



Risk-Informed Wildfire Mitigation Strategies and Strategic Communications

Guidebook for Utilities

May 2026



Version 3

Message paid for by customers.

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01 Introduction

Since 2020, the world has experienced four of the five worst years on record for global forest fires, measured by tree cover loss.¹ Looking ahead, the United Nations predicts that extreme fires will increase worldwide by up to 14% by the end of this decade.²

The types of areas impacted by wildfires are growing, too. Lower-risk regions, such as the tropics and colder northern climates, are experiencing more extreme fires. This trend is driven in part by weather whiplash—characterized by sudden swings between very wet and very dry conditions, which greatly increase vegetation growth and then rapidly dry these potential wildfire fuels, creating elevated risk.

Climate change and weather whiplash continue to drive increased wildfire risk here in California as well, with periods of historic drought and high winds followed by intense swings from heavy precipitation to hot, dry seasons. In 2024 and 2025, California saw the most large fires greater than 10 acres than in any year since 2017. In January 2025, the Los Angeles area experienced two of the state's three most destructive wildfires on record, the Eaton and Palisades Fires. These devastating fires brought national attention to the evolving wildfire risk faced even in our urban communities, and the critical need for utilities to partner with these communities to adapt to the changing profile of this risk.

¹World Resources Institute; wri.org/insights/global-trends-forest-fires

²United Nations Environment Programme; unep.org/resources/report/spreading-wildfire-rising-threat-extraordinary-landscape-fires

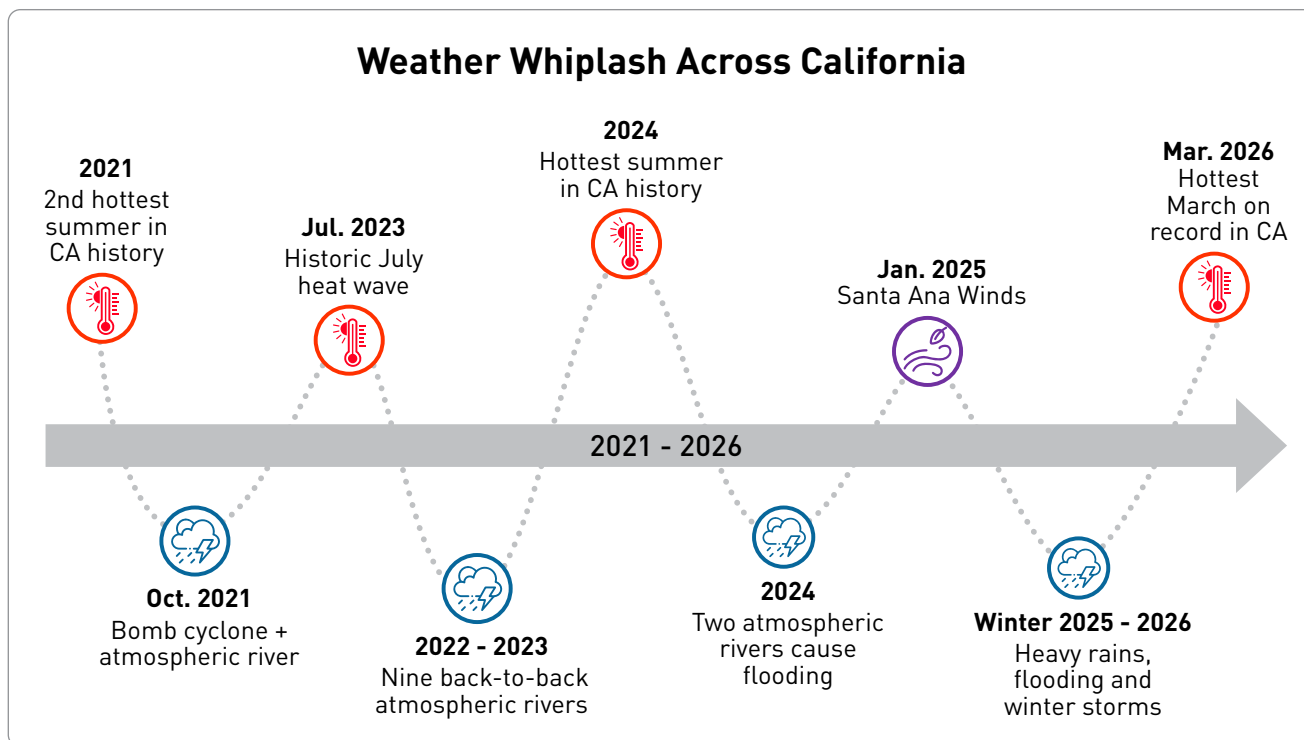


Figure 1. Evolving Wildfire Risk Across California: Weather Whiplash

To meet the complex challenges of climate change, weather whiplash and extreme wildfire risk, utilities must evolve, too. New ways of thinking are necessary to address interconnected extreme weather risks, from wildfires to floods, while continuing to provide the safe, reliable and affordable energy that our communities expect and deserve. Forward-looking investments in overall resiliency and emergency preparedness are critical, coupled with a deep commitment to working together with local partners and communicating year-round with customers and stakeholders.

Most of all, meeting today's new normal requires a collaborative spirit and collective effort across our industry. As utilities, we must continue working together with urgency to share knowledge and solutions, while remaining laser-focused on a bold, shared vision for mitigating evolving wildfire risk and keeping the communities we are privileged to serve safe.

Guidebook Purpose

At PG&E, we have taken a stand that ***Catastrophic Wildfires Shall Stop***.

To achieve this, we have transformed our organization to prioritize reducing wildfire risk and protecting our hometowns. As wildfire risk evolves, our commitment to safety must extend beyond our own service area; we must share information and lessons learned from any source to support wildfire safety across our industry.

Our annual wildfire mitigation conference, which began in 2023, reflects our commitment to creating a forum to foster collaboration, share insights and recognize that our work to improve is never done. This guidebook bridges the gap between our in-person events and is designed to be continuously updated as new, innovative strategies and tools become available.

The third edition of our guidebook not only outlines the risk mitigation practices we have developed, but it also draws on our experiences working across industries, with content from key partners who are making vital contributions to reducing risk across the country. We strongly believe in our layers of protection approach, and that there is no single strategy for every utility or every region. This guidebook provides diverse strategies, tools and technologies to assist utilities along their wildfire safety journey. However, the content in this guidebook is just the beginning. As PG&E and other utilities share the effectiveness of each approach we utilize, our collective understanding of wildfire mitigation grows.

As always, we greatly welcome your feedback and your contributions.

Together, let us continue to elevate our collective expertise, so we can better reduce wildfire risk for those we are privileged to serve, now and in the future.



Andrew Abranches
PG&E Vice President,
Wildfire Mitigation

02 Our Wildfire Mitigation Strategy

Addressing Evolving Wildfire Risk: Layers of Wildfire Protection

How Do We Interrupt the Wildfire Sequence?

Wildfires tend to follow a predictable sequence, and interrupting that sequence is key to reducing overall wildfire risk. Our layers of protection work together to interrupt each stage of the wildfire sequence, minimizing the likelihood and impact of wildfire events.

This strategy is founded on four core capabilities:

- **Ignitions Investigations:** Our ignition investigations team conducts detailed reviews of ignition incidents to generate insights that strengthen existing mitigation strategies and identify where additional or enhanced measures may be needed.
- **Meteorological Forecasting:** Our meteorological team leverages advanced tools and capabilities to help forecast severe weather and foster a more nuanced understanding of wildfire behavior.
- **Risk Modeling:** Our risk modeling team integrates complementary analytical approaches to assess variations in risk reduction, implementation timelines and long-term effectiveness, guiding both strategic and operational decisions.
- **Internal Decision-Making:** Our Wildfire Risk Governance Steering Committee (WRGSC) serves as the central decision-making body, overseeing the development, refinement and execution of strategies focused on mitigating wildfire risk.

Together, these capabilities form the foundational strategies for our wildfire mitigation approach.

Wildfires from electrical equipment follow a common sequence. Our wildfire mitigation approach is built on three key pillars that interrupt the sequence.

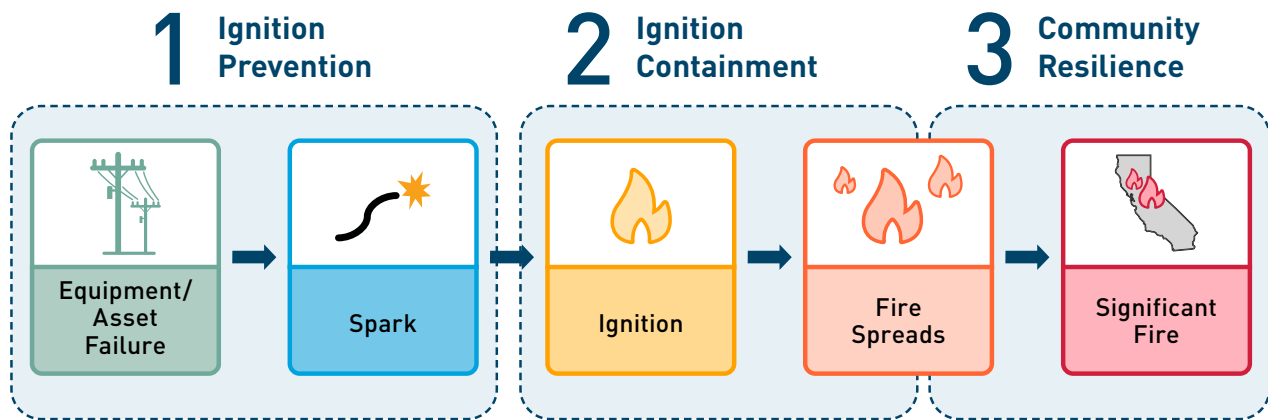


Figure 2. Interrupting the Wildfire Sequence

Pillars of Our Wildfire Mitigation Approach

Built on three key pillars—**ignition prevention**, **ignition containment** and **community resilience**—our approach encompasses multiple layers of wildfire protection and our foundational strategies. This approach keeps our customers and communities safe.

Our wildfire mitigation approach has significantly reduced ignition risk. In 2025, compared to 2017, our efforts led to a 72% reduction in ignitions. While this progress is substantial, our work continues. We remain committed to adapting, improving and building on our layers of protection by incorporating key insights and lessons learned from other utilities, experts, academics and peers.

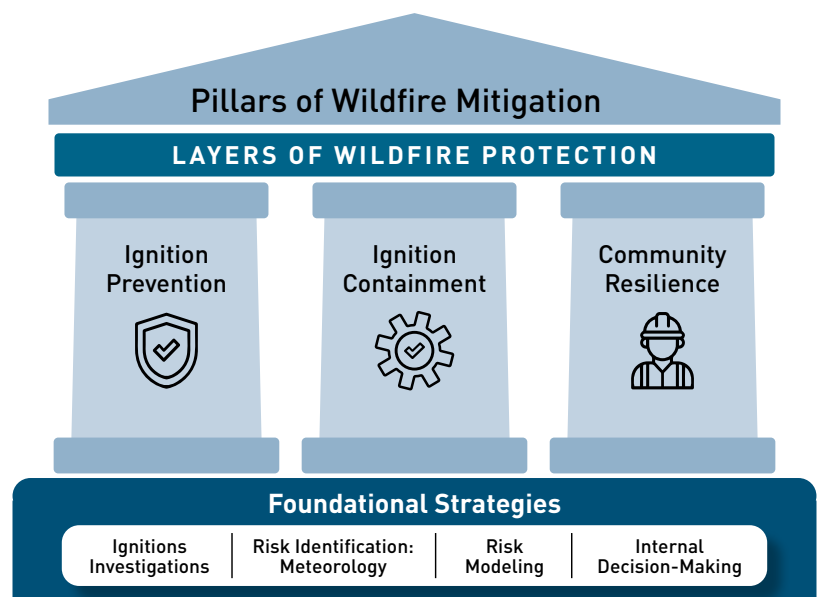


Figure 3. Pillars of Wildfire Mitigation

Layers of Wildfire Protection

As wildfire risk continues to evolve, so do our layers of wildfire protection. Focused in High Fire-Risk Areas, this work includes a variety of methods, or “layers,” that combine to protect the communities we serve. By building up these layers of protection, we are reducing wildfire risk from our electric system. We have three key categories of protective layers: **situational awareness**, **operational mitigations** and **long-term resiliency work**.



Situational Awareness

A New Tools and Technology: Installing over 2,000 weather stations and high-definition cameras to better predict and respond to wildfires and severe weather.



Operational Mitigations

B Safety and Infrastructure Protection Teams: Deploying trained response professionals to increase safety and enhance community recovery.

C Enhanced Powerline Safety Settings: Detecting hazards on powerlines and shutting off power quickly to prevent an ignition.

D Public Safety Power Shutoff: Turning off power for safety as a last resort during severe weather.



Resiliency Work

E New, Strengthened Equipment: Installing strengthened poles and covered powerlines on thousands of miles of overhead powerlines.

F Undergrounding Powerlines: Completing thousands of miles of undergrounding in the highest wildfire risk areas.

G Vegetation Management: Trimming or removing 1.5 million+ trees to keep them away from powerlines and prevent wildfires.



Figure 4. Layers of Wildfire Protection

03 Foundational Strategies

Identifying and Understanding Wildfire Risk

The first critical step in preventing wildfires is to identify where wildfire risk is the greatest. By combining spatial and temporal resources, we can enhance our understanding of the risk between a utility's infrastructure and the environment in which it operates.

Mapping High Fire-Risk Areas to Determine Where Risk is Greatest

California Public Utilities Commission HFTD Map

In 2018, the California Public Utilities Commission (CPUC) developed a statewide High Fire-Threat District (HFTD) map that identifies areas at increased risk for wildfires due to strong winds, dry vegetation and other environmental factors.

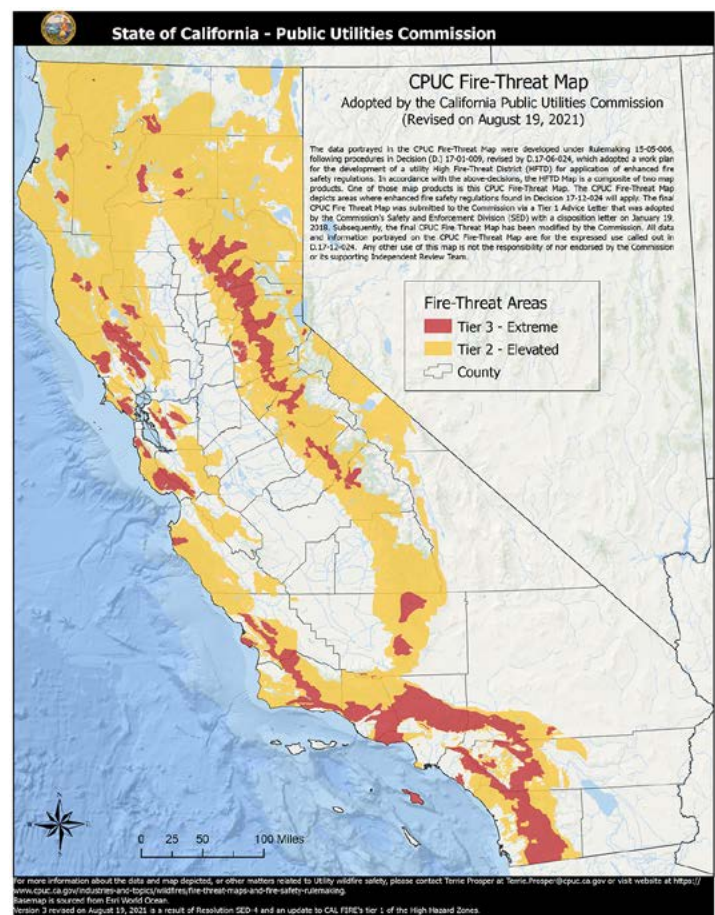


Figure 5. CPUC Fire-Threat Map

PG&E's High Fire-Risk Area Map

To better identify risks associated with our electrical equipment, we expanded upon the CPUC's HFTD map to create our High Fire-Risk Area (HFRA) Map.

- This map incorporates fire scars, the potential for fire spread, National Weather Service Red Flag Warnings (RFW) and other historical data.
- We overlay HFRA on our circuit maps to identify areas at high risk within our service area.
- This map is reviewed annually to determine if changes are required based on new learnings, as well as updated land use and fuel conditions.

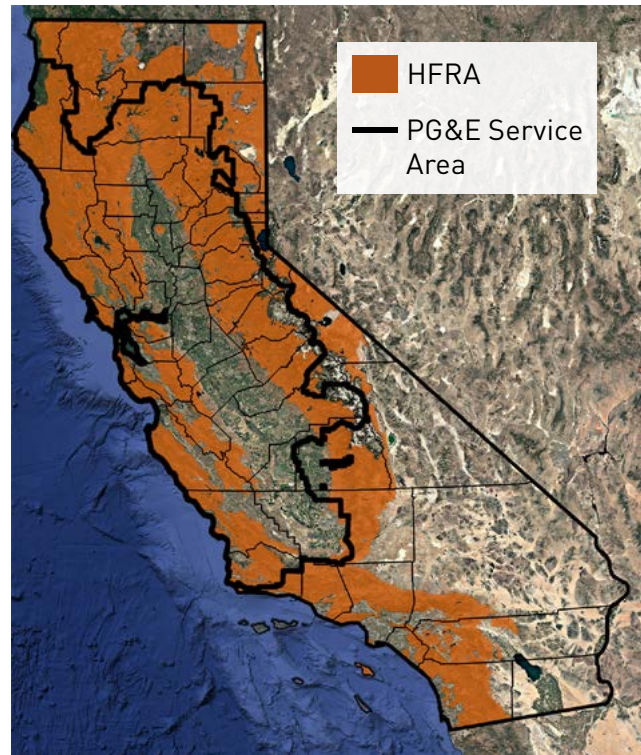


Figure 6. PG&E High Fire-Risk Area Map



These maps enable us to make risk-informed decisions and serve as the foundation of our wildfire mitigation programs.

Overlaying Spatial and Temporal Risk Across Electric Circuits and Assets

To create a comprehensive view of areas prone to wildfire risk, utilities can overlay maps of spatial and temporal risk onto their electric circuits. This can provide key insights about the scope and makeup of circuits, assets and communities that may be impacted, and how to prioritize mitigation efforts accordingly.

These questions can help utilities understand local risk factors that may warrant additional mitigation efforts:

- Is the community in or close to a fire scar?
- Are there ingress or egress challenges?
- Is there vegetation or electric infrastructure that could impact the egress routes?

Strengthening Capabilities to Assess Wildfire Risk

As weather conditions evolve, utilities should have clear processes for continuously updating wildfire risk assessment tools. Annual updates can incorporate learnings from the prior season and new information based on a changing climate.

Additional Approaches to Identifying High-Risk Areas

There are varied approaches to assessing different types of wildfire risk with different levels of complexity. Our models incorporate weather as a decisive factor in our assessment of changing wildfire risk and potential mitigation strategies. This approach offers a granular understanding of where fire risk is greatest and the potential fire consequences across our service area. However, for smaller applications or organizations, this approach can be difficult and costly to stand up. **Researchers continue to create new models to suit different needs across the fire safety space.**

For example, the University of Alberta's school of Agriculture, Life & Environmental Sciences (ALES) used publicly available satellite data to model high-risk areas where fire is most likely to cross from wildlands into urban environments.³ By focusing on higher hazard tree density, their model can provide a starting point for communities and smaller organizations to begin reducing fire risk without having to capture and analyze meteorological data. This simplified approach yielded insights to inform wildfire safety work that were very similar to more complex weather-driven models in the Alberta towns of Whitecourt and Hinton. This cost-effective approach represents a practical and beneficial option for organizations and communities beginning their wildfire safety journey.

Understanding the Science of Fires and Embers

Understanding the behavior and science behind previous significant wildfires is crucial to recognizing how a fire will react within a given environment or location. A landmark 2025 study from the Western Fire and Forest Resilience Collaborative (WFFRC)⁴ redefines our understanding of the impact a wildfire can have. By analyzing two decades of NASA satellite imagery, the collaborative's research team identified "fast fires" as the primary driver of wildfire damage in the U.S. NASA further validates these findings in the article "The Fast Fire Threat",⁵ describing the environmental and weather conditions that allow these fires to quickly escalate. These recent studies indicate that **the most damaging fires are characterized by their speed and growth rate rather than area burned.**

A fast fire is defined by its speed, with the primary danger coming from rapidly burning dry fuels and the embers they produce. Embers are carried far ahead of the main flames, igniting new areas and spreading so quickly that traditional suppression and containment methods are rendered insufficient. To be considered a fast fire, flames must achieve a growth rate of at least six square miles per day.

³Journal of Environmental Management; doi.org/10.1016/j.jenvman.2024.122325

⁴Science; science.org/doi/10.1126/science.adk5737

⁵NASA; science.nasa.gov/earth/earth-observatory/the-fast-fire-threat-153689/

In the WFFRC study, researchers found that fast fires became four times faster in California and 2.5 times faster in the Western U.S. over the study period. Although fast fires accounted for only 2.7% of fire events, their disproportionate impact relative to their frequency means they were responsible for most of the wildfire impacts during this period.

Contributing factors to the emergence of fast fires include weather whiplash, which produces larger amounts of dry vegetation, and an increase in the conversion of forests into grasslands. These changes enable flames and embers to spread rapidly across the landscape.

As drought conditions and high-wind events become more frequent, it is critical that wildfire risk models and mitigation strategies reflect the data and lessons learned from the past two decades. As research continues to improve our understanding of extreme wildfire behavior, mitigation strategies must adapt to ensure prevention and response efforts remain effective in an increasingly fire-prone landscape.

Forecasting, Monitoring and Responding to Severe Weather and Wildfire Risk

Utilizing weather tracking, modeling capabilities and situational awareness tools, as well as understanding weather patterns, are instrumental for the implementation of safety programs and determining when risk is high. This allows a utility to forecast, monitor and coordinate a response to severe weather and wildfire risk.

A Fire Potential Index (FPI) is a valuable measure of the potential for a wildfire to start and spread, considering key risk factors like vegetation health and type, rainfall, temperatures and wind speeds. We use an FPI model to combine fire weather parameters, fuel moisture data, topography and fuel type data to predict the likelihood of large and catastrophic fires. It is calculated at a granular, 0.7 km hexagon grid level each hour of the day to drive operational decisions to reduce the risk of wildfires. The FPI model shows the probability that a fire will become large or catastrophic and is a critical part of our Enhanced Powerline Safety Settings (EPSS) and Public Safety Power Shutoff (PSPS) decision-making process. Since 2014, our FPI model has undergone several upgrades incorporating machine learning, with the latest V5.5 version retrained with a new high-resolution weather model.

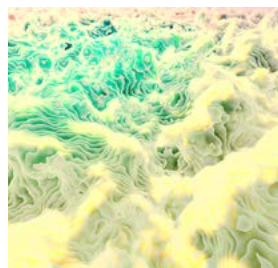
Our current FPI Model combines the following to predict the probability of large and/or catastrophic fires:

**Weather:**

- Wind Speed
- Turbulence
- Temperature
- Vapor Pressure Deficit
- Global Horizontal Irradiance

**Fuel & Soil Moisture:**

- Dead Fuel Moisture
- Woody Live Fuel Moisture
- Herbaceous Fuel Moisture
- Soil Moisture

**Topography:**

- Terrain Ruggedness
- Slope
- Wind-Terrain Alignment

**Fuel Information:**

- Fuel Bed Depth
- Fuel Complexity
- Grass
- Shrub
- Timber
- Urban

Figure 7. Fire Potential Index (FPI) Model

We utilize technologically advanced tools to understand and predict fire risk. We developed our "PG&E's Operational Mesoscale Modeling System" (POMMS) in-house, along with a corresponding 30+ year downscaled climatology, which is a sophisticated weather forecasting suite designed to enhance our ability to predict and manage weather-related risks. This high-resolution tool utilizes 30+ years of data to find patterns and inform our operational mitigation decision-making. The POMMS provides high resolution forecasts four times a day and is crucial for our wildfire risk management and severe weather preparedness. In addition to POMMS, we leverage machine learning weather models to easily predict outages and fire risks. These tools and tactics help us respond to dangerous weather conditions to keep the grid safe.

To supplement these models and provide more precise situational awareness, we have installed over 1,600 weather stations, including 1,500 with advanced machine learning capabilities. These weather stations provide insight into conditions across our service area and allow our teams to better predict and respond to severe weather threats. In addition to weather stations, we have installed over 650 AI-Enabled High-Definition Cameras to give us visibility into High Fire-Risk Areas. As part of the broader ALERTWest network utilized by many utilities, fire agencies and the public, our cameras use AI to detect ignitions, notify authorities and help deploy suppression resources quickly.

Hazard Awareness and Warning Center (HAWC)

We established our Wildfire Safety Operations Center (WSOC) in 2018 to monitor wildfire risk and coordinate prevention and response efforts across our service area. In 2022, we launched our Hazard Awareness and Warning Center (HAWC) to enhance our ability to monitor real-time conditions. The HAWC serves as a central source of real-time situational awareness, not only for wildfires but also for other emergencies or disasters that may occur in our service area.

Our HAWC is staffed with industry experts in meteorology, fire science and system analytics, who assess and analyze conditions before, during and after any emergency or disaster.

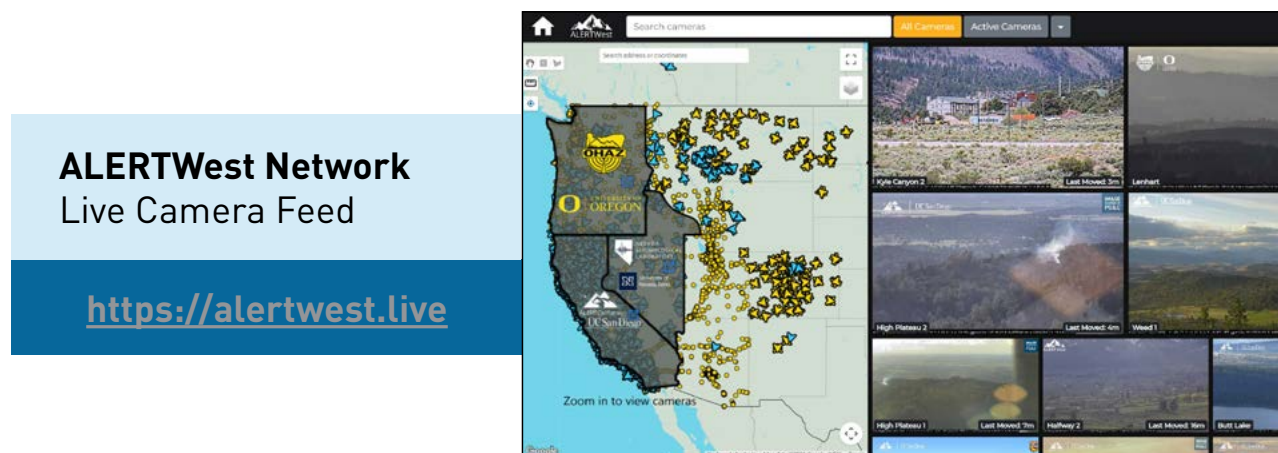
Inputs from all situational awareness, meteorology, risk modeling and real-time monitoring tools feed directly into the HAWC and enable quick decision-making and information-sharing across our organization and with our partners. Through strong partnerships among our internal teams, as well as with external partners such as the National Weather Service, California Governor's Office of Emergency Services (Cal OES) and others, our shared awareness of additional hazards will continue to increase. This means information from satellites, cameras, weather stations, asset sensors and other monitoring equipment is all processed at a central location. In addition to monitoring conditions on the ground in real time, our HAWC can alert our teams and authorities immediately following an ignition and support suppression resources to interrupt the wildfire sequence. The capabilities of our HAWC continue to evolve as technology improves and is adopted.

Partnerships and Resources

ALERTWest Partnership

To improve situational awareness, we partner with the ALERTWest Network to sponsor High-Definition Cameras that monitor our service area and track wildfires. PG&E-sponsored cameras are part of a much broader network across the U.S. and Canada. The information collected from these devices is available to the public at alertwest.live.

All cameras in the ALERTWest Network utilize AI technology to detect fires and communicate information to CAL FIRE Dispatch Centers and PG&E's Hazard Awareness and Warning Center. In 2024, the ALERTWest AI camera network detected and confirmed 58% of California wildfire ignitions faster than the Integrated Reporting of Wildland Fire Information (IRWIN) reporting system. This system allows PG&E and our partners to quickly identify ignitions and mobilize suppression teams and resources within minutes.



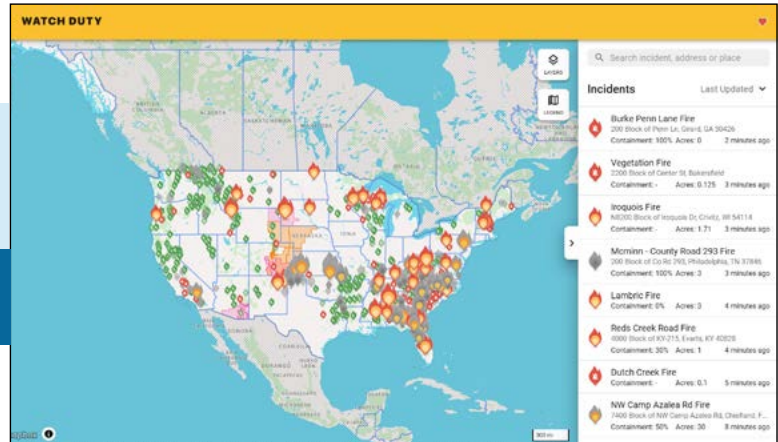
Watch Duty – Wildfire Maps and Alerts

We partner with Watch Duty, a non-profit organization that helps disseminate public safety information from verified sources in real time. Retired firefighters, dispatchers and first responders monitor radio scanners and work around the clock to provide immediate, up-to-date information on conditions. Watch Duty uses an automated monitoring system along with live collaborators to gather information from official sources and radio communications, enabling them to provide quick feedback to their partners. They use an app to send notifications to their partners and the public regarding life-threatening weather events or disasters.

Watch Duty provides coverage across the continental U.S.
The Watch Duty app helps any user monitor fire events within their area of responsibility, enabling them to respond and react quickly.

Watch Duty Wildfire Safety Alerts

watchduty.org



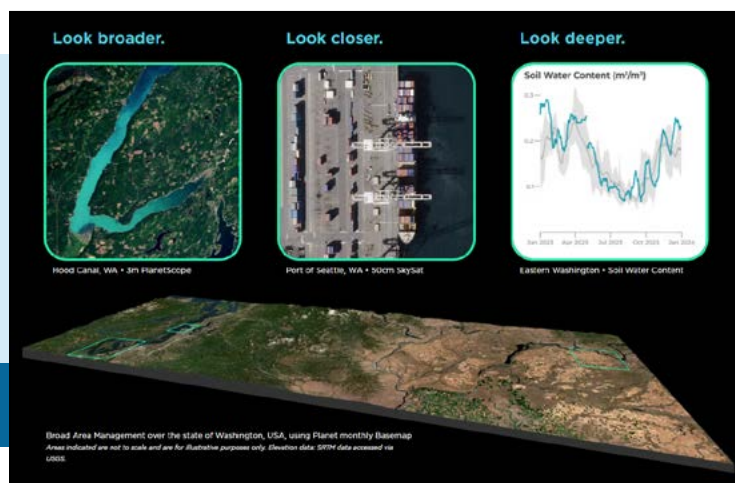
Satellite Terrain Imaging

Satellites can monitor how conditions across a service area have changed due to weather, including vegetation growth patterns, changes to local water conditions and other important data. Spotting these changes can help inform upcoming areas of focus and where additional situational awareness tools are needed.

Planet Labs

See satellite terrain imaging in action and learn about the types of satellites available.

planet.com



Publicly Available Weather Models and Situational Awareness Networks

PG&E utilizes several public resources offering maps of historical and current fire information, including estimated fire risk.

Federal Emergency Management Agency (FEMA)

National Risk Index

hazards.fema.gov/nri/wildfire



National Interagency Fire Center (NIFC)

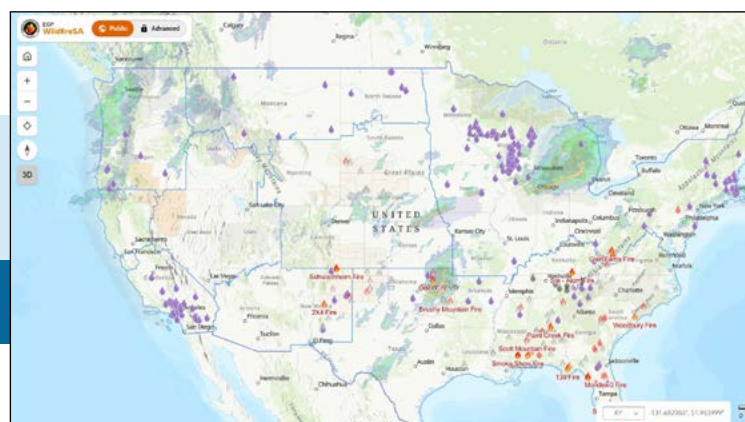
Information for Resource Management System

nifc.gov



National Fire Situational Awareness

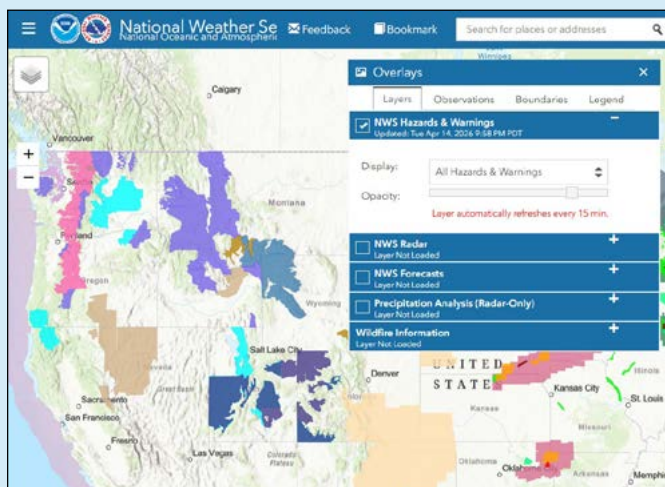
maps.wildfire.gov



In addition to identifying historical impacts, utilities analyzing fire risks need insight into current and forecasted weather conditions. The National Weather Service and National Oceanic and Atmospheric Administration provide Red Flag Warning updates and mapping resources.



National Weather Service (NWS) and National Oceanic and Atmospheric Administration (NOAA)

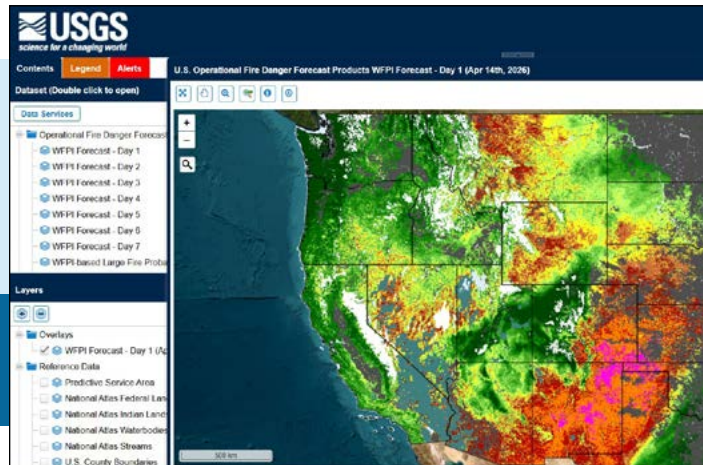


[weather.gov](https://www.weather.gov)

RFWs provide critical data that can be imported and used as Geographic Information System (GIS) polygons. With the help of a GIS specialist, polygons can be incorporated into a utility's existing suite of wildfire risk identification tools, providing powerful capabilities to view wildfire risk conditions in real time.

