

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

26 ACIs from WMP Decision: 5 Reported in 2026-2028 WMP

Risk Assessment and Methodology (3)
PG&E-23-01. Cross-Utility Collaboration on Risk Model Development
PG&E-23-02. PSPS and Wildfire Risk Trade-Off Transparency
PG&E-23-03. Incorporation of Extreme Weather Scenarios into Planning Models

Wildfire Mitigation Strategy Development (1)
PG&E-23-04. 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

Grid Design and System Hardening (3)
PG&E-23-05. Updating Grid Hardening Decision Making
PG&E-23-06. Continuation of Grid Hardening Joint Studies
PG&E-23-07. Deployment of New Technologies

Asset Inspections (2)
PG&E-23-08. Covered Conductor Inspection and Maintenance
PG&E-23-09. Decrease in Detailed Distribution Inspections

Equipment Maintenance and Repair (3)
PG&E-23-10. Current Limiting Fuse Replacement
PG&E-23-11. Transformer Predictive Maintenance
PG&E-23-12. Distribution Backlog Open Tag Reduction Targets

Grid Operations and Procedures (2)
PG&E-23-13. Workforce Planning and Resource Allocation to Respond to EPSS Events
PG&E-23-14. Effectiveness Analysis for EPSS Including Implementation of DCD

Vegetation Management and Inspections (8)
PG&E-23-15. Implementation of Focused Tree Inspections and Addressing the Risk from Hazard Trees
PG&E-23-16. Updating the Wood Management Procedure
PG&E-23-17. Consolidation of Vegetation Inspection Programs
PG&E-23-18. Improving Vegetation Management Inspector Qualifications
PG&E-23-19. Continued Progression of Vegetation Management Maturity
PG&E-23-20. Reinspection of Trees in the Tree Removal Inventory
PG&E-23-21. Identification of High-Risk Species for Focused Tree Inspections
PG&E-23-22. Continuation of Effectiveness of Enhanced Clearances Joint Study

Situational Awareness and Forecasting (1)
PG&E-23-23. Weather Station Maintenance and Calibration

Community Outreach and Engagement (1)
PG&E-23-24. Evaluation of and Plan to Address of AFN Customers

Cross-Category (2)
PG&E-23-25. Fire Potential Index (FPI) and Ignition Probability Weather (IPW) Enhancements
PG&E-23-26. Evaluation and Reporting of Safety Impacts Relating to EPSS

ACIs in blue fonts are instructed to report in 2026-2028 WMP

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


PG&E
Q&A


SDG&E

2025 WMP Update Workshop

Jonathan Woldemariam & Joaquin Sebastian Peral

SDGE™

Agenda

- Risk Assessment
- Wildfire Mitigation Strategy
- Reportable Changes to Targets & Expenditures
- Summary

https://www.sdge.com/2025-wildfire-mitigation-plan

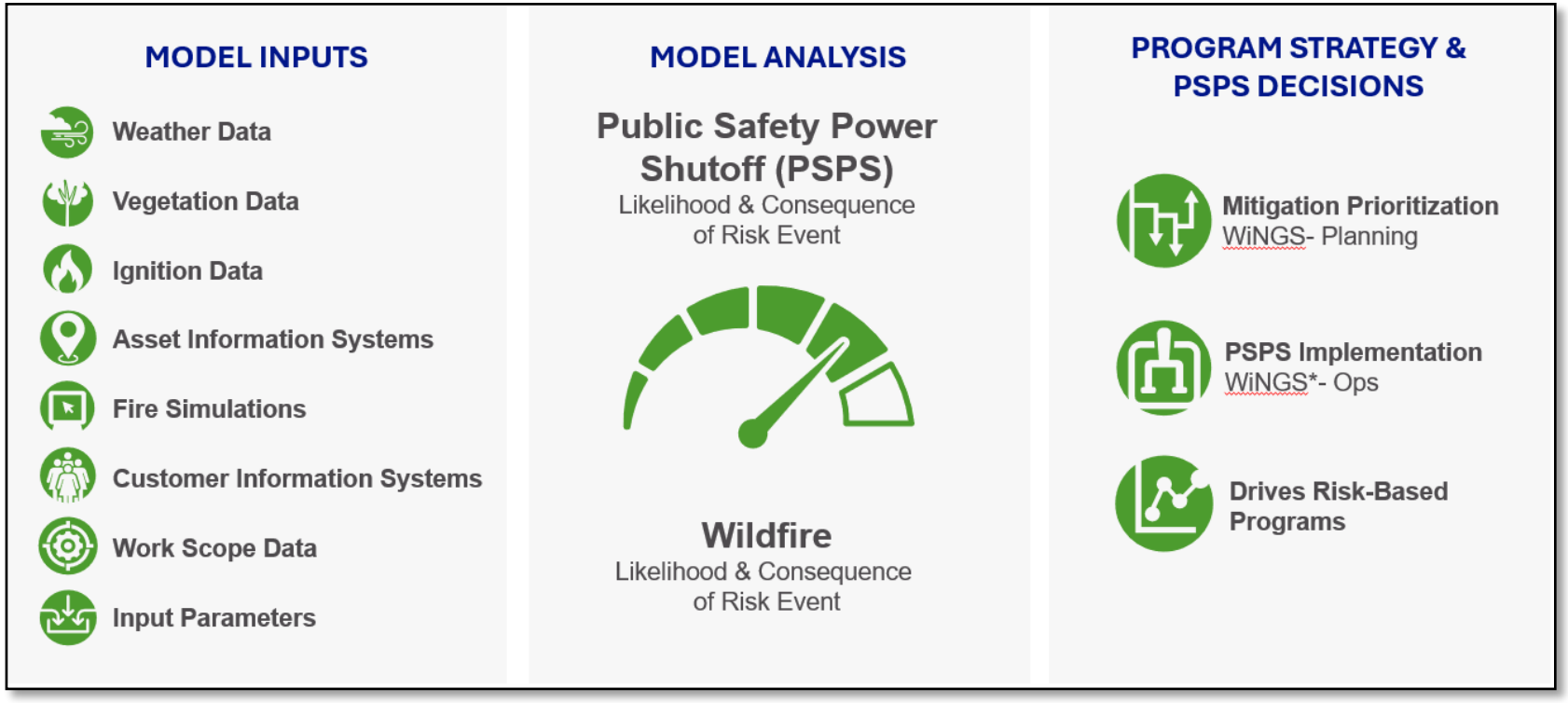
Risk Assessment

Joaquin Sebastian Peral, Wildfire Risk Analytics Manager

SDGE™

Risk Assessment

SDG&E continues to **innovate and improve** wildfire mitigation initiatives to **promote community safety** through enhancing risk-informed strategies, advancing technology integration, and continuing stakeholder engagement. In 2023, significant strides were made to **enhance risk modeling** capabilities. These improvements **continue to inform and refine** the Company's mitigation investment strategies and initiative selections, and **optimize** the ability to pinpoint mitigations to areas with the highest wildfire and PSPS risk.



Updates to Risk Models

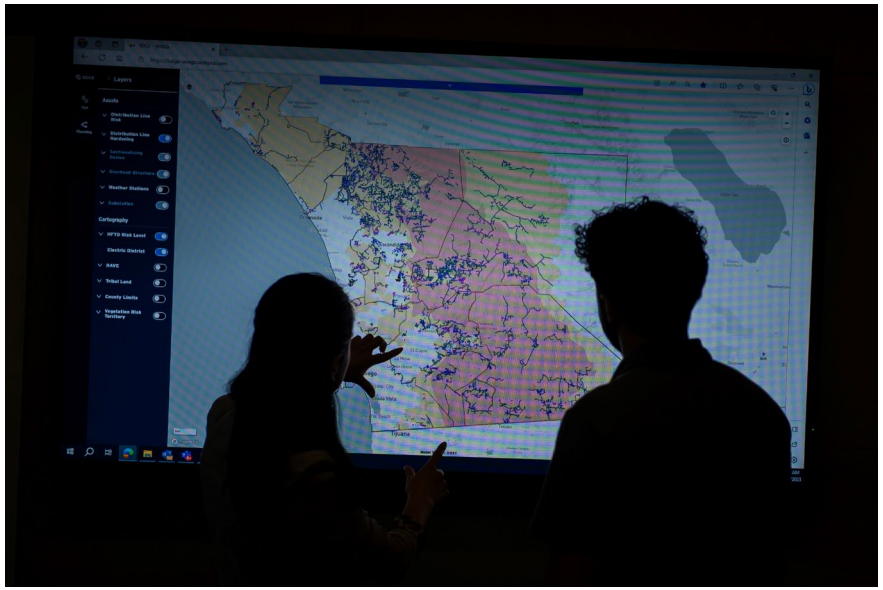
WiNGS-Planning and **WiNGS-Ops** model updates are categorized into the following key areas:

Model Enhancements to enhance their overall performance, validation, and utility.