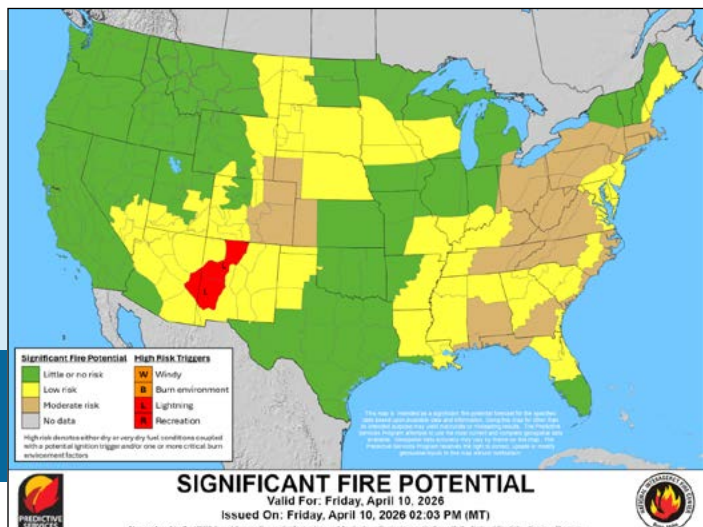
U.S. Geological Survey Interactive Wildland Fire Potential Index

[firedanger.cr.usgs.gov/
viewer/index.html](https://firedanger.cr.usgs.gov/viewer/index.html)



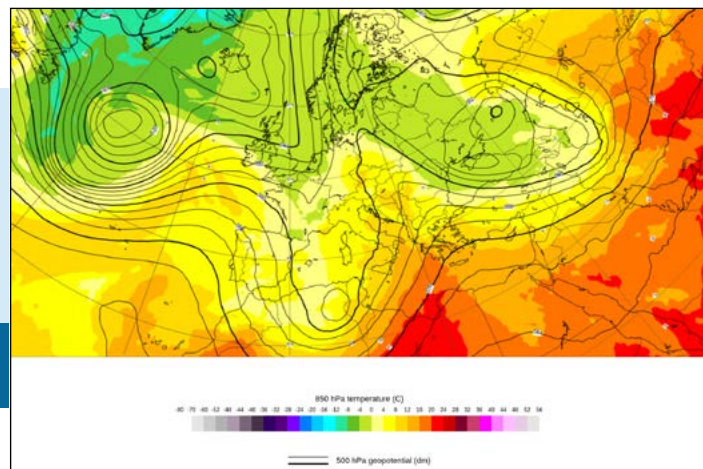
National Interagency Coordination Center Seven-Day Significant Fire Potential Index

[nifc.gov/nicc/
predictive-services/outlooks](https://nifc.gov/nicc/predictive-services/outlooks)



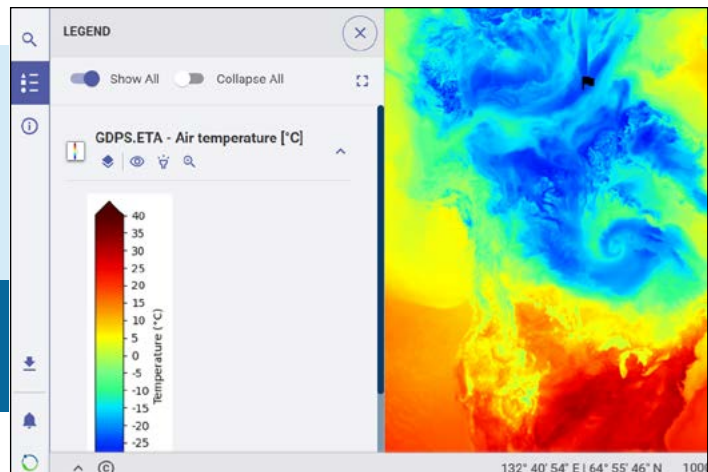
European Centre for Medium Range Weather Forecasts (ECMWF)

ecmwf.int/en/forecasts



**Canadian Global
Deterministic Prediction
System (GDPS)**

**Canadian Global Deterministic
Prediction System**



U.K. Met Office Global Modeling

U.K. Met Office Global Modeling



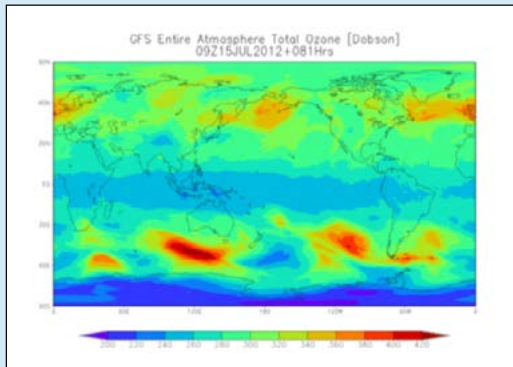
ICON Model

icon-model.org



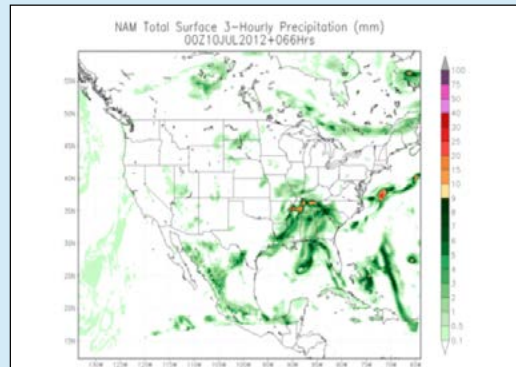
National Oceanic and Atmospheric Administration Prediction Modeling

NOAA Global Forecast System (GFS)



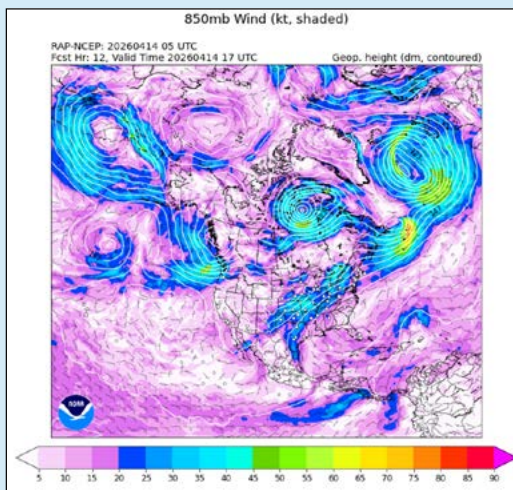
NOAA Global Forecast System

North American Mesoscale Forecast System (NAM)



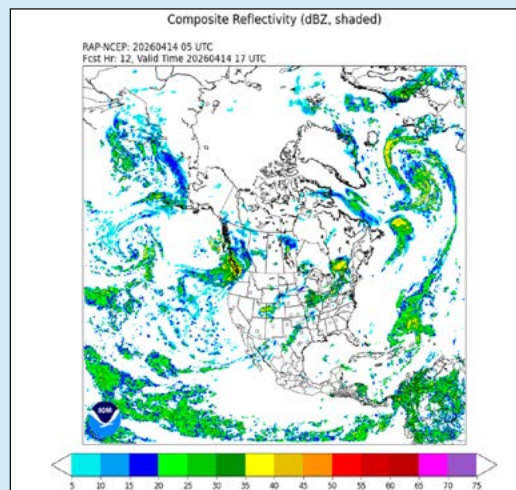
North American Mesoscale Forecast System

Rapid Refresh (RAP) Model



Rapid Refresh (RAP) Model

High-Resolution Rapid Refresh (HRRR) Model



High-Resolution Rapid Refresh (HRRR) Model

Local Coordination

Maintaining close coordination with local weather services and Geographic Area Coordination Centers (GACC) is critical, especially during fire season, to ensure we are informed about changing weather conditions and forecasts. While our weather model and stations provide awareness of current conditions, satellite terrain imaging offers valuable insights over time.

Geographic Area Coordination Centers National Website Portal

gacc.nifc.gov

National GACC Website Portal

Geographic Area Coordination Centers

- [Alaska \(AGCC\)](#)
- [Eastern Area \(EACC\)](#)
- [Great Basin \(GBCC\)](#)
- [Northern California \(NCACC\)](#)
- [Northern Rockies \(NRCC\)](#)
- [Northwest \(NWCC\)](#)
- [Rocky Mountain \(RMCC\)](#)
- [Southern Area \(SACC\)](#)
- [Southern California \(SCACC\)](#)
- [Southwest \(SWCC\)](#)

National

- [National Interagency Fire Center \(NIFC\)](#)
- [National Coordination Center \(NCCC\)](#)
- [Predictive Services](#)
- [Intelligence](#)
- [Weather](#)
- [Fuels / Fire Danger](#)
- [Outlooks](#)



Preparedness Levels

National Preparedness level: 2

Ignition Trends, Investigation and Analysis

If an ignition occurs, preventing a wildfire is always our first priority. Once an ignition has been safely addressed, we deploy our ignitions investigation team to gather information about the incident, which helps inform improvements to our mitigations or determine if we need an additional mitigation measure.

Through investigations and analysis, we created a detailed, cross-functional ignition review process. This work begins with our forensic analysis approach to determine the reason for ignition.

Investigations allow us to:

- Analyze on-scene materials to better identify causes of equipment failures.
- Leverage advanced technology for data collection and analysis to explore developing trends and generate better corrective actions.
- Leverage relevant PG&E data sources to inform wildfire safety priorities.
- Identify future risks based on learnings.
- Share findings and opportunities to enhance mitigation strategies to inform cross-functional coordination.
- Benchmark with other ignition investigation teams.

Following an investigation, we may identify corrective actions both at the ignition location and across our system broadly, if applicable.

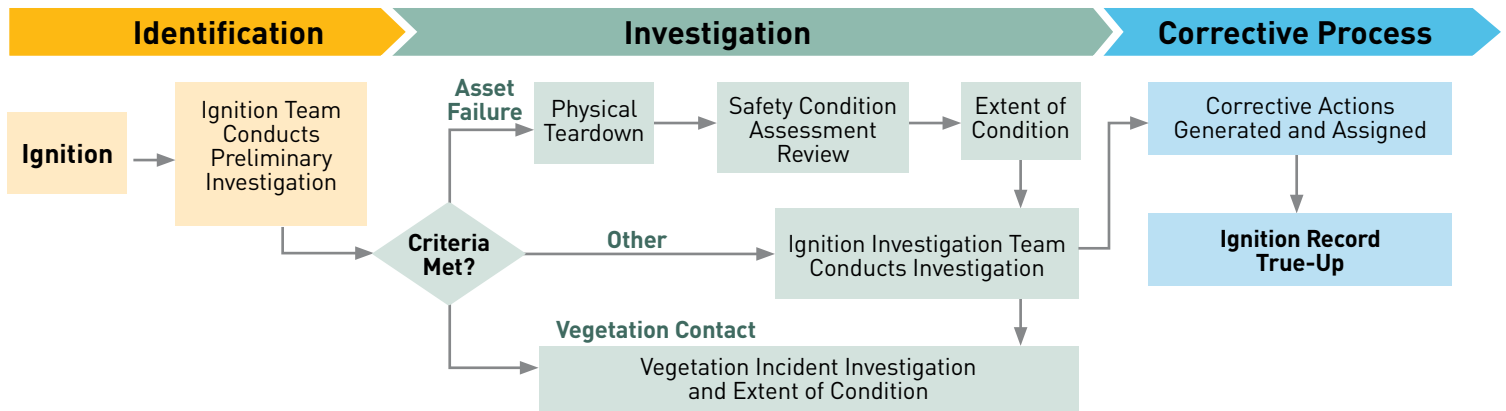


Figure 8. Ignition Investigation Process

Benefits of Ignitions Investigations

Our ignition dataset helps guide our wildfire mitigation choices. An ignition is a tangible event that can be studied and analyzed to determine what needs to change to prevent it from occurring. By collecting, analyzing and interpreting ignition data, we create a feedback loop to continuously improve our layers of wildfire protection.

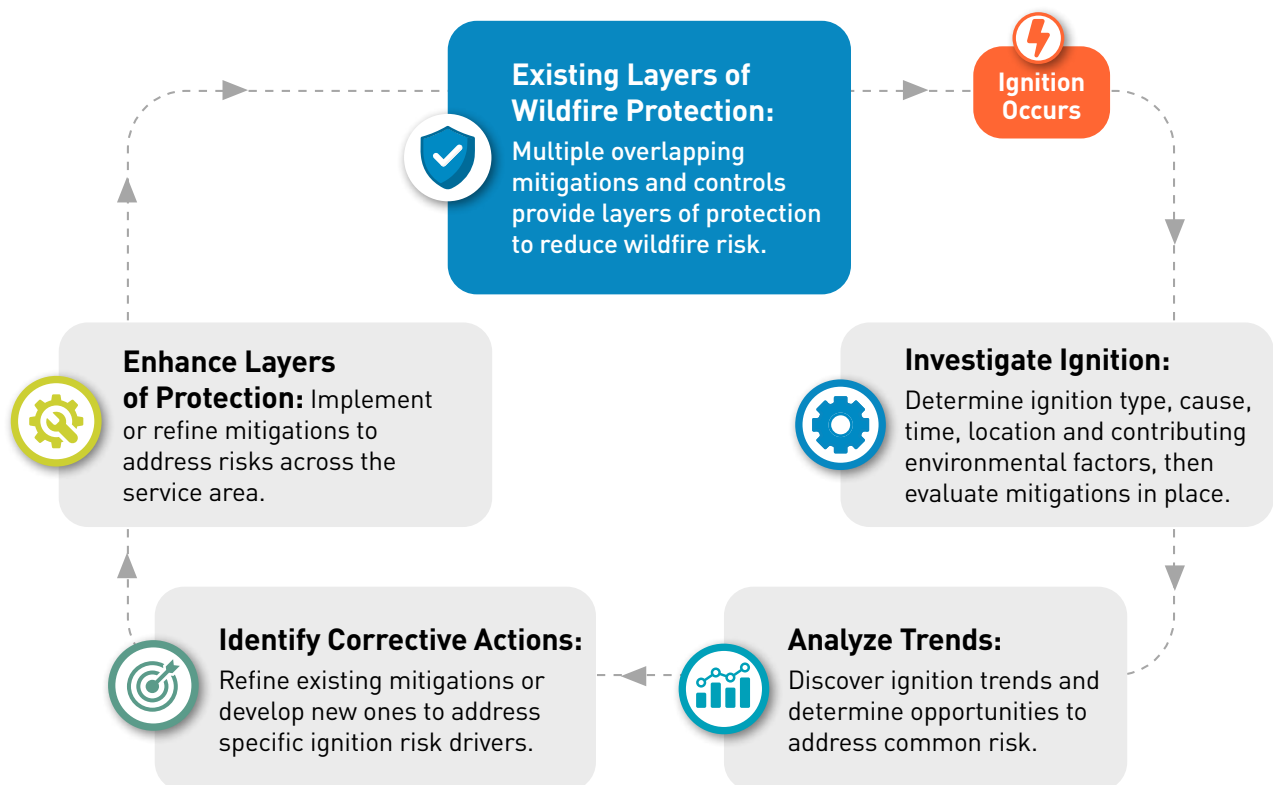


Figure 9. Ignition Investigation Cycle

Through our analysis, we track ignitions against standardized weather conditions to determine opportunities to enhance our mitigation efforts. These insights are particularly beneficial as weather conditions fluctuate. This way, we can ensure that our mitigations are effectively targeting our riskiest conditions. For example, certain equipment failures may be less likely to occur on non-windy or lower-temperature days. Seeing a decrease in annual ignitions during an inordinately cool and calm summer might cause a utility to overlook gaps in wildfire mitigation without an effective weather-normalized metric. Through our investigations, we identify and track all types of ignitions to gain insight into our strategies.

The types of ignitions we track include:

- **Reportable Ignitions:** These are ignitions reported to the CPUC and other agencies. To meet this criteria, an ignition must have originated from utility equipment, burn material other than utility equipment, be self-propagating and extend beyond one linear meter from the ignition point.
- **Non-Reportable Ignitions:** Non-reportable ignitions include small fires that don't surpass a linear meter in size or are not self-propagating.
- **Ignitions Avoided:** As we track all equipment failures, we also note cases where our operational mitigations prevented a potential ignition, such as ignitions prevented by PSPS or EPSS. This provides valuable insight into where risk exists in our system and where additional improvement is needed.

By monitoring all incidents, we cultivate a better understanding of where fires could potentially start, with insights feeding directly into our work planning models.

Fire Intelligence and Risk Evaluation (FIRE) Team

As wildfire ignitions become more complex, consequential, and expensive, utilities require specialized teams capable of accurately determining fire origin and cause while helping reduce future risk. In response, we formed the FIRE Team in March 2025. Comprised of specialized fire investigators and auditors, the FIRE Team conducts evidence-based investigations and technical reviews that support operational learning, mitigation strategy development and significant cost savings.

Leveraging a strategy-driven, intelligence-based operating model, our FIRE team:

- Investigates ignitions to ensure proper attribution.
- Reviews investigative findings and suppression billing packages for accuracy and alignment with incident evidence.
- Verifies methodology and evaluates findings from Authorities Having Jurisdiction (AHJs) and other investigating agencies.
- Assists in the identification of ignition trends and causal factors to help direct mitigation and risk-reduction strategies.
- Provides technical investigative support during active and high-consequence incidents.

Any reliability impacts associated with implementing a given ignition strategy (e.g., unplanned outages, service interruptions during maintenance, etc.). Built by a utility for utilities, the FIRE Team model is designed to operate in complex incident environments shaped by expedited timelines, operational pressures, and evolving legal landscapes.

PG&E's FIRE Team is available to support utility partners requiring specialized investigative expertise during complex or resource-constrained incidents where accurate, evidence-based analysis is critical.

For more information on PG&E's FIRE Team and their work, please reach out to Andy Andersen, Manager, Fire Intelligence & Risk Evaluation (FIRE) Team at **andy.andersen@pge.com** or to the FIRE Team at **FIRETeam@pge.com**.

Measuring Risk

Identifying and quantifying risk is the first step towards effective wildfire mitigation decision-making, but one model is not sufficient for all mitigation and operational strategies, as each layer of wildfire protection yields differences in risk reduction, implementation time and future effectiveness. We use two primary modeling approaches to inform our decision-making.

Operational Models

These models are most useful to inform operational decisions, relying heavily on current conditions to address immediate wildfire risk. The most common example we use is our Fire Potential Index (FPI), which measures meteorological and environmental variables to determine whether operational mitigations, like PSPS and EPSS, should be switched on.

These models are best used to capture quick changes to ephemeral wildfire conditions and are captured four times per day. That way, when risky conditions are present, we can respond quickly by changing our operations to reduce wildfire risk.

Probabilistic Models Built from Historical Data

By incorporating historical equipment performance and outage data, these machine-learning models capture long-term trends and offer predictive insights to inform our resiliency work planning.

Unlike operational mitigations, resiliency work reduces wildfire risk without introducing reliability impacts. As a result, resiliency work is completed according to the future risk reduction at a specific location rather than weather and/or fuel conditions on a given day.

Alternative Approaches

Medium-Term Modeling: Some mitigation approaches may benefit from a middle-ground modeling approach, particularly predictive maintenance cycles and other semi-permanent risk reduction approaches. Models built to provide weekly, monthly or quarterly outlooks can help support these types of mitigation approaches.

Longer-Term Planning: While our planning models offer predictive insights into future risk conditions on our equipment, all models lose accuracy the further they extrapolate into the future. As our changing climate presents evolving risks, we are exploring approaches to model risk behavior well into the future, beyond our longer-term models, to ensure that the work we do today to prevent wildfires also combats challenges presented over the next 50 years.

Calculating Mitigation Effectiveness

We calculate the effectiveness of our mitigations by analyzing all failures (ignition drivers), the frequency of those failures producing risk losses and the scale of those risk losses, as provided by our Risk Assessment and Mitigation Phase (RAMP) calculations.

First, we determine the ignition risk contribution across all assets protected by a given mitigation, in this case, PSPS and EPSS. This contributes to the likelihood of failures across each ignition vector, weighted by the frequency of those assets and conditions. We then determine mitigation exposure by analyzing which assets are covered by a given mitigation.

Calculating Ignition Risk Reduction

Using our risk models, we determine how often a mitigation captures a potential ignition from our assets. This effectiveness metric, when combined with asset risk contribution and mitigation exposure, provides a percentage reduction in ignition risk. Note that this calculation does not incorporate potential fire consequence, potential service reliability impacts, frequency of ignition drivers on our equipment and other key metrics. Rather, determining how much a given strategy reduces ignitions under specific conditions is one step to developing a comprehensive understanding of overall risk impacts of mitigation work.

Wildfire Risk Reduction Calculations

Developing a comprehensive risk reduction profile for each wildfire mitigation strategy relies on more than the effectiveness of a mitigation at reducing ignition potential.

For each potential ignition, various factors can impact outcomes, including:

- Frequency of ignition conditions that a given mitigation protects against.
- The consequence of a potential ignition if unaddressed by a mitigation.
- The remaining ignition and consequence risk after the mitigation is implemented.
- Any reliability impacts associated with implementing a given ignition strategy (e.g., unplanned outages, service interruptions during maintenance, etc.).

The general formula relies first on a metric addressed previously. We begin with wildfire risk by weighting ignition models for each potential vector by the estimated consequence of a fire from each ignition type after a given mitigation is implemented. This calculation occurs across our distribution and transmission systems, along with our substation calculations. Each is then weighted by the potential consequence of these ignitions, summed up across all circuit segments to calculate total wildfire risk of a given mitigation strategy.

This outage program risk is calculated in dollars of service lost:

$$\begin{array}{ccccccc} \text{Outage} & & & & & & \\ \text{Program} & & & & & & \\ \text{Risk} & = & \text{Probability of} & & \text{Expected} & & \text{Customers} & & \text{Value of} \\ \text{(in USD)} & & \text{a Sustained} & \text{X} & \text{Duration} & \text{X} & \text{Impacted} & \text{X} & \text{Service} \\ & & \text{Outage} & & \text{in Minutes} & & \text{in Total} & & \end{array}$$

Using this formula, we calculate risk reduction on each segment of a given risk plan by summing the wildfire and outage program risks for each mitigation plan implemented.

Determining Mitigation Effectiveness

Risk Assessment and Mitigation Phase (RAMP) Calculations

The RAMP filing is a report that identifies our top safety risks and proposed mitigation programs. Quantified in dollars, the calculations here represent just one of multiple strategies used to determine the impacts that mitigations have on a risk profile. The RAMP is part of a joint effort with the CPUC's Safety Policy Division and other investor-owned utilities and stakeholders to enhance risk-informed decision-making. This filing is part of General Rate Case (GRC) proceedings and can be found on the CPUC's website: www.cpuc.ca.gov.

This filing involves assessing ignition and risk consequences together to determine mitigation effectiveness and analyze associated costs. To quantify wildfire risk in dollars, we use our risk scaling function.

At its most basic, the function states:

$$\text{Risk (in USD)} = \frac{\text{Likelihood of the Risk Event (LoRE)}}{\text{Cost of the Risk Event (CoRE)}}$$

RAMP calculations capture both damage due to wildfire and other costs associated with operations. They yield three important insights:

- 1** Our changing climate is expected to continue raising baseline risk for all electric utilities across the planet. Each year, meteorological predictions indicate that even if mitigations and their effectiveness remained the same, baseline risk would continue to increase.
- 2** Our operational mitigations (PSPS and EPSS) reduce a significant amount of our baseline risk, but not without impacting reliability. As weather becomes more severe, PSPS and EPSS would need to be implemented more often to maintain the same risk reduction benefit, leading to growing reliability costs.
- 3** We anticipate that our ongoing grid resiliency mitigation work between 2023 and 2027 will be robust enough to more than counteract the increase in risk from climate change during that period. Resiliency work is key to addressing evolving wildfire risk and our changing climate in the long term.



Mitigation Calculations for Tracking

A successful wildfire mitigation plan requires approval and ongoing reporting on mitigation strategies. Once a workplan is approved and implementation begins, it remains critical that an organization can quantify the amount of risk reduced from a given plan for both internal and regulatory monitoring purposes.

For each mitigation strategy, we use our Wildfire Distribution Risk Model (WDRM) or Wildfire Transmission Risk Model (WTRM) to calculate an effectiveness metric via the multiple ignition submodels. This effectiveness represents the percentage of wildfire risk reduced before and after implementation across all ignition origins, simplified into one value. If a mitigation is 70% effective, it reduces the total risk (including ignition and consequence, as well as outage risk from operational strategies) of a wildfire by 70% wherever that mitigation is implemented.

Using mitigation effectiveness, we can estimate the amount of total risk reduced on a circuit segment during implementation of various mitigations using a simple function:

$$\begin{array}{ccccccc} \text{Segment} & & & & & & \\ \text{Risk} & = & \% \text{ of} & & \% \text{ Mitigation} & & \text{Total Risk} \\ \text{Reduction} & & \text{Segment} & \times & \text{Effectiveness} & \times & \text{Addressable} \\ & & \text{Worked} & & & & \text{by Mitigation} \end{array}$$

To generate a value for total risk reduced across the system, risk reduction by circuit is calculated. We continue to innovate on our reporting capabilities and are exploring opportunities to automate risk reduction tracking to generate reports and valuable insights for the future.

PG&E's Wildfire Risk Governance Steering Committee (WRGSC)

Purpose of WRGSC

Our WRGSC is the decision-making body responsible for guiding and adjusting strategies to reduce wildfire risk.

The committee operates under two related mandates:

- Prevent catastrophic wildfires, mitigate wildfire risk and reduce customer impact.
- Ensure we obtain our Safety Certificate from California Office of Energy Infrastructure Safety (Cal OEIS) in a timely manner, allowing us to operate the grid.

Members of WRGSC

The committee comprises of all wildfire program leaders, who also serve as voting members. This group oversees our largest risk reduction programs and convenes twice a month to review ongoing wildfire mitigation efforts and proposed updates.

What is in Scope for the Committee?

- Workplan reprioritization and decision-making.
- Changes that may impact compliance with previous external commitments.
- New risk models, data updates and significant changes to existing modeling.
- Corrective Action Plans (CAP) to ensure compliance with current commitments.
- Ensuring current decisions are aligned with financial and regulatory commitments.

04 Our Wildfire Mitigation Approach: Ignition Prevention

Wildfire Prevention Program

At PG&E, we believe our field coworkers are the first line of defense against wildfires. Wildfire prevention is embedded into our team's day-to-day functions through the efforts of our Wildfire Prevention Program, which manages utility wildfire standard EMER-4102S, "Preventing and Mitigating Fires While Performing PG&E Work."

EMER-4102S establishes minimum year-round fire precautions for performing utility work activities on forest, brush or grass-covered lands, and ensures adherence to California state laws. The standard defines the mitigations that must be applied to prevent fires under various conditions, adapting daily work practices to changing ignition potential.

Understanding daily wildfire risk and having the necessary required tools to properly prevent potential ignitions is part of PG&E coworkers' everyday work functions. Before starting any field work, coworkers must submit a Wildfire Risk Assessment that ensures they understand and comply with the necessary procedures to ensure they are being fire safe. A daily Fire Potential Index (FPI) rating at the work site's Fire Index Area (FIA) prescribes specialized required mitigations based on the daily fire danger in that area. These FPI-based mitigation efforts—such as having a water tank at the field site, clearing vegetation to bare mineral soil, watering down a field site or having a Dedicated or Working Fire Watch—must be performed in addition to required general wildfire mitigation efforts to prevent any utility-caused ignitions. Implementing effective standards is the first line of defense in mitigating wildfire risk.

Public Safety Power Shutoff (PSPS)

High winds can cause trees and debris to contact powerlines and start a wildfire. To keep customers and communities safe, we may need to proactively de-energize our powerlines, as a last resort, to reduce the risk of wildfire. This is a PSPS. We use PSPS to help protect communities during severe weather.

Operational Decision-Making

Identifying High Fire-Risk Areas and forecasting severe weather guide our operational decision making for PSPS.

To do this, we use several spatial and temporal data resources, including:

- **Risk Modeling:** Assesses the likelihood of a wildfire in a given area.
- **Fire Potential Index:** Assesses the potential for a wildfire to start and spread. FPI is monitored hourly during high-risk periods.
- **Fire-Threat Maps:** Identifies areas at increased risk for wildfires due to strong winds, dry vegetation and other environmental factors.
- **Situational Awareness Tools:** Public and federal agency weather models, such as the NOAA Global Forecast System and the European Centre for Medium Range Weather Forecasts, and networks, including NWS, ALERTWest and Watch Duty, inform real-time detection and response to threats.

PSPS Phases

A PSPS has four phases: readiness posture, before de-energization, de-energization and restoration.

- 1 Readiness posture** occurs before we activate our Emergency Operations Center (EOC). If our meteorology team identifies a potential weather event, our experts meet to determine if and when to activate the EOC. Our teams prepare for a potential PSPS and continue closely monitoring the weather. Once activated, our EOC oversees weather monitoring, notifications and inspection and repair teams. It serves as a central location for activated team members to coordinate and support a PSPS.
- 2 Before potential de-energization**, we continue to closely monitor weather forecasts, develop and refine the potential scope of the PSPS and reach out to customers and agencies that may be impacted. We provide several notifications and resources to agencies, critical facility partners and customers prior to de-energization.
- 3 De-energization** for safety requires coordination with several external partners, such as emergency and grid partners, including impacted municipally owned utilities and the California Independent System Operator (ISO).

We work with our agency and critical facility partners to provide resources for our customers at our Community Resource Centers (CRC) in addition to transportation support, hotels and meals, if needed.

The decision to de-energize is made using the following factors:

STEP 1				
Evaluate if all of the minimum fire conditions are met.				
>0.20	<30%	>19MPH	<0.36	<9-12%
Fire Potential Index	Humidity	Sustained Wind Speeds	Normalized Difference Vegetation Index	Dead Fuel Moisture

STEP 2

Conduct an in-depth review of fire risk using several measures.

- A. Catastrophic Fire Probability:** We use machine learning to assess the likelihood of equipment failure during a given weather event and the risk of catastrophic wildfire if a failure occurs. The distribution model uses a combination of the Ignition Probability Weather (IPW) Model and the FPI Model (see graphic below).
- B. Catastrophic Fire Behavior:** Even if the probability of a powerline or equipment failure is unlikely, we may still turn off power where the consequence of a wildfire would be extreme.
- C. Vegetation and Electric Asset Criteria Considerations:** We identify areas where tree or electric tags may indicate increased risk of ignition.

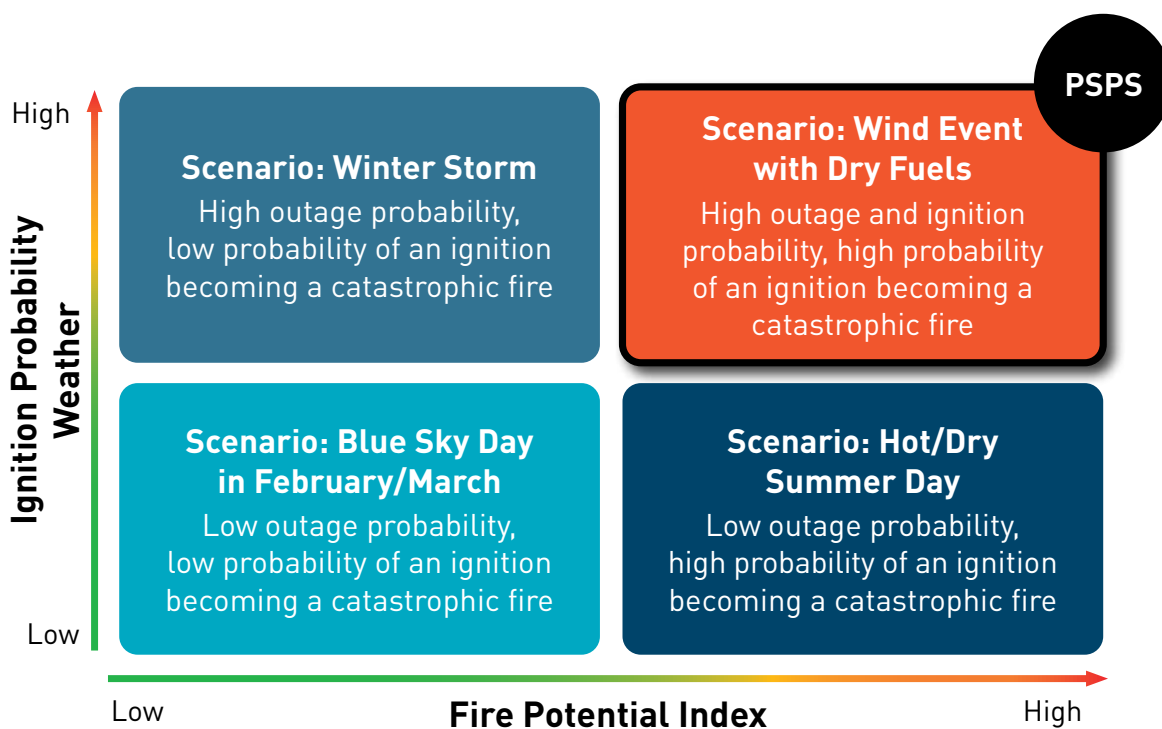


Figure 10. Catastrophic Fire Probability

STEP 3

Determine the event scope and power outage area.

- Distribution PSPS guidance is modeled hourly across approximately 35,000 h3 hexagons that cover overhead distribution assets in PG&E's High Fire-Risk Area.
- A PSPS will typically not be considered until PSPS guidance is met for 140 h3 hexagons in PG&E's High Fire-Risk Area; however, subject matter expertise is also applied during the event, including close consideration of external and agency forecasts.
- Because powerlines travel across long distances, customers outside the affected area may also be impacted.

4 Restoration occurs once severe weather passes and our inspection team assesses assets to ensure it is safe to turn power back on. Our goal is to restore power to all impacted customers within 24 hours after severe weather has passed.

STEP 1 Weather "All-Clear"

When weather conditions are below PSPS guidance (declining pressure gradients, decreasing winds and confirmed field observations show decreasing fire-weather conditions), crews begin patrol and restoration.

STEP 2 Patrol and Inspect

Our crews visually inspect for potential weather-related hazards and damage to lines, poles and towers. This is done by vehicle, foot and air.

STEP 3 Isolate and Repair Damage

Where equipment damage is found, our crews work to isolate the damaged area from the rest of the system. Other parts of the system can then be restored.

STEP 4 Restore Power

Once the poles, towers and lines are safe to energize, PG&E's Control Center completes the process and restores power to affected areas.

STEP 5 Notify Customers

Customers are notified that power has been restored.

Resources and Information Sharing

We provide information and resources for our public safety partners, internal emergency operations and communications representatives via:

- **Data Portals:** There are three secure online data portals for key government and community partners to access grid and outage information, as well as planning information to help support customers and minimize impacts. During restoration, the portal is updated hourly, allowing public safety partners across the service area to easily access the latest event information to support their response efforts. These include:
 - **PSPS Portal** – Designed for public safety partners and includes planning and event-specific maps and reports.
 - **Microgrid Portal** – Includes maps, current resiliency project locations and historical PSPS outage data for local agencies to plan and support local community resiliency efforts.
 - **Outage Portal** – Provides data on circuits currently enabled with EPSS, and active power outages on EPSS-protected powerlines, as well as maps and tools that detail customer impacts during outages.
- **Situation Report:** Posted on the PSPS Portal twice a day when the EOC is activated or a PSPS scope is changed. This report includes information about customer impacts, outage timing and mitigation efforts.
- **PSPS Situational Intelligence Platform (PSIP):** This internal platform is where notifications are staged and PSPS data is shared with internal stakeholders. These include notifications, event scope, all clear data and impacts broken down by Tribes, counties, cities and customers.

Notifications

We send notifications to customers, public safety partners and Tribal and local governments and critical facilities before and during a PSPS, including two days ahead, one day ahead, just before turning off power, once power is turned off and daily until power is restored. When possible, we also issue priority PSPS notifications to public safety partners, critical facilities and infrastructure and transmission-level customers up to three days before a PSPS, so they can help prepare the communities.



Figure 11. PSPS Customer Communications Timeline

In some instances, we will send ad hoc notifications when we anticipate de-energizing customers more than once within the same period of concern or other extenuating circumstances.

Strategic Improvements

PSPS has been a critical tool in keeping our customers and communities safe since 2019. Although PSPS impacts have declined significantly, we continue to use PSPS as a tool of last resort when weather conditions indicate wildfire risk.

A. Refining PSPS

We continue to refine this wildfire mitigation tool and implement improvements, including:

- **Standardizing Data:** We use PSIP as an internal, single source of truth for event data. By streamlining all event information through this centralized location, we can better track data and ensure all members of the EOC have accurate and timely situational awareness. This includes creating standard reports with event timing information.
- **Improving Notifications:** We have a standard timeline for communicating with customers and public safety partners. By setting expectations of what information we share and when it becomes available, we can better support customers and stakeholders who may be impacted by PSPS. We also utilize external meetings and media briefings to ensure consistent and timely messaging. Additionally, we leverage technology and automation to improve our notification processes, benchmarking with other utilities where appropriate.
- **Providing Customer Support:** We are doing more to help customers and communities before, during and after a PSPS. Finding ways to reduce impact without compromising safety is a key priority. We partner with community-based organizations (CBOs) and establish Community Resource Center (CRC) locations to provide a variety of resources, such as backup power, hotel stays and charging stations. Using mitigation tools such as backup generators and microgrids allows us to reduce impact within and around areas impacted by PSPS.

- **Minimizing Scope Impact:** We continue to conduct PSPS at more granular levels, leveraging emerging technology, to focus solely on the area of weather concern. Using tools like sectionalizing and supervisory Control and Data Acquisition (SCADA) devices, and improving our internal processes, we reduce the number of customers and duration of impact when safe to do so, also helping to alleviate strain on our field crews.

Going forward we will continue to evaluate PSPS and our range of wildfire mitigation efforts to ensure we are improving our systems while prioritizing customer safety.

B. Other Operational Options

New and emerging technologies increase the flexibility of our electric system and mitigate customer impact, while keeping customers safe.

These technologies have applications beyond PSPS to help prevent ignitions in high fire-risk weather conditions:

- **SCADA Devices:** Replacing manual devices with SCADA devices allows for switching power on and off remotely. It also reduces the impacts of PSPS by allowing de-energization decisions to be made closer to the start of forecasted weather.
- **Transmission Switches:** Separates a transmission line into smaller segments. These switches allow us to turn off power to a specific segment of a transmission line to minimize impact.



Operating the System to Prevent Ignitions

Encroachment

In the event of a wildfire near any PG&E infrastructure, we evaluate the size, proximity and direction of the fire and coordinate closely with the Authority-Having Jurisdiction (AHJ) to determine if de-energization is necessary for safety. We may de-energize facilities at the request of agency partners, based on input from field resources or operational needs. Additionally, we assess required switching to isolate equipment and mitigate the fire's impact.



Enhanced Powerline Safety Settings (EPSS)

To help keep communities in and near High Fire-Risk Areas safe, we use EPSS on our powerlines to help prevent wildfires. These settings shut off power quickly when a hazard, such as a tree branch, contacts a powerline. This helps to stop an ignition that could cause a wildfire. Since piloting these settings in 2021, they have proven to deliver significant ignition-reduction benefits.

Safety settings now protect approximately 47,000 circuit miles and nearly two million customers in and around High Fire-Risk Areas in our service area. Since 2021, EPSS enablement has reduced ignitions during elevated fire potential conditions⁶ by 69% in high fire-threat areas. Safety settings have also prevented 2,015⁷ wildfire hazards from causing an ignition, which could have led to a potential wildfire.

In addition to preventing ignitions, EPSS significantly reduces the size of an ignition if one occurs, supporting our ignition containment pillar. When a hazard strikes an EPSS-protected powerline, the power quickly turns off, significantly reducing arcing, sparks and embers resulting from the hazard.

In 2025, EPSS contributed to a 95% reduction in fires greater than 10 acres from ignitions.

Overview

A. Developing the Criteria for EPSS

Utilizing High Fire-Risk Area mapping, situational awareness tools and information on historic wildfires, we established thresholds for enabling settings. Our advanced machine learning-based FPI model allows us to forecast fire potential across our entire service area on a scale of R1 to R5+. Based on a historical look back at over 2,000 fires, the most dangerous fires occur when conditions are R3 or greater. That means that while preventing ignitions during any period is important, preventing ignitions during R3 and above is critical.

For example, our peak season EPSS criteria involves enablement when risk meets or exceeds conditions that historically account for 97% of acres burned and 100% of property damage, both of which occurred during R3 and above conditions.

⁶Elevated fire potential conditions are defined as R3 and above by PG&E's Fire Potential Index (FPI) model.

⁷Data as of 2/10/2026 and is from 1/1/2022 through 12/31/2025.

Once thresholds have been determined, we decide when and how enablement will occur. The majority of our EPSS protection devices are integrated with SCADA systems, which allow for remote enablement by our distribution control centers.

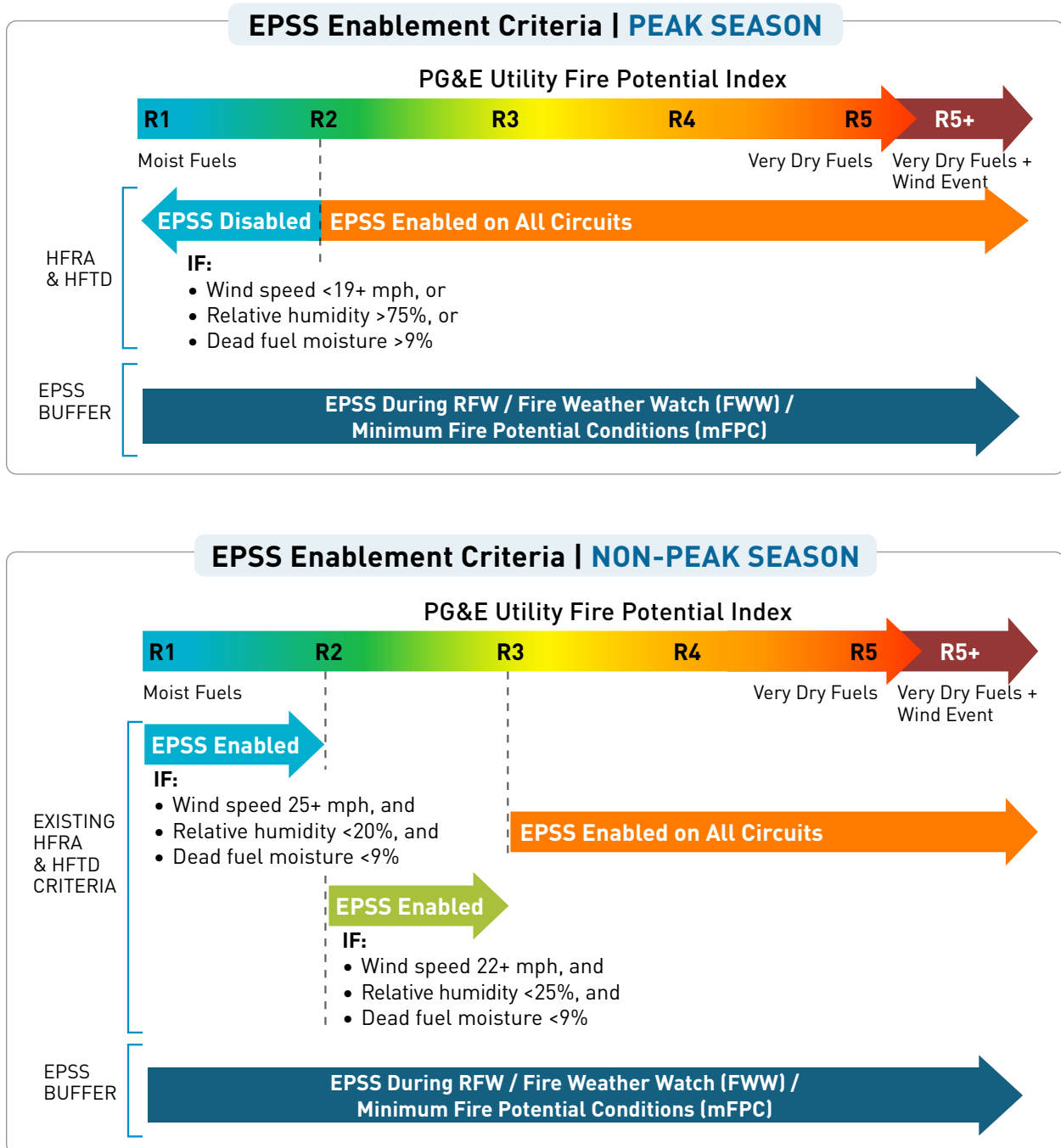


Figure 12. EPSS Enablement Criteria

B. Responding to Hazards and Re-Energizing Circuits

It is crucial to treat any outage as a potential ignition. That is why we deploy personnel to rapidly respond to every outage location and to ensure there is no ignition. Our goal is to arrive at all outage locations within 60 minutes. Arriving at the outage location within 60 minutes allows for timely patrol and restoration. While our primary goal is reducing wildfire risk, we are also focused on improving customer reliability.

To do this, we constantly track Customer Average Interruption Duration Index (CAIDI) performance and utilize several efforts that help improve reliability, including:

- **Fault Indicators:** Pinpoints where an outage occurred, helping crews identify the cause of an outage faster, make repairs and get the power back on quicker.
- **Reclosers and Fusesavers:** Divides the area a powerline serves into sections to reduce the number of customers who experience an outage if one occurs.
- **Gridscope Sensors:** Detects where a hazard contacted the powerline to help crews make repairs and get the power back on quicker.
- **Helicopters and Drone Patrols:** Allows us to reach areas to help identify outage causes as well as quickly find and fix potential issues.

C. Preventing Wildfire Hazards from Causing Outages

There are several reasons an outage and/or ignition can occur. To prevent both, we conduct safety and reliability work throughout the year to help prevent hazards that cause outages in the first place. For example, we stop animals and trees/tree branches from causing outages by installing animal guards on powerlines and trimming trees near powerlines. We also review and update software for wildfire mitigation tools, like Down Conductor Detection (DCD), to help prevent unplanned outages while reducing ignitions caused by high-impedance faults.

After every outage, our engineering team also looks for ways to prevent future outages and improve reliability. Each day, we review outages on circuits in a multi-step process to identify their cause and reliability improvement work that needs to be completed. If there is a circuit that has had three or more safety outages in a span of 60 days, we conduct a Multiple Outage Review to determine if there is work to be prioritized or if there are adjustments that can be made to the settings.

D. Notifications and Communications

Because power turns off quickly due to a safety hazard, we cannot notify customers in advance. During and following an outage, we will share updates through a customer's preferred contact method. This includes texts, emails and/or automated calls. Updates include the time it will take for power to turn back on, information about the outage (if available) and confirmation when power has been restored.

When information is available, we will share the cause of the outage and improvements to prevent future outages with customers via text, email, automated calls and/or Nextdoor posts. Customers can opt out of updates for a specific outage at any point and still receive notifications for future outages.

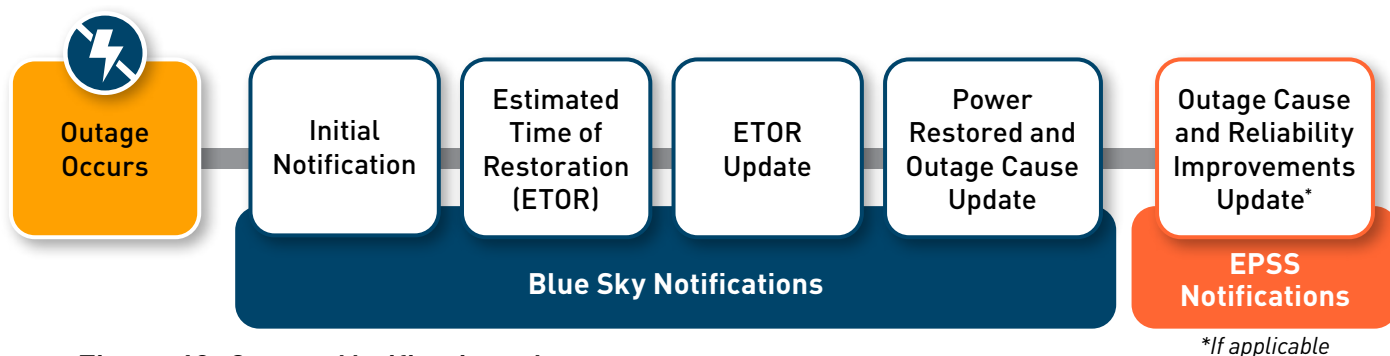


Figure 13. Outage Notifications Journey

E. Continuing to Improve Safety and Reliability

EPSS is a proven wildfire prevention tool. As we continue to protect customers and communities with it, we are focused on advancing its operational capabilities, expanding situational awareness around settings and improving the customer experience.

We are doing this through several key efforts:

- Increasing the capability to detect high impedance faults to better mitigate hard-to-detect hazards.
- Exploring automation of EPSS switching to allow for more targeted enablement of circuits to reduce customer impact.
- Reducing the number of unknown outages and conducting additional improvements to improve service reliability.
- Piloting new forms of outreach and enhancing existing communications to highly impacted and Access & Functional Needs customers.

Asset Maintenance and Replacement

System Inspections serve as our first line of defense in protecting our customers and communities from wildfires. We use cutting-edge technologies to survey the health and safety of our electric system to proactively address any issues.

Through inspections, we can identify abnormal conditions near our equipment that can spark an ignition or impact reliability. If we observe an abnormal condition, we create a tag in our system. Once we have identified and tagged a condition, we schedule repairs, which may include replacing equipment.

We utilize various technologies to capture actionable data in our inspection process. In addition to visual inspections, we use aerial and drone technologies and high-resolution imagery to gain perspectives above and around our equipment. These images are integrated into our Sherlock Inspection Platform to aid in analysis and plan potential repairs.

We also use infrared technologies to see conditions that we cannot identify visually. Through these technologies, we can identify system degradation, potential failure points and asset health in greater detail.



Views of a transmission insulator made possible by high-resolution imagery

Asset Type	Inspection Type	Frequency
Transmission	Detailed Inspection	• Every three years or according to changes in risk profile
	Infrared (Aerial or Handheld)	• Every three years or according to changes in risk profile
	Climbing	• Every three years
	Ground Patrol	• Each off year from Detailed Inspection
	Other	• Intrusive Pole: Between 10-20 years • Switch Function Tests: Every eight years • Intrusive Pole: Conductor Measurement, Proactive Sampling/Testing
Distribution	Detailed Inspection	• Every three years
	Overhead Equipment Inspection	• Every three years
	Ground Patrol	• As needed in highest risk areas
	Aerial Inspection	• Every three years or according to changes in risk profile
	Infrared Inspection	• As needed to investigate emerging issues
	Other	• Aerial Pilot (Visual): As needed according to changes in risk profile • Intrusive Pole: Between 10-20 years • LiDAR: Once
Substation	Aerial Inspection	• Every three years or according to changes in risk profile

Table 1. Inspection and Repair Types Across Service Levels

Vegetation Management

We manage vegetation near powerlines to help prevent wildfires and reduce outages.

Our tree safety work meets or exceeds state and federal safety standards and reflects our ongoing commitment to community safety and system reliability. Each year, we develop a targeted work plan to identify and prioritize the highest-risk areas using the HFTD map developed by the CPUC in coordination with CAL FIRE and the U.S. Forest Service. It's imperative to proactively mitigate the risks of vegetation that grows lush during rainy periods and then dries out during periods of drought and heat.

Enhancing Wildfire Safety

Annually, we conduct routine vegetation inspections on transmission and distribution electric facilities and clear vegetation around poles. As wildfire risk continues to shift, we have modified our vegetation management strategies to prioritize more effective and efficient ways of protecting our electric system and customers. Today, we manage vegetation around distribution lines through two key programs: Distribution Routine Patrol and Distribution Hazard Patrol.

Scope of Work

A. Distribution Vegetation Management Inspections

We inspect approximately 80,000 miles of distribution overhead electric lines each year. This work is required by state regulations. We also conduct additional patrols in areas of high wildfire risk and consequence to identify hazardous trees for mitigation.

B. Distribution Vegetation Management Tree Work and Pole Clearing

Following inspections, we remove or trim vegetation that is identified as a safety risk to overhead electric facilities. This work is necessary to maintain minimum required clearances around overhead lines, mitigate wildfire risk and reduce power outages. We maintain a clearance of at least one-and-a-half feet radially around distribution lines in non-high fire-threat districts,

and at least four feet in HFTD areas. At the time of pruning, greater clearances than the minimums shown below are obtained to ensure year-round compliance (in accordance with General Order 95, Appendix E). We also remove vegetation to maintain firebreaks around select transmission and distribution poles and towers, in accordance with state regulations (PRC Section 4292).

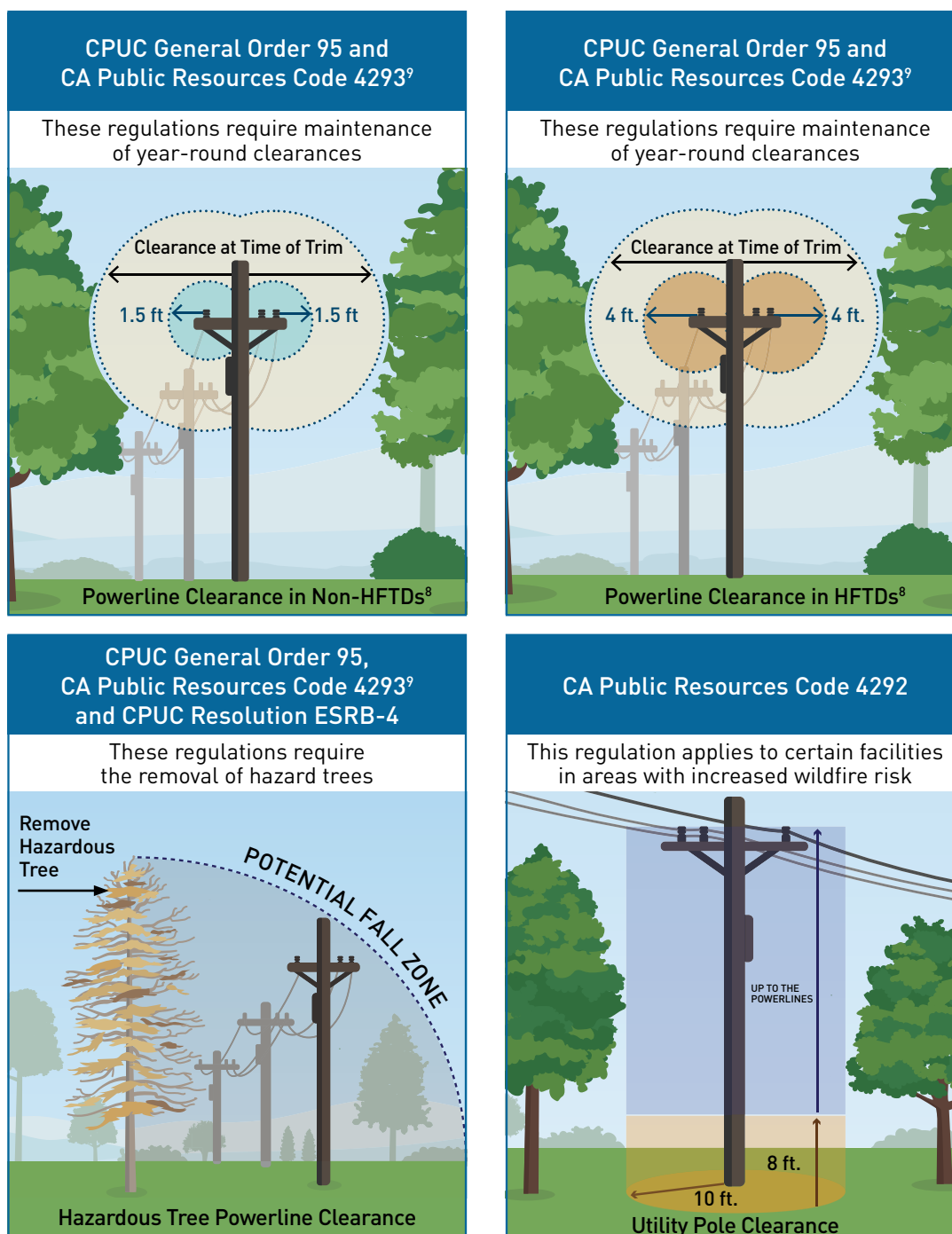


Figure 14. Our Vegetation Management Work Complies with State Requirements.

⁸These graphics display clearances for distribution lines. Clearance requirements may be greater for transmission lines.

⁹CA Public Resources Code 4293 applies in certain areas with increased wildfire risk.

C. Wood Management

As part of our vegetation safety work, we will chip and haul away branches and limbs we trim that are less than four inches in diameter. We may provide the wood chips to the customer if requested. If small branches and limbs cannot be chipped, we will cut and scatter them on site in accordance with California Forest Practice Rules. Wood greater than four inches in diameter will remain in a safe location on site, as this wood belongs to and is the responsibility of the property owner.

D. Quality Processes

We perform quality reviews to ensure recently completed vegetation management inspections and tree work meet quality standards, and to determine whether the work is meeting operational standards and procedures. Through the International Society of Arboriculture's (ISA) industry-recognized credential process, our Quality team may include Certified Arborists, Certified Tree Climbers and/or Tree Risk Assessment Qualified (TRAQ) Inspectors.

E. One VM Database

We implemented a technology platform called One VM to capture and maintain a multi-year, historical tree data set. This system also facilitates recordkeeping by supporting our inspectors in their collection, organization and management of data gathered in the field. Our One VM database is essential to monitoring progress and informing future vegetation management strategies.

F. Key Insights Enabled by Remote Sensing Tools

We are exploring data gathered from remote sensing technologies to analyze how distribution inspections could be further evolved to incorporate remote sensing techniques. Remote sensing techniques that will be considered could include satellite, LiDAR, ortho imagery or other available technologies that can provide accurate and efficient insights into vegetation risk.

Distribution System Hardening

System Upgrades

System upgrades can include moving powerlines underground, installing strengthened poles and covered powerlines above ground, and in some cases removing powerlines or infrastructure that is no longer needed. Additional upgrades can include establishing standalone power systems or microgrids that operate independently from the electric grid, hardening substations and other infrastructure investment initiatives that improve the resiliency of our electric system. When used with other wildfire safety tools, system upgrades will maximize wildfire risk reduction and significantly improve safety and service reliability for customers.

History

PG&E's system upgrades have evolved in recent years in response to increased drought, heat waves and other environmental factors that increase wildfire risk. With the goal of addressing as much risk as efficiently as possible (and as conditions change and evolve), we use risk models to determine where we should underground or use other wildfire mitigation tools. These risk models include factors related to the probability of an ignition (equipment type, inspection and outage history, exposure to environment, etc.), as well as consequences of an ignition occurring (population, structure density, ingress/egress, etc.). This helps us prioritize what system upgrade tool to use in the locations where we can mitigate the most wildfire risk in our service area. Additionally, elements of this work also help to improve electric reliability for communities by helping us avoid wildfire safety outages (such as PSPS and EPSS) and other service disruptions year-round.

System Upgrades Overview, Scope and Implementation

A. Undergrounding Program

Since launching our undergrounding program in 2021, we have successfully constructed and energized more than 1,240 miles of underground powerlines for wildfire safety and are on track to complete nearly 1,900 miles of undergrounding through the end of 2027. Once a line is moved underground, approximately 98% of the wildfire ignition risk is permanently eliminated, making it one of the most effective ways to reduce wildfire risk at the lowest long-term cost to customers. Customers served by underground lines also experience 90% fewer outages, as they are less susceptible to external elements like wind, ice, tree damage and vehicle collisions than overhead lines.

What PG&E's Undergrounding Looks Like

Our undergrounding efforts include targeting the primary distribution powerlines that deliver electricity to neighborhoods. Secondary powerlines are also undergrounded if they run in parallel with primary lines. Some equipment, like the service lines connected to homes or non-PG&E-owned telecommunications lines, will remain. Additional above-ground equipment may need to be installed depending on the design of each project.

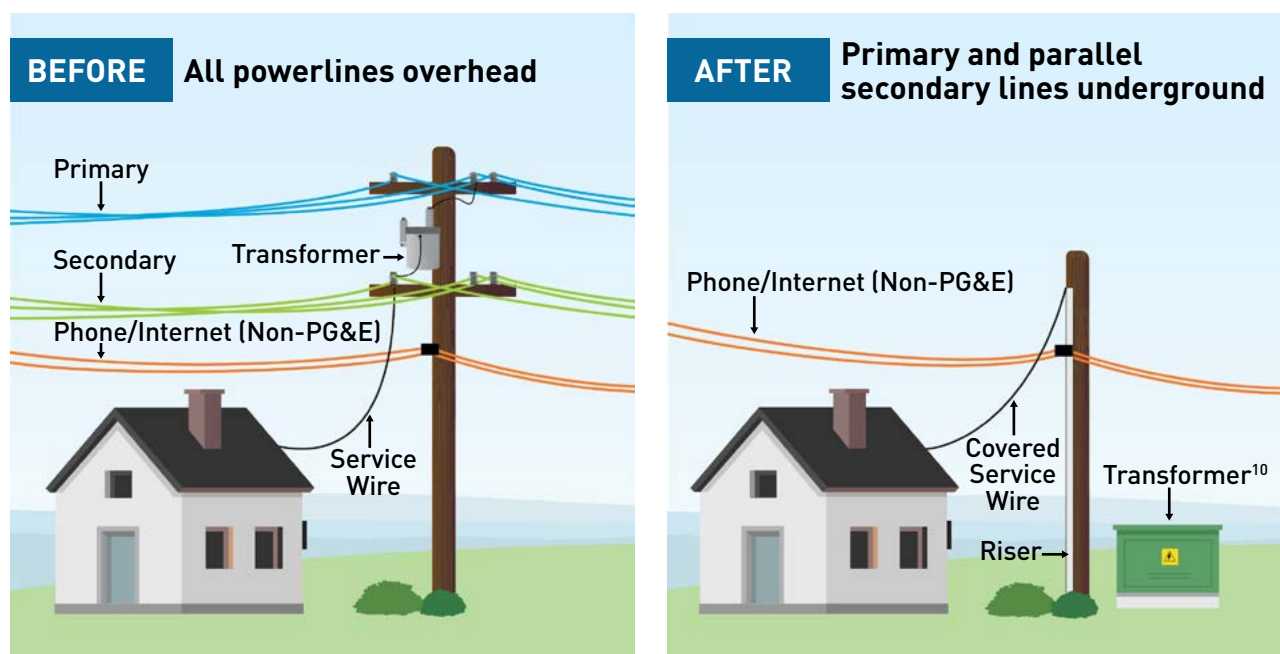


Figure 15. Undergrounding Before and After

¹⁰Transformers may be placed above or below ground. Transformers are not required on every property.

As we have ramped up our undergrounding work over the last few years, we have reduced the average cost per mile by approximately 25%. Prior to 2021, the average cost of undergrounding was more than \$4.28 million per mile. Over the last three years, we have averaged about \$3.25 million per mile and anticipate further reducing costs in future years. We will do this by optimizing project designs, construction tools and contracting approaches. Additionally, our teams continue to identify more efficiencies and innovations to consider in the future.

We have enhanced our customer journey over the years based on thorough customer research. This helps ensure that customers are informed early and often throughout the undergrounding process. Our outreach includes phone calls, texts, letters, emails, web updates, community engagements and more.

We have also recently developed and launched specific webpages for counties experiencing a high volume of undergrounding miles. This helps keep customers informed of the work in their community. Refreshed quarterly, these webpages (e.g., pge.com/systemupgrades-napa) include mileage progress totals as well as resources like videos, maps, photos of work and equipment and their local point of contact.

The timing of undergrounding projects varies as weather and other factors affecting safe working conditions may change work schedules. To keep customers informed, we developed system upgrades-specific layers for the Wildfire Safety Progress Map (pge.com/wildfiresafety-upgrades), which provides customers with forecasted and completed system upgrades work, as well as up-to-date status on traffic controls and road restoration in their area.

We remain committed to reducing wildfire risk across our service area in both the near and long-term using multiple layers of protection. In 2025, we shared plans with our regulators outlining our proposed undergrounding workplans in 2027, and system upgrade work for 2027 through 2030 in our most recent General Rate Case (2027-2030). Looking beyond 2027, we are developing a 10-Year Electrical Undergrounding Plan (EUP) that we will submit to the California Office of Energy Infrastructure Safety (Energy Safety) with additional details on our work for 2028 and beyond.

In December 2025, the CPUC requested utilities work together to propose additional cost recovery guidelines related to 10-year plans. We filed our Joint IOU proposal for the EUP Cost Recovery Guidelines in February 2026, and we look forward to finalizing an approach that aligns with the intent of Senate Bill 884.

B. Overhead System Upgrades

We are also installing strengthened poles and covered powerlines in High Fire-Risk Areas. Upgrading overhead lines reduces wildfire ignition risk by approximately 67% and in conjunction with other wildfire mitigation efforts can achieve even greater risk reduction. This means that even once strengthened poles and covered lines are installed, we continue to use tools like PSPS, EPSS and vegetation management to keep communities safe. We prioritize upgrades in high wildfire-risk areas as an effective alternative where undergrounding may not be feasible.

These upgrades can include:

- Replacing bare powerlines with strengthened, covered powerlines.
- Installing fire-resistant poles and cross arms.
- Installing more poles to support the weight of covered powerlines.
- Removing overhead poles and lines that are no longer needed.*

We have completed more than 1,430 miles of wildfire safety system upgrades through the end of 2025 and have additional work planned for future years.

**Original poles may also remain in place following the completion of system upgrades if they carry phone and internet lines.*

What PG&E's Overhead System Upgrades Look Like

Strengthened poles are often wider, taller and closer together to support the heavier covered powerlines and wider, fire-resistant crossarms. This may also result in the installation of additional poles for strength, as well as keeping existing poles that carry telecommunications lines.

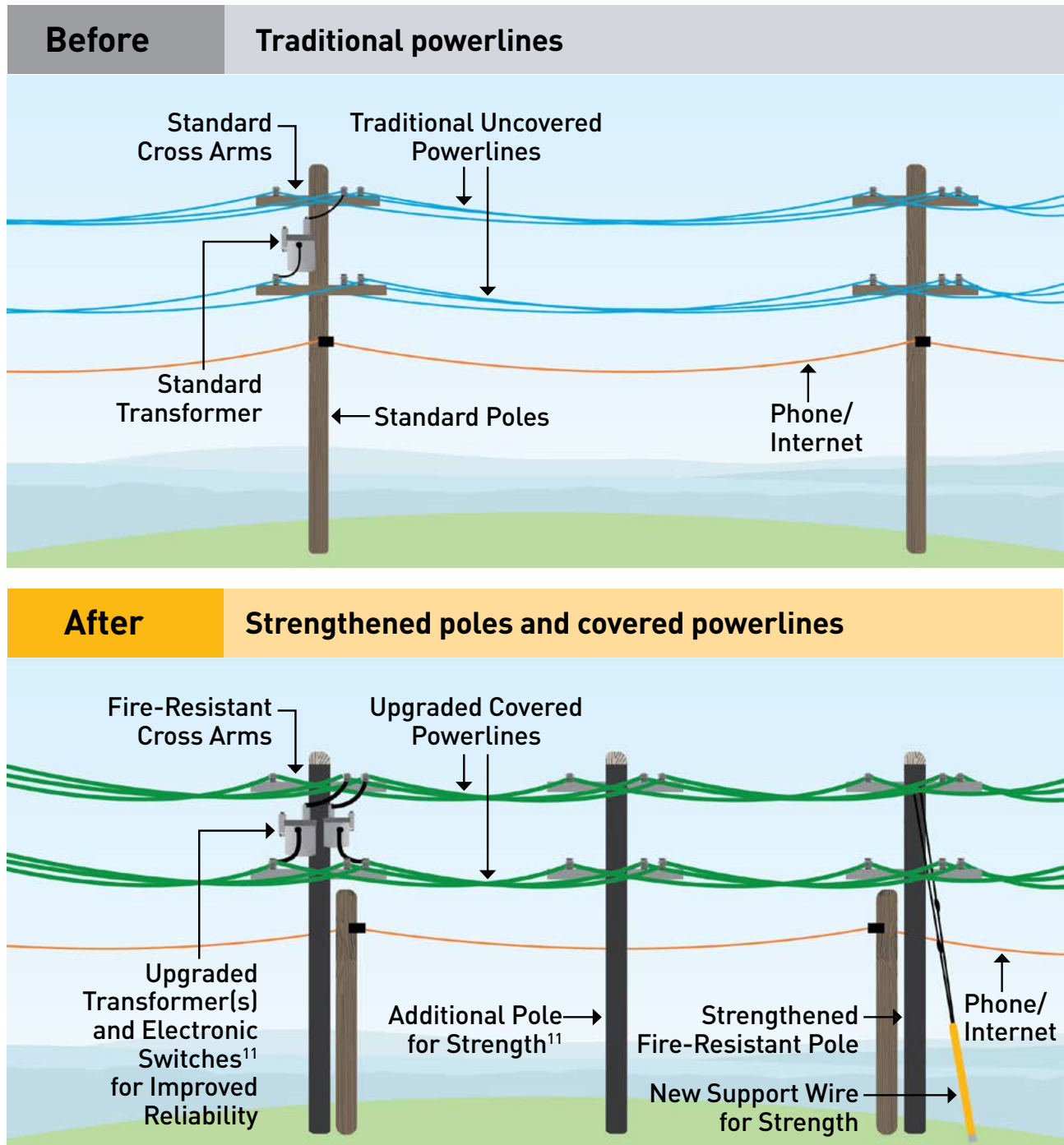


Figure 16. System Hardening

¹¹Not required for all projects.

C. Line Removal

Deciding to remove any overhead distribution lines involves careful, deliberate analysis and thorough planning. This typically occurs in areas where lines are no longer needed or where power is supplied through alternative means, such as a remote grid. By removing lines that are no longer needed, we reduce wildfire risk, improve reliability, streamline our system and reduce costs to customers.