Data Governance and Data Architecture to enhance traceability, efficiency, and organizational structure

Model Validation and User Acceptance to promote transparency and meet internal and external stakeholder expectations

Visualization Platform to promote effective communication and understanding of Wildfire and PSPS risk information.



1.1 Significant Updates

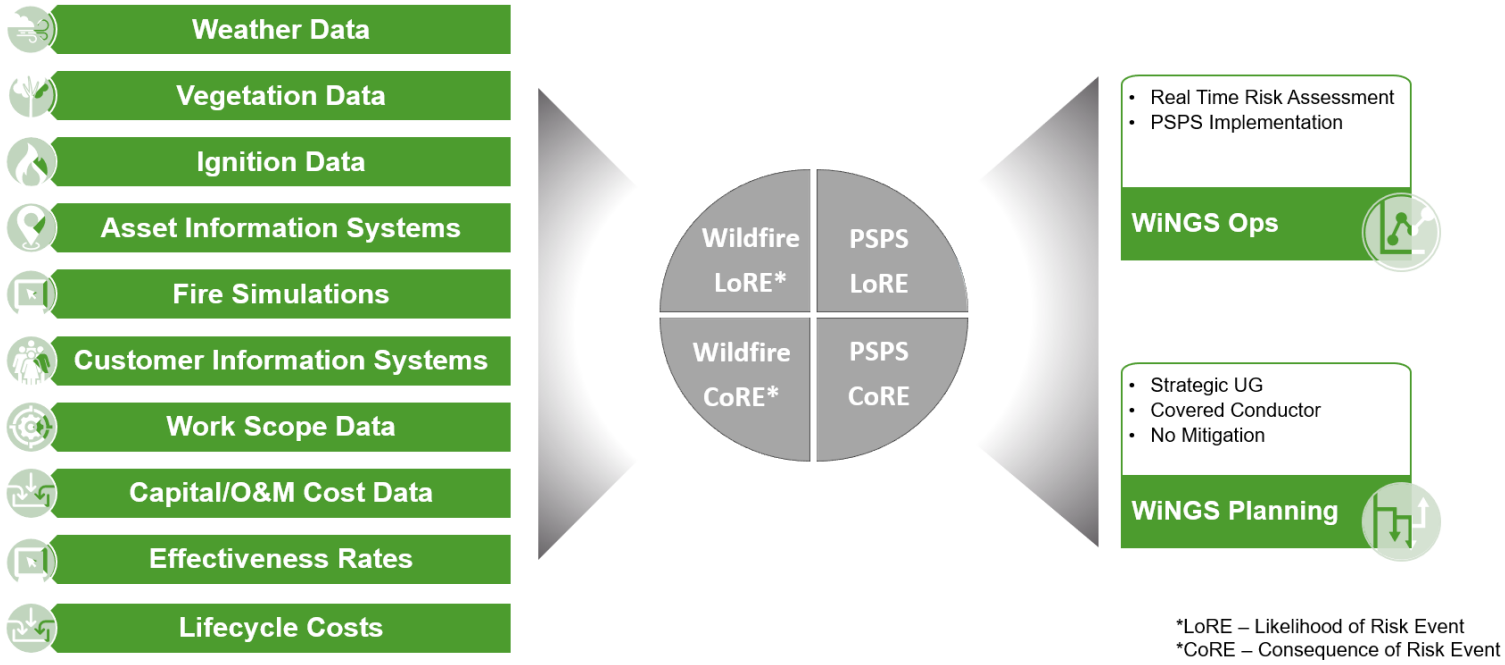
WiNGS Planning

- Upgrade PSPS Likelihood of Risk Event (LoRE) Risk Assessment
- Update Weather Station Wind Gust Attribute
- Enable Dynamic Upstream Tracing to Calculate Maximum Upstream PSPS Probability

**(Resulting in no prioritization changes)*

WiNGS Operations

- No Significant Updates



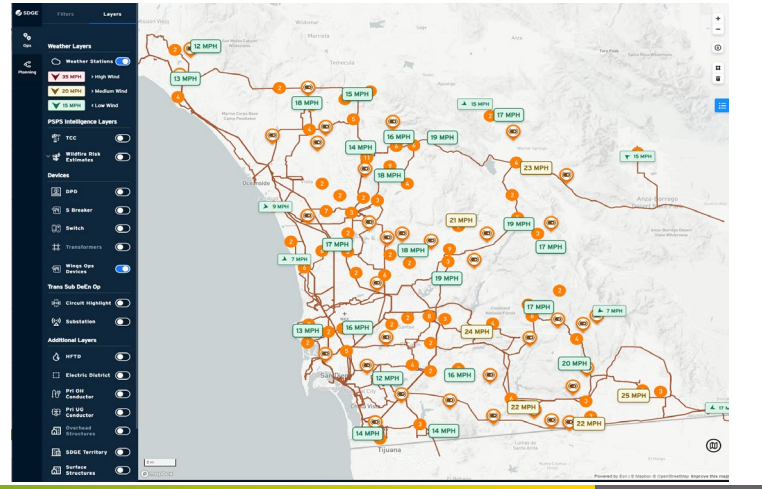
*LoRE – Likelihood of Risk Event
*CoRE – Consequence of Risk Event

1.1.2 Qualitative Updates

	WiNGS Planning	WiNGS Ops
Model Enhancements	9	11
Data Governance and Data Architecture	9	5
Model Validation and User Acceptance	1	5
Visualization Platform	1	6
	20	27

WiNGS Planning

WiNGS Operations



Risk Assessment and Methodology - ACIs

01

Cross-Utility Collaboration on Risk Model Development

Response:

- Participating in Joint IOU risk modeling working group
- Benchmarking against other IOUs in risk analytic practices
- Identifying potential areas of improvement
- Strengthened relationships and alignment with other IOUs and industry partners

02

Calculating Risk Scores using Maximum Consequence Values

Response:

- Current methodology uses the maximum acres burned and structures destroyed
- Exploring the use of probability distributions for consequence values
- Align with methodology outlined in CPUC Decision 22-12-027 shifting from MAVF to Cost Benefit Approach
- Transition plan develop for WiNGS-Planning for 2026-2028 WMP

03

PSPS and Wildfire Risk Trade-Off Transparency

Response:

- PSPS risk estimates at circuit level are generated but not integrated into the *selection* of appropriate mitigations
- PSPS risk estimates are leveraged during the scoping process to determine where PSPS benefits can be achieved while *prioritizing* wildfire mitigations

04

Incorporation of Extreme Weather Scenarios into Planning Models*

Response:

- Will report on progress developing statistical estimates of extreme weather scenarios in 2026-2028 WMP

*2026-2028 WMP Base Plan

Risk Assessment and Methodology - ACIs

05

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

Response:

- The joint IOUs participated in Energy Safety-organized activities related to these items and welcomes continued discussion on this topic

06

Demonstration of Proper Decision Making for Selection of Undergrounding Projects

Response:

- SDG&E intends to move from an operational approach (PSPS, situational awareness, sensitive relay profiles, and others) to a sustainable approach (reducing wildfire risk and PSPS impacts).
- Output of the WiNGS-Planning is evaluated through a WiNGS-Planning decision tree and a mitigation prioritization process to determine optimal mitigation approach, including undergrounding.
- A future version of the WiNGS Planning model is expected to include PSPS de-energizations as part of the RSE score and mitigation selection framework.

07

Third-Party Recommendations for Model Improvements

Response:

- Test development of the vegetation priority risk model
- Explore other mitigations in WiNGS-Planning
- Perform Sensitivity Analysis
- Incorporate Independent review recommendations into WiNGS-Planning and WiNGS-Ops

Wildfire Mitigation Strategy

Jonathan Woldemariam, Director

SDGE™

Our commitment to Wildfire Safety

With the safety and resiliency of the communities we serve as our top priority, SDG&E continues to invest in advancements, technologies and partnerships that:

- Strengthen and protect our infrastructure;
- Improve situational awareness and data analysis;
- Enhance weather prediction and risk modeling;
- Better inform investment strategies and decision-making;
- Prepare communities for increasing wildfire threats brought on by climate change; and

Move Towards Sustained Approach

SDG&E continues to move from a more operational (e.g., PSPS) wildfire safety approach to a more sustained approach (e.g., undergrounding)

Hierarchy of Controls

In our future state, SDG&E will utilize a more sustained approach:

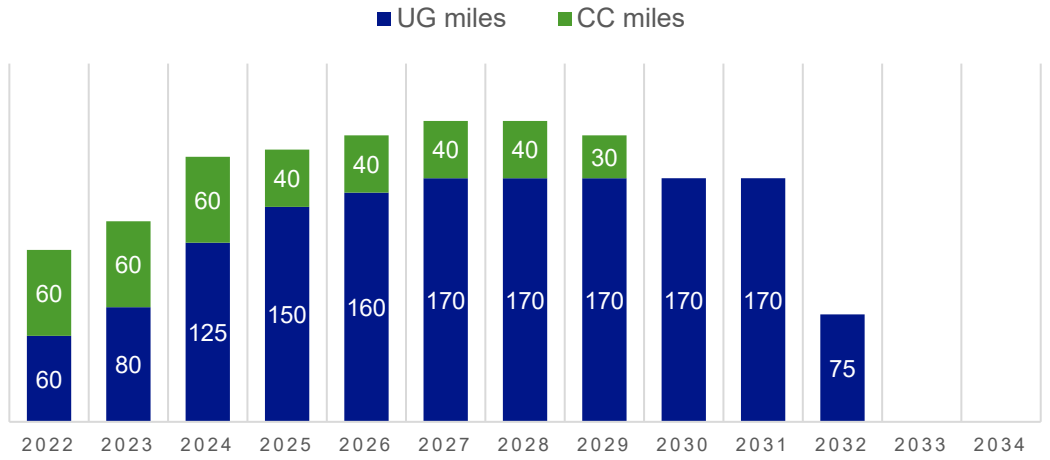
- Aims for a **permanent** and non-operationally dependent solution
- Seeking to minimize the **full-cycle cost of the hardening solution**
- Mitigate community impacts through a **data-driven methodology** that optimizes investment decisions.