Before completing line removal projects, we contact customers in the area directly impacted to discuss the project and ensure that their current and future service needs are met. When redundant facilities are removed, we also reinforce the remaining lines in the area to maintain the capacity, reliability and flexibility needed to support the community.

We have completed more than 130 miles of line removal through the end of 2025 and plan to complete additional work where necessary in the future.

D. Ground-Level Distribution System (GLDS) and Minimum Cover Distribution System (MCDS) Pilots

We are piloting GLDS and MCDS as methods to underground powerlines in areas where traditional undergrounding may be infeasible, impractical or very expensive. At a high level, GLDS packages electric cables in conduit in a specially molded tray, tied in with a basalt rebar, then sealed with a special geopolymer cement, placed at ground level, or just below the surface, and capped in thermoplastic. MCDS on the other hand is shallowly buried by utilizing a cable rail system and geopolymer fill.

Our initial pilots have been effective, showing that these approaches may be able to serve as safe and viable methods to underground powerlines, particularly in environments where challenges like hard granite, lava rock, cultural sensitivities or environmental considerations make traditional trenching impractical. The next phase is conducting third-party testing and demonstration work within our facilities to develop construction standards and methodologies for expanding the pilots. We have begun piloting GLDS in select locations across our service area. One key area of focus is our work to develop devices that will allow us to more easily connect GLDS and MCDS lines to existing powerlines, underground or above ground, without the need for extensive digging or trenching.

E. Remote Grids

Our Remote Grid Program helps to reduce wildfire risk while providing power for our customers and communities. A remote grid is a standalone power system that uses a combination of solar, batteries and fuel-powered generation to provide power that is independent of the electric grid.

Remote grids provide safe, reliable and clean energy while significantly reducing wildfire and weather-or PSPS-related outages risk by eliminating the need for overhead powerlines in high fire-threat areas. Remote grids are installed on eligible private properties, while PG&E manages every aspect of the system and owns and maintains all the equipment.

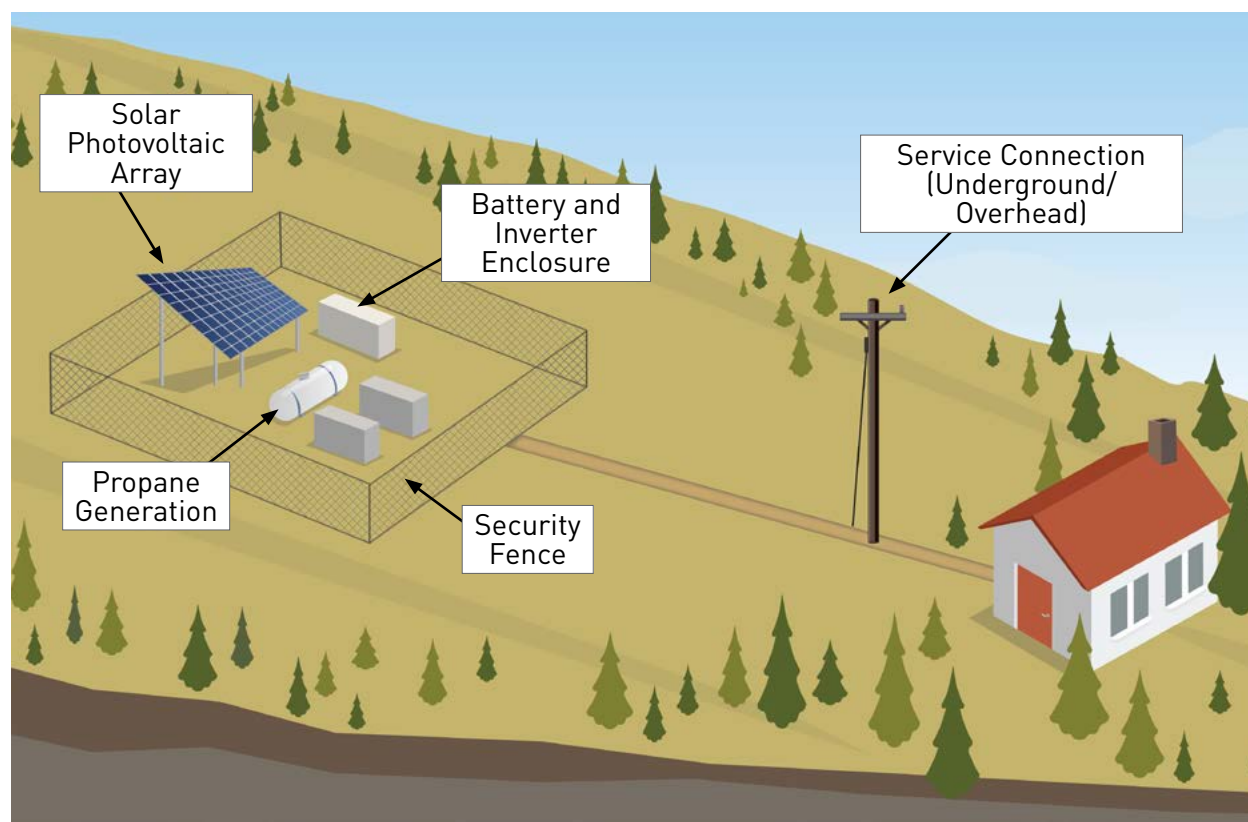


Figure 17. Remote Grid Example

Transmission System Hardening

Similar to Distribution System Hardening, Transmission System Hardening activities—the maintenance, repair, life extension and replacement of transmission structures—remediate and prevent potential risks to electrical transmission networks. By reducing the risk of system failure, and therefore ignitions, these activities are integral means of mitigating wildfire risk.

Transmission hardening activities include the following:

- Transmission maintenance repair tags.
- Transmission tower coating used on structures in areas subject to atmospheric corrosion.
- Transmission tower cathodic protection used to control corrosion of the structure's metal surface.
- Wood pole reinforcement.
- Transmission structure replacements where repairs or life extension would not be as effective.

Transmission structure replacements and reinforcements reduce wildfire risk by decreasing the likelihood of asset failure, which could lead to ignition. Specifically, replacing wood poles with steel reduces the ignition likelihood of energized components in contact with the structure or a path to ground. Other factors, such as the newer age of replaced equipment, may also reduce the risk of asset failure. There are programs that specifically target reducing transmission line conductor failures that may lead to wildfire ignition. These activities include Dispersed Conductor (Splice) Hardening and Conductor Segment Replacements.

Dispersed Conductor Component (Splice) Hardening

A conductor splice is a point of potential failure within a conductor span. A shunt splice is applied directly over the existing splice and extends some distance on either side of the splice. The installation of a shunt splice on top of the existing splice eliminates the splice as a single point of failure because with the shunt, a failure of the original splice would not result in a downed conductor. Lines prioritized for this program are based on higher risk splice and wildfire consequence.

Conductor Segment Replacements

This activity reduces risk by replacing a segment where the conductor segments are at higher risk, but the supporting structures are in good condition and there is no additional electrical capacity need to increase the conductor size.

Avian Mitigation

Avian contact with transmission lines can potentially pose an ignition risk as well as a reliability risk. We are piloting ways to prevent birds from contacting lines, including installation of equipment on towers to reduce the likelihood of birds perching.

Avian protection measures may also improve safety and reduce ignition risks. We are working to ensure adequate separation between energized components by studying technology that may work to insulate these grounded components. This is intended to prevent incidental avian contact, which can lead to electrical flashover and wildfire ignition caused by the bird on the ground contacting vegetation.

Continuous Monitoring

Stood up in 2025, our Continuous Monitoring Program brings together data from over 5.5 million sensors that monitor PG&E's electric assets 24 hours a day, seven days a week. Using advanced computer modeling and analytics, dedicated PG&E engineers and experts can identify potential risks, investigate anomalies and act before an outage or wildfire risk situation occurs.

In 2025, the company's continuous monitoring efforts helped prevent 17 potential ignitions and avoided 12.4 million minutes of unplanned customer outages and 2,620 hours of emergency outage response time. These efforts also saved approximately \$7 million in avoided costs, which are re-invested in local communities to improve wildfire safety and reliability.

Continuous monitoring supports our customers and operations by:

- **Shortening Outages and Improving Safety:** If an outage occurs, sensors determine the outage location, thereby reducing the time and distance our first responders need to travel to conduct repairs and safely get the power back on.
- **Preventing Future Outages:** Continuous Monitoring systems review past outages and identify opportunities for improvement, helping to prevent future outages.
- **Enhancing Awareness:** Sensors and technologies provide continuously updated information about asset conditions. This helps us detect potential issues before they become wildfire hazards.
- **Predicting and Preventing Equipment Issues:** Sensors pick up early warning signs that allow us to proactively address potential problems before they result in a wildfire hazard or unplanned outages.

Continuous Monitoring Tools and Technologies

The Continuous Monitoring Program is made up of various innovative tools and technologies, including:

- **Line Sensors:** Collect data on load current, fault current and waveform signatures. This information aids in determining fault location, analyzing the potential cause and informing the insights from other Continuous Monitoring sensors. This data also helps us understand the line's fundamental operational conditions at specific locations and times. As of December 2025, approximately 4,500 Line Sensors are deployed on 350 distribution circuits, continuously monitoring 19,000+ circuit miles in High Fire-Risk Areas.
- **GridScope Sensors:** Contain a combination of sensors that can detect movement, vibration, magnetic fields associated with energized conductors, sound and various environmental conditions. The device interprets the combination of sensor inputs and provides alerts and predictions based on this information. As of December 2025, approximately 20,000 GridScope Sensors are deployed on 47 distribution circuits, covering over 1,300+ miles in High Fire-Risk Areas.
- **Early Fault Detection (EFD):** Monitor the electrical system for radio frequency (RF) discharge associated with potential grid anomalies. These anomalies show up as clusters of energy release that the EFD sensors can locate based on the time it takes a RF signal to travel between two sensors. As of December 2025, over 590 EFD sensors are installed on 14 distribution circuits and seven transmission segments, covering over 990 circuit miles in High Fire-Risk Areas.
- **Distributed Fault Anticipation (DFA) Sensors:** Installed at a substation's feeder breaker to monitor magnitude, phase, harmonics, and real and reactive power. When the sensors detect a disturbance, the system classifies the irregularity using a stored signature library and creates an alert. As of December 2025, DFA sensors are deployed on 112 distribution circuits, continuously monitoring 8,900+ circuit miles.

- **Grid Data Analytics & Technology (GDAT):** A central hub that interprets and displays incoming sensor and outage data from our grid. This foundational Continuous Monitoring System acts as the base for multiple machine learning models and tailored applications that are created for our teams who use information from the sensors deployed on our system. GDAT improves and expedites decision-making by minimizing manual data gathering and analysis, and it integrates data across sensor types and internal systems to provide a comprehensive and insightful view of PG&E electric assets.
- **SmartDetect:** SmartDetect is an integrated suite of systems designed to proactively identify and remediate issues on the electric distribution network. It is built on multiple machine learning models, which are managed through our GDAT. SmartDetect has a predictive accuracy of 90-95%.
- **Partial Voltage Detection:** Developed in 2016, Partial Voltage Detection uses customized SmartMeter™ alerts to identify partial or low voltage conditions. Partial voltage levels are indicative of potential grid issues, some of which can pose a hazard. As of December 2025, Partial Voltage Detection is active on 5 million single-phase and 500,000 three-phase legacy SmartMeters.

05 Our Wildfire Mitigation Approach: Ignition Containment

Distribution and Transmission Containment Work

Pole and structure vegetation clearing plays an important role in our wildfire mitigation strategy. In addition to preventing ignitions from occurring near our lines, this approach also broadly reduces the likelihood that any ignition that does occur will continue to spread through the clearing and into unmanaged areas.

This work occurs on equipment handling various voltages. We often clear distribution poles in HFRA or where previous ignitions have occurred to mitigate future risk and reduce the chance of fire spread. On our transmission system, we adhere to federal regulation and are exploring opportunities to conduct further clearing. We also implement defensible space at our substations in HFRAs to reduce wildfire risk.

As an added benefit, clearing vegetation near our equipment can help protect our assets from an approaching wildfire and ensure that power is safely and reliably delivered to customers.

Urban Conflagration

Wildfire consequence plays a significant role in informing how we combat risk, as similar ignitions in two different locations can lead to drastically different wildfire outcomes. Our current models rely on a fire simulation approach to estimate fire spread through the wildland up to the wildland urban interface (WUI). Using this approach, we can estimate the structures impacted for a given potential ignition.

Traditional wildfire simulations are not designed to provide insights into fire behavior once the wildfire crosses the wildland and urban/suburban interface. This approach minimizes one of the largest potential risks from wildfire in urban conflagration, or the ability for fire to spread between non-natural structures, like homes, businesses and other human structures.

Our team is exploring opportunities to include urban conflagration risk into our planning models. A successful approach builds on our current understanding of where ignitions are most likely to become wildfires by also predicting where urban conflagration fires are most likely to originate. Once implemented, these models will represent another tool at our disposal to determine where to implement resiliency work to permanently reduce risk to communities.

06 Our Wildfire Mitigation Approach: Community Resilience

Wildfire Resilience Partnerships

We continue to identify new and innovative solutions to prevent wildfires, including ways to expand community safety. That includes our Wildfire Resilience Partnerships (WRP) team, which collaborates with high fire-risk communities across our service area to provide funding and resources for local wildfire safety projects and fire safe councils, enhancing overall community safety. We work closely with community partners to understand their needs and support projects that will have the greatest impact on reducing local wildfire risk.

Since 2024, our WRP team has:

- Provided \$9.3 million to local communities.
- Supported wildfire mitigation treatment across 11,989 acres (primary and secondary).
- Supported 25 counties across our service area.
- Completed 204 wildfire safety projects.

By contributing to previously planned work or partially grant-funded projects, we maximize the safety and reliability impact per dollar spent. We continuously monitor upcoming county-, state- and federally funded local projects throughout our service area to determine whether they align with our risk models and whether they would benefit from funding and resources.

Partnering with Communities Throughout Our Service Area

We collaborate with high fire-risk communities to provide funding and resources that enhance wildfire preparedness.

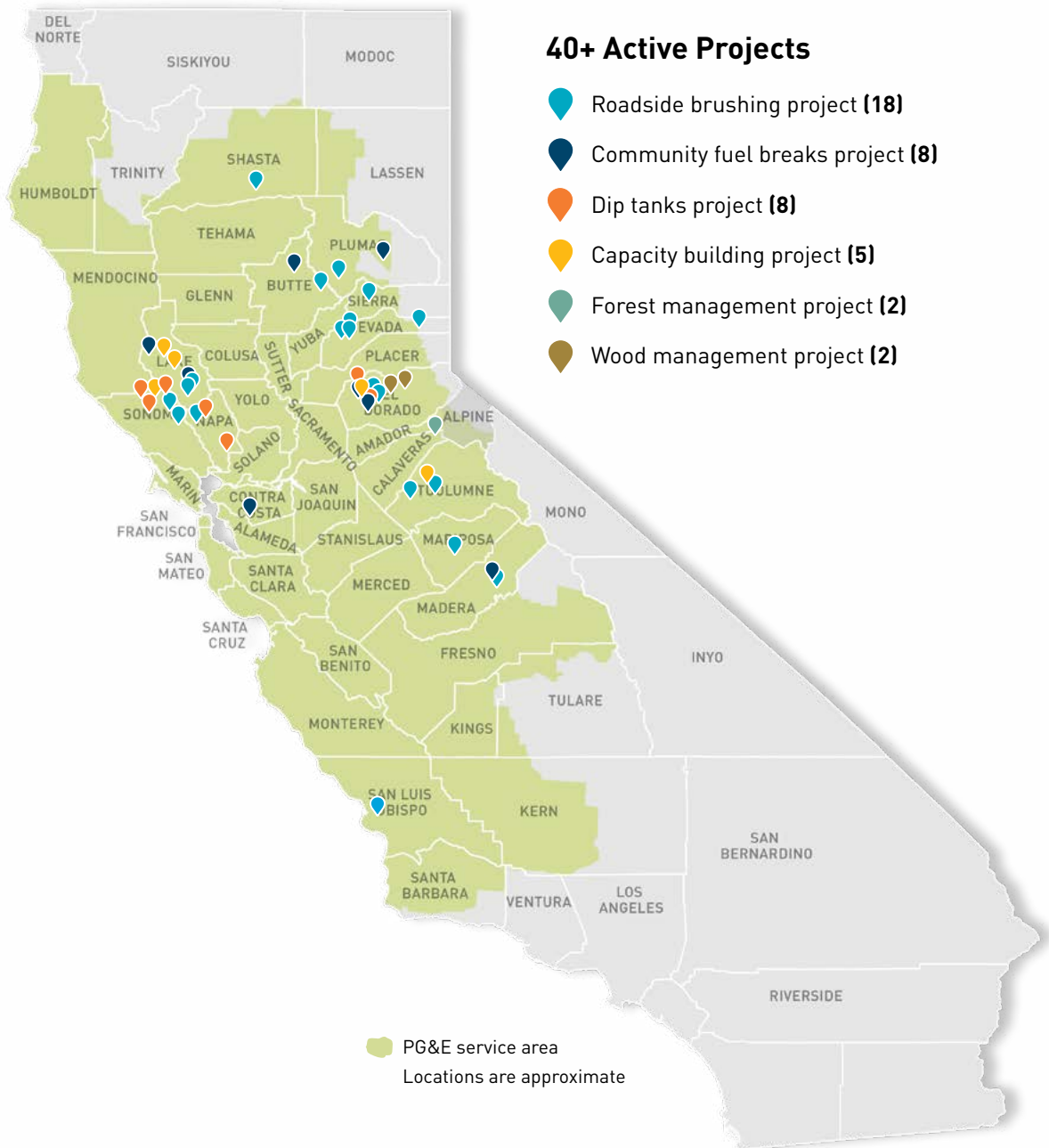


Figure 18. Projects in Our Service Area

Wildfire Resilience Partnerships

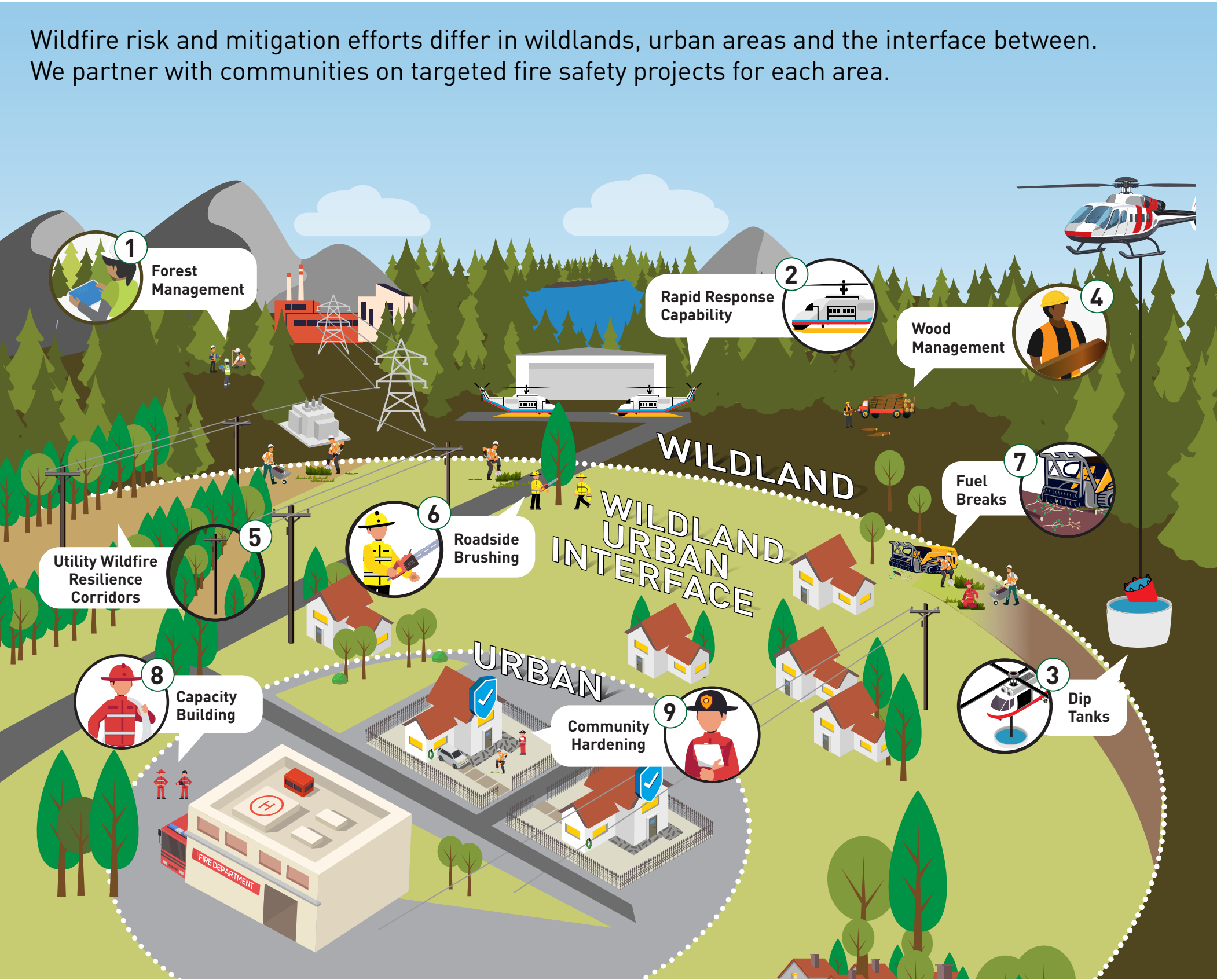


Figure 19. Safety projects we support

Wildland

- 1 Forest Management**
Improving forest health and reducing wildfire risk.
- 2 Rapid Response Capability**
Partnering with communities to station fire suppression aircraft near high-risk areas.
- 3 Dip Tanks**
Increasing water availability for aerial fire suppression through infrastructure solutions.
- 4 Wood Management**
Relocating potential wildfire fuel and upcycling organic material.

Wildland Urban Interface

- 5 Utility Wildfire Resilience Corridors**
Partnering to expand utility rights of way with ecological benefit to reduce wildfire likelihood and spread.
- 6 Roadside Brushing**
Removing roadside vegetation to expand fire breaks for emergency ingress/egress routes.
- 7 Fuel Breaks**
Trimming trees and brush to slow fire spread.

Urban

- 8 Capacity Building**
Providing project and capacity funding for local on-the-ground response and prevention, including ground-based work around electrical assets.
- 9 Community Hardening**
Supporting projects for community structure defense and improved insurance coverage.

Types of Partnerships

A. Wildland

1 Forest Management

Many California forest ecosystems are fire adapted. With a long-term policy of fire exclusion, many forests have deviated from historical norms and are considered overstocked and unhealthy. Forest restoration can improve forest health and ecosystem function while also reducing potential fire spread, intensity and consequence. Forest restoration can be achieved through tree thinning, mastication, grazing, controlled or managed burns and post-fire afforestation.

We have provided catalytic funding for forest restoration projects which help to protect communities, infrastructure and environmental health, including:

- Proactively managing PG&E's forested lands for ecosystem health.
- Supplying matching funding for grant applications for larger forest management projects.
- Funding of "forest resilience bonds," which reduce barriers for speedy and dependable use of public grant funds for landscape-scale restoration.

2 Rapid Response Capability

We maintain and deploy our own fleet of heavy-lift helicopters to support fire suppression efforts in our service area. These helicopters drop water and retardant to control the spread of wildfire and supplement work by firefighters on the ground. Rapid response plays a vital role in preventing ongoing fires from becoming catastrophic. As wildfires spread, water and retardant drops help slow their progression and mitigate consequences.

In 2022, we installed an internal tank system in our single existing heavy-lift helicopter to carry up to 1,000 gallons of water or retardant. Based on fire risk, this first helicopter was stationed in Marin County during the 2023 fire season to support quick suppression before an ignition produces consequences.

In 2024, we expanded our rapid response program by partnering with Butte, Merced and Contra Costa Counties to station three additional helicopters. These areas, like Marin, have higher ignition and wildfire consequence risk than other areas in our service area. We also deployed our aircraft to support large-scale firefighting efforts, such as the Park Fire in 2024 and the Los Angeles fires in January 2025.

As part of our partnership with local jurisdictions, our rapid response resources are dispatched at the command of either the local county fire department where the helicopter is stationed and/or CAL FIRE. Through partnership agreements with local fire authorities, we cover the costs of the aircraft and the required crew.



3 Dip Tanks

The effectiveness of a wildfire response is contingent on access to bodies of water that a fixed-wing aircraft or helicopter can use to replenish water stores before returning to the fire. During a fire, the distance between drop and refill sites can dramatically alter the efficiency of fire reduction efforts.

Dip tanks are strategically placed in areas that are far from natural bodies of water to allow fire suppression aircraft to resupply with water and/or retardant closer to a potential wildfire. When appropriately sited and equipped, tanks can also enable night-time suppressant pickup and fire response.

For communities in isolated areas without access to large bodies of water, dip tanks reduce the time and required air miles between drops, while ultimately allowing more rapid and frequent response to prevent fire spread. Tanks can be plumbed for dependable water supply, and made in different sizes, specifications and locations according to local community needs and our risk assessments.



4 Wood Management

Many communities with high fire risk conduct forest thinning and defensible space work to reduce potential fire intensity. When convenient outlets for waste wood are not nearby, wood removal and disposal can be expensive and require extensive travel.

One way we are helping communities reduce the cost of wood removal is by using innovative technologies. For example, we partner with communities on shared cross-partner use of mobile Tigercat carbonizer machines capable of high-throughput conversion of wood to biochar, a charcoal-like product made from biomass waste that improves plant health and stores carbon.

We also piloted solutions to use the scrap wood, including turning the material into valuable biochar by decomposing natural material in low-oxygen conditions where a Carbonizer may not be feasible. Biochar weighs a fraction of the wood that it is created from, has utility in a variety of applications and is a long-term store of greenhouse gases which would otherwise be emitted into our atmosphere. Such partnerships between PG&E and local communities are helping build new industries at scale, directly impacting local economies.

B. Wildland Urban Interface

5 Utility Wildfire Resilience Corridors

Wildfire resilience corridors protect communities and critical infrastructure against wildfire risk and spread by combining multiple types of mitigation work in one area, including fuel breaks, roadside brushing, forest management and more.

This combination of mitigations forms a “resilience corridor” that:

- Improves safety and forest health around customer properties and powerlines.
- Reduces the need for future vegetation management work.
- Decreases the potential for power outages.
- Reduces operational costs, with these savings passed on to customers.

6 Roadside Brushing

Public infrastructure, especially roadways, often serve as natural firebreaks to slow the progression of a wildfire. By clearing or “brushing” vegetation on either side of a roadway, we can effectively expand that natural firebreak up to 300% of the road width. At the same time, brushing a roadway ensures we only address surface risk to preserve natural shade, fuel moisture and topographical stability. Given that a roadway’s environmental impact has already been analyzed and approved, work approval is often streamlined, providing the most benefit for the least cost. In many communities, roads where we conduct brushing may be the only ingress/egress routes during a wildfire. Brushing also helps to protect adjacent utility infrastructure, reduce roadside ignitions and provide a roadway for first responders.

7 Fuel Breaks

We partner with communities across our service area to support local fuel break projects. This work plays a significant role in slowing and/or stopping a fire from crossing a wildland-urban interface. Conducted in partnership with local groups such as Fire Protection Districts, Fire Safe Councils, and Resource Conservation Districts, we provide funding and supplement ongoing work with advanced mapping, risk modeling and analytics for improved efficiency.

C. Urban

8 Capacity Building

We piloted providing seed funding to expand local fire and fuel crews in high-risk, low-resource areas. This funding helps put boots on the ground to prevent and respond to local fires. By increasing a community’s firefighting capacity, crews can help achieve low-cost fuels treatment projects, providing preventative value to the community while providing utility equipment protection.

9 Community Hardening

We funded an innovative local program providing gravel vouchers to homeowners who made their homes “gravel ready” by removing vegetation five feet from the house. As a result, many of these homeowners were able to get new residential insurance plans and move off of the Fair Access to Insurance Requirements (FAIR) Plan. We are also exploring or piloting other targeted collaboration with communities to reduce the risks of urban conflagration (i.e. building-to-building spread).

Ingress and Egress Work

Infrastructure maintenance is essential to supporting community wildfire resilience work in High Fire-Risk Areas by keeping roadways open for evacuees and responders. Collaborating with community fire agencies and fire safe councils, and consulting the Office of the State Fire Marshal (OSFM) Urban Conflagration Model Risk, Safety and Infrastructure Protection Teams (SIPT) conduct Community Ingress Egress pole-clearing projects to protect critical ingress and egress routes and safeguard equipment from fire exposure.

In 2025, SIPT crews completed over 4,200 Community Ingress Egress pole clearing tags. We plan to complete at least 6,000 more in 2026.



Partners in Community Resilience

PG&E partners with innovative technology leaders to provide real-time intelligence to communities across our service area to improve wildfire prevention, mitigation and resilience efforts.

- **Watch Duty:** A disaster intelligence platform that provides comprehensive situational awareness to the public and critical infrastructure operators. This application provides real-time wildfire intelligence and assists utilities in monitoring wildfire incidents and tracking fire perimeters. Learn more at watchduty.org.
- **Planet Labs:** Provides real-time geospatial intelligence essential for modernizing wildfire mitigation and grid resilience. Operating the world's largest fleet of Earth-observation satellites, Planet Labs delivers high-resolution imagery and a continuous data stream that tracks vegetation conditions and wildfire exposure. They also help utilities prioritize investments in grid resilience and ignition reduction. Learn more at planet.com.
- **XyloPlan:** A fire intelligence platform that models how fast-moving, wind-driven fires behave, giving communities the tools to act efficiently and effectively to wildfire risk. By combining wind, topography, fuels and building vulnerability, XyloPlan helps fire agencies focus limited resources where communities are most vulnerable. Learn more at xyloplan.com.

07 Wildfire Operations Teams

Safety and Infrastructure Protection Teams (SIPT)

Our SIPT organization provides resources to prepare for and respond to emergencies and plays an important role in interrupting the wildfire sequence. SIPT's primary responsibilities are to safeguard our communities and coworkers, prevent and contain ignitions and protect PG&E's infrastructure during an active wildfire. We have 48 crews stationed in strategic High Fire-Risk Areas throughout our service area.

Each two- to three-member crew is equipped with a fire engine, carrying firefighting tools such as water, fire retardant, hand and power tools, and medical gear. They support local public safety agencies and maintain public access and evacuation routes. They also perform routine fire mitigation work and support emergency response to fires that threaten our infrastructure.

Keeping communities safe requires year-round work and safe and quick action during emergencies. All SIPT crew members are certified Emergency Medical Technicians (EMT) and undergo extensive wildfire operations and safety training each year.



Our SIPT Team in Action

SIPT routine wildfire mitigations include:



- Fuel hazard reduction in PG&E's right of way
- Defensible space inspections and fuel hazard assessments at our facilities
- Fuel-moisture sampling
- Switching standby in HFRA
- Fire protection/medical response standby for our coworkers at high-risk work sites
- Maintaining ingress-egress routes

SIPT emergency work activities include:



- Pre-treating poles with long-term fire retardant during wildfires¹²
- Fire protection at our facilities and critical infrastructure¹²
- Making safe our fire-damaged assets¹²
- Vegetation management fire support during wildfire recovery
- PSPS support
- Outage and storm response, and 911 standby

Our SIPT crews play a vital protection role before, during and after a fire. When fires do occur, they improve public safety, protect our infrastructure and decrease power recovery times. Ultimately, their work reduces risk for first responders, helps minimize the impact of an ignition and supports community recovery.

¹²Subject to approval by the Authority Having Jurisdiction (AHJ).

Public Safety Specialists (PSS)

Our PSS team supports all-hazard response needs and serves as our primary liaison with local law enforcement, local offices of emergency services (OES) and fire agencies. Comprising of 30 former public safety professionals, our PSS team brings decades of experience in hazard response and provides a dedicated presence across our service area. Collaboration between the PSS team and our external public safety partners is critical. It forms the foundation for ensuring safety and preparedness for the customers and communities we are privileged to serve.

Routine Responsibilities

The goal of the PSS program is to establish effective relationships with public safety partners before an emergency incident occurs. Each PSS member provides a dedicated point of contact to our agency partners and is responsible for providing them with support, preparation, and coordination during event response. Additionally, our PSS team supports our internal coworkers by providing support and expertise.

Emergency Event Responsibilities

During an incident, the PSS team leverages their experience in incident command system protocols to support our coworkers in the field and coordinate with the public safety incident commander at events involving all utility services. Additionally, PSS serves as our “voice” with the respective public safety incident commanders and field personnel.

Complex incidents, such as earthquakes, floods and wildfires, require extensive PSS engagement with external partners. As the PG&E Agency Representative, PSS’s coordinate our response and obtain PG&E site access to assess infrastructure damage, begin reconstruction of damaged infrastructure and plan service restoration for our customers. PSS members facilitate the deployment of PG&E’s assets such as mapping services, traffic control or aviation resources to support public safety needs and work directly with the AHJ on strategic incident planning.

Additionally, PSS members serve as the Agency Representative during county EOC activations and support local internal emergency response and coordination for a variety of incidents.

Compliance Responsibilities

Our PSS team conduct various regulatory outreach and trainings in accordance with regulatory requirements and company goals.

These engagements include:

- Annual contingency plan meetings with fire agencies.
- Triennial Regulatory workshops and Public Safety Liaison meetings related to gas incident response safety.
- Gas Safety outreach and training efforts.
- Biennial Electric Annex training with public officials.
- Community engagement to improve local HFRA assessments for the Wildfire Mitigation Plan.
- Safe work practices training for field-based PG&E employees, totaling 365 sessions and 6,982 participants in 2025.

The PSS team plays an important training role with public safety partners in PG&E's service area. As part of this effort, the team launched **PG&E's First Responder Workshop Program** to provide utility safety education and training to the first responder community, covering a myriad of topics related to gas and electrical emergency response. This industry-leading program has reached over 87,000 public safety members since it was first deployed in 2012 and has been one of the most sought-after curriculums the PSS team provides to our first responder community.

08 Developing a Wildfire Mitigation Plan

Wildfire Mitigation Plan (WMP) and Maturity Modeling

Our WMP provides a detailed narrative and justification of ongoing efforts to prevent catastrophic wildfires. This document is critical to our work planning and the establishment of both qualitative and quantitative commitments for our wildfire safety programs. Adhering to a well-communicated WMP strategy lays the groundwork for effective wildfire mitigation and a productive relationship with regulators and other public officials. Since implementing our WMP, we have seen year-over-year improvements in risk reduction.

Our current WMP outlines our strategy for 2026-2028 in accordance with regulatory and company goals, current progress and insights into our current strategy. We are shifting to a four-year WMP cycle to align with Senate Bill 254 starting in 2027, which will cover years 2028-2031.



The WMP is one component of a three-part filing:

1 WMP

Details our initiatives and rationales to mitigate wildfire risks.

2 Maturity Survey

Evaluates our current and future state maturity by collecting insights from surveys we conduct for OEIS.

3 Data and Financials

Provides regulators with a comprehensive understanding of current and anticipated costs associated with our wildfire risk reduction strategies to ensure cost efficiency. This filing requires the submission of extensive data, particularly risk and GIS information.



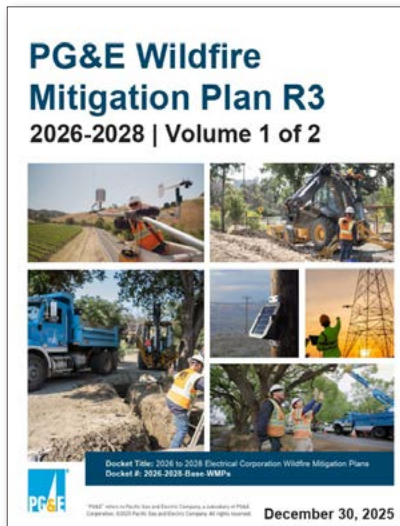
Development of our WMP typically takes 10 months.

This process relies on input from Subject Matter Experts (SMEs) to determine the feasibility and effectiveness of a given strategy. This helps ensure that our commitments are achievable and productive.

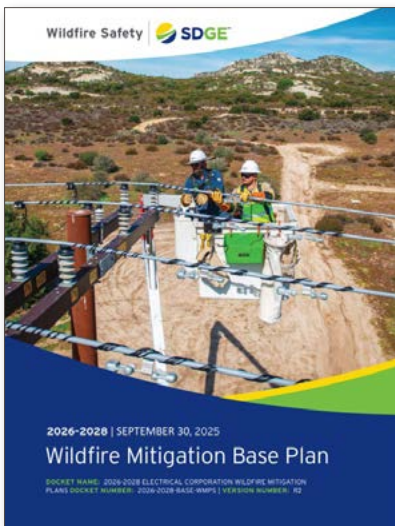
Our drafting process follows four broad steps:

- 1 Determining our wildfire risks and locations.
- 2 Identifying mitigations to address risks.
- 3 Developing a plan, goals and performance metrics.
- 4 Implementing our commitments.

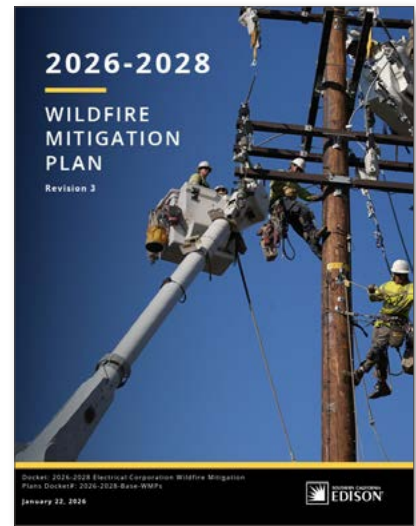
Current WMPs for a selection of California Investor-Owned Utilities:



Pacific Gas & Electric



San Diego Gas & Electric



Southern California Edison

Maturity Modeling

Developing a WMP is a critical early step towards addressing wildfire risk. As wildfire risk continues to evolve across the U.S., many approaches to reducing risk are broadly accepted. While companies' risk is varied, there are common learned practices shared among utilities with experience in the space. For utilities starting their wildfire journeys, maturity models can serve as a roadmap.

A. Wildfire Mitigation Maturity Model

California's Office of Energy Infrastructure Safety (OEIS) has developed methodologies to assess wildfire risk reduction capabilities and examine the relative maturity of a utility's mitigation program. Their assessment is one of the tools we use to drive continuous improvement in our wildfire mitigation work. [Learn more here.](#)

B. International Wildfire Risk Mitigation Consortium (IWRMC) Model

Over the last several years, we have participated in and partnered with IWRMC through meetings, conferences and information sharing regarding wildfire mitigation initiatives. Together, we developed an IWRMC model to better understand the current state of the global utility industry in relation to evolving wildfire risk and to assist utilities in building their own roadmap for continuous improvement and prudent risk mitigation investments.

[Learn more here.](#)

Resources for WMP Development

For utilities looking to draft their first WMP, public resources are available to offer key considerations and provide examples of successfully implemented WMPs across North America.

A. National Association of Regulatory Utility Commissioners (NARUC) Wildfire Workbook for Utility Regulators

NARUC's workbook is an excellent resource for developing a wildfire mitigation plan that meets standard regulatory practices. Open access is available through the [**NARUC website**](#).

B. Pacific Northwest National Laboratory (PNNL) Wildfire Mitigation Plans Database

PNNL maintains a database of current and previous wildfire mitigation plans from 175+ organizations across 19 states and provinces. These plans, particularly those from utilities that have submitted across multiple cycles, show how strategies and priorities evolve to meet evolving wildfire risks.

[**Review the full database here.**](#)

09 Supporting a Wildfire Mitigation Program

IT/Tech Infrastructure: A Story of Transformation, Predictive Power and Integrated Safety

Over the past decade, we have undergone one of the most significant technological transformations in our history—moving from a largely reactive wildfire response posture to a deeply integrated, sustained, data-driven and predictive wildfire mitigation infrastructure. This evolution, shaped by wildfires, shifting climate realities and the expectations of customers and regulators, now stands at the forefront of U.S. utility wildfire resilience.

From Reactive Operations to a Digital “All Hazards” Enterprise

Our IT modernization journey began with the establishment of the Wildfire Safety Operations Center (WSOC), which between 2018 and 2020 focused primarily on wildfire monitoring and response. But as risk patterns grew more complex, we recognized the need for a broader, more integrated operational framework.

Between 2021 and 2023, the WSOC evolved into the HAWC—a multi-hazard platform designed to monitor not only wildfire risk but also floods, earthquakes and slope failures in real time. This transition marked a fundamental shift as we began building a unified digital system capable of synthesizing diverse environmental, grid and asset data into actionable awareness.

By 2024, the HAWC’s capabilities expanded into the field with mobile EARS H.E.R.D. trailers and enhanced Everbridge notification systems, accelerating the flow of early-warning intelligence to emergency operators and communities. The transformation culminated in 2025 with the introduction of SmartComms, a new system that automated and streamlined PSPS communications at scale.

Today, our wildfire IT infrastructure is a fully integrated, digital backbone for mitigation operations. It is a system governed by continuous learning, predictive analytics and cross-functional collaboration.

A Digital Ecosystem Built on Advanced Modeling, AI and Real-Time Insight

- **POMMS v4**, our high-resolution mesoscale model, processes ~10 billion datapoints daily and offers a 129-hour forecast horizon—giving operators unprecedented foresight into emerging fire weather conditions.
- **The Fire Potential Index (FPI 5.5)** uses machine learning to evaluate catastrophic fire probability across 400,000 sub-kilometer grid cells.
- **IPW 5.5** predicts ignition likelihood resulting from complex grid-weather interactions, informing decisions about system hardening and operational mitigation.
- **Technosylva's Catastrophic Fire Behavior (CFB)** simulations model flame length, intensity and spread, helping us anticipate worst-case wildfire scenarios.

Paired with the HAWC, these models power a constantly updated ecosystem of **AI-enabled cameras, real-time sensors, weather stations and satellite imagery**, creating a multi-layered view of the system's condition and risk profile.

This advanced modeling also empowers major operational programs. For example, EPSS, supported by IT data platforms, helped drive a 65% reduction in CPUC-reportable ignitions on EPSS-enabled lines in high-risk districts compared to 2018–2020 averages.

Modernizing Data, Workflows and Field Operations

The transition from legacy data environments to modern, integrated systems has been central to our wildfire journey. SmartComms unified PSPS communication workflows, reduced manual effort and increased notification speed.

Across vegetation management, asset inspection and ignition investigations, we have deployed:

- Aerial inspection systems, drones and high-definition imaging tools.
- Multi-year vegetation data sets and predictive analytics.
- Centralized dashboards that surface ignition and outage drivers.

In our Wildfire Risk Command Center (WRCC), technicians and analysts synthesize Key Performance Indicators (KPIs) across ignitions, exposure, EPSS performance, PSPS operations and WMP delivery, ensuring that decision-making is grounded in complete and current situational intelligence.

A Broad Network of Decision-Makers and Innovators

Our wildfire IT infrastructure is the product of an enterprise-wide collaboration amongst hundreds of stakeholders.

Internal Leadership and Expertise

- The **WRGSC**, with senior leaders from Risk Management and Electric Operations.
- The **Wildfire Mitigation PMO**, coordinating WMP filings and regulatory obligations across 350+ stakeholders.
- Cross-functional teams in Vegetation Management, Engineering & Standards, Ignitions Investigations, Asset Strategy and Electric Operations.
- IT organizations supporting PSPS tools, SmartComms, Advanced Distribution Management System (ADMS) modernization, GIS systems and aerial inspection platforms.

External Partners

We collaborate with leading technology innovators such as Technosylva, Gridware, Planet Labs and major IT vendors including TCS, Infosys, WWT, Cognizant and others. These partners support sensors, modeling platforms, system integration and analytics.

Insights from Our Wildfire IT Journey:

- **Start technology adoption earlier:** Internal assessments noted that we trailed behind peers in deploying new wildfire technologies. We needed to accelerate planning to close the gap.
- **Deepen local engagement:** Semi-annual meetings with counties revealed that attendance and feedback loops could be strengthened, enabling more direct outreach.
- **Drive stronger cross-functional integration:** Alignment among IT, Operations, Vegetation and field teams is now recognized as essential—particularly in large projects like ADMS, PSPS and GIS modernization.
- **Move from incident response to proactive risk reduction:** Absence of incidents is not the same as reduced risk. Changing climate conditions demand continual improvement.

From Then to Now: A System Transformed

Since 2018, PG&E has fundamentally redefined its wildfire mitigation and situational awareness capabilities.

- What began as a wildfire monitoring center is now a sophisticated multi-hazard intelligence operation.
- Our previously manual PSPS workflows are now a fully digital, automated system through SmartComms.
- We now make grid hardening decisions supported by AI, predictive models, drones, sensors and powerful geospatial data pipelines.
- We also embarked on the largest undergrounding effort in the U.S., with over 1,240 miles completed and more than 1,900 total miles planned by the end of 2027.
- Above all, the transformation reflects a shared commitment to never repeating the tragedies of past wildfires, and to continually improving the safety, reliability and resilience of the electric system.

10 Strategic Wildfire Communications and Engagement

Utilities are uniquely affected by evolving wildfire risk and impacts from a changing climate. As we continue to mitigate these impacts, it is critically important that we communicate and engage with the customers and communities that we are privileged to serve.

Consistent Year-Round Communication, Engagement and Collaboration

Strategic and Transparent Approach

Clear, consistent and proactive communication is essential to earning and maintaining the trust of our customers and stakeholders. We do this through ongoing local outreach, close coordination with community partners and direct, year-round communication with residential and business customers, local leaders and regulators. These efforts ensure awareness about wildfire safety, the actions and programs we are implementing to reduce risk and the importance of proactively turning off power when wildfire risk is elevated.

We have a responsibility to be transparent about the mechanics, benefits and potential impacts of wildfire mitigation work. We must maintain open lines of communication, address feedback and create opportunities for collaboration toward shared public safety goals.

We provide safety information and outage resources ahead of wildfire season through various channels such as direct mail, email, phone calls, texts, webinars, TV, radio, paid media, social media and more. We offer communications in multiple formats: relevant languages, braille and large print. This multi-layered approach is vital to reach a diverse spectrum of customers and communities. **By communicating year-round and cultivating relationships with community stakeholders, we strive to keep wildfire safety and preparedness at the forefront, particularly for those in high-risk areas.**

Tailored Outreach

A comprehensive outreach strategy includes customized communications for the following groups, tailored to achieve specific outcomes and address their unique needs and concerns:

- **Customers:** Providing regular communication helps ensure that customers are well-informed about their service and any disruptions that might occur during wildfire season, including how to prepare for different types of outages and resources available to support them. We consistently pre-test our messaging to be the most effective and beneficial for customers, and we customize communications to better reach key communities, such as business owners, customers who primarily speak languages other than English, and those who live in High Fire-Risk Areas or are vulnerable and have specific health or medical needs that rely on electricity for their health.
- **Regulators and Policymakers:** Active engagement with regulatory bodies at the state and federal level, including the Public Utilities Commission, the State's Office of Emergency Services and the Federal Energy Regulatory Commission, is essential to address joint priorities and ensure regulatory compliance.
- **Local Governments and Elected Officials:** Building partnerships with emergency managers and working closely with elected officials at the federal, state and local level help improve community preparedness and emergency response efforts. Local staff and elected officials are also critical resources for feedback as they understand the unique needs and concerns of their community members.
- **Tribes:** Native American tribal governments often have unique fire safety and electric service needs, responsibilities and resources that should be addressed through robust outreach and partnership.
- **Critical Customers and Facilities:** These customers include transmission-level, hospitals, telecommunication providers, water and wastewater facilities, etc. and require specialized, and often dedicated, communication to manage service disruptions and coordinate resiliency plans, which may include priority notifications or additional outage resources.

- **Community-Based Organizations and Nonprofits:** Engagement with these groups focuses on community preparedness. They play a vital role in providing local resources and customer support before, during or after emergencies, and relationships with these organizations will be leveraged throughout the year to drive local education and preparedness.
- **Community Leaders and Fire Safe Councils:** Local leaders and firefighters know their communities best. Collaborating with these groups is critical to understanding their unique needs, especially those communities in areas with increased wildfire risk, communicating available safety support and resources, and driving joint efforts to improve local wildfire safety.
- **Media:** Media relations are critical to help provide key information to the public and amplify important safety and preparedness messages.
- **Coworkers:** Internal communications and education to our cross-functioning partners keep our team members informed about company actions and policies so they can effectively communicate the benefits of a wildfire safety program when interacting with customers.

Customer Resources Fact Sheet

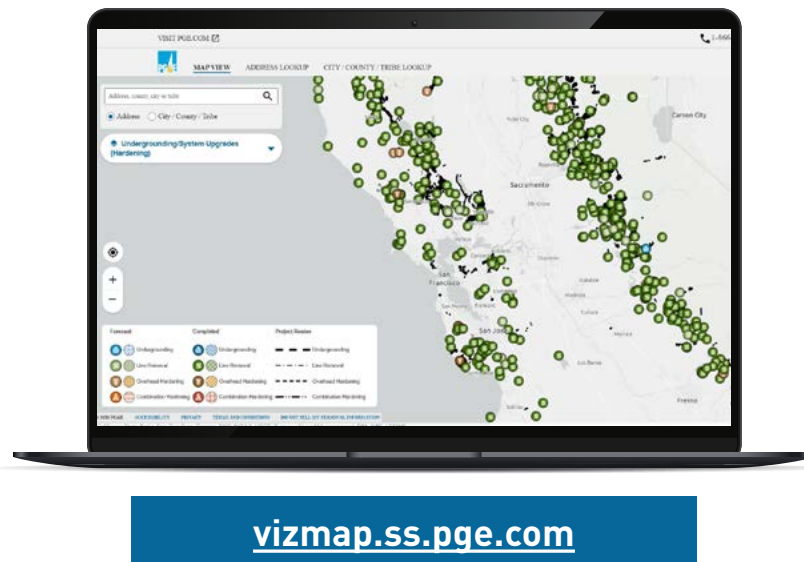
We have resources to help if you lose power You don't have to plan for outages alone. 211 California Connect with live staff who will listen to your needs and help you: ✓ Build your personalized outage plan and safety kit ✓ Secure food replacement, discounted hotel stays and car rides ✓ Get referred to health and safety programs and backup power SCAN HERE For more information, visit pge.com/211. How can I contact 211? Call 211 Text "PREPARE" to 211-211 Disability Disaster Access and Resources (DDAR) Program DDAR can help older adults and people with disabilities: ✓ Create an emergency plan ✓ Apply for backup power ✓ Find accessible rides and hotel stays during some outages SCAN HERE For more information, visit pge.com/ddar.	Additional resources If you rely on power for your health and safety, you can explore local support options and more at pge.com/afn. Medical Baseline and Self-Identified Vulnerable Programs You can get support if you rely on power for your health, safety or independence. Our partners can help you apply. Visit pge.com/medicalbaseline or pge.com/siv. Financial assistance programs Eligible customers can get a discount on their electric or gas bill. Visit pge.com/financialassistance. Backup power options If you qualify, you can apply for free or reduced-cost backup power like a generator. Visit pge.com/backuppower. Community Resource Centers Access power for charging, Wi-Fi, snacks and more during certain outages. Visit pge.com/crc. For translation support in 240+ languages, or to request a print material in Braille, large print or audio, call 1-800-743-5000. Message paid for by customers. *PG&E refers to Pacific Gas and Electric Company, a subsidiary of PG&E Corporation. ©2026 Pacific Gas and Electric Company. All rights reserved. CCC-0226-6194. 03/05/2026.
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Wildfire Safety Progress Map

To help customers and communities stay informed about our wildfire safety progress and upcoming improvements in their area, we created an interactive online map showing planned and completed work across our service area. We recently enhanced this tool to show more local wildfire prevention work and help customers understand if they are eligible for certain assistance programs.

This innovative tool helps all our local stakeholders better understand the scope of our wildfire risk reduction program, engage in local safety efforts and take advantage of important resources that may be available to them.

PG&E's Wildfire Safety Progress Map



Supporting Customers with Access and Functional Needs (AFN)

It is crucial to identify customers within a service area with AFN, or those who rely on power for their health or safety. These customers can be acutely impacted by wildfire safety outages, and they can benefit greatly from tailored preparedness information and resources, particularly those with electric-dependent medical needs. We communicate consistently to build trust and familiarity, and we always lead with key resources available to our customers.

Throughout each year, we conduct a series of AFN outreach campaigns, including through multi-cultural paid media and in-language communications (plus Braille and large font). These efforts include outreach to CBOs to help share essential information with their communities, email and direct mail campaigns, and distribution of fact sheets and other collateral. We conduct specific campaigns that enable customers to self-identify as requiring additional support, so we can better communicate with them and provide the information and resources they need to prepare and stay safe.

AFN Self-Identify Email

2025 AFN Self Identified Email
Subject line: Do you rely on power for your health and safety?
Preheader: Take the survey to self-identify for additional support

 Extra support for those who rely on power for health and safety? [Take our survey »](#)



We know how important reliable power is, especially when your health and safety depend on it. This is why we are working to identify customers who rely on power for needs — including any independent living needs. Please respond to the survey using the link below.

[Take the survey »](#)

Your response is important. Please complete the survey by **[insert date here]** to self-identify.

Your response will help us provide relevant information and resources based on your or a member of your household's specific needs.

You may have received a letter from us with this survey. If you already responded, thank you, you do not need to complete the survey a second time.

Our goal is to provide you with the information and resources you need to stay safe. To learn more about resources available to minimize the impacts of wildfire safety outages visit pge.com/pspsresources.

For translation support in 240+ languages, or to request a print material in Braille, large print or audio, call 1-800-743-5000.



AFN Self-Identify Letter

 **Important Message: You may qualify for additional resources to help support you and your family. Please complete and return the form to self-identify.**

[DATE]

«CUSTOMER_NAME»: «FIRST_NAME» AND «LAST_NAME»»
«BILLING_ADDRESS1»
«BILLING_ADDRESS2»
«BILLING_CITY» «BILLING_STATE» «BILLING_ZIP» «BILLING_PLUS4»

Dear «CUSTOMER_NAME»:

We know how important reliable power is, especially when your health and safety depends on it. This is why we are working to identify customers who rely on power for needs — including any independent living needs.

Extra support is available to you or anyone in your home who depends on power for their health and safety. These resources include backup power options, transportation during outages, additional notifications during a Public Safety Power Shutoff, backup power options, replacement meals and more.

Our goal is to provide you with the information and resources you need to stay safe. To learn more about our customer safety efforts, visit pge.com/pspsresources.

ACTION REQUIRED
Please fill out the back of this letter so that we can provide you with relevant resources based on your needs. Once filled out, please send it back in the accompanying pre-paid envelope by **[February XX, 2025]**.

Please see the reverse for more to complete →

1-800-743-5000 for language support in 240+ languages.

☐ Español	☐ русский язык	☐ Hmoob
☐ 中文	☐ বাংলা	☐ ភាសាខ្មែរ
☐ tiếng việt	☐ 日本語	☐ Português
☐ Tagalog	☐ తెలుగు	☐ Other

☐ American Sign Language ☐ 手語 || ☐ Other | |

☐ By checking this box and signing below, I certify that the information above is accurate.
NAME: _____ DATE: _____ SIGNATURE: _____

Some of the measures included in this document are contemplated as additional precautionary measures intended to further reduce the risk of wildfires. "PG&E" refers to Pacific Gas and Electric Company, a subsidiary of PG&E Corporation. ©2025 Pacific Gas and Electric Company. All rights reserved. CCG-2025-5165, 02/21/2025.

Helping Every Customer and Community Prepare

Losing power is disruptive, no matter how long or for what reason. Utilities should consider implementing programs that help their customers access key resources or information to prepare for wildfire safety outages. We offer various programs that support customers before, during and after an outage, including the following:

- **Portable Battery Program:** We provide portable backup batteries to eligible Medical Baseline and Self-Identified Vulnerable customers who experienced at least one PSPS since 2024, or three or more outages on EPSS-protected circuits since 2024.
- **Generator and Battery Rebate Program:** For customers who either live in an HFTD or HFRA or are served by EPSS-protected powerlines, we offer rebates on qualifying generators or batteries.
- **Backup Power Transfer Meter Program:** Customers who live in an HFTD or are served by an EPSS-protected circuit can receive a free Backup Power Transfer Meter to safely connect to a generator or electric vehicle in an outage.
- **Permanent Battery Storage Rebate:** We offer rebates for customers who have experienced five or more wildfire safety outages (PSPS or EPSS) since 2024 to install permanent batteries in their homes from a qualified product list.
- **Residential Storage Initiative:** Operated in partnership with Richard Heath and Associates, the RSI program offers a free battery storage system for customers who are most vulnerable to outages.
- **Self-Generation Incentive Program:** To help customers save money on battery storage, we offer incentives for qualifying customers that cover some or all of their cost.
- **Safety Action Center:** Information and tools are available online to help customers prepare and stay safe before, during and after an emergency.
- **California 211 Providers Network:** We partner with and provide live financial support for 211 California, a free and confidential service that helps people connect with vital resources to help prepare for emergencies by creating an emergency plan or finding lodging, ADA-accessible transportation, food assistance and more.

- **Disability Disaster Access and Resources (DDAR):** The DDAR program is a collaboration with the nonprofit California Foundation for Independent Living Centers that provides support before, during or after a PSPS for eligible customers who depend on electricity for independent living or medical needs.
- **Food Bank/Meals on Wheels Support:** We partner with food banks to make meal replacements available to communities impacted by a PSPS, including during the outage and up to three days after restoration. We also partner with Meals on Wheels to reach home-bound seniors with additional meals.

11 Partnering with Regulatory Agencies

Compliance, partnership and collaboration between utilities and regulatory agencies is crucial in implementing an effective wildfire mitigation strategy. PG&E works with regulatory partners who provide oversight mechanisms to ensure that wildfire mitigation plans are developed and implemented according to the latest science, technologies and learnings.

From overseeing risk modeling frameworks to reviewing and enforcing compliance with wildfire mitigation plans, regulators such as those listed below, guide utilities to improve wildfire safety and protect the public interest.

- **North American Electric Reliability Corporation (NERC):** International regulatory authority dedicated to effectively and efficiently reducing risks to the reliability and security of the bulk power system. NERC helps enforce mandatory reliability standards, monitor the grid, train personnel and assess risks to ensure that the grid remains reliable and secure. nerc.com
- **Federal Energy Regulatory Commission (FERC):** Independent agency that regulates the interstate transmission of natural gas, oil and electricity. FERC provides mandatory reliability standards that help maintain dependable energy and protect the reliability of high voltage transmission systems. ferc.gov
- **California Public Utilities Commission (CPUC):** The CPUC consults and collaborates on Wildfire Mitigation Plan review. They also ratify approvals made by the California Office of Energy Infrastructure Safety (Energy Safety), use Wildfire Mitigation Plans in rate-setting, and are the lead safety and enforcement agency for California utilities. cpuc.ca.gov

- National Association of Regulatory Utility Commissioners (NARUC):**
 Represents the state public service commissions who regulate the utilities that provide essential services. Importantly, NARUC created the **Wildfire Workbook for Utility Regulators** to provide public utility commissions wildfire-related policies and practices currently utilized, as well as considerations for commissions to follow in the future.
[naruc.org](https://www.naruc.org)
- California Office of Energy Infrastructure Safety (Cal OEIS):**
 The primary agency that reviews and approves (or denies) Wildfire Mitigation Plans. Drives energy infrastructure risk reduction for the state of California. They help maintain compliance through field inspections, audits and review of utility compliance. This helps ensure that utilities are taking effective actions to reduce utility-related wildfire risk.
[energysafety.ca.gov](https://www.energy.ca.gov/energy-safety)
- California Governor's Office of Emergency Services (Cal OES):**
 Responsible for protecting Californians' lives and property and mitigating the effects of disasters, including wildfires. Cal OES serves as the state's leadership hub during all major emergencies and disasters. This includes responding, directing and coordinating state and federal resources and mutual aid assets across all regions across the state. [caloes.ca.gov](https://www.caloes.ca.gov)
- Executive Order (EO): Empowering Commonsense Wildfire Prevention and Response:**
 Signed by President Donald Trump on June 12, 2025, the directive aims to streamline federal wildfire governance, empower state and local stakeholders and accelerate the use of technology and regulatory reform to mitigate and respond to wildfires nationwide. This executive order helps streamline federal wildland fire governance, encourage local wildfire preparedness, strengthening wildfire mitigation planning and modernizing wildfire prevention.
[whitehouse.gov](https://www.whitehouse.gov)



Advancing Wildfire Resilience Through Partnership

Wildfire risk continues to grow across the nation and around the globe, and utilities are essential partners in protecting communities, infrastructure and first responders. CAL FIRE values the strong working relationships we've built with utilities and remains committed to expanding our collective capabilities. This message highlights shared priorities and collaborative approaches that strengthen wildfire mitigation, preparedness and emergency response.

Utilities and CAL FIRE continue to benefit from advances in imagery, analytics and on-the-ground assessments. High resolution imagery and related tools provide both organizations with improved visibility into vegetation issues and clearance needs. By aligning risk-based mitigation priorities and supporting the inclusion of utility wildfire mitigation topics in Community Wildfire Protection Plans and Firewise USA programs, we can jointly improve community awareness, defensible space and fuels reduction across the landscape.

Collaboration around vegetation standards, inspection technologies and weather driven risk modeling strengthens the foundation for safe and reliable operations. In addition, joint work on landscape level fuel reduction projects continues to benefit local communities as well as suppression efforts.

Successful wildfire response begins well before the first major event. Preseason meetings between utilities and fire agencies help identify shared concerns, access points, resource needs and local risks. Utilities play an integral role in CAL FIRE's readiness discussions, seasonal outlook briefings and communication planning. Establishing clear points of contact and maintaining familiarity with the Incident Command System (ICS) allows our organizations to work seamlessly during incidents. Discussions related to fast trip settings, inspection

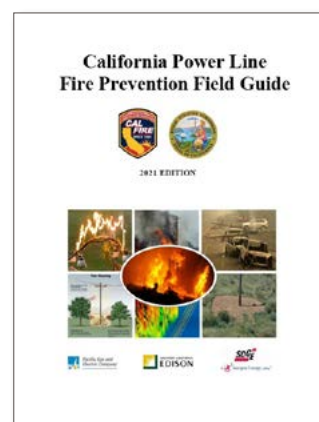
protocols and other operational adjustments benefit from early coordination and help ensure that life safety remains a shared priority.

Shared exercises strengthen operational readiness and reinforce an understanding of each partner's capabilities. Utilities and fire agencies have increasingly participated in PSPS exercises, prescribed fire training and cross training on emerging grid technologies such as battery storage and solar systems. These opportunities help ensure safe, coordinated responses during real-world incidents.

CAL FIRE remains actively engaged with utilities during executive-level briefings for Public Safety Power Shutoff considerations. These discussions help ensure that evolving weather conditions, fire behavior and suppression resource availability are aligned with utility decision making. When major emergencies happen, CAL FIRE's Incident Management Teams coordinate with utility partners on de-energization, access control and restoration planning under the ICS framework. Embedding utility representatives provides valuable insight into infrastructure status, access concerns and restoration and repopulation needs. This unified approach helps protect communities and accelerates recovery. Following wildfires, CAL FIRE's Watershed Emergency Response Teams (WERT) rely on utility data, such as line locations, to support debris flow modeling and hazard evaluations that are shared with local agencies.

Wildfire resilience is a shared mission. CAL FIRE deeply values its partnerships with utilities and remains committed to supporting collaborative planning, preparedness and innovation. By continuing to work together, leveraging technology, sharing information, coordinating early and often and training side by side, we can strengthen wildfire prevention efforts and enhance safety for the communities we all serve.

Office of the State Fire Marshal
Utility Wildfire Mitigation Program



**California Power Line Fire
Prevention Field Guide**

13 Conclusion

The strategies and insights explored throughout this guidebook exemplify the type of efforts that can be used to address growing wildfire risk as our industry adapts to the extreme weather challenges of our time. No utility or organization has all the answers to these complex threats, and we must be more focused than ever on finding and sharing new insights, innovations and learnings with each other.

A changing climate and evolving wildfire risk are creating a new normal for our industry and the customers we are privileged to serve. Adapting to this new normal requires us to work together with an unwavering commitment to safety. While we are taking action every day to reduce wildfire risk associated with our equipment, we remain focused on partnering with local leaders and communities to advance local wildfire safety projects and preparedness efforts.

We welcome your feedback and are grateful to our peer utilities, industry partners and many other experts who contributed to this guidebook. We hope this effort enhances our collective understanding of how to mitigate wildfire risk and keep all our communities and hometowns safe.



14 Honoring PG&E Coworker, Nick Babb

We lost the founding leader of the Ignitions Investigation team this year, Nicholas Babb "Nick Babster." Under Nick's leadership, Ignitions Investigations became a pillar of our wildfire mitigation journey. His dedication to analyzing ignitions tied to utility assets guided how we address utility-caused wildfire risks and significantly shaped our wildfire safety program.

Nick exemplified a culture of excellence while building a top-tier team and fostering a collaborative work environment. To memorialize Nick's contributions, we are naming our Wildfire Consequence Reduction Coordination Center after him. The Nick Babster Wildfire Consequence Reduction Coordination Center is a collective space where we bring together wildfire stakeholders to keep communities safe, honoring Nick's legacy.



15 Key Contributors to the Guidebook

We sincerely thank all who contributed to this year's Utility Wildfire Mitigation Guidebook and Conference, including those not individually listed. Your expertise and dedication have been crucial in shaping this vital engagement.

Table 2. Key PG&E Contributors

Name	Title
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Caitlin Berger	Communications Representative, Operations Communications
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Charlotte Wu	Business Analyst, Wildfire Mitigation PMO
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Derrick Davis	Principal Risk Analyst, Wildfire Strategy & Engagement
Evan Duffey	Manager, Meteorology and Fire Sciences
Gary Ma	Electric Program Manager, Wildfire Strategy & Engagement
Greg Harrison	Manager, Wildfire Data Science
Harmony Barbera	Director, Federal Affairs
Hayk Hovhannisyan	Senior Manager, Wildfire Strategy & Engagement
Issam El Ayadi	Senior Director, Transmission & Substation Asset Management

Table 2. Key PG&E Contributors (continued)

Name	Title
Jay Leyno	Senior Director, Wildfire Mitigation
Jeff Millar	Director, Wildfire Operations
Kamran Rasheed	Director, Vegetation Management Asset Strategy & Analytics
Kevin Johnson	Strategic Analyst, Wildfire Strategy & Engagement
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Mark Duri	Senior Manager, Wildfire Operations/ Public Safety Specialist Program
Mark Quinlan	Senior Vice President, Wildfire, Emergency & Operations
Matt Nauman	Director, Operations Communications
Matt Pender	Vice President, Undergrounding & System Hardening
Paigie Light	Electric Program Manager, Wildfire Strategy & Engagement
Renardo Wilson	Chief Regulatory Relations Advocacy, FERC and ISO Relations
Russell Fowler	Senior Manager, Wildfire Operations/ Safety & Infrastructure Protection
Scott Strenfel	Senior Director, Meteorology and Fire Science
Shawn Holder	Director, Public Safety Power Shutoff
Spencer Olinek	Chief Program Manager, Liaison and Engagement
Sujatha Kannan	Expert Product Owner, PSPS Projects

We would also like to acknowledge the contributions of Anale Burlew, Chief Deputy Director, Operations, CAL FIRE and Frank Bigelow, Deputy Director, Community Wildfire Preparedness and Mitigation, CAL FIRE.

16 Content from Key Wildfire Mitigation Partners

Vendor and Supplier Technologies

Our trusted vendors, technology providers and partners play a critical role in enhancing wildfire risk mitigation efforts across the industry. Using the latest innovations, tools and technologies, utilities can better identify critical system upgrades, improve real-time situational awareness and monitoring, and strengthen our wildfire readiness and emergency response capabilities.

To create further opportunities for collaboration, this guidebook includes the following ideas, insights and contributions to wildfire safety planning and preparedness from our key partners. PG&E is not responsible for the content, strategies or technologies included below.

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Perception AI: Visual Intelligence for Electric Utility Grid Operations

Amazon Web Services for Energy & Utilities | April 2026 | Jason Selfe, Industry Principal

Perception AI is a category of artificial intelligence that interprets visual, auditory and spatial data from the physical world. For utilities managing wildfire risk and grid performance, one of the highest value applications today is visual data: the imagery and point clouds already being captured through existing inspection and UAV monitoring programs.

Unlocking More Value from Data You Already Collect

Utilities face three interconnected challenges: directing limited field resources to the highest consequence work, multiplying the value of every dataset by sharing findings across teams, and demonstrating to regulators that each dollar spent produces the strongest available return.

Utilities have invested heavily in visual data capture. Drones, LiDAR, satellite imagery, AI enabled cameras, helicopter patrols. These programs are delivering results, but a lot of value is left on the table due to human review, manual classification and siloed handoffs. The opportunity is value stacking. A single aerial inspection flight can simultaneously feed asset inspection (defect detection, clearance assessment), wildfire risk and operations (fuel risk scoring, situational awareness), asset management (joint use assessment, pole loading analysis, condition trending, structural analysis) and grid planning (as built network model validation, power flow simulations and capital project justification). None of this requires new capture programs. It requires extracting more from what is already being collected.

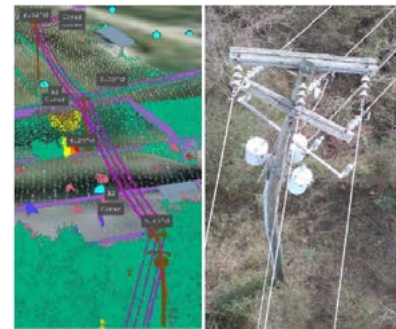


Figure 1: Multit-modal inspection (RGB + LiDAR)

From Detection to Contextualized Risk

Perception AI identifies what is there, but detection alone does not determine what to do about it or how urgently. Context determines priority. Most asset caused ignitions happen within ~15 feet of a distribution structure. Consider three detections from a single capture event at one pole. A cracked crossarm is an expense finding. But the same capture also reveals the pole is leaning and carrying a joint use attachment not reflected in the asset management system. The repair escalates from expense to capital replacement. The same capture reveals vegetation surrounding the structure. Wildfire risk teams translate these into risk scores and prioritize trim orders. Same data, multiple teams, different actions. Assembling this context requires combining data across asset registry, GIS, weather, wildfire risk models and operational state. No single system holds everything needed. The contextualization layer brings them together.