Our current state is an operational approach:

- Heavily reliant on **PSPS and situational awareness mitigations** such as setting sensitive relay profiles (SRP) or sensitive ground faults (SGF)
- Some of which require **human intervention** which potentially can introduce **human error**
- Does **not completely eliminate** risk on the system

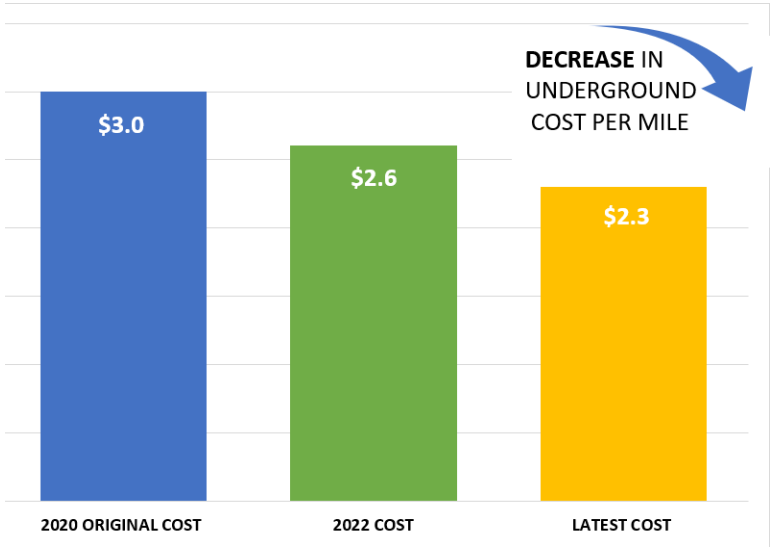
Our Approach

WILDFIRE MITIGATION SCOPE



TOTAL | **370 miles of Covered Conductor** **1500 miles UG**

HFTD Hardening	YTD 2023	2032
Undergrounding	2,847 miles (45%)	4,235 miles (65%)
Covered Conductor	119 miles (<2%)	392 miles (6%)
Traditional Hardening	891 miles (14%)	570 miles (9%)
Unhardened	2,400 miles (38%)	1,275 miles (20%)



Anticipate UG costs to go down by gaining efficiencies without compromising safety:

- Reduced trench depths
- Reduced conduit size when applicable
- Implementing new construction technology
- Strategically bidding and bundling projects
- Avoiding and coordinating resurfacing conflicts
- Streamlining and updating the processes, procedures, and policies

SDGE™

100% Risk-Informed
Industry-leading risk models informing grid hardening investments

80+% Wildfire Risk Reduction

93% PSPS Risk Reduction

Reportable Changes to Targets & Expenditures

Jonathan Woldemariam, Director

SDGE™

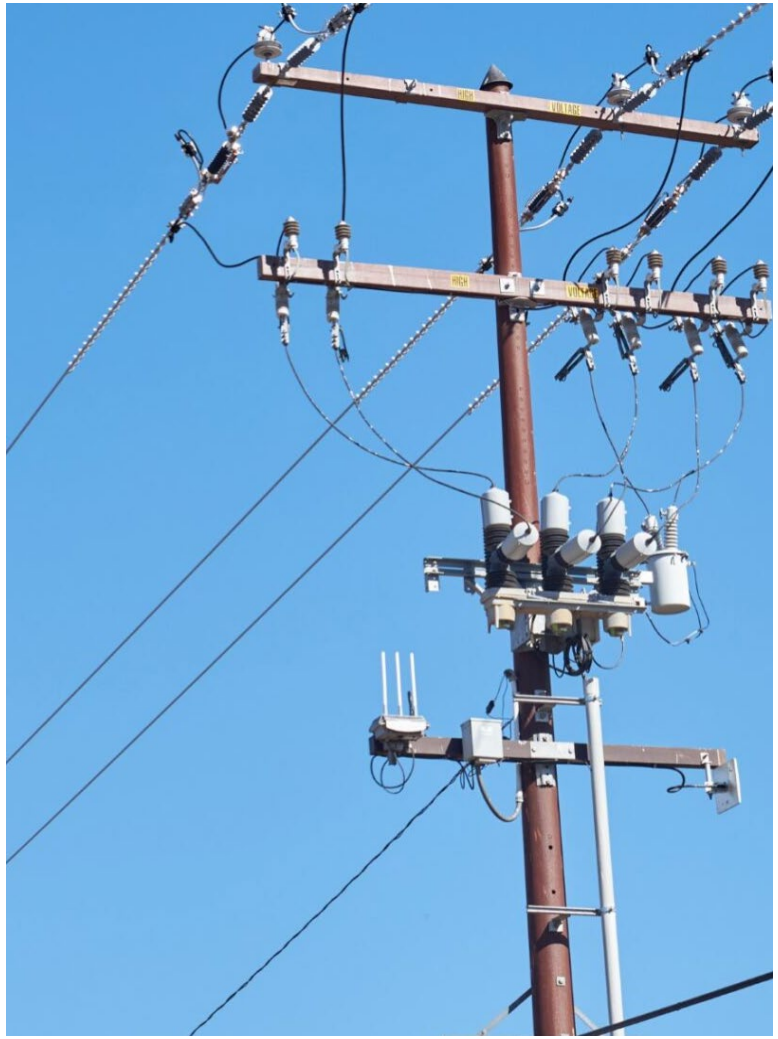
Reportable Changes to Targets and Expenditures Summary

21 TARGET CHANGES

34 EXPENDITURE CHANGES

2 NEW PROGRAMS

Grid Design and System Hardening

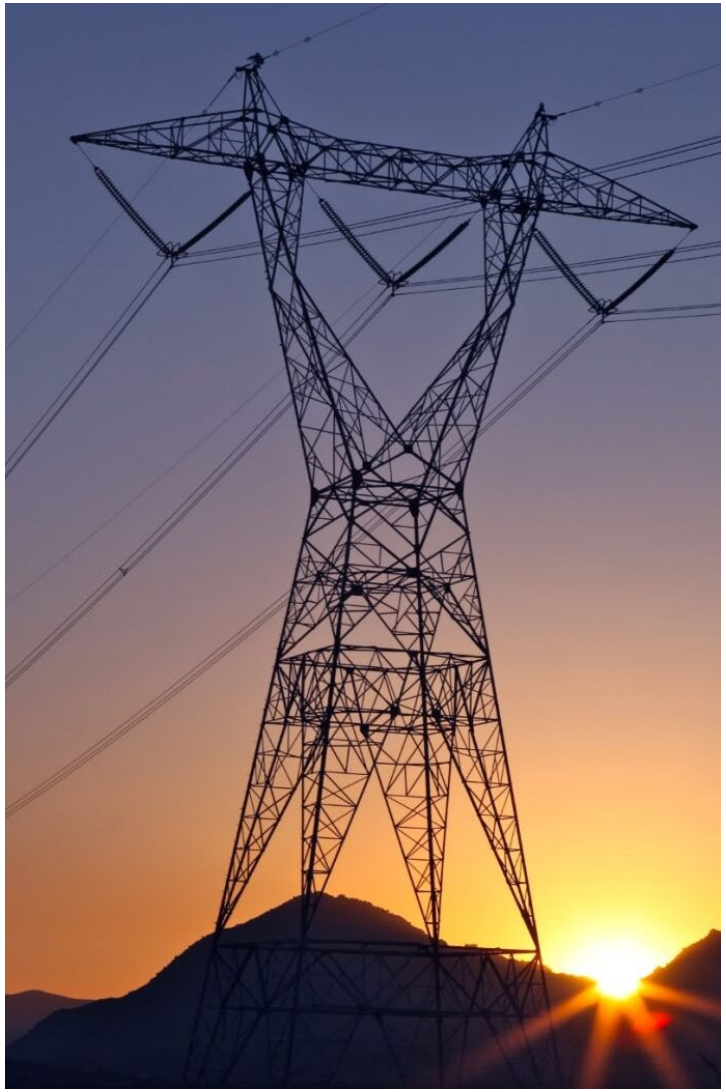


- Transmission Overhead Hardening
- Transmission Overhead Hardening – Distribution Underbuild
- Strategic Undergrounding
- Covered Conductor
- Strategic Pole Replacement
- Microgrids
- Advanced Protection
- Early Fault Detection
- Distribution Communications Reliability Improvements
- SCADA Capacitor Replacement
- Expulsion Fuse Replacement
- Hotline Clamps
- Lightning Arrester Removal/Replacement
- Avian Protection
- Wireless Fault Indicators
- PSPS Sectionalizing Enhancements
- Fixed Power Backup