Agentic Workflows for Grid Decision Making

Today, assembling context is largely manual. The knowledge exists across the organization. The time cost is in assembling it. [Agentic AI](#) automates that assembly, taking perception AI outputs, evaluating them against operational rules and risk models, pulling relevant data from connected systems and presenting a consolidated decision package to the right person. Agentic workflows operate with human in the loop authority. The system assembles, recommends and routes. A person reviews, approves or redirects. Confidence in automation builds through operational validation. Returning to the same pole: the crossarm

defect, loading concern, vegetation risk and GIS discrepancy are assembled and delivered to each team compressing weeks of manual research.

Architecture Principles and Getting Started

Realizing this value requires foundational architecture decisions that enable the right products and partners to work together effectively.

How to build. Treat visual data capture as an enterprise service: capture once, use many. Own your visual data. No vendor holds the only copy. Centralize storage in your AWS environment with modern access patterns. Require vendors to connect to your central storage using open data standards like [STAC](#) and [cloud-native formats](#). Build data lineage and traceability into the architecture. Leverage third party solutions while building internal AI/ML and GenAI capabilities to complement them over time.



Figure 2: Dominion iMAP Framework

How to gain adoption. Think transformational, not add on. Align capture procurement to shot sheet, quality and metadata standards. Anchor use cases within compliance and risk workflows. Build the field team feedback loop. Demonstrate impact by tracking KPIs like inspection throughput, manual review reduction and response times.

AWS partners with utilities and technology providers across its partner community to design and scale these capabilities, helping utilities build the architectural foundation that makes perception AI and agentic workflows operational, repeatable and auditable. Learn more: [AWS for Energy & Utilities](#)

Putting It into Practice: Dominion Energy Virginia's iMAP Program

Dominion Energy Virginia serves 2.8 million customers across 54,000 miles of distribution lines in VA and NC. As part of its Grid Transformation Plan, Dominion is investing in perception AI to modernize electric distribution operations. Dominion established iMAP, a central platform built on AWS with PwC and TRC as systems integration partners. Capture partners like NV5 and Skydio collect data across UAS, manned aircraft, vehicle mounted and satellite. Specialist solutions like Neara, Atomic Maps and Esri share common data source for analytics, digital twins and GIS integration. STAC and cloud-native formats provide cataloging and interoperability. Data acquisition SOPs enable a "collect once, use many" approach.

iMAP allows Dominion to better direct field resources, make better decisions and improve regulator engagement. This is possible because Dominion owns and governs all data within its own AWS cloud environment, connects third party vendors to its central platform through open standards, and aligns capture acquisition program SOPs to serve multiple use cases. Every data asset is traceable giving regulators the evidence chain they require. A single capture event feeds defect detection, vegetation risk scoring, pole loading analysis and GIS validation, and as the platform matures, empowers agentic AI to contextualize risk and compress the time from detection to informed decision. Early projections presented by Dominion include \$54M in annual steady state savings, a 6% SAIDI improvement, \$2.1M in pole loading benefits and \$7.5M in avoided project cost overruns.

AWS Partners in Dominion iMAP





WILDFIRE RISK SITUATIONAL AWARENESS

GridWatch™

THE OPERATIONAL GAP

Transform wildfire risk data into mitigation action. Make repeatable, fast decisions based on state-of-the-art science modeling ignition probability, spread likelihood and ignition consequence.

The FLARE™ AI Engine

- Fuses Complex Data
Integrates satellite imagery, weather forecasts, vegetation density, and infrastructure topology
- Make Decisions Based on Consequence
Wildfire spread models predict the impact of a spark event to drive mitigation decisions.
- Balance Safety with Reliability
Granular data pinpoints risk and mitigation actions at the sub-circuit level.
- Automated Mitigation Actions
Forecasts fire equipment settings such as fast-trip, non-reclose and Public Safety Power Shutoffs

Why Sub-Circuit Matters

TRADITIONAL WEATHER INDICES

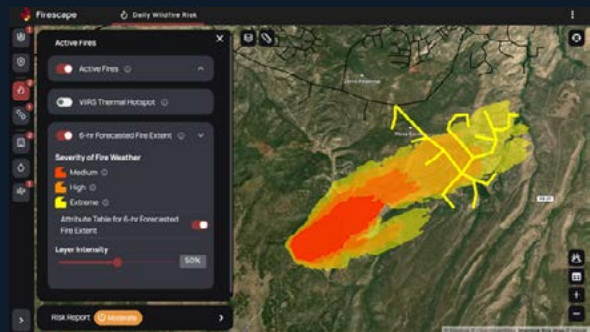
"Boulder County is at high risk for fire today."

FLARE™ INTELLIGENCE

Circuit 14 B, Segment 3, between poles 142 and 167, should be on non-reclose setting from 2pm to 6pm. This impacts reliability to 1 nursing home and 1 hospital.



7-day forecast for equipment settings



Predict arrival time and station resources

Proven Operational Impact

Secs
DECISION
SPEED

80%
PSPS
REDUCTION

3x
FEWER
OUTAGES

Trusted by utilities across the US and Canada.

About Us

Firescape was founded by scientists from Sandia National Labs with 30+ years combined expertise in wildfire modeling and geospatial analysis. We built Firescape to help utilities make quick, proactive decisions to safeguard communities and prevent catastrophic wildfires from occurring.

See GridWatch on Your Territory

Schedule a demo with us www.firescape.ai
Contact Holly Eagleston at holly@firescape.ai





RISK QUANTIFICATION TOOL

If You Spend \$X on Hardening,
Your Risk Drops by \$Y.

Risk Modeling

Wildfire simulations determine potential losses due to ignition for each 100m section of line.

Mitigation Modeling

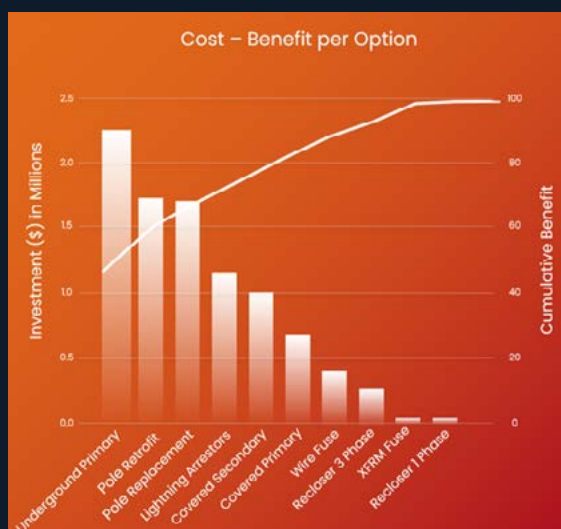
We model how effective each mitigation option is: covered conductor, replacing fuses, etc.

Investment Optimization

The VALOR™ model optimizes the cost-benefit to map where and what type of mitigation to invest in.

THE GAP IN UTILITY CAP-EX PLANNING

Defend grid hardening decisions using a data-driven approach to quantify risk reduction for every dollar spent.



Leveraging Catastrophe Models

We apply catastrophe modeling approaches from the insurance industry to assess risk. To answer "If there was a fire ignited at this pole, how much would it cost?"



The VALOR Optimization Engine

VALOR provides asset-level, investment-linked loss reduction quantification. It takes a systems view to recommend mitigation strategies and answer "if I spend \$10M on covered conductor, my risk of losses is reduced by \$3M."

SCHEDULE A DEMONSTRATION

firescape.ai

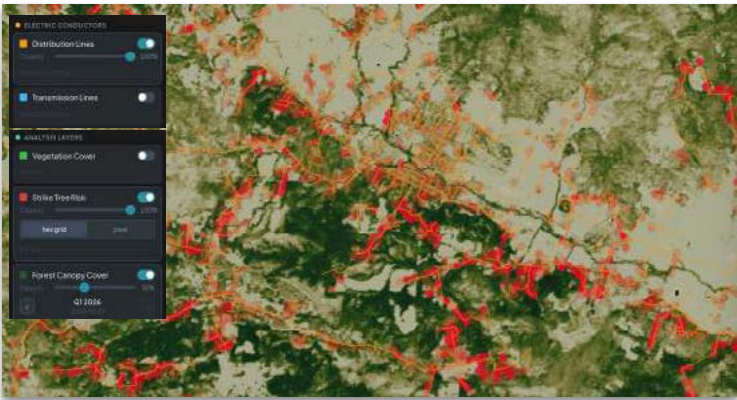


ABOUT PLANET

Planet provides the real-time geospatial intelligence essential for modernizing wildfire mitigation and grid resilience. Operating the world’s largest fleet of Earth-observation satellites, we deliver more than just high-resolution imagery; we provide a continuous data stream that feeds directly into utility decision-making. Our utility solutions focus on monitoring vegetation condition and wildfire exposure.



VEGETATION MONITORING

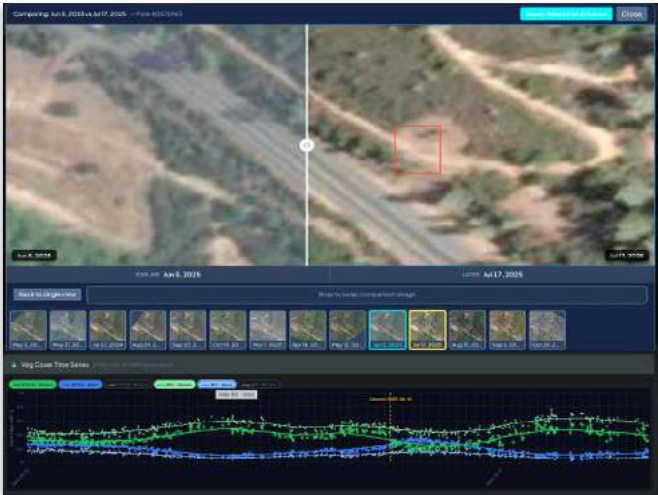


Vegetation Encroachment

Planet’s vegetation encroachment monitoring provides electric utilities with high-resolution, territory-scale maps to identify and prioritize asset threats. Using deep learning models trained on airborne LiDAR, the solution delivers "use-ready" raster data including potential strike tree locations, and vegetation encroachment on assets. These insights achieve near-LiDAR-quality accuracy—exceeding 90% for strike tree identification—at a fraction of the traditional cost. With quarterly updates across the entire distribution and transmission grid, utilities can effectively track vegetation management progress and outage/ignition threats

Fuels Tracking

Planet provides a comprehensive Fuels Tracking solution that delivers daily, 3m resolution analytics to monitor fractional live vegetation, dead vegetation, and bare ground across an entire service territory. By integrating daily PlanetScope imagery with advanced process modeling, utilities can remotely verify the completion of fuel-clearing work and track regrowth to optimize follow-up maintenance schedules. For high-risk segments requiring granular oversight, the solution supports sub-meter tasking for visual confirmation of asset conditions. This "always-on" monitoring transforms fuel management from a periodic guessing game into a precise, data-driven operation that ensures grid safety

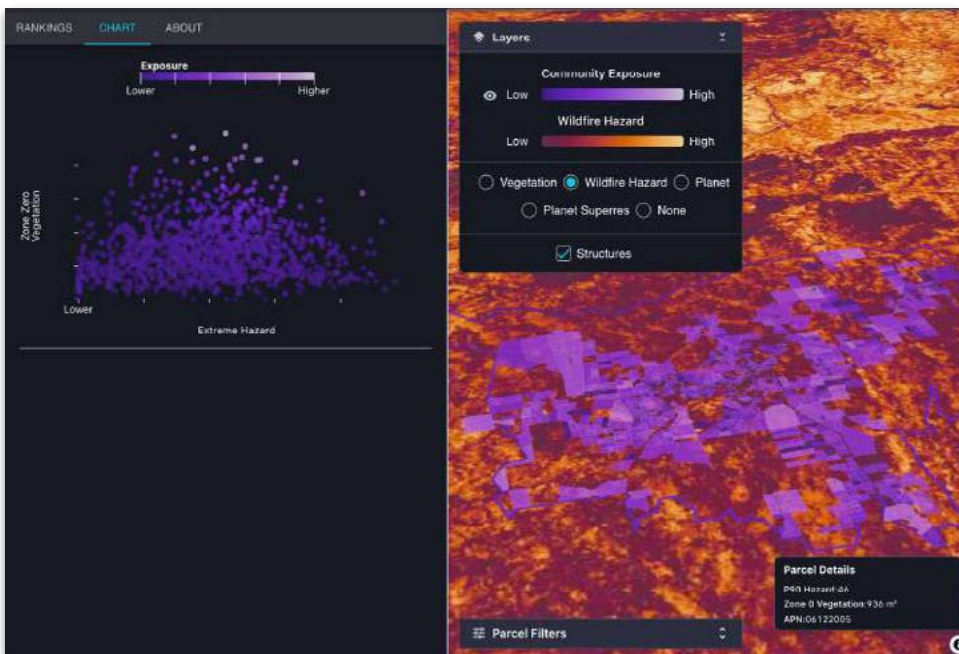
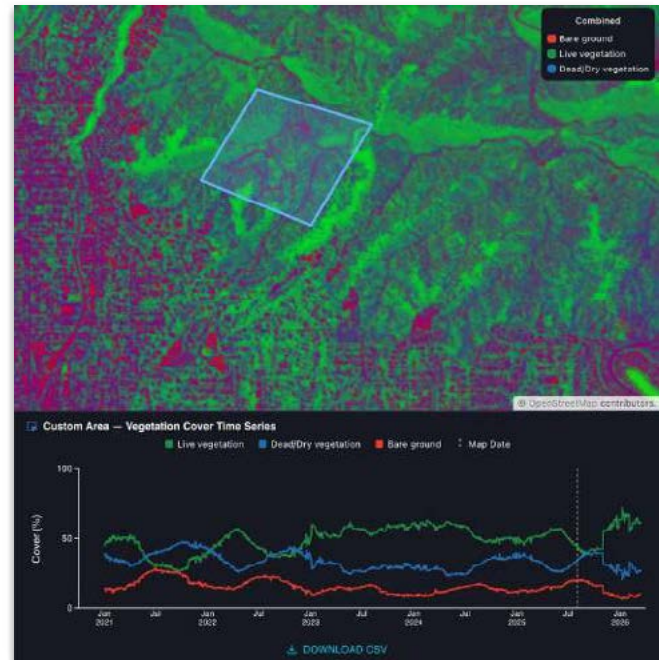




WILDFIRE HAZARD MONITORING

Dynamic Fuel Analytics

Planet provides a detailed view of landscape-scale ignition risk by delivering daily, 3m resolution data on the condition and distribution of vegetation fuels. Using spectral mixture analysis, we differentiate between live and dead/dry vegetation to provide a direct, quantitative measurement of curing levels and moisture stress. This allows utilities to track seasonal dry-down cycles and detect phenological anomalies across their entire service territory, even in dense or heterogeneous landscapes where traditional indices like NDVI often saturate. By integrating these biophysically meaningful layers into risk models, teams can gain enhanced situational awareness of where the landscape is most primed for fire spread.



Community Wildfire Exposure Analytics

Planet's wildfire exposure monitoring solution provides a comprehensive, multi-scale assessment of exposure by integrating our 10m-resolution wildfire hazard layer with 3m-resolution vegetation fuel data at the parcel level. This top-down visibility enables utilities to strategically prioritize long-term investments in grid resilience and ignition reduction while simultaneously informing real-time operational changes during periods of extreme fire danger. This data-driven approach ensures that mitigation efforts and resources are directed toward the areas with the highest potential impact on public safety and infrastructure.

More Details

Get answers to technical questions about Planet's products
docs.planet.com

Contact Us

Learn how Planet can help you
Bryan Cook, Account Executive
bryan.cook@planet.com



Real-Time Weather Intelligence

As wildfire risk expands beyond its historical geographic boundaries and into every season of the year, utilities across North America face mounting pressure to make faster, better-informed operational decisions to protect infrastructure and the communities they serve. Forecast models and wildfire risk analyses help identify elevated risk in advance, but real-time observations are needed to validate evolving conditions and support operational decisions. Access to reliable, low-latency observations has therefore become an increasingly important component of wildfire mitigation programs.

Real-Time Observational Data Supporting Wildfire Operations

Decision-making during wildfire events is heavily informed by real-time surface observations. While forecast models and wildfire risk analyses identify areas of elevated concern hours to days in advance, real-time observations provide critical insight into changing conditions as events unfold.

Utilities use real-time environmental data to support operational decisions such as Public Safety Power Shutoff (PSPS) activations, Enhanced Powerline Safety Settings (EPSS) enablement, field crew deployment, and situational awareness during Red Flag Warning conditions.

Synoptic Data aggregates observations from more than 100,000 weather stations across North America, including public, private, and utility-owned networks. By bringing these observations together into a common platform, utility operators, meteorologists, and analytics teams can assess current conditions across broad geographic areas without managing multiple data sources independently. With expanded observational coverage comes improved visibility into localized weather conditions that may not be captured by a utility-owned network alone.



Why Real-Time Observational Data Matters for Utilities

Key operational benefits of real-time observational data include:

- Low-latency weather observations that support time-sensitive operational decisions.
- Access to utility-owned, public, and private weather network observations through a single platform.
- Quality-controlled data that helps identify suspect observations before they are incorporated into operational workflows.
- Improved situational awareness during fire weather events, where localized observations may directly influence operational thresholds.

Historical Context for Real-Time Observations

While real-time observations help operators understand current conditions, they do not always indicate whether those conditions are unusual enough to warrant action. Comparing observations against a station's historical baseline provides important context for evaluating operational thresholds.



Synoptic's Statistics and Percentiles Service provides station-based percentile distributions for wind gust, wind speed, and air temperature using quality-controlled historical observations. These datasets help utilities place current conditions into historical context without maintaining large weather archives internally.

Users of Synoptic's platform include PG&E, SCE, SDG&E, and many other utilities across North America. Their operations teams use real-time data across their service territories, as well as tools such as the Percentiles Service, to mitigate risk, inform fire weather decision-making, coordinate efforts with other agencies, such as the National Weather Service (NWS), and for PSPS decisions.

To learn more about Synoptic's platform and the data services available for utilities, please contact Meteorologist and Business Development Manager, Miranda Bitting, at miranda.bitting@synopticdata.com.

PEGGY CHAT BOT – Wildfire Risk Awareness and Decision Support in near Real Time

Leveraging , Agentic AI framework to connect a group of AI agent and Physical AI, this BOT equips the Users with the ability to take informed decisions based on real time field data

Abstract: Utilities operating in wildfire-prone regions increasingly rely on real-time data, advanced analytics, and rapid decision-making to mitigate operational and public safety risks. Peggy Chat Bot, an AI-enabled, agentic decision-support system is designed to provide streamlined access to Public Safety Power Shutoff (PSPS) data, asset intelligence, and wildfire incident information. By integrating enterprise systems, geospatial platforms, and field-level sensing technologies, the solution enhances situational awareness, reduces response latency, and supports data-driven decision-making during wildfire and high-risk operational events.

Pacific Gas & Electricity has been in the forefront in leveraging technology to mitigate the risks of wildfire. It has developed wide range of applications which provides analytics in real time and generate insights which has improved situational awareness and speed of response. With the infusion of AI in the process, the speed of response and customer experience has improved manifold.

The **Peggy Chat Bot** leverages AI and combines the situational awareness from various application platforms to provide Business Users the autonomy

to access information related to **PSPS, Utility Assets , Wildfire Incidents** (real time & historical) on demand customized per the user's need.

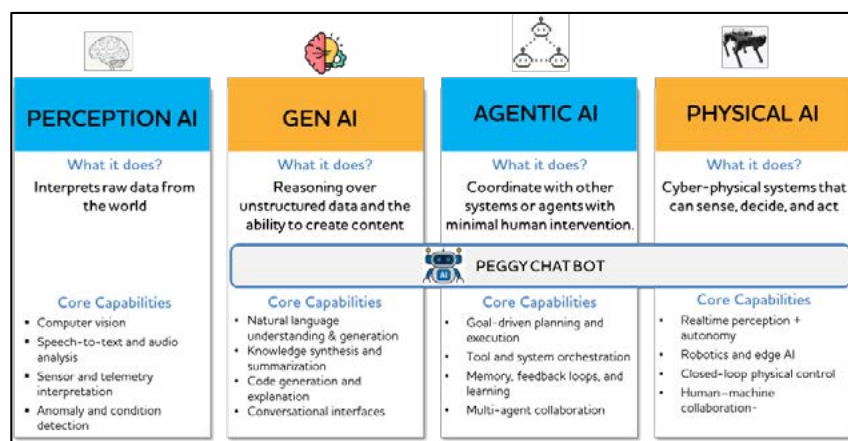


Figure 1: AI Infusion for Peggy Chat Bot

How it Works

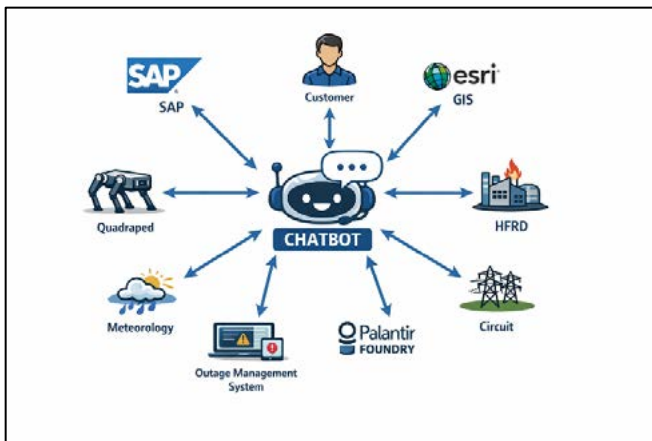


Figure 2: Interfacing systems.

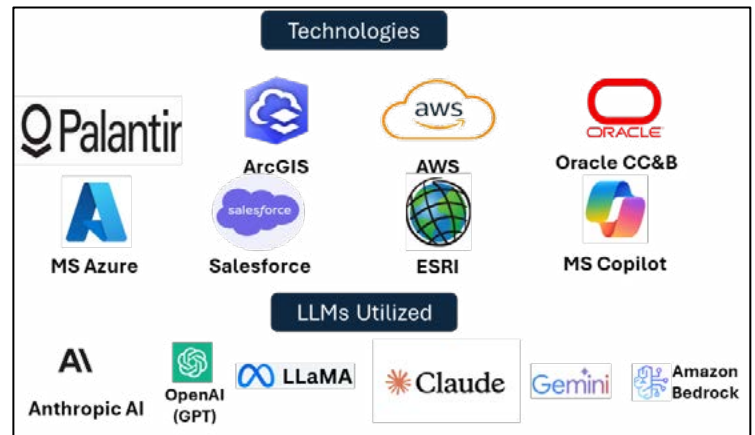


Figure 3: Technologies leveraged.

Traditionally during a PSPS event, business users require a wide array of data for which they were dependent on IT support teams. Peggy Chat Bot leverages AI agents to provide instant access to relevant data, incident history, and recommended actions, enabling ITCC and support teams to respond faster and make more informed decisions during critical situations. By connecting seamlessly with the PSPS and Hazard Awareness systems, the bot delivers real-time, human-language-based Q&A on current hazards and their potential impact on assets, allowing teams to quickly assess risk, understand what is affected, and take appropriate action. Chat Bot would also have the capability to send notifications to PSPS team and generate reports from different data sources. With integrated physical-AI capabilities, the solution can also connect to field-deployed robotic cameras or IoT devices, giving users the ability to view live conditions in any affected area. This end-to-end, conversational and visual experience enhances situational awareness, reduces response time, and supports confident, data-driven decision-making across operational and emergency scenarios.

Conclusion

As wildfire risk continues to grow in scale and complexity, utilities must evolve beyond siloed systems and manual decision processes. Peggy Chat Bot demonstrates how agentic AI and conversational interfaces can transform operational awareness, enabling utilities to respond more effectively to high-risk events.

PG&E has partnered with Technosylva since 2019 to advance situational awareness across its operations and bring data-driven decision-making to its long-term asset planning.

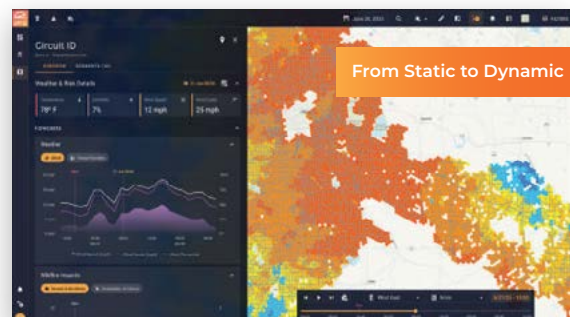
OUR MISSION

We exist to **reduce the impact of wildfires and extreme weather.**

WILDFIRE OPERATIONS

Monitor and act on dynamic wildfire conditions.

Robust, real-time fire science forecasts and simulations, including Fire Potential Indices, weather metrics, and multiple simulation exposure modes



Shared Understanding and Awareness

Ensure all utility teams are working from a holistic, common operational picture for decision making

Scenario Planning

Plan for multiple fire spread scenarios before and during an event to prepare utility teams and first responders in the field

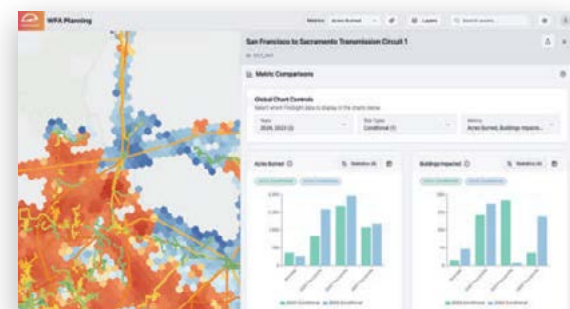
Enablement of Critical Decisions

Provide utility teams with the intelligence needed for surgical mitigations to protect customers

WILDFIRE PLANNING

Prioritize mitigation based on territory and asset risk.

Territory and asset specific risk and consequence metrics, including expected/conditional risk, asset ignition/failure analytics, and fire characteristics.



Proven Support for Regulatory Teams

Rigorous analysis that holds up under regulatory scrutiny. Directly mentioned in 14 WMPs.

Targeted Mitigation

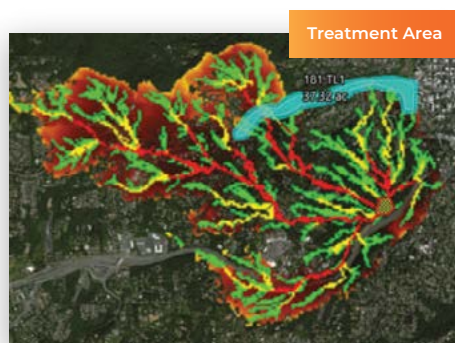
Prioritization of interventions to mitigate wildfire risk – grid hardening, vegetation management, and asset management.

Forward-Looking Insights

Climatological projections that help utilities prepare for future risk and inform grid expansion, i.e., large load growth.

FUEL TREATMENTS

Measure the value of protective fuels treatments.



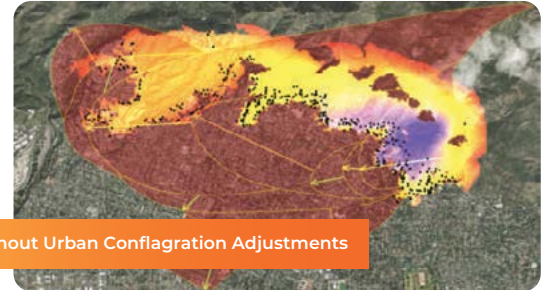
	Pre-Treatment	Post-Treatment
Size in Acres	1610	1202
Buildings Threatened	901	659
Buildings Destroyed	272	202
Buildings Impacted	1638	993



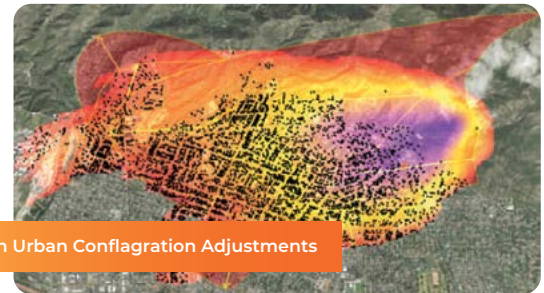
Predict consequences where they matter most.

Capture complex urban fire behavior missed by traditional wildfire models.

- ✓ Models trained on over 100+ historic fires in the Wildland Urban Interface (WUI).
- ✓ WUI fuel types to fill critical gaps in publicly available sources that treat urban areas as non-burnable.
- ✓ Enhanced building loss accuracy reflecting complex fire behavior in the WUI with modifications to calculation of encroachment distances.



Without Urban Conflagration Adjustments

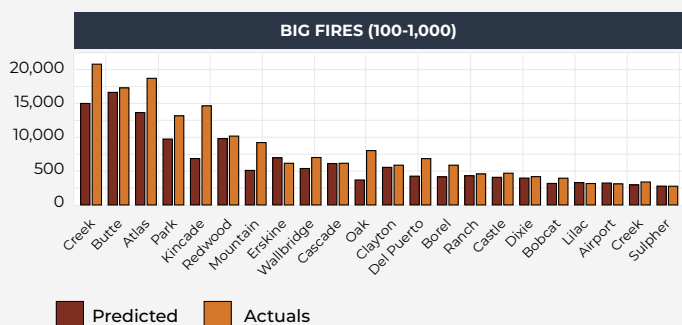


With Urban Conflagration Adjustments

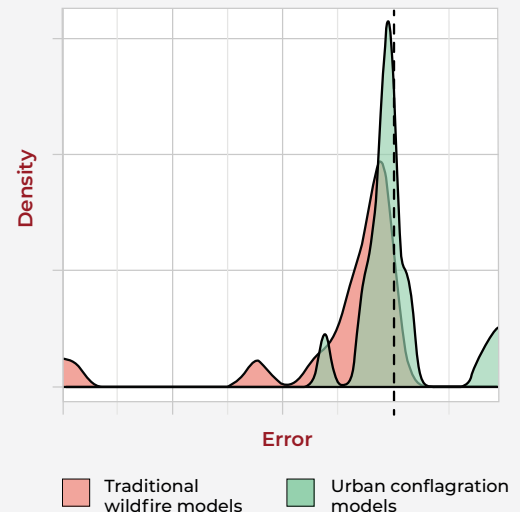
Eaton Fire: Urban conflagration modeling increased predicted threatened structures from 654 to 8,546, closely aligning with real-world impacts (~8,068).

Estimate building losses with precision.

Dynamic building loss factor predicts structural damage for historical fires with **94% accuracy**.



Urban conflagration adjustments are critical to accurately predicting consequences in urban areas.



Technosylva is the multi-hazard, industry-standard for wildfire and extreme weather insights, providing utilities and fire agencies with actionable, dynamic intelligence to plan for and respond to threats in real-time.

Follow Technosylva on LinkedIn [in](#)

[TECHNOSYLVA.COM](https://www.technosylva.com)



Since 2017, Western Weather Group (WWG) has supported Pacific Gas & Electric by maintaining a specialized weather station network across Northern and Central California. This high-resolution, site-specific data is critical for grid reliability, wildfire mitigation, and field safety, especially in complex terrains where public observation networks are insufficient.

PG&E leverages WWG weather stations to:

- **Manage Wildfire Risk:** Monitor critical variables—including wind speed/direction, temperature, humidity, and precipitation—to assess fire-weather threats.
- **Enhance Situational Awareness:** Provide real-time data during elevated fire danger and Public Safety Power Shutoff (PSPS) events.
- **Inform Operations:** Drive data-backed decisions for grid management, field maintenance, and emergency response.
- **Verify Models:** Supply "ground truth" observations to validate weather forecasts and fire behavior simulations.

Designed for long-term, unattended operation in rugged, remote environments, WWG's stations meet PG&E's rigorous field standards. Their typical configurations include:

- **Industrial-Grade Sensors:** High-precision monitoring of temperature, humidity, wind speed, and direction.
- **Reliable Power:** Solar-powered systems equipped with battery backups for continuous uptime.
- **Standardized Hardware:** Secure enclosures and mounting tailored to PG&E's specific field requirements.
- **Resilient Connectivity:** Integrated cellular or satellite communications to ensure secure, consistent data delivery.

WWG collaborates closely with PG&E on station configuration, component replacement, and proactive maintenance to ensure maximum data continuity and quality. This near-real-time data is delivered via dashboards and API integration, enabling PG&E teams to:

- **Monitor Critical Sites:** Track live conditions at high-priority locations.
- **Analyze Risk:** Evaluate trends and thresholds specific to fire danger.
- **System Integration:** Seamlessly incorporate observations into internal forecasting tools and operational workflows.

Beyond hardware, WWG provides comprehensive technical and operational support, including:

- **Troubleshooting & Repairs:** Rapid coordination and resolution of station issues.
- **Asset Management:** Proactive replacement and replenishment of sensors and components.
- **Strategic Collaboration:** Partnering with PG&E managers and field teams to adapt station configurations to evolving operational needs.

WWG's equipment and services provide PG&E with the high-resolution environmental intelligence essential for grid safety and wildfire mitigation. This partnership empowers PG&E to make the timely, data-driven decisions necessary to protect its infrastructure, workforce, and the communities it serves.



IVMS™

Intelligent Vegetation Management System™

Apply a SatelliteFirst approach to vegetation management — combining satellite data, ground truth, historical records, and pre-trained AI models to reduce costs, optimize work plans, improve grid reliability, and lower wildfire ignition risk.

More than **200 customers** of all sizes across the globe use AiDASH



2+ MILLION

miles of T&D lines
monitored



10-20% Lower

vegetation
management expenses



10-30%

reliability
improvements



5+ MILLION

miles of T&D lines
processed by our AI engine

100%

See your entire network's
vegetation conditions in detail.

360° View

Get the full picture of T&D
ROWs with pinpoint accuracy.

Insight

Get fresh perspectives on
routine prune plans and ROW
risks.

Surgical, span-level assessments. Maximum fire risk ROI.

- ✓ **Identify critical spans** — Detect hazardous vegetation, dead trees, and encroachments at span level to pinpoint ignition sources and fuel concentrations.
- ✓ **Prioritize circuit segments** — Rank mitigation work from circuit through segment to span level, optimizing budget and crew allocation for maximum wildfire risk reduction.
- ✓ **Operationalize your highest-ROI mitigation** — Deploy crews to the spans that deliver the greatest fire risk reduction, maximizing grid resilience and minimizing ignition probability.



Let's get started | www.aidash.com | +1 408-703-1099

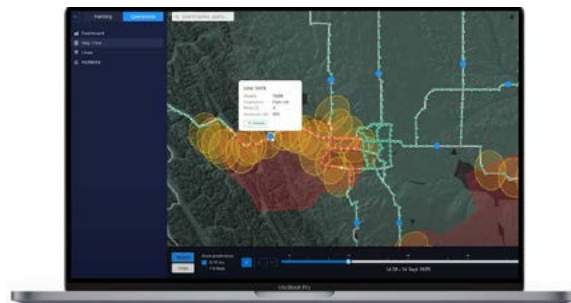
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Proactive Wildfire Intelligence



Overview

Ready to control your wildfire risk? Stop reacting to wildfires and start commanding your response. Forsite offers Risk View, empowering a fundamental shift to proactive, intelligence-driven risk management, providing the foresight needed to protect your assets, your customers, and your communities.



Wildfire Risk Management Platform

Transform your wildfire risk management from reactive to predictive.

Risk View is based on a wildfire intelligence engine for utilities, transforming how you anticipate, prevent, and respond to fire threats. Built by Forsite's world-class wildland fire experts, Risk View connects your strategic asset knowledge to day-to-day operational decisions through sophisticated fire behavior modeling and real-time risk intelligence.