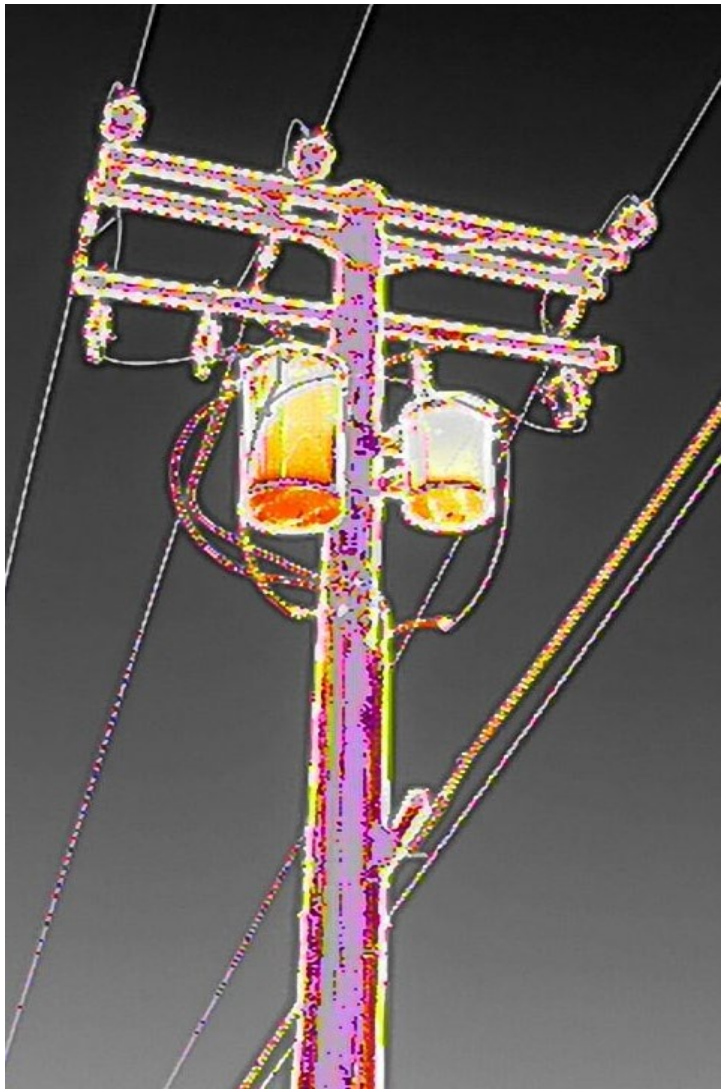
Grid Hardening Programs with most notable updates

Initiative	Target Change	CAPEX Change (thousands)	OPEX Change (thousands)	Reason
Covered Conductor	40 to 60 miles	+ $19,386	+ $2,498	Shift in work from 2024 to 2025 due to design delays
Strategic Undergrounding	150 to 125 miles	No reportable update	- $1,212	Revision to work scope and forecasting.
Strategic Pole Replacement	200 to 291 poles	No reportable update	- $506	Program expansion to include pole loading
Microgrids	0 to 2 microgrids	+ $14,127	No reportable update	Shift in work from 2024 to 2025 due to land rights, supply chain, increase labor costs
Transmission Hardening	10.2 to 4.64 miles	-	-	Shift in work from 2025 to 2024
Transmission Hardening – Distribution Underbuild	3.4 to 1.8 miles	+ $9,947	No reportable update	Shift in work from 2025 to 2024; higher costs due to projects beginning in 2025

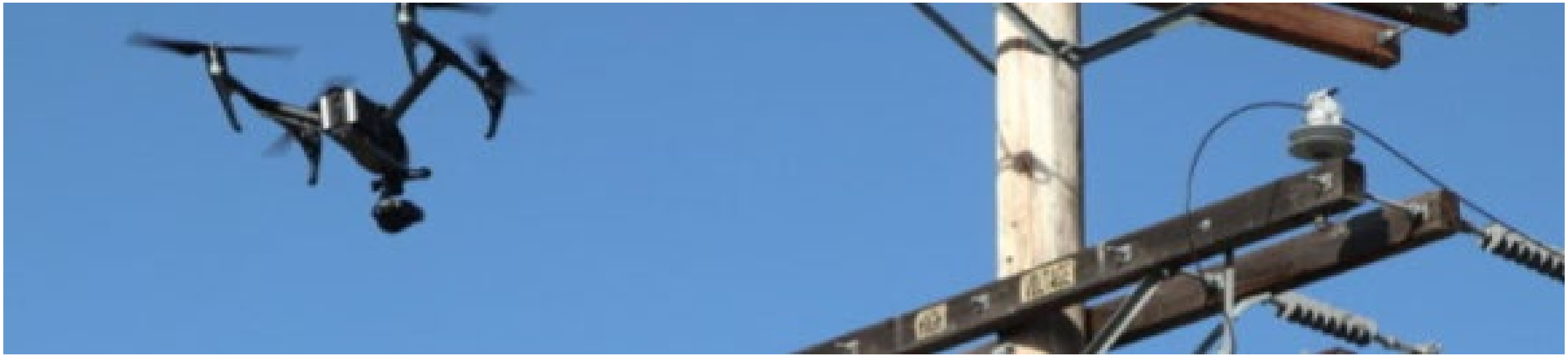
Asset Inspections



- Distribution Overhead Detailed
- Transmission Overhead Detailed
- Distribution Infrared
- Transmission Infrared
- Distribution Wood Pole Intrusive
- Transmission Wood Pole Intrusive
- Drone Assessments
- Distribution Overhead Patrols
- Transmission Overhead Patrols
- Transmission 69kV Tier 3 Visual
- Substation Patrols
- QA/QC of Transmission Inspections
- QA/QC of Distribution Detailed Inspections
- QA/QC of Drone Assessments
- QA/QC of Wood Pole Intrusive Inspections
- QA/QC of Substation Inspections



Asset Inspection Programs with most notable updates



Initiative	Target Change	CAPEX Change (thousands)	OPEX Change (thousands)	Reason
Drone Assessments	No change	+ $34,267	+ $18,834	Higher costs associated with higher-than-expected volume of findings from completed Tier 2 inspections
Transmission Detailed Inspections	1,979 to 2,479 inspections	+ $1,537	- $70	Including existing inspections performed in the WUI within WMP scope
Transmission Infrared Inspections	6,179 to 7,331 inspections	-	-	Including existing inspections performed in the WUI within WMP scope
Transmission Patrol Inspections	6,337 to 7,533 inspections	-	-	Including existing inspections performed in the WUI within WMP scope
Distribution Infrared Inspections	9,532 to 300 inspections	-	- $165	Transition to risk-based program
QA/QC of Distribution Detailed	66 inspections to 50% of findings	-	-	Align with Energy Safety feedback on 2023-2025 WMP Update.

New Programs

Initiative	Target	CAPEX (thousands)	OPEX (thousands)	Reason
Weather Station Maintenance and Calibration	216 stations	$140	-	Evolving from Weather Station installations and upgrades to maintenance of existing stations
Air Quality Station Maintenance	16 sensors	-	$74	Evolving from Air Quality sensor installations to maintenance of existing sensors

Areas of Continued Improvement

11

Changes to Scope of Falling Conductor Protection (FCP) Program

Response:

- Scoping for FCP will not change based on the result of the joint IOU combined efficacy study.
- Approximately 60 circuit segments were descoped from FCP and have been targeted for strategic undergrounding

12

Covered Conductor Inspection and Maintenance

Response:

- In 2024, new condition codes will be added to the SAP CMP
- The training curriculum will be updated to include a description of potential issues inspectors should be looking for during Distribution Overhead Patrol Inspections.
- A limited number of Distribution Infrared inspections will be performed to determine if thermography is useful in identifying potential damage conditions to the covered conductor.

13

QA/QC for Inspections

Response:

- Drone inspections are performed on structures in the HFTD and the WUI and are not used to conduct QA/QC for detailed inspections.
- QA/QC audits typically occur within 3 months of the inspection. Pass/fail results were not tracked between 2021 and 2023.
- In the future, supervisors will assess 50% of identified issues, 5% of inspections will be audited via field visits, and desktop review performed within 1 month of the inspection. In addition, pass/fail audit results will be tracked, and trends will be monitored.

14

Weather Station Maintenance and Calibration

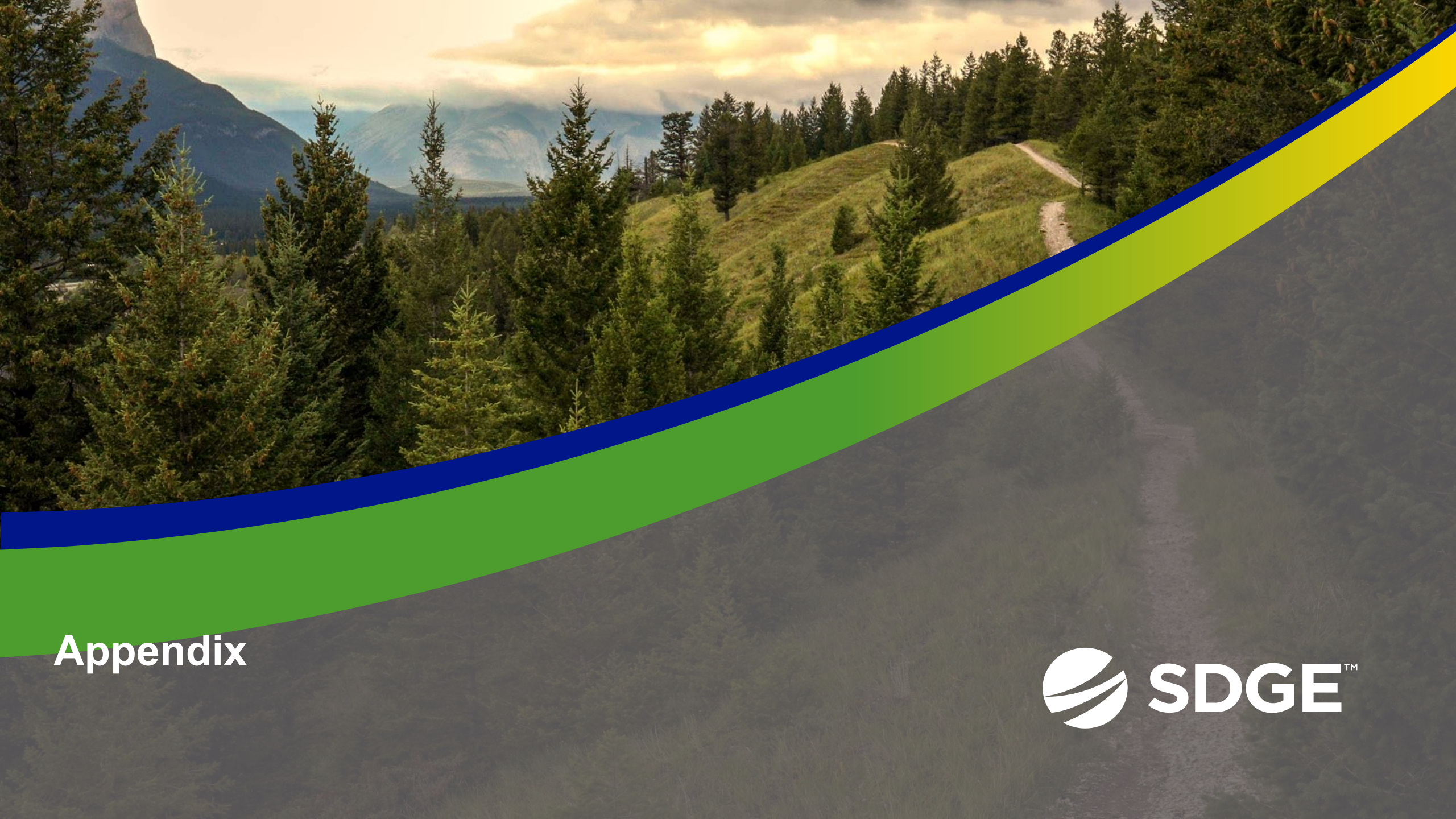
Response:

- SDG&E maintains 216 of its 222 weather stations and Forest Technology Systems (FTS) maintains 6 weather stations.
- In 2024, Weather Station Maintenance and Calibration initiative will report on existing annual maintenance activities through QDR process.

2025 WMP Update - Key Takeaways

- **Enhance risk modeling** capabilities to inform and refine SDG&E's mitigation investment strategy
- Continuous evaluation and **implementation of new technologies**, further **advancing data science** methodologies to improve predictive analytics and explore further automation of fire detection capabilities
- Aim to **expand collaboration** with other IOUs, academia, agencies, and members of the public to continue to support communities and protect customers from the risks of wildfire and PSPS impacts.

> **Help significantly reduce the risk of utility-related wildfire and the impacts of PSPS within our service area.**



Appendix

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Section 5 – Areas for Continued Improvement (ACIs)

Risk Assessment and Methodology (4)
SDG&E-23-01. Cross-Utility Collaboration on Risk Model Development
SDG&E-23-02. Calculating Risk Scores Using Maximum Consequence Values
SDG&E-23-03. PSPS and Wildfire Risk Trade-Off Transparency
SDG&E-23-04. Incorporation of Extreme Weather Scenarios into Planning Models

Wildfire Mitigation Strategy Development (3)
SDG&E-23-05. 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
SDGE-23-06. Demonstration of Proper Decision Making for Selection of Undergrounding Projects
SDGE-23-07: Third-Party Recommendations for Model Improvements

Grid Design and System Hardening (4)
SDG&E-23-08. Continuation of Grid Hardening Joint Studies
SDG&E-23-09. New Technologies Evaluation and REFCL Implementation
SDG&E-23-10. Early Fault Detection Implementation
SDG&E-23-11. Changes to Scope of Falling Conductor Protection Program

Asset Inspections (2)
SDG&E-23-12. Covered Conductor Inspection and Maintenance
SDG&E-23-13. QA/QC for Inspections

Equipment Maintenance and Repair (1)
SDG&E-23-14. Equipment Maintenance and Repair Maturity Level

Grid Operations and Procedures (1)
SDG&E-23-15. Evaluation of Sensitive Relay Profile in Highest Risk Areas

Vegetation Management and Inspections (2)
SDG&E-23-16. Updates on Identifying Additional, Proactive HFTD Inspections
SDG&E-23-17. Continuation of Effectiveness of Enhanced Clearances Joint Study

Situational Awareness and Forecasting (2)
SDG&E-23-18. Update Targets Table with Planned Improvements' Measurable Targets
SDG&E-23-19. Weather Station Maintenance and Calibration

Emergency and Disaster Preparedness (0)
No ACI's noted.

Community Outreach and Engagement (0)
No ACI's noted.

Thank You

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SDG&E
Q&A

LUNCH BREAK

Back at 1:30pm


BEAR
VALLEY



Bear Valley
Electric Service, Inc.
A Subsidiary of American States Water Company

BVES
2025 Wildfire Mitigation Plan
Group 1 Workshop

Paul Marconi, President & Jon Pecchia, Utility Manager

April 25, 2024

Outline

Bear Valley Electric Service, Inc.
A Subsidiary of American States Water Company

- BVES Service Area Overview
- WMP Accomplishments
- Risk & Risk Analysis Update
- General Report Update
- New Programs
- Area for Improvement: Inspection QA/QC Programs

Service Area Overview

Bear Valley Electric Service, Inc.
A Subsidiary of American States Water Company

Location: 32 square miles of rural and mountainous terrain at approximately 7,000 ft. in San Bernardino Mountains (80 miles East of Los Angeles). Entire Service Area is > 3,000 ft. elevation requiring more resilient construction standards.

Key jurisdictions: County of San Bernardino, City of Big Bear Lake, U.S. Forest Service, CALTRANS