Core Platform Capabilities

Dynamic Risk Calculation • Identify high-risk areas for new ignitions across your network, based on the current and forecasted weather.

Forecasting • Forecast the path of existing wildfires threatening your assets.

Strategic Risk Insights • Access comprehensive assessments of where your network carries the most vulnerability (e.g., aging poles in high-fuel areas near communities).

Accurate Data • Dynamic, interactive mapping provides a single source of truth.

Automated Risk Scoring • Strategic threat prioritization with automated risk scoring.

Threat Alerts • Intelligent, configurable alerts to highlight threats that matter most.

Seamless Integration • Integrate directly to your existing ESRI systems or leverage our purpose-built interface. Full API access and flexible data integration capabilities allow you to add additional geospatial or other contextual layers for automated decision-making, PSPS shutdowns, and crew deployment.

Simple User Interface • Intuitive user-friendly design ensures frictionless adoption. Features in-app help and guidance for users.

Scalable Deployment • From single-region pilots to enterprise-wide implementations, the platform scales to meet your organizational needs and integrates seamlessly across your technology landscape.

FORSITE.CA

Pay For What You Need

Risk View's modular design lets you select only the capabilities that match your current requirements and budget. Start with core fire modeling and expand as your program matures.

- Seamless ESRI integration
- Dynamic and/or Long-term Risk Focus
- Intuitive UI with Configurable Alerting
- Integrate with any of your existing systems

Forsite's Partnership Approach

We provide expert guidance throughout and deploy Risk View as a true partnership, not just a software license. Our fire experts guide you through pre-season risk assessments, real-time decision support during critical events, and post-season analysis to continuously improve your program.

From initial calibration of fire models and fuel mapping to ongoing operational consultation, we can provide as much support as your operations require.

Our Advantage

Leading Wildfire Specialists • Forsite's fire behavior scientists calibrate fuels and models for your specific geography and climate. When decisions impact safety, cost, and revenue, you need the most accurate fire predictions possible.

Vegetation Management Expertise • Our deep vegetation experience ensures risk intelligence informs strategies that prevent ignitions. We guide utilities in optimizing vegetation programs to reduce ignition potential and fire spread.

Proven Utility Experience • We have guided utilities through critical fire seasons, transforming complex risk data into confident decisions. Our approach reflects your unique fuel types, topography, and weather patterns just to name a few.

*Blending remote sensing technology
and cutting-edge wildfire science.*



Anthony Palizzi

Director, Business Development - Utilities

tel 936-380-2319

email apalizzi@barrgeospatial.com

FORSITE

forsite.ca





Gridware addresses the challenges of Hazard Awareness Delay with its Active Grid Response (AGR) platform, powered by Gridscope. This end-to-end system enables pre-fault and real-time detection, localization, and identification of hazards at their source, prioritizing response and dispatching crews directly to improve safety and reduce restoration time. Gridscopes detect all hazards, including the leading precursors to ignitions and wildfires.

Eliminating Hazard Awareness Delay.

By combining high-fidelity electromechanical sensing with edge intelligence, Gridware moves utilities from generalized risk awareness to precise, actionable hazard identification. Gridware only sends verified alerts that enable immediate action. Confidence in alerts is crucial to motivate consistent action when inaction could lead to catastrophes.

Hazard Response.

Control teams can confidently act on localized and cause-identified hazards, regardless of outage or line energization state.

Major Event Management.

Operations teams can triage and dispatch crews with precision to restore power quickly and safely, reducing patrols and focusing effort on verified issues.

Reliability Operations.

Operations teams can identify specific developing hazards—before they result in outages—and act on precise data to resolve them proactively.

Asset Health & Preventive Maintenance.

Engineering teams gain visibility into asset and pole health trends to surface patterns that drive proactive maintenance, inspection, and capital planning before failures occur.



Powered by Gridscope.

Gridscopes uniquely detect high-impedance faults—key drivers of wildfire risk—by continuously monitoring electrical, physical, and environmental signals, helping prevent ignitions or providing visibility to help mitigate impacts when ignition occurs.

Gridware turns on-device signals into operational value by enabling preemptive action through early hazard identification at the source with clear visibility into hazard type, severity, and location.



On-Device Analytics.

High frequency measurements are continuously captured and analyzed at the edge to ensure notifications are sent the moment a hazard occurs.

Multimodal Monitoring.

A combination of physical, electrical, and environmental sensors are included to accurately identify the type and severity of hazards while suppressing false positives.

Easy to Install.

Gridscope protrudes no more than a pole step and is installed in minutes, enabling deployment at a density that supports exact asset-level pinpointing of hazards.

Self-Powered.

Devices are solar powered, battery backed, and continue to identify hazards during outages, PSPS, and storm conditions.

Email gtm@gridware.io for more information.

945 Front Street
San Francisco CA 94111

www.gridware.io

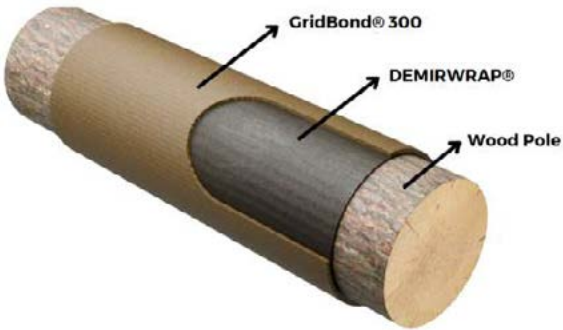




DEMIRWRAP®

DEMIRWRAP® is an advanced composite pole reinforcement system designed to strengthen utility infrastructure, enhance grid resiliency, and support grid hardening initiatives. Compatible with wood, concrete, steel, and composite poles, it extends service life and improves reliability against extreme weather, wildfire exposure, and environmental stressors without service interruption.

Its high-performance composite delivers durable structural reinforcement while protecting against decay, rot, wildlife damage, impact, and long-term deterioration. By reinforcing vulnerable pole sections, DEMIRWRAP® supports wildfire mitigation efforts and reduces failure risk, providing a cost-effective, environmentally responsible alternative to pole replacement.



KEY BENEFITS



**Zero
downtime**



**Application
time**



**90% cost
saving**

30

**Year life
extension**

GRID HARDENING SOLUTIONS FOR UTILITY POLES

WILDFIRE MITIGATION

DEMIRWRAP® has been tested under simulated wildfire conditions and utility-approved standards, proving effective in protecting utility poles from wildfire. It supports wildfire mitigation and grid hardening by reducing fire-related damage and enhancing grid resiliency in high-risk areas.

EXTREME WEATHER & STORM RESILIENCY

DEMIRWRAP® strengthens grid infrastructure against severe storms and extreme weather, enabling rapid deployment for proactive hardening and faster post-event recovery

WOODPECKER DAMAGE RESTORATION

DEMIRWRAP® restores and protects wood utility poles from woodpecker and wildlife damage with a durable, impact-resistant barrier that prevents burrowing and preserves structural integrity.

UP CLASS UTILITY POLES

DEMIRWRAP® increases bearing load capacity up to five times, enabling pole upclassing in the field or on new wood poles prior to installation.

RESTORE INTEGRITY OF AGED POLES

DEMIRWRAP® provides comprehensive restoration for aging utility poles, extending service life up to 30 years while enhancing structural strength, storm resilience, and fire resistance.



SUPPORTING GRID HARDENING ACROSS UTILITY NETWORKS



The EFD™ System

Our Early Fault Detection (EFD)™ system detects and locates incipient electrical failures such as damaged conductors, vegetation contact, and failing insulators. Using distributed radio frequency (RF) sensors installed every two to six circuit miles, this device is suitable for all application voltage and pinpoints incipient failures to an accuracy of +/- 30 feet.

EFD™ uses device-level cellular or satellite communications, allowing for system-wide installations. RF detection data is sent to a secure back-end, where further data processing is performed to localize pre-fault conditions.

EFD™ offers 24/7 system-health monitoring, enabling utilities to proactively identify, locate and mitigate wildfire risks on their systems. Using IND.T's suite of software tools, utilities can leverage EFD™ data to prioritize proactive maintenance activities, offering a new method of operating utility systems.



INDT

Intelligent Network
Diagnostic Technology

• N-SMART 2026 GUIDEBOOK SUBMISSION



Closing The Grid Visibility Gap

AI-Driven Pole Monitoring For Wildfire Mitigation

Wildfire risk in utility networks is increasingly driven by undetected asset degradation, environmental stress, and delayed response to field conditions.

Traditional inspection cycles and reactive workflows are insufficient to identify early indicators of ignition risk, particularly in high-fire-threat districts (HFTDs).

N-Smart provides an AI-enabled pole-monitoring and predictive analytics platform that helps utilities transition from reactive operations to continuous, real-time risk detection and prevention.

Our solution integrates low-cost IoT sensors, edge intelligence, and centralized AI analytics to monitor critical infrastructure and identify wildfire risks before they escalate.



• TECHNOLOGY OVERVIEW

N-Smart Deploys Pole-Mounted Smart Sensors Across Distribution Networks To Continuously Monitor:

- Pole tilt and structural integrity
- Vibration and external impact events
- Conductor movement and line slap conditions
- Environmental conditions (temperature, humidity, wind proxies)
- Equipment health indicators and abnormal behavior

These Sensors Transmit Real-Time Data Into The N-Smart AI Optimization Platform, Where Machine Learning Models:

- Detect anomalies and early failure patterns
- Correlate environmental and asset-level risks
- Predict high-risk conditions that may lead to ignition events
- Generate prioritized alerts for utility operators

The Platform Integrates With Existing Utility Systems (E.G., OMS, ADMS, GIS, Work Management) To Enable Seamless Operational Response.

• LIVE DEPLOYMENTS

ACTIVE UTILITY PARTNERSHIPS



FOCUS AREAS

- High-risk circuits and wildfire-prone regions
- Early fault detection and asset condition monitoring
- Reducing ignition risk through proactive intervention

44

Distribution Poles Across Diverse Operational Scenarios

Delivering real-time damage detection, predictive maintenance, and automated outage assessment. Feeders are selected to reflect a mix of automation capabilities and vegetation management challenges, enabling comprehensive evaluation across varying grid conditions while maintaining a manageable scope and investment.

• KEY CAPABILITIES

Real-Time Risk Detection

Continuous and Immediate identification of abnormalities like pole instability, conductor movement, and environmental stress.

Situational Awareness

Provides utilities with a system-wide view of asset health and wildfire exposure across the network.

Scalable Deployment

Designed for rapid, cost-effective rollout across thousands of poles and circuits.

Predictive Asset Health

AI models identify degradation patterns and forecast failure risks before they occur.

Edge + Cloud Intelligence

Combines on-device processing with centralized analytics to deliver faster insights and lower latency.

• WILDFIRE MITIGATION IMPACT

N-Smart Enables Utilities To:

01.

Reduce ignition risk by identifying hazards before failure

02.

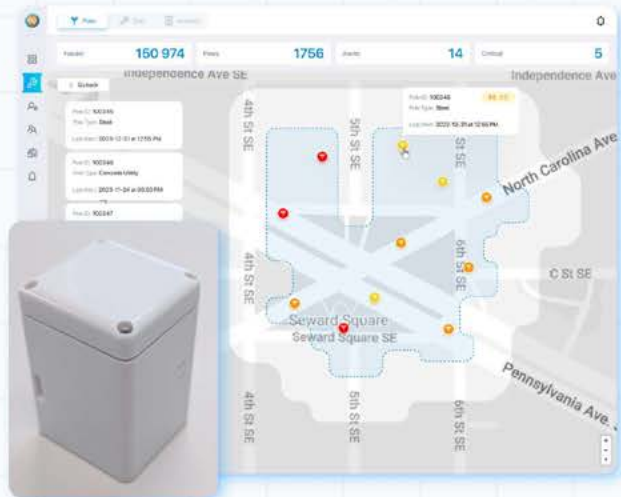
Minimize truck rolls through targeted, data-driven inspections

03.

Enhance decision-making with real-time and predictive insights

04.

Optimize resource allocation by prioritizing high-risk assets



Infrastructure monitoring with AI-driven analytics, utilities can shift from reactive mitigation to proactive wildfire prevention.

• WILDFIRE MITIGATION IMPACT

Wildfire Mitigation Requires A Multi-Layered Approach, Combining:

Asset Monitoring

Operational Integration

Environmental Awareness

Predictive Analytics

N-Smart delivers this as a unified solution, helping utilities build a digital layer of intelligence across their grid



• CONTACT

Kiran Yeddala

202-656-6465

kiran.y@nsmart.io



THE NAIL™

NEST ABANDONMENT INDUCTION LASER

HAS ARRIVED.

Eliminating Bird Nests on Transformers and Other Critical Assets. Preventing Ignitions and Wildfire Risk. Reducing Operational Costs.



OrniLogic developed the NAIL system to specifically address the growing threat avian-caused outages and fires poses to utilities across the globe. Our autonomous, non-lethal system is grounded in a deep understanding of bird behavior and was designed in close partnership with the hard-working men and women of the utility industry. The NAIL is easy to install with a single hot stick and designed to be durable, low-maintenance, and meet industry equipment standards. The patented bracket and module design can be customized to satisfy any specific customer's needs while remaining cost effective.

Our solution detects animal presence before a nest can be constructed and trains the bird to avoid the asset entirely. This desired outcome is achieved with precise aversive training, grounded in innovative engineering, animal science and the deep insight OrniLogic can bring to the table as a cross-discipline organization.

Early partners and collaborators include:



LET'S TALK.

Protect your assets before the birds move in.

contact us: NAIL@ornilogic.com



This is a field-driven solution, not a theoretical one.



PG&E has partnered with Overstory since 2023 and now monitors over 100,000 miles annually with Overstory's Vegetation Intelligence.

Overstory Vegetation Intelligence + Wildfire Intelligence

Overstory's software products combine high resolution remote sensing data with proprietary machine learning AI models designed to identify natural on-the-ground hazards. Wildfire Intelligence now includes our proprietary **Fuel Detection Model**, allowing utilities to pinpoint controllable ignition hazards and prioritize action across their network.

How to best control ignition risk

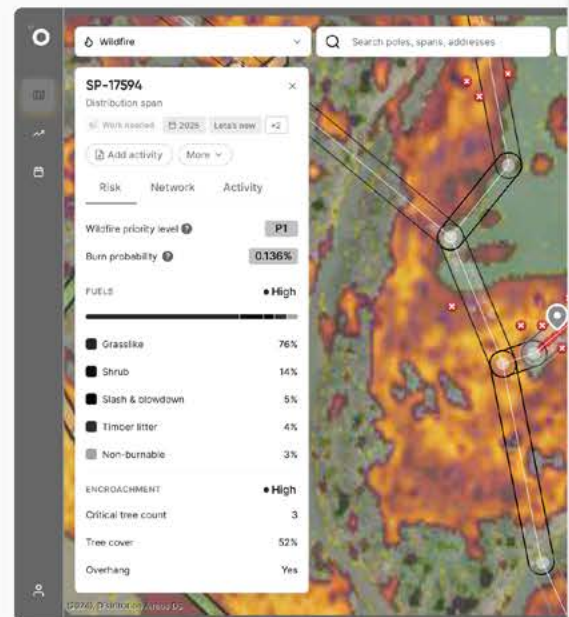
Vegetation is the most controllable driver likely to cause an ignition for a utility, yet most utilities still rely on data that was never built for their right-of-way scale.

Public fuel maps typically operate at **30–50m** resolution. A single pixel often spans both sides of a corridor and numerous fuel types. They're useful for **landscape-scale planning**, but they:

- Can't pinpoint **the individual fuels** that carry fire along a corridor
- Ignore urban areas, which are classified as non-burnable
- Can't tell **which spans to treat first** under a fixed budget
- Are updated on infrequent and irregular cadences

This leaves utilities without a defensible way to answer the questions that matter most:

- 1 Where is vegetation most likely to **cause an ignition** in and around our right-of-way?
- 2 Where will local fuel conditions **cause a spark to spread** if one occurs?



Overstory's Fuel Detection Model marks a novel shift in utilities' ability to control their risk, with

10,000x better resolution
than LANDFIRE

Annual updates with
refreshed scans

Proprietary models classifying fuel types and overall
fuel hazard based on density and contiguity

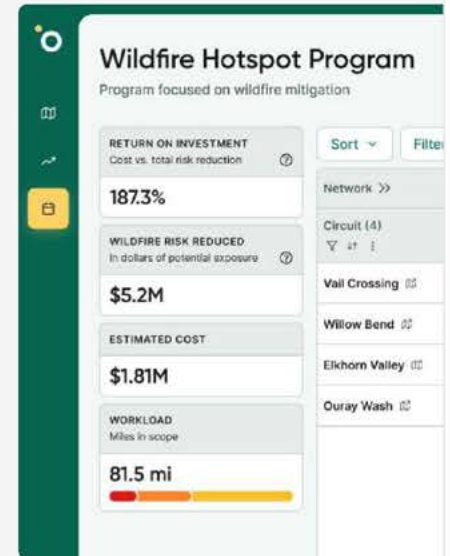
Wildfire Intelligence

Overstory is the vegetation intelligence platform trusted by **6 of the 10 largest investor-owned utilities** in North America. Built on **millions of miles** of utility network analysis, Overstory gives wildfire and vegetation teams a **system-wide, objective view** of where vegetation drives risk, and the **most cost-effective way to reduce it**.

For each circuit, these hazards are combined with consequence structure and population data to allow for a risk view and ranking at scale

In each span, the identified fall-in, grow-in and fuel hazards are aligned to burnability to determine which factor (hazard trees, encroachment or specific fuels) are driving ignition likelihood most

In the Overstory app, users can generate plans, compare their relative costs and benefits, and measure change over time



How leading utilities are using Wildfire Intelligence

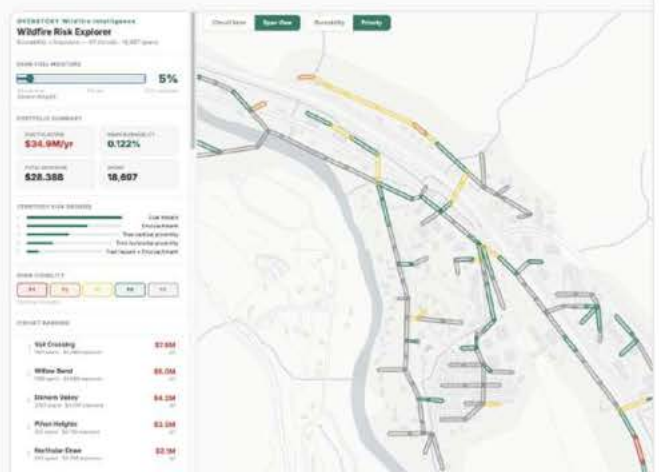
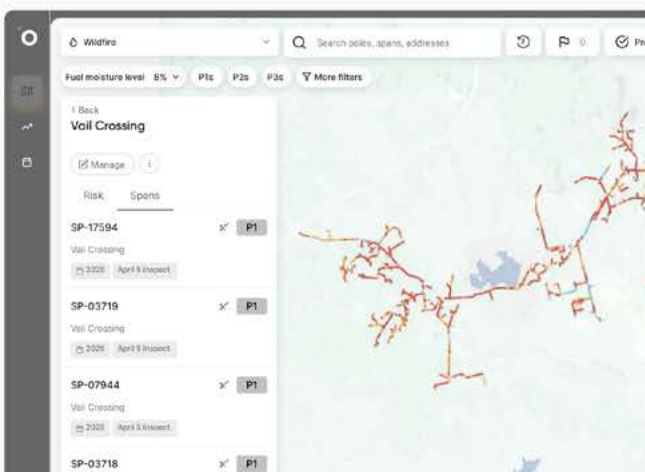
Leading utilities use Wildfire Intelligence to move from **identifying** controllable wildfire hazards to **prioritizing** and **executing** the right work under real-world budget constraints.

Optimizing a mitigation program

Wildfire Intelligence allows utilities to prioritize annual mitigation spending by combining fuel hazard data with consequence analysis. This enables utilities to justify cost-effective risk reduction and optimize budget allocation across their highest-risk spans, ensuring maximum impact from existing program budgets.

Refining PSPS and EPSS with fuel risk data

Utilities use dynamic fuel moisture scenarios to make more precise power shutoff decisions. When shutoffs are planned for an area, fuel hazard insight tightens the impact area, enabling utilities to compare circuits at different fuel moisture levels and determine which require complete shutoffs versus fire safety settings.



Reach out to wildfire@overstory.com to learn more

Wildfire Mitigation Services

Proven expertise protecting critical utility infrastructure from wildfire risk.

Pro Energy Services partners with utilities to deliver end-to-end wildfire risk mitigation — from fire patrol and vegetation management to continuous monitoring and rapid response. Our trained crews operate with precision in the most demanding environments, ensuring full compliance and protecting communities and infrastructure.



Fire Patrol & Fire Watch

- Dedicated patrol teams for PSPS events and Red Flag conditions
- Real-time monitoring and rapid incident response
- Full compliance with utility, local, and government standards
- Equipped crews with proper tools, vehicles, and PPE



Vegetation Management & Hazard Clearing

- Remote-access clearing in rugged, hard-to-reach terrain
- Targeted fuel reduction around utility assets
- Proven techniques to mitigate fire ignition risk
- Protection of T&D and substation infrastructure

WHY PROENERGY

Capability	Value to Your Organization
Workforce Flexibility	Signatory and non-signatory crews deployed to match project needs
Rapid Mobilization	Scalable teams ready for emergency response and seasonal demand
Safety-First Culture	Rigorous training, compliance, and field safety protocols
Utility Expertise	Deep experience supporting major IOU and public utility programs

Ready to strengthen your wildfire mitigation program? Let's talk.

PLAN FOR WILDFIRE MITIGATION WITH RESILIENT STRUCTURES POLES



Lake Fire, California (2020)

RS RESILIENT
STRUCTURES



RS Poles Ready for Deployment

PREVENT. PROTECT. RESTORE.

A wildfire mitigation strategy is only as strong as the structures holding it up. High-performance RS composite utility poles mitigate fire impact and support faster restoration by helping utilities:

PREVENT ignition – high-impedance composite reduces ignition potential

PROTECT critical locations – withstands wildfire exposure and self-extinguishes after the flame front passes and with FireShield™, poles can sustain severe to extreme fire exposure without losing structural integrity

RESTORE resiliently – inspection + remediation support survivability across multiple events

Tested like wildfire actually behaves: the Ackerman Test Method evaluates full-scale poles under realistic heat exposure while loaded, then verifies residual strength post-fire. And utilities are already seeing results – Southern California Edison has reported an 85% reduction in equipment-related catastrophic fire risk as part of its broader above-ground hardening strategy.

Mitigation isn't one action. It's a system. **And it starts with the pole.**

+1 435 709 6921 | info@resilient-structures.com | Resilient-Structures.com



Quantify and defend every wildfire mitigation dollar **with data regulators trust.**

RHIZOME

Utilities face billions in wildfire liability—yet most mitigation plans can't prove ROI or stand up to regulatory scrutiny.

Longer fire seasons, hotter temperatures, and stronger winds are driving up ignition risk across aging infrastructure. Utilities face mounting regulatory pressure to act, yet wildfire mitigation planning remains fragmented, reactive, and hard to justify.

With **gridFIRM**, utility teams can model ignition risk at the asset level, quantify cost-benefit of each mitigation option, and build long-range wildfire investment strategies that regulators approve and communities trust.

Turn wildfire risk into investment strategy with gridFIRM.

Identify Your Highest-Risk Assets

Assesses wildfire ignition risk at the asset level using historical fire patterns, fragility modeling, and climate projections through 2100—then quantifies financial exposure and community impact to show where mitigation delivers the highest return.



Maximize Risk Reduction per Dollar

Quantifies risk reduction per dollar across all mitigation strategies (hardening, undergrounding, vegetation management, microgrids) using Risk Spend Efficiency ratios that regulators trust. Models 10-year vs. 30-year scenarios with climate forecasting to show which approach maximizes safety per dollar invested.

Defend Every Decision with Data

Enables utilities to build defensible, data-backed wildfire mitigation plans that satisfy state/federal mandates while automatically prioritizing vulnerable communities through Justice40-aligned screening.

HOW IT WORKS

Rhizome's gridFIRM is a map-based wildfire risk planning tool that enables asset managers, planners, and engineers to identify and mitigate asset-caused wildfire ignitions.

With gridFIRM, utility teams can seamlessly analyze wildfire risk, prioritize mitigation investments, and track ongoing risk reduction efforts within a dynamic, geospatial representation of their transmission and distribution (T&D) system.

Whether developing a Wildfire Mitigation Plan (WMP), planning inspections and maintenance, or optimizing capital upgrades, gridFIRM ensures that all asset-related wildfire mitigation investments are evaluated for risk reduction impact, cost-effectiveness, and long-term resilience benefits.

NATIONAL GRID FINDS 1% OF FEEDERS DRIVE 44% OF WILDFIRE RISK

When National Grid deployed gridFIRM across Massachusetts and New York, the planning tool revealed that just 1% of feeders represented 44% of total fire risk.

This precision enables National Grid to prioritize high-impact investments while minimizing customer costs—moving from broad risk reduction programs to surgical capital allocation.

"This groundbreaking new tool allows us to pinpoint and address risks within our transmission and distribution systems while minimizing costs for customers."

— Casey Kirkpatrick, Director of Strategic Engineering, National Grid

TRUSTED BY TEAMS LIKE



Avangrid

nationalgrid



Seattle
City Light



RHIZOMEDATA.COM

Minimizing Wildfire Risk & Improving Operational Efficiency

PG&E Case Study

The Challenge: Rising Wildfire Threats in California

Wildfires across California have grown more intense, more frequent, and more destructive—driven by climate change, fuel buildup, and expanding development into high-risk terrain. PG&E, serving more than 5.5 million electric customers, faces increasing pressure to prevent utility-related ignitions and protect communities in some of the country's highest fire-threat areas.

Traditional wildfire-mitigation tactics—manual review processes, static playbooks, and dispersed operational tools—were no longer sufficient. PG&E needed a faster, more automated, and more intelligent way to detect fire risk and adapt grid operations in real time.

The Goal

Integrate advanced wildfire-mitigation strategies directly into grid operations to:

- Improve situational awareness
- Reduce operator workload
- Lower wildfire ignition risk
- Strengthen overall grid resiliency



Schneider Electric ADMS-Based Fire Mitigation

The Solution

PG&E partnered with Schneider Electric to extend its Advanced Distribution Management System (ADMS) with a new ADMS-Embedded Fire Mitigation module. This solution transforms wildfire operations by providing a single pane of glass for:

- Real-time fire-risk visualization
- Device settings and protection profiles
- Automated or semi-automated fire-mitigation actions
- Network-wide coordination across grid applications

How It Works

1. Real-time data ingestion: Weather forecasts, fire-risk models, and device attributes feed directly into ADMS.
2. Automated hazard detection: The system identifies line sections under elevated fire risk and pinpoints required device adjustments.
3. Dynamic action plans: Fire-mitigation plans are generated automatically—available in manual, advisory, or fully automatic mode.
4. Coordinated grid operations: Integrates with applications such as FLISR to prevent unintended outages or energizing high-risk zones.
5. Return-to-normal workflows: Once fire risk declines, device settings automatically revert safely.

Why It Matters

Wildfire mitigation is no longer optional—it's essential. By digitizing and automating risk reduction, PG&E has:

- Increased system resiliency
- Reduced the chance of catastrophic wildfire events
- Improved employee satisfaction by eliminating manual, error-prone tasks
- Enhanced customer protection across millions of service accounts

This digital, data-driven approach demonstrates how modern utilities can strengthen public safety while boosting operational efficiency.

Key Results

PG&E achieved dramatic improvements in both safety and efficiency.

Operational Efficiency

- **88% reduction in monthly operator hours**
- 10,585–12,045 hours saved annually across operators and management
- Streamlined workflows for data analytics, meteorology, and operations teams

Wildfire-Risk Reduction

- **Up to 90% reduction in wildfire risk** through automated, consistent, real-time mitigation
- Faster, more accurate execution of Enhanced Powerline Safety Settings (EPSS)
- Reduced customer impact and improved system reliability

se.com



Asset & Vegetation Management

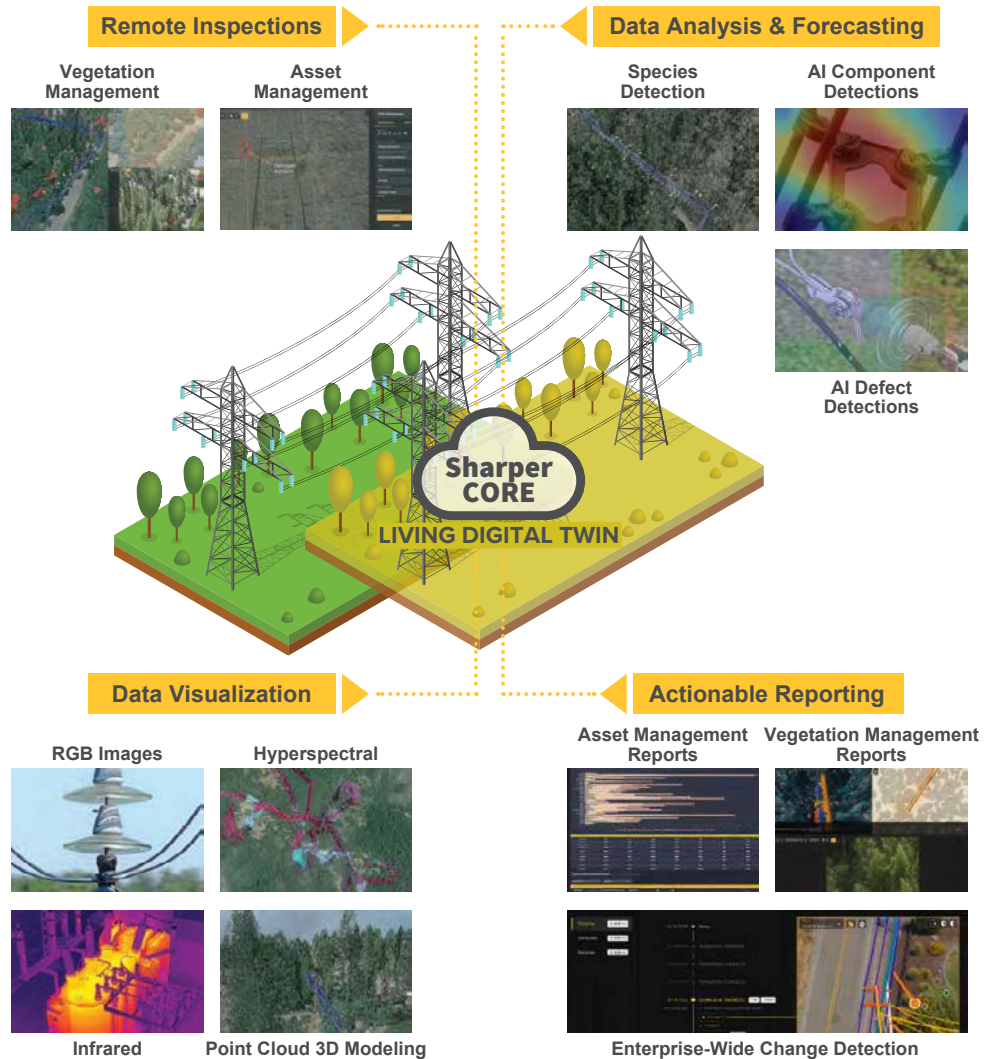
Sharper Shape's Living Digital Twin software, Sharper CORE, provides detailed network level assessments for Asset & Vegetation Management:

- **Automated Vegetation Encroachment Analysis:** Accurate 3D modeling of phase-wires and automated detection of vegetation issues.
- **Detection of issue types:** Such as fall-in tree, urgent issues close to phase-wires, overhang branching issues.
- **Tree Risk Assessment:** Location and number of trees at risk of striking primary conductors, wires or poles, including trees on slopes.
- **Species Detection:** Using hyperspectral sensor
- **Customizable Remote ROW Inspections:** Ability to manually measure distances in 3D
- **Cross Project View of Assets and Vegetation:** Company-wide unified view of every pole, line and tree.
- **Enterprise-wide change detection:** Easy to find, compare and act on changes over time.
- **Clearance violations & Vegetation safety distance**
- **Winter snowfall risk & Wind scenarios**
- **Pole loading**
- **Thermal expansion of utility lines**
- **Automated LiDAR classification done in hours vs months**
- **AI-powered point cloud classification**

For more information visit sharpershape.com
or contact sales@sharpershape.com

© 2026 Sharper Shape Inc
www.sharpershape.com

Sharper Shape's 4D Living Digital Twin software answers every utility challenge by providing automated collection, real time visualization, analysis and actionable, decision making insights for inspectors and field crews - everything you need to make your utility sharper and better.



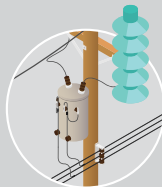
20,000+

DISTRIBUTION POLES CAPTURED BY AUTOMATED DRONES



38 Million

IMAGES CONVERTED



165,000 Miles

WIRE MILES MAPPED IN CORE



8.3+ Petabytes

OF DATA COLLECTED AND ANALYZED BY SHARPER CORE SOFTWARE



Sharper Shape has worked closely with PG&E since 2018
To learn more contact Brian House at: B1HP@pge.com

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www.sharpershape.com

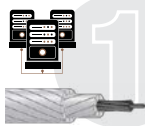


PRODUCTS & SOLUTIONS TO HELP MINIMIZE AND MITIGATE WILDFIRES

Composed By: Dr. Yuhsin Hawig, VP of Applications Engineering,
Edwin Marquez, Director, Applications Engineering, Emily Witcher, Engineering Manager

In an era marked by increasingly severe natural disasters and escalating wildfire risks, utilities face mounting pressure to enhance the resilience and reliability of their power delivery systems. Utilities should adopt strategies to modernize their transmission and distribution systems. As climate change intensifies the frequency and severity of storms and wildfires, it becomes even more important for utilities to invest in advanced technologies and practices that not only protect infrastructure but also improve overall grid performance. This comprehensive guide covers a range of innovative solutions, from upgrading to track-resistant coverings on conductors to employing advanced materials and techniques for enhanced durability and safety. By implementing these top considerations, utilities can protect their systems against natural threats, reduce the risk of fire ignition, and ensure more reliable power delivery among the growing challenges of a changing climate.

TOP 10 PRODUCTS AND SOLUTIONS



STEEL VS. POLYMER COMPOSITE CORE

Southwire's C7® is a high-temperature, low-sag (HTLS) advanced conductor for overhead transmission or distribution where capacity and reliability are critical. Its multi-strand carbon-fiber thermoset polymer composite core provides near-zero thermal sag, high tensile strength, and redundancy against single-point failures. Fully annealed 1350-O aluminum with trapezoidal wires (TW) reduces conductor diameter and increases ampacity. The design is suited for long spans, thermal uprating, and corrosion-prone environments. Continuous and emergency operating temperatures are 180°C and 200°C. C7® conductor is ideal for powering congested transmission corridors that support hyper scale data centers.



SHIELD BARE WIRES WITH TRACK-RESISTANT COVERING

Tree wires are self-supporting overhead conductors covered with an extruded track, UV, and abrasion-resistant covering that provides protection against momentary contact between phases. Also known as CAMV™ (Covered Aerial MV) cable, it reduces direct shorts and flashovers should tree limbs or other grounded objects contact the conductor. Upgrading bare overhead conductors to CAMV™ products can reduce faults caused by trees and minimize fire ignition in dry areas with dense vegetation.