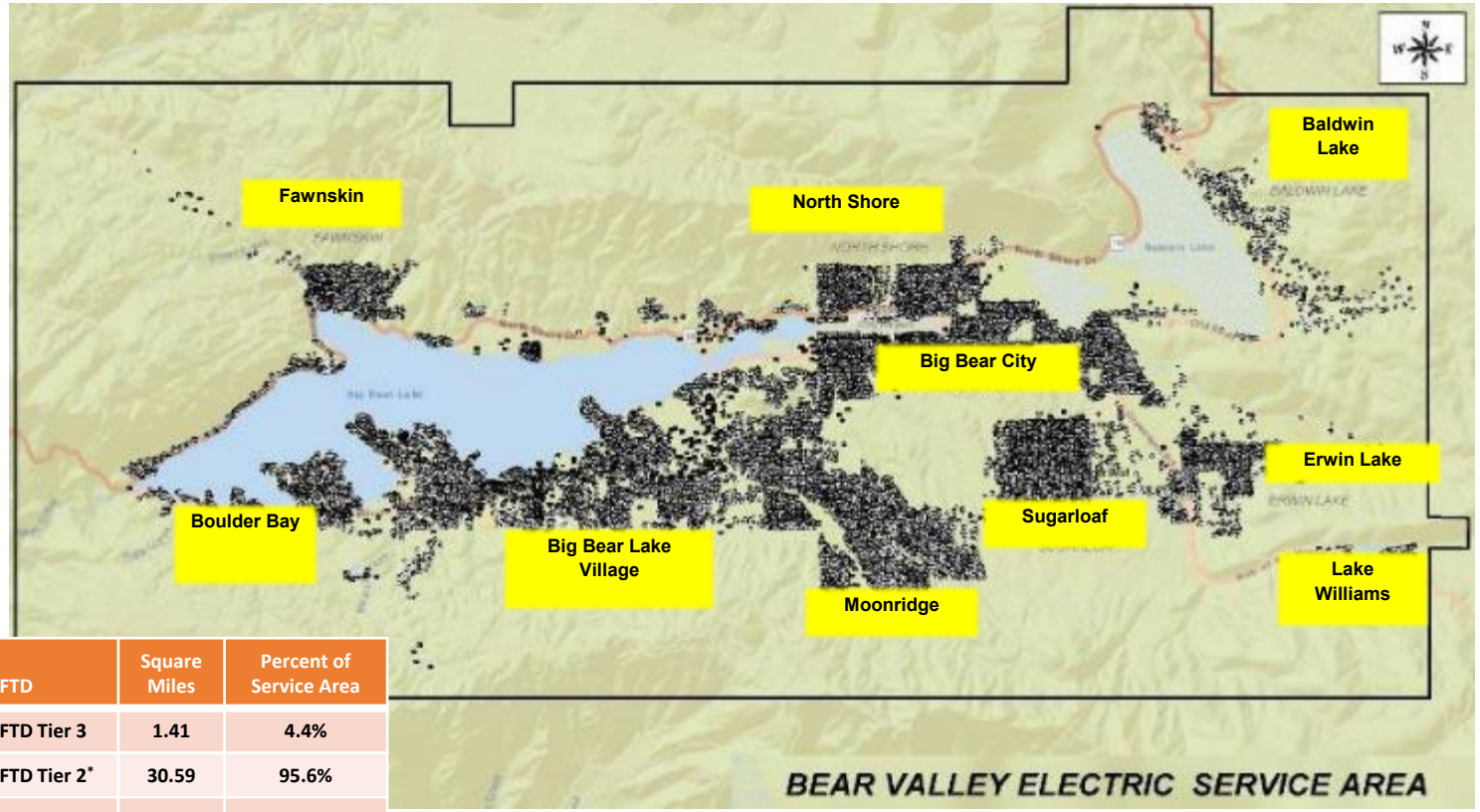
Customer Meters: 24,826 total [Residential: 23,238; Commercial: 1,501; CARE: 1,638; AFN: 694]

As of April 17, 2024, BVES's safety record:

- **Accident/injury free for 79 days.**
- **No employee fatalities in over 20 years.**
- **No employee contact with High Voltage in over 10 years.**
- **No ignitions in over 20 years.**
- **No wildfires ever.**

Electrical System:

- **Transmission:** BVES does not own or operate any transmission systems (66 kV or greater).
- **Sub-transmission (34.5 kV)**
  - 12.6 circuit miles bare overhead conductor (42.3%)
  - 16.3 circuit miles covered overhead conductor (54.7%)
  - 0.9 circuit miles underground (3.0%)
- **Distribution (4 kV)**
  - 145.5 circuit miles bare overhead conductor (61.9%)
  - 36.4 circuit miles covered overhead conductor (15.5%)
  - 53.2 circuit miles underground (22.6%)
- **Substations:** 13
- **Supply Lines:** 39 MW total
- **Bear Valley Power Plant:** 8.4 MW
- **Service Area Renewable Generation:** 6.16 MW
- **NEM + DGS customers:** 626
- **EV customers:** 15
- **Load is winter & evening peaking**
  - Historical peak: 46 MW (2021)
  - Load delivered: 138,272 MWh (2023)
  - 41.3% qualified to Renewable Portfolio Standards



HFTD	Square Miles	Percent of Service Area
HFTD Tier 3	1.41	4.4%
HFTD Tier 2*	30.59	95.6%
Total	32	

*1.78 sq. mi. (5.6%) is Big Bear Lake (no assets).

Highlights of WMP Initiative Accomplishments

Bear Valley Electric Service, Inc.
A Subsidiary of American States Water Company

Covered Wire Program
34.5 kV: 42.3% Bare, 54.7% Covered, & 3.0% Underground (Installed 16.3 circuit miles of covered wire).
4 kV: 61.9% Bare, 15.5% Covered, & 22.6% Underground (Installed 36.4 circuit miles of covered wire).

Radford Line Replacement Project
Obtained USFS permit for project to replace a bare wire sub-transmission line and 95 wood poles with high-performance covered conductor and fire resistant (ductile iron) poles located in High Fire Threat District Tier 3 ("extreme fire risk"). Start construction May 2024 and complete by end of 2024.

Expulsion Fuse Program
All 3,114 expulsion fuses were replaced with current limiting or electronic fuses. There are no expulsion fuses in BVES system.

Pole Loading Assessment Program
Poles tested: 4,063; Poles replaced: 1,490; Poles remediated: 366.

Tree Attachment Removal Program
Tree Attachments removed: 809; Tree Attachments remaining: 398.

Evacuation Hardening Program
Installed wire mesh on 2,506 wood poles; replaced 335 wood poles with 102 fire resistant composite poles and 233 lightweight steel poles.
2,841 poles (approximately 31.9% of BVES's poles) have been hardened for evacuation purposes.

Substation Automation Program
6 of 13 substations fully automated. By the end of 2024, 11 of 14 substations will be fully automated.

Switch & Field Device Automation Program
13 switch of 40 fully automated. By the end of 2024, 23 of 40 switches will be fully automated.

Capacitor Bank Replacement and Automation Program
6 of 24 capacitor banks fully automated. By the end of 2024, 12 of 24 capacitor banks will be fully automated.

Fuse TripSaver Automation Program
10 of 190 Fuse TripSavers fully automated. By the end of 2024, 60 of 190 Fuse TripSavers will be fully automated.

Weather Stations
Installed 20 weather stations throughout the service area.

Fault Localization Isolation and System Restoration (FLISR)
Installed 10 IntelliRupter Switches on sub-transmission system loop to establish a FLISR self-healing system.

Risk Modeling
Developed full field effect wildfire probability and consequence maps for 2021 & 2050 (REAX Engineering) and implemented Technosylva's Wildfire Analyst Enterprise (WFA-E) and FireSight Model. Implemented BVES specific Fire Potential Index (Technosylva model).

Advanced Inspection
Established routine of conducting annual LiDAR, UAV Photography & Videography, UAV Thermography, and 3rd Party Independent Patrols of the entire system. These are in addition to GO-165 Detailed & Patrol Inspections and conducting 850 intrusive wood pole inspections per year.

Enhanced Vegetation Management
Implemented increased radial clearances on all power lines and "blue-sky" requirement on sub-transmission lines. Removed 795 hazard trees.

Vegetation density in right of ways has been significantly reduced (as measured by LiDAR):
2020: 25.4%
2022: 20.2%
2023: 15.4%
Since 2019, BVES's vegetation management program has removed 795 hazard trees and trimmed 35,101 trees.

Date	System Risk (Per Fire Safety Model)
12/31/2019	115,969
12/31/2020	110,745
12/31/2021	90,386
12/31/2022	81,829
12/31/2023	74,354
12/31/2024	37,626*
12/31/2025	26,243*
12/31/2033	8,520*

*Projected risk score base on planned initiatives.

Fire Potential Index

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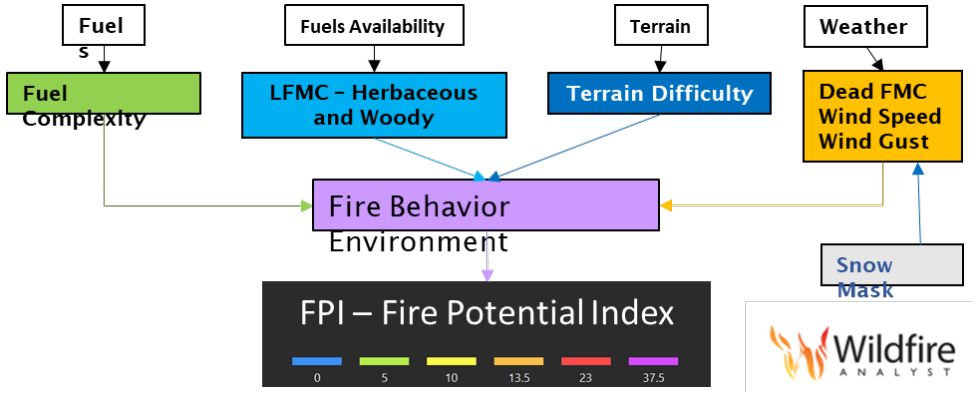
- **Implemented FPI developed by Technosylva specific to BVES's service area.**
- **Fire Potential Index quantifies the fire activity potential over the territory based on different parameters including fuels, terrain and weather.**
  - **Uses machine learning to perform historical climatology and wildfire re-analyses.**
  - **Empirically trained and validated with real fire activity.**
  - **Based on the Uber H3 Hexagon spatial framework.**
  - **Allows better temporal and spatial analysis.**



<u>Operational actions, PSPS preparatory actions,</u> and **<u>PSPS activation</u>** are dependent on FPI value and actual field conditions.

FPI Category	Very Low and Low	Moderate	High	Very High/Extreme
Auto-Reclosers and Protective Switches with Reclosing Capability	Automatic[1]	Manual	Manual (Non-Automatic)	Manual (Non-Automatic)
Fuse TripSavers	Automatic[1]	Automatic[1]	Manual (Non-Automatic)	Manual (Non-Automatic)
Designate which circuits are under:(1)Consideration(2)In Scope	No	No	Yes	Yes
Deploy Wildfire Risk Team(s) to circuits "In Scope".	No	No	Yes[4]	Yes
Cease using any spark producing tools and equipment for circuits under consideration or in scope.	No	No	Yes	Yes
Cease vegetation management work for circuits under consideration or in scope.	No	No	Yes[5]	Yes
Cease "high risk" energized line work for circuits under consideration or in scope.[6]	No	No	Yes	Yes
Forward to Field Operations updated list of medical baseline customers and impacts access and functional needs population.	No	Yes	Yes	Yes
Review Local Government, Agencies, First Responders, Critical Infrastructure, and Stakeholder notification lists and procedures.	No	Yes	Yes	Yes

FPI Category	Very Low and Low	Moderate	High	Very High/Extreme
Review customer notification procedures.	No	Yes	Yes	Yes
Activate EOC.	No	No	Yes[7]	Yes
Initiate Local Government, Agencies, First Responders, Critical Infrastructure, and Stakeholder notification in accordance with BVES PSPS Procedures.	No	No	Yes[8]	Yes[8]
Initiate customer notification in accordance with BVES PSPS Procedures.	No	No	Yes[8]	Yes[8]
Prepare Bear Valley Power Plant for sustained operations.	No	No	Yes	Yes
Conduct switching operations to minimize impact of potential PSPS activity	No	No	Yes	Yes
Activate first responder, local government and agency, customer and community, and stakeholders PSPS communications plan.	No	No	Yes[9]	Yes[9]
Activate Community Resource Centers.	No	No	Yes[10]	Yes
Invoke Public Safety Power Shutoff.	No	No	Yes[11]	Yes[11]

FPI categories	FPI value	FPI percentile
Very Low	< 5	<60
Low	5-10	60-80
Moderate	10-13.5	80-85
High	13.5-23	85-95
Very High	23-37.5	95-99
Extreme	> 37.5	>99

PSPS de-energization of circuits is a measure of last resort invoked based on actual extreme fire threat conditions in the field.

Dynamic Risk Models – Utility Risk

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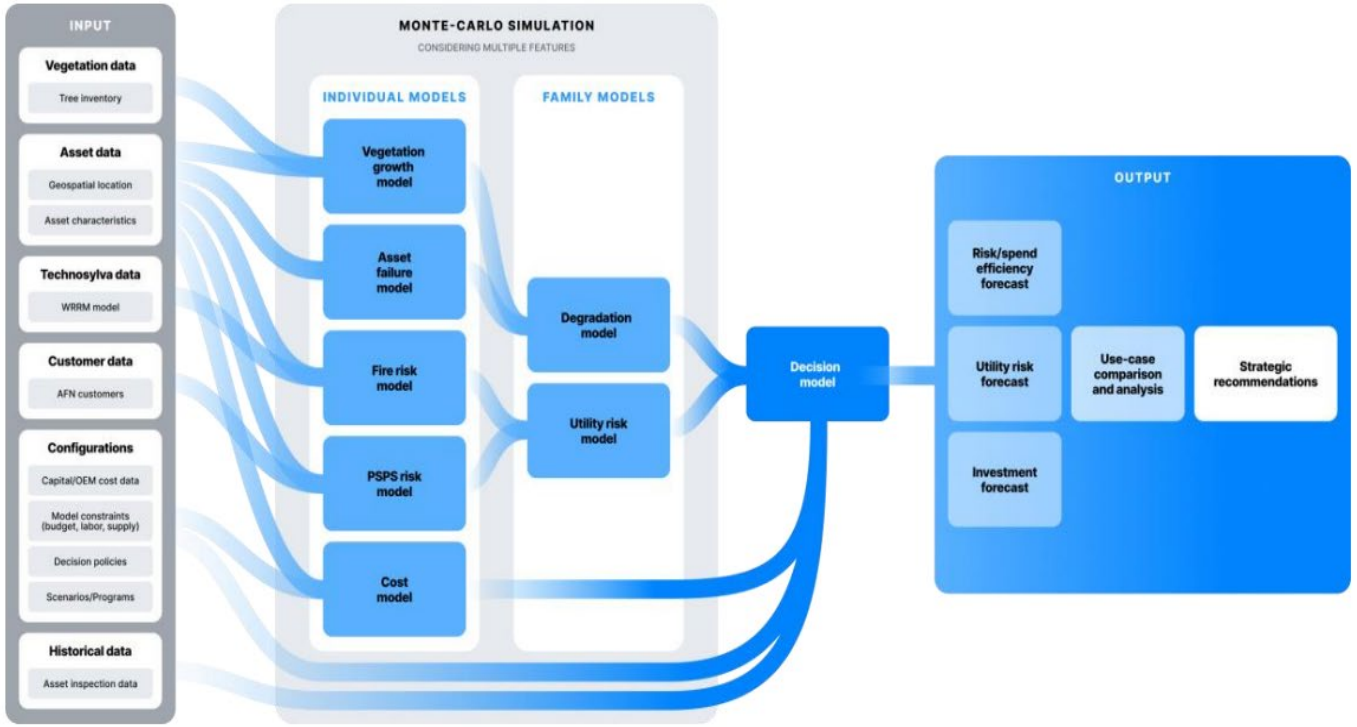
Utility Risk (developed by Direxyon) is the weighted product of Wildfire Risk and PSPS Risk.

Wildfire Risk

- Wildfire Probability
  - **POI:** Probability of Ignition (from Technosylva)
  - **POF:** Probability of Asset Failure (from Technos
  - **Condition modifiers:** SME defined
- Wildfire Consequence
  - **Wildfire Exposure Potential**
    - Population Affected
    - Buildings Affected
    - Acres Burned
  - **Wildfire Vulnerability**
    - Customer Data (customer counts)



PSPS risk

- PSPS Probability (FPI)
- PSPS Consequence (PSPS Exposure -Technosylva and Customer weighted data)
- PSPS Vulnerability (Customer weighted data)

Asset Hardening Risk Model - FireSight

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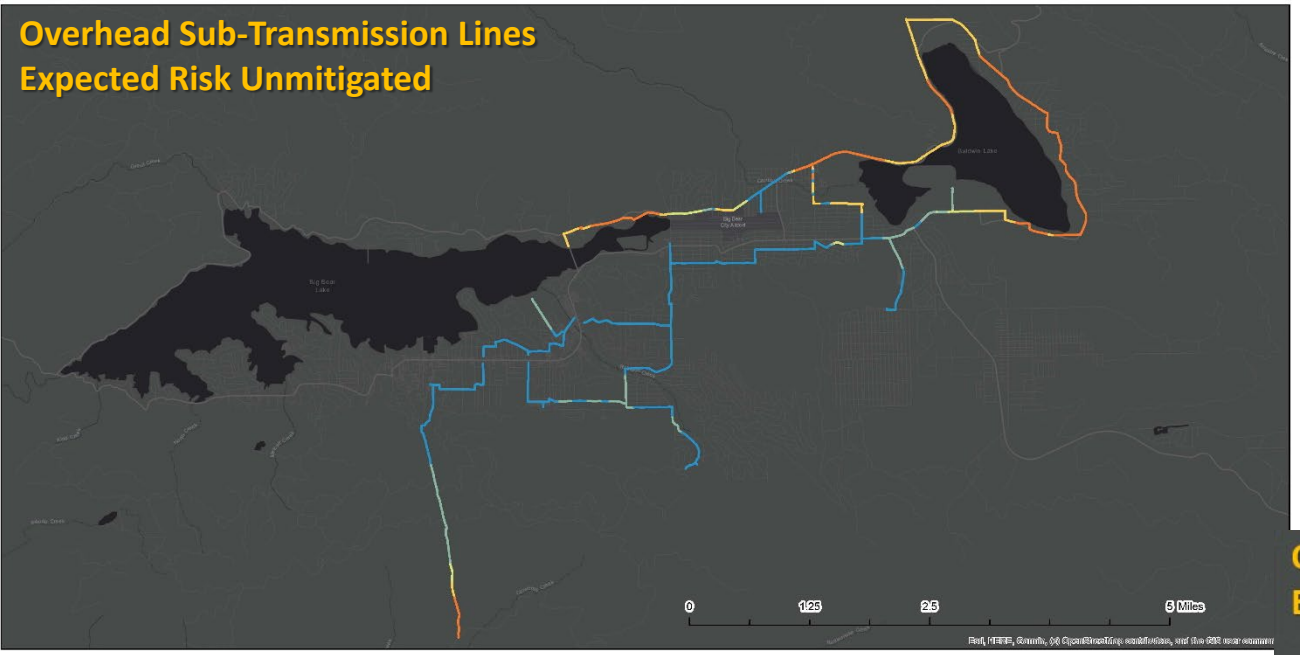
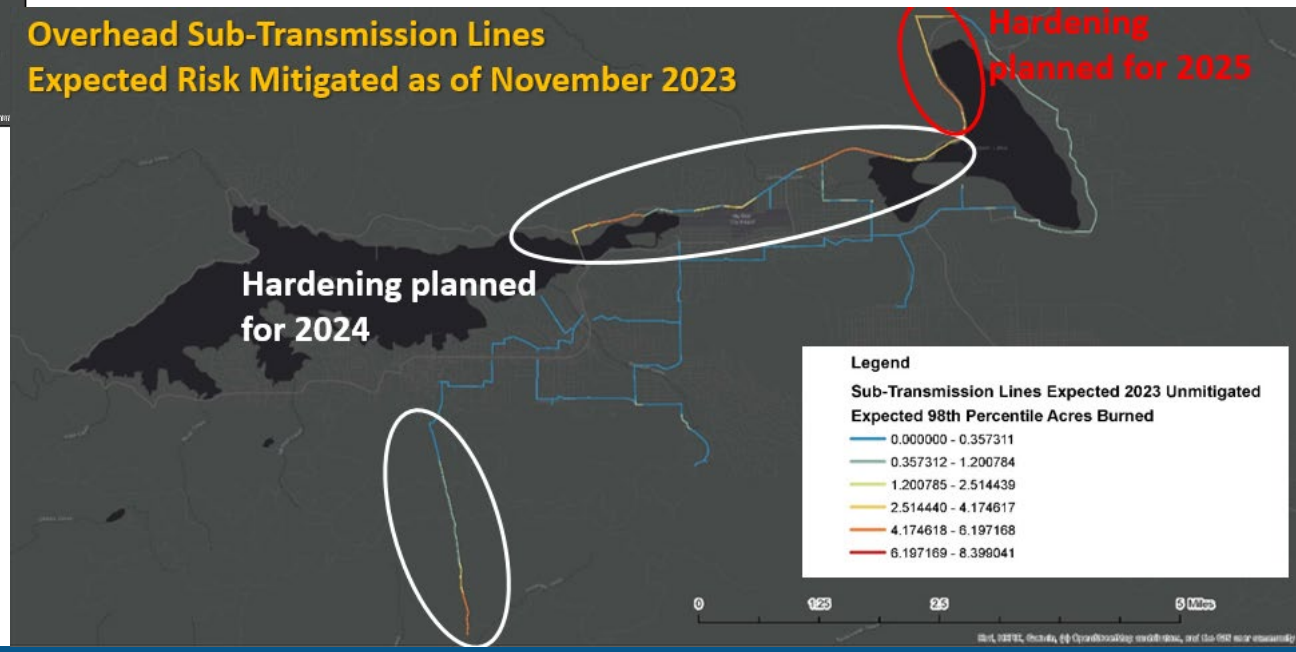


Technosylva's FireSight model integrates equipment failure and ignition probability data for assets with individual fire spread predictions to determine which assets are most likely to fail and cause an ignition.

- **FireSight** model (formally the Wildfire Risk Reduction Model (WRRM)) was implemented in February 2023
- Model assumed no WMP grid hardening initiatives (map above)
- As of November 2023, map includes WMP grid hardening initiatives (map to right)
- Similar maps were created for the Distribution System (4 kV)
- Maps prioritize grid hardening efforts



General Report Update

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Radford Line Replacement

- USFS Permit obtained: Jan 3, 2024
- Construction begins: May/June 2024

Covered Conductor and Pole Replacement

- Exceeded Plan in 2023
- For 2025 to complete the Initiative
  - **Circuit miles:** reduced to 5.1
  - **Pole replacements:** reduced to 100

Adjustments to Upgrades for Substations

- Maltby: rescheduled for 2025
- Lake: rescheduled for 2026
- Village: rescheduled for 2027

New Program - Satellite Imaging to Monitor Vegetation Encroachment

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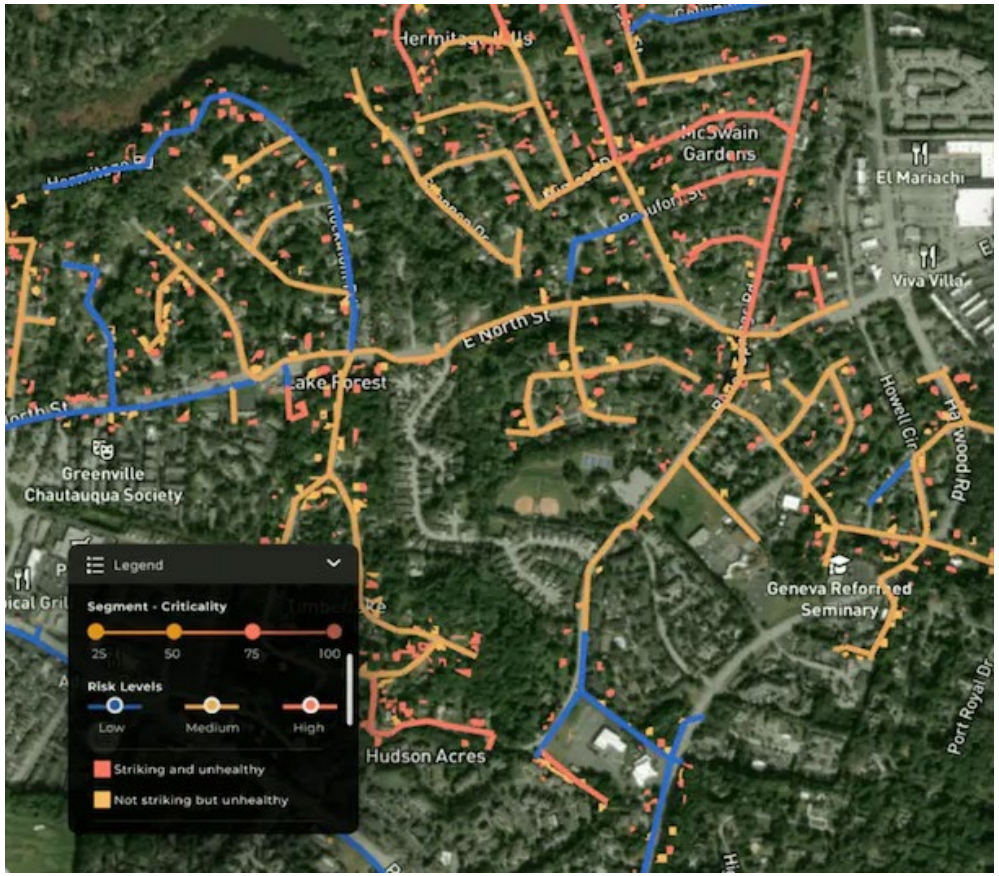
BVES is utilizing satellite data to assist with vegetation management in partnership with AiDash.

The first survey identified 3.5 circuit miles of overhead lines to visit for potential issues, which had been next on BVES's cycle schedule.

- **Contractor:** AiDash
- **Benefits:**
  - Provides a quick gross assessment of areas for vegetation management
  - Compliments LiDAR, UAV Photography/Videography, UAV Thermography, 3rd Party Independent Patrols, and BVES GO-165 Detailed & Patrol Inspections



New Program - Inspection Camera Pilot

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BVES is conducting a pilot program to install cameras that continuously monitor the pole line in partnership with Green Grid Inc.

Utilizing artificial intelligence, the system autonomously monitors vegetation growth, assets, physical conditions, and ignitions.

Contractor: Green Grid Inc. (GGI)

Benefits:

- Advises the need for pole maintenance and management
- Provides remote maintenance inspections
- Informs operations crews on potentially hazardous events
- Reduced risk to the humans and environment.
- Provides information for extreme weather event recovery
- Expedites PSPS power restoration operations
- Reduced operational costs

Area for Improvement: Inspection QA/QC Programs

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- Asset Inspection QA/QC Programs
  - BVES has finalized written QA/QC procedures for the following inspections: Detailed, patrol, UAV thermography, UAV photography/video, LiDAR, intrusive pole, and substation.
  - Standardized inspection forms for each type of inspection.
  - Photographs are taken during inspections with timestamping and stored.
- Vegetation Management Quality Control Programs.
  - Added additional qualifications for Quality Control Personnel
  - Added the requirement that a certified arborist must conduct 100% QC checks of tree trimming activities in the BVES territory.

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Questions

15-MINUTE BREAK

Back at 2:30 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 1 ECs are due May 7, 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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715 P Street, 20th Floor
Sacramento, CA 95814
916.902.6000