FIGHT WILDFIRES BY REPLACING BARE WIRES

The most successful wildfire mitigation solution for high fire risk areas is the conversion of overhead lines to below grade systems. There have been more intense wildfires due to climate change that are difficult to prevent. If undergrounding is not possible due to time, budget, or right-of-way, then bare overhead lines can be upgraded with tree wires to minimize arcing in drought regions. The 3-phase bare conductors can potentially collide with one another during windy conditions, which trigger sparks. Replacing bare wires with CAMV™ cable or covered conductors not only lessens the burden of vegetation management but also reduces the fire risk.



STANDARD VS. FLAME-RETARDANT COVERED CONDUCTOR

In heavily wooded corridors, Covered Aerial Medium Voltage (CAMV™) cables provide a safer, more resilient upgrade to bare overhead conductors. Their robust covering helps prevent arc initiation from tree contact, reducing outages and lowering tree-trimming maintenance demands. The flame-retardant (FR) formulation enhances the base polymer's fire performance and limits flame spread along the cable. Southwire's FR-CAMV™ covered conductors meet ICEA S-121-733 and exceed three of the most stringent flame-test standards (VW-1, FT1, and FT2). This makes them an ideal solution for high and very high Fire Hazard Severity Zones throughout California and other drought-prone regions in North America.



For more information, please contact
CableTechSupport@southwire.com or visit [Southwire.com](https://southwire.com)

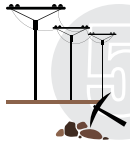


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PRODUCTS & SOLUTIONS TO HELP MINIMIZE AND MITIGATE WILDFIRES

Composed By: Dr. Yuhsin Hawig, VP of Applications Engineering,
Edwin Marquez, Director, Applications Engineering, Emily Witcher, Engineering Manager



5 UNDERGROUNDING THE PREVENT OUTAGES

With the increasing frequency of natural disasters including hurricanes, tornadoes, wildfires, and winter storms, electric utilities have proactively transitioned overhead lines to underground circuits to boost reliability. Approximately 80% of power outages occur in distribution systems. For example, 15kV distribution conductors made of ACSR can be direct buried by converting to a 15kV primary aluminum MV cable with a TRXLPE insulation, concentric neutrals, and an overall LLDPE jacket, which has become the preferred method for the upgrading of overhead or underground and installation of new systems.



6 FULL VS. ONE-THIRD NEUTRAL RATINGS

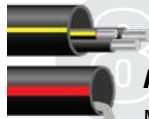
Utility engineers commonly specify concentric neutral ratings from full to one-twelfth (full, 1/3, 1/6, 1/9, 1/12) for primary MV cables. One-third neutrals (1/3) are often used on three-phase feeders. Conducting short-circuit calculations per IEEE P-45-482, Short-Circuit Performance of Metallic Shields on Insulated Cable, is the best way to confirm the required copper shielding configuration for each system. Three key factors determine the rating: conductor temperature (MV-90 vs. MV-105), insulation thickness (100% vs. 133%), and jacket material (thermoplastic vs. thermoset). MV cables with insufficient copper neutral area can overheat or experience thermal runaway, potentially leading to premature cable failure.



7 CONCENTRIC NEUTRAL CALCULATOR FOR UTILITIES AND RENEWABLES

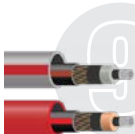
Southwire's Re³™ Concentric Neutral Calculator can be used to design Made-in-America MV products to accelerate grid modernization, renewables, and bipartisan infrastructure projects while reducing neutrals and saving costs without compromising safety.

SCAN TO ACCESS ALL CALCULATOR
TOOLS INCLUDING THE CONCENTRIC
NEUTRAL CALCULATOR



8 ADD CONDUIT TO IMPROVE SAFETY

Many methods can be deployed to install cables underground, including the use of PVC pipes or HDPE conduit, installation of concrete duct banks, or direct burying cables in earth. While direct burial is cheaper upfront, cables are susceptible to backfill damage and accidental dig-ins. Using conduit creates a durable barrier both electrically and physically to protect cables from mechanical forces and avoid electrocution. Pulling cables in conduit improves safety compared to direct burial as the protective plastic pipe can prolong cable life and lower replacement costs and frequencies.



9 ADOPT CIC TO SAVE TIME & LABOR

Adopting an all-in-one Cable-in-Conduit (CIC) system not only saves labor and shortens installation time but also can help reduce field injuries and is a solution to mitigate wildfires. Medium voltage and 600V cables can be preassembled in HDPE conduit at the factory. The long continuous CIC length provided on a standard reel can be installed with fewer or no joints which are labor-intensive to build. CIC can be deployed via Horizontal Directional Drilling (HDD), plowing, or trenching. HDD minimizes the construction impact with less interruptions to residential areas or busy commercial districts.



10 STANDARD VS. RUGGEDIZED SECONDARY CABLE

Standard 600V service entrance (SE) cable uses a single layer of XLPE insulation. Hi-Score is a rugged alternative featuring a two-layer coextruded insulation, XL-HDPE over XL-LLDPE, engineered to resist mechanical abuse, slow chemical permeation, and delay thermal degradation while maintaining flexibility. Because HDPE is naturally hydrophobic, it repels water and offers a slower moisture-vapor transmission rate than LLDPE. Hi-Score meets all six IEEE S-81-570 mechanical abuse tests and is suitable for direct burial in rocky soil or for long circuit pulls in conduit. It performs exceptionally well in shallow-burial installations prone to dig-ins and provides added protection in conduit systems exposed to flooding or wildlife.



For more information, please contact
CableTechSupport@southwire.com or visit [Southwire.com](https://www.southwire.com)



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Empowering the Field Worker with AI-Driven Intelligence

Treeswift (www.treeswift.com) develops technology built specifically for the realities of physical fieldwork, helping utilities reduce operational and wildfire risk, improve reliability, and dramatically decrease operations and maintenance spending across transmission and distribution (T&D) systems.



Treeswift's multi-platform hardware, deployable as both a hands-free wearable and a vehicle mount, seamlessly integrates into existing patrols to capture ground truth, gathering high-resolution imagery, precise LiDAR measurements, GPS, and voice data. Our AI translates this data into actionable analytics and 360° field context. By automating administrative tasks, Treeswift allows crews to focus on expert judgments, supporting critical blue sky and black sky use cases spanning wildfire mitigation, vegetation management, asset inspections, disaster response, and construction.

With Treeswift, utilities bridge the execution gap between high-level planning and on-the-ground reality. By equipping crews with unprecedented, sub-canopy visibility, utilities can prioritize problem areas, improve safety, and reduce costs. With Treeswift:

- Identify and document hazard trees and fault risks
- Optimize trim planning and execution for cost-effective vegetation management
- Collect scalable, precise ground-truth data for actionable insights in T&D engineering and construction
- Optimize pre- and post-storm operations to accelerate recovery

10x

increase in field productivity gains
due to AI tools

70%

decrease in required remobilizations due
to digital inspection tools

Ready to empower your field workforce with AI? Connect with us. hello@treeswift.com

Treeswift, a US-based company that has raised over \$18M in funding from leading investors including Inspired Capital, is delivering transformative field productivity for utilities across the US.



Rapidly Deployable, Cost Effective Situational Awareness for Utilities

ALERTWest delivers early wildfire detection, real-time visibility, and risk forecasting to support faster, more informed decisions.



Situational Awareness

Live cameras provide real-time visibility across your territory. Shared access with fire agencies expedites response.



Early Detection

Detect smoke early across high-risk terrain. 24/7 human validation minimizes false alerts.



Risk Forecasting

Forecast fire spread, direction, and potential impact. Identify risk to infrastructure and nearby communities.



Coordinated Response

Cameras, detection, modeling, and incident data in one platform. Supports faster coordination and decision-making.



www.alertwest.org

How ALERTWest Supports Utilities

Before a Fire

Proactive Planning

- Identify high-risk conditions across your territory.
- Support staging, mitigation, and PSPS decisions.

Continuous Monitoring

- Monitor critical areas with real-time camera visibility.
- Detect changes and emerging threats early.



When a Fire Starts

Early Alerts

- AI detects smoke and generates alerts using live cameras.
- 24/7 human verification minimizes false alerts.

Shared Situational Awareness

- Utilities and fire agencies receive alerts at the same time.
- Coordinate response using live views and incident data.



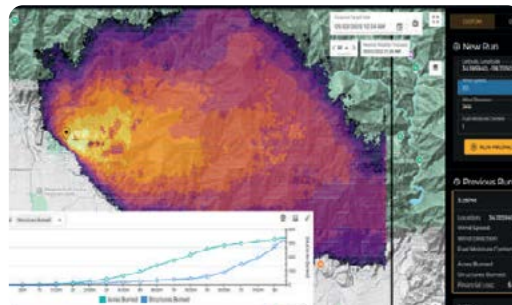
As the Fire Grows

Ongoing Visibility

- Track fire movement and changing conditions in real time.
- Maintain visibility across affected areas and assets.

Operational Decisions

- Support containment strategy and resource allocation.
- Enable faster, more informed decisions.



ALERTWest – A Trusted Utility Partner

- Largest wildfire camera network in the U.S.
- 5,600+ wildfires detected across 14 states
- 550+ agencies and 4,500+ system users
- From DIY installs to full turnkey deployments



Schedule a demo

Inquiries@alertwest.org



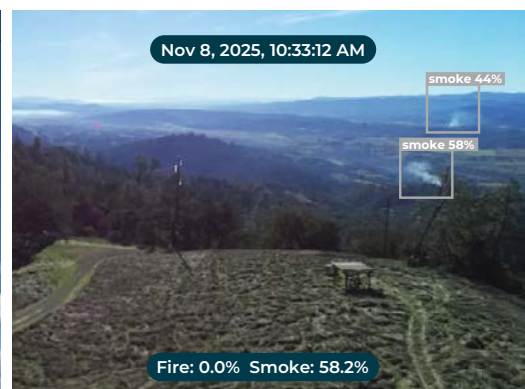
**DETECT.
REACT.
DEFEND.**

MULTI SENSOR EDGE-AI THREAT DETECTION.

Delphire's Sentinel FD3 is a field-proven, Edge-AI-powered wildfire detection system that identifies fires directly in remote areas at their earliest stages to reduce their devastating impact.

Our platform combines real-time visual confirmation with advanced sensor data, allowing fires to be detected, verified, and geolocated within seconds.

Each alert includes high-quality images for rapid validation to eliminate responses driven by false positives.



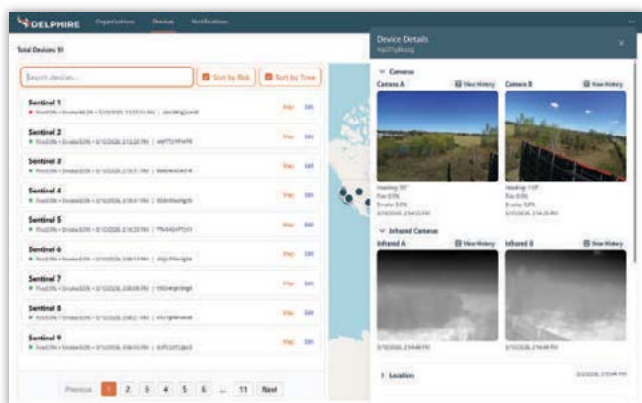
Website
www.delphiretech.com

Data Portal & API
www.wildfireai.com

SECURE ALERTS WITH AI OR API TRIGGERED IMAGE CONFIRMATION FOR REAL TIME SITUATIONAL AWARENESS.

The Sentinel FD3 operates entirely at the edge, using onboard AI/ML to process data locally while running on solar power and/or battery storage. This architecture allows the system to be deployed in remote or infrastructure-limited environments. With a minimal data footprint, The Sentinel FD3 can communicate via LTE when available or satellite networks when cellular coverage is absent.

Beyond detection, both systems support integration with external systems and sensors via our secure API.



The **Sentinel FD3** system integrates a multitude of sensors, including visual and thermal cameras, vibration sensors, tilt sensors, gas detection, wind sensors, and environmental sensors, to detect flames or smoke.

The **HD5 Home Defense** system provides your customer communities with an affordable visual based detection system that enhances your overall situational awareness.

Delphire designed the hardware and software for both platforms. This vertical integration enables greater reliability, scalability, and detection accuracy across diverse geographic environments with an always available on-demand system for real time situational awareness at the edge.



THE SENTINEL FD3

Early detection, visual confirmation and situational awareness across 18 sensors for utilities — installed where it truly matters.



Contact

gdesalvo@delphiretech.com

626-399-7019



HD5 HOME DEFENSE

Early wildfire detection, visual confirmation and situational awareness for communities and HOAs.

PANO FOR UTILITIES



Enhanced Wildfire Detection and Situational Awareness

Pano AI is a leader in early wildfire detection and intelligence, enabling utilities and fire agencies to respond more quickly and safely to wildfire incidents. Pano's solution equips utility companies with tools to help **protect their infrastructure, support community safety, and maintain a reliable power supply** amid increasing wildfire risks.

With increasingly challenging weather conditions, [Pano's] AI-powered detection system allows us to respond faster and more effectively to wildfires, safeguarding our community and supporting more reliable service.



Chris Vetromile
Wildfire Mitigation Manager
Austin Energy

Asset Protection & Reliability



Early detection can help protect your assets and improve reliability during fire season.

Accelerated Time-to-Value



Pano's full-service deployment expedites situational awareness for wildfire mitigation programs.

Community Engagement



Strengthen relationships with fire agencies by providing free access to Pano's alerts and incident monitoring.

Request a demo today

www.pano.ai

Pano Rapid Detect

A fully integrated, end-to-end solution enabling rapid detection and response



Pano AI is a full-stack, turnkey, early wildfire detection solution that integrates camera technology, artificial intelligence, and a web-based interface to enable leaders and emergency managers on the front lines of the wildfire crisis with actionable intelligence to help reduce the harm of natural disasters and improve firefighter safety in the wake of the growing wildfire crisis.

Cutting-Edge Hardware & Data Integration



Dual ultra-HD cameras designed to capture a 360° panorama every minute, coupled with integration of 3rd party data such as weather data and satellite imagery (where available).

AI Detection Backed By Human Intelligence



Pano's cloud-based AI monitors for fire incidents 24/7, backed by Pano Intelligence Center analysts who review and confirm incidents.

Automatic, Configurable Alerts



Automatic detection and alerting of incidents to all users, including first responders, with options to receive notification via SMS or email.

Easy-to-Use Interface



Pano 360 empowers operations managers with real-time situational awareness, including optical zoom and first-party data integrations, for proactive incident monitoring and response coordination.

Request a demo today

www.pano.ai

HELOPod®

HELICOPTER DIP SOURCE/CISTERN

“HAS BEEN TESTED AND PROVEN DURING FIRE”



Jan. 8th 2025 - Four HeloPods used on Palisades Fire (above) and two on the Eaton Fire (right photo)

In 2025 PumpPodUSA's HeloPod® was proven invaluable and heavily utilized 24 hours a day during the **Park, Palisades, and Eaton Fires**. Designed and operated semi-autonomously and unattended, no longer requiring critical and engine company to operate.

“Returning a front-line engine company to protect lives and property while allowing for the water resources needed by the aerial assault is invaluable”

The HeloPod® has a primary mission of providing closer and safer locations to communities for hover-filling, including Snorkel and Bambi-Buckets.

While In-Service, the HeloPod® performs as a dip source and as a area Cistern that can support refilling multiple ground engines simultaneously.

HeloPod® Makes Helicopters More Effective

Ultimate Community-Wide and Perimeter Hardening Platform

Prepositioned HeloPod® protects 16,000+ acres

Patented and designed for Infrastructure and Tactical Deployments

Helicopters and a HeloPod® are Recognized as proven Force-Multiplier



HELICOPTER DIP SOURCE / CISTERN

info@pumppodusa.com
pumppodusa.com

Prepositioned dip sources reduce “dip to drop” times, saves fuel and increases helicopter safety and efficiency. More water dropped per hour reduces fire intensity and slows the rate of spread while allowing ground assets critical time to respond and protect lives, property and infrastructure.



HeloPod® is leading the way to making helicopter firefighting more effective and safer. The Semi-Autonomous operation is a Bonafide game changer in firefighting evolution. The HeloPod® is becoming the Ultimate **Community-Wide and Perimeter Hardening Platform** that is a cost-effective way to protect 16,000+ acres and five-mile radius. Strengthens the Rural, Remote and Underserved Community fire departments, and protects the vulnerable Evacuation Routes. Because HeloPod® is manufactured, deployments can be quickly scaled and brought into service. **Prepositioning a Dip Site is Pre-Fire Mitigation lasting 20 years or more.**

Designed to be self-contained and Semi-Autonomous, the HeloPod® is built with an intrinsic cabinet that can have our custom fill valve, low voltage NVG friendly LED lighting system including solar charging and connect to existing water agency SCADA or encrypted remote activation, using **Delphire communications platform**.



Funding and Stakeholder support, an increasing number of Water Agencies are recognizing the critical nature of supporting aerial firefighting operations. Just like the curbside fire hydrant we take for granted, the dip-site is considered the new frontier. Often times they will extend water supply to a site and in many cases offer their own property to host a HeloPod®. The Dip Sites are recognized as a regional asset, and it is becoming more frequent that Board of Supervisors/Commissioners and Utilities are funding the pre-positioning of vital dip sites.

Where previously considered impossible in the **Very High and High Severity Zones** where no water source exists, HeloPod® offers a solution of a companion mobile 21,000-gallon durable **DenBeste storage tank** filled in advance before the fire season.



Customers include but are not limited to:

CAL FIRE, LA Co. Fire Department, Orange County Fire Authority, Contra Costa County Fire, Los Angeles City Fire, Metropolitan Water District, NV Energy, LADWP, NCPA (Northern Cal Power Agency), California Water Service, La Crescenta Water District, Vallecitos Water/San Marcus Fire, South Lake County Fire, No. Sonoma County Fire, Brea Fire, Napa Fire Wise, Rancho Cucamonga Fire, Georgetown Fire



3850 Royal Ave., Suite B,
Simi Valley, CA 93063
844-766-5763
PumpPodUSA.com





AI POWERED AUTONOMOUS SUPPRESSION AIRCRAFT

FORTUNE FAVORS THE PREPARED

FAA APPROVED UNDER 44807 | DESIGNED & BUILT IN THE USA | NDAA COMPLIANT





ADVANCED TECHNOLOGY FOR A RESILIENT FUTURE

- **5 AIRCRAFT STRIKE TEAM**
- **MOBILE AIR OPS BASE (ALLOWS RAPID TRANSPORT + DEPLOYMENT)**
- **AUTONOMOUS; 175 LBS HEAVY LIFT; 100 PSI WATER CANNON**

"Rapid initial attack is the best chance we have to save money, property, and lives. Seneca and the promise of AI-driven autonomous suppression drones is revolutionizing how we view wildfire suppression."

-Dan Munsey, Fire Chief San Bernardino, CA, Chair, IAFC Technology Counsel

STOP FIRES WHILE THEY ARE STILL SMALL



CAPABILITIES + SPECIFICATIONS

- Payload: 175 lbs – generates up to 200 gallons of finished foam per aircraft
- Flight time: 20 minutes + buffer
- Speed: 30+ MPH
- Takeoff weight: 450 pounds
- Connectivity: Redundant communications including satellite

RECOMMENDED APPLICATIONS

Situational Awareness (fire operations and other):

- Stream multiple real time video of incidents with ability to zoom in IR + RGB
- Regular asset monitoring with data sharing
- Optional information sharing with local public safety agencies

Risk reduction from fire incidents

- Quick suppression of fire starts at or near assets
- Protection from external fires
- Integrates with detection / existing technology to improve effectiveness
- Night firefighting capable



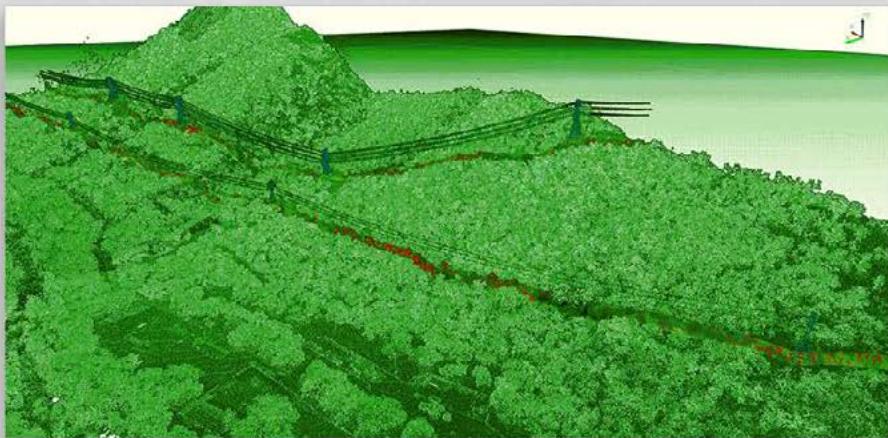
CONTACT: JM@FLYSENECA.COM



Operational Certainty Across the Wildfire Lifecycle

SenseNet delivers **real-time wildfire risk intelligence** that reduces uncertainty for **utilities operating** in high-risk environments.

By combining satellite data, AI camera monitoring stations, and ground sensing, we provide early ignition detection, continuous situational awareness, and proactive fire behavior insights, aligned with utility workflows such as FPI, OPW, circuit protection, and PSPS planning.



Four Integrated Layers of Wildfire Resilience

1. Risk Awareness & Prevention
2. Ultra-Early Ignition Detection
3. Enhanced Situational Awareness
4. Impact & Spread Intelligence

Layer 1: Risk Awareness & Prevention

SenseNet's satellite-based Fire Risk Mapping provides dynamic, corridor-level visibility into vegetation, fuel conditions, and infrastructure exposure. It identifies high-risk ignition zones and supports targeted mitigation planning.

Outcome: Better planning. Targeted mitigation. Reduced ignition risk.

Layer 2: Ultra-Early Ignition Detection

AI monitoring stations and ground sensors detect smoke and gas signatures at the earliest ignition stage, with multi-layer validation to ensure high-confidence alerts.

Outcome: Detection within minutes. Faster response. Smaller, manageable incidents.

Layer 3: Enhanced Situational Awareness

SenseNet provides real-time visibility during active wildfire events, combining live camera feeds, fire spread modeling, and environmental data (including wind, terrain, fuel).

Outcome: Faster decisions. Better coordination. Reduced operational uncertainty.

Layer 4: Impact & Spread Intelligence

Post-incident analysis delivers clear insight into fire impact and cause, including burned area mapping, severity assessment, infrastructure attribution, and estimated Value of Lost Load (VoLL).

This enables utilities to quantify the true economic impact of outages and operational decisions.

Outcome: Clear impact visibility. Faster recovery. Quantified outage cost (VoLL) to support smarter operational and shutdown decisions.

Proven Utility Deployment

Canadian National Railway (CN Rail)

- Deployed across 1,200+ km of high-risk corridors nationwide (2024–2025)
- Detection time reduced from ~45 min to <8 min during Red Flag conditions
- Early detection prevented escalation of rail-attributed ignitions
- Improved operational response and safety outcomes

CN Rail – Fire Prevention Officer,

Monty Armstrong, Email: Monty.Armstrong@cn.ca





Protecting the Grid Before the Fire Starts

Stella-Jones Brings Field-Proven Wildfire Protection to Utility Pole Infrastructure

As wildfire seasons grow longer, more intense, and more unpredictable across North America, utilities are under increasing pressure to protect critical infrastructure — not just after a fire, but long before one arrives. At Stella-Jones, we've built our reputation on supplying high-quality wood utility poles to the industry for decades. Today, we're extending that commitment with a suite of utility accessories designed to keep poles standing — even when flames don't.

Among the most significant additions to our product offering is an intumescent fire-wrap system engineered specifically for wood utility poles and structures. Applied to customer-specified height, this wrapping system provides a passive, always-on thermal barrier that activates in the presence of heat — expanding to insulate the pole from the extreme temperatures of a wildfire event.

The Science Behind the Wrap

Unlike surface coatings that can crack, degrade, or fail under sustained flame exposure, intumescent fire-wrap technology responds dynamically to heat. As external temperatures rise, the wrap's outer layer activates, forming an insulating barrier that dramatically reduces heat transfer to the wood beneath.

In Cal Fire prescribed burn trials conducted in California's Salinas region — among the most rigorous real-world testing environments available — poles wrapped with this system demonstrated insulation effects ranging from 64% to 87%. In practical terms, that means while external temperatures during active fire exposure reached as high as 970°C, internal pole temperatures were held to a fraction of that figure — in some cases as low as 103°C. The structural integrity of the wood pole is preserved even under extreme and sustained fire conditions.



Why Utilities Choose This Solution

For asset managers and engineers evaluating wildfire hardening options, this wrap system checks every practical box:

- Ease of use - no special equipment or storage requirements when compared to normal wood poles. Climable with traditional gaffs, stored in bunks and delivered with standard self-unloading trucks - there's no need for special equipment
- Low maintenance — Passive protection that requires no activation, monitoring, or power source
- Scalable deployment — Suitable for individual pole hardening or large-scale transmission corridor protection
- Cost-effective — A fraction of replacement or emergency restoration costs
- Environmentally preferred - no toxic or harmful residue created when the wrap is activated

Part of a Complete Solution

Stella-Jones has long been a trusted partner to electric utilities across North America — supplying treated wood poles, wood crossarms and steel transmission structures built to the highest industry standards. Our offering of utility accessories, including intumescent fire-wrap, reflects our commitment to offering end-to-end solutions that support grid reliability at every stage of the pole's lifecycle — from installation to long-term resilience.

We understand the operational realities utilities face: aging infrastructure, growing wildfire risk zones and the unrelenting pressure to keep the lights on. Our product team works directly with utility engineers and procurement teams to identify the right solutions for each environment, risk profile, and budget.



Let's Talk About Protecting Your Infrastructure

Whether you're evaluating fire hardening options for a high-risk corridor, responding to a new wildfire mitigation plan requirement, or simply looking to extend the serviceable life of your pole assets, Stella-Jones has the products, the knowledge, and the proven track record to support your goals.

Contact our Utility Products team today to discuss your project needs:

Email: bbrewer@stella-jones.com
Web: www.stella-jones.com
Phone: 805-412-5053

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Consequence Management at Scale

Helping Utilities Manage Consequence, Not Just Ignition

Utilities have made significant investments in ignition prevention: system hardening, sensors, and operational controls. However, it is impossible to eliminate all ignitions. Utilities need to think in terms of consequence management - structure-to-structure spread, vegetation near homes, and unmitigated parcel-level risks that contribute to the scale of wildfire damage.

The Three Levers of Community Wildfire Resilience



Inspections
Identify risk at the
parcel level



Harden the Homes
Reduce structure
ignitability



Manage the Vegetation
Remove fuel around
structures

Fire Aside's Role

Fire Aside provides the evaluation and engagement infrastructure that connects these three levers into measurable outcomes. Our Defensible Space Inspection (DSI) tools transform field data into actionable, property-level insights, enabling communities to move from identifying risk to resolving it at scale.

ROI-Driven Inspection Framework

Every assessment is an investment. Fire Aside's assessment tools give utilities and agencies a measurable path to wildfire resilience — turning each evaluation into quantifiable risk reduction across thousands of properties. Instead of tracking activity, stakeholders can track outcomes: hazards removed, homes hardened, and fuel reduced.

Consequence Management at Scale

From Assessment to Measurable Risk Reduction

Fire Aside connects assessment data with resident action through structured, personalized communications. This ensures that identified risks are not only documented — but resolved.



Vegetation & Fuel Management

Programs like ChipperDay enable communities to remove hazardous vegetation efficiently. Fire Aside supports scheduling, routing, and participation tracking — ensuring that vegetation management programs translate into measurable fuel reduction.



ROI Framing For Utilities

Utilities evaluate programs based on return on investment. Fire Aside enables a clear value proposition: targeted investments in evaluations and resident engagement can reduce risk exposure across entire communities. This creates a defensible, data-backed case for funding resilience programs.



Community & Stakeholder Enablement

Fire Aside equips local stakeholders — fire agencies, local governments, and community organizations — with tools to measure, manage, and communicate progress. This ensures alignment across all participants while keeping the focus on outcomes, not attribution.



Enhancing Risk Modeling

Better data helps utilities build more accurate models to anticipate consequences before they occur. This connects community-wide risk to individual risk, helping turn reactive management into proactive wildfire resilience at scale.

Request A Demo Today



Wildfire Risk Intelligence for Electric Utilities

Understand what's at risk. Act with confidence.

Prioritize strategic investments, prepare for the extreme, defend your decisions, operate with clarity

Know your ignition potential + consequence

Our core models set the foundation for your risk analysis to prioritize action:



IGNITION POTENTIAL

Where fires start

Identify your grid's highest ignition risks to prioritize veg management, line hardening, and PSPS events.



CONDITIONAL IMPACT

What's in the path

Measure your financial and liability exposure by location to compare risk across your service territory.



WILDFIRE THREAT

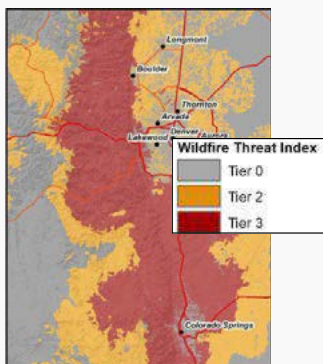
Where to act first

Combine ignition and consequence to focus mitigation where risk reduction ROI is highest.

Apply these models to effective risk management:

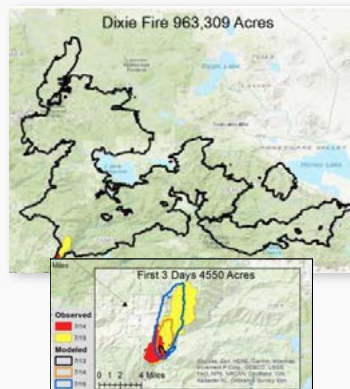
High fire threat districts

Design effective HFTDs. Validate boundaries, identify under-designated areas, and build a data-driven case for regulators.



Extreme events

Understand extreme growth events with longer-duration simulations and community spread modeling. Manage right-tail risk and exposure to insured losses.



Tackle operational risk in one place with the Pyrologix Wildfire Platform

See an up-to-date, complete risk picture

Understand the full context of wildfire risk across your service territory.

Plan smarter, act faster

- Support **long-term planning** with visibility into risk from assets
- Manage **day-to-day operational decisions** with updated weather forecasts and risk indices

Defend your decisions

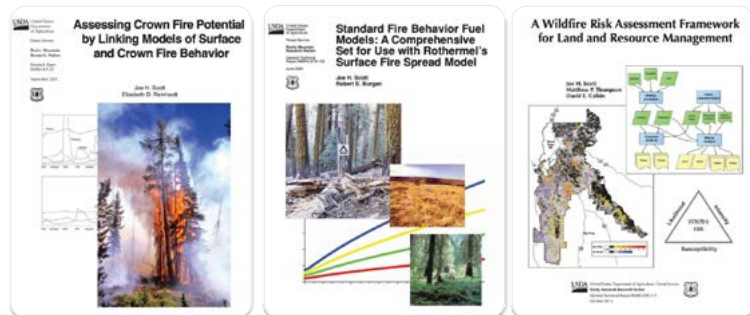
Make data-driven, transparent choices that satisfy regulators, boards, and community stakeholders



Pyrologix is the leader in proven, rigorous wildfire risk modeling

Our team has authored 50+ peer-reviewed publications, several of which have established the foundations of widely used wildfire risk science frameworks.

[Explore our work](#) →

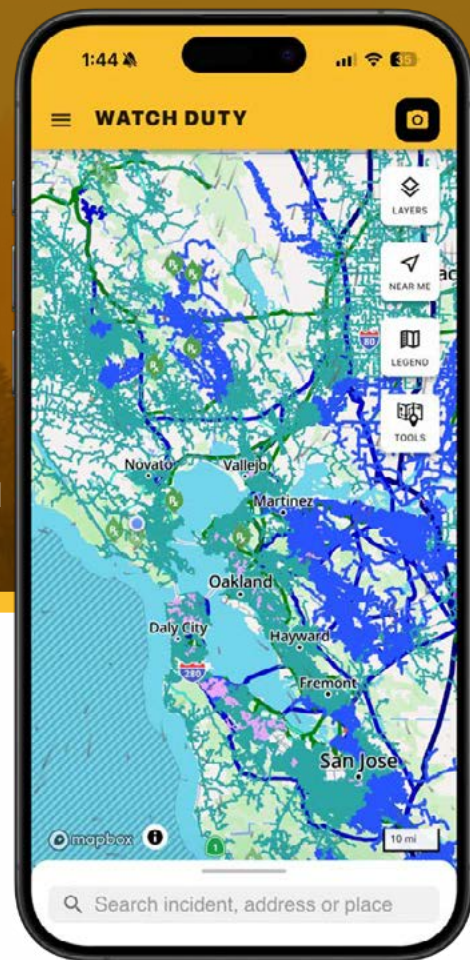


Trusted by utilities across the industry



Watch Duty as an Operational Wildfire Intelligence Layer

Watch Duty is a 501c3 nonprofit **disaster intelligence platform** providing comprehensive situational awareness to the public and to critical infrastructure operators.



Key Features

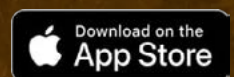
- Independent, mission-driven organization focused on public safety
- Real-time wildfire intelligence validated by trained reporters
- Enterprise deployment across wildfire and operations teams
- Custom GIS integration enables PG&E infrastructure overlays
- Shared situational awareness layer during active incidents

PG&E Deployment Footprint

Enterprise-Wide deployment across HAWC, Operations Control Centers (Grid, Gas, and Distribution), Field Supervisors / Restoration, Executive Leadership, and more (10,000 active licenses across WD's Pro Tier)

Access Options

- **Free:** Public wildfire alerts and live incident map
- **Standard:** Enhanced monitoring tools for operational users
- **Pro:** Infrastructure overlays, enterprise controls, advanced situational awareness



— Contact Max Rudsten, Chief Commercial Officer, max@watchduty.org —



Disrupting Fire Pathways.™
Safeguarding Communities.

XyloPlan is the only fire intelligence platform purpose-built to **model, measure, and operationalize mitigation** for “Fast Fires” – the fast-moving, wind-driven fires that cause **catastrophic, city-scale loss**.

THE PROBLEM

Traditional fire modeling tools weren’t built for fires like the **Camp Fire, Eaton Fire, and Palisades Fire**.

Traditional fire models can’t accurately simulate how a fire moves from the wildlands, into neighborhoods, and from structure to structure.

Fire departments, utilities, insurers, and communities need to know:

- **Where** is fire risk the most pressing?
- **Where** will mitigation have the greatest impact?
- **How** can we demonstrate the efficacy of mitigation?

THE SOLUTION

XyloPlan simulates how wind-driven fire travels **across terrain, into communities, and between structures**.

By incorporating wind, topography, fuels, and building vulnerability in our modeling, XyloPlan identifies:

- **Where** fire is most likely to outpace response
- **Which** homes and neighborhoods are most exposed
- **Where** mitigation will likely slow spread or reduce structure loss.

THE BENEFITS

- XyloPlan helps fire agencies **focus limited resources** with mitigation recommendations focused on outcomes (such as delayed fire arrival).
- It gives utilities clearer insight into where communities are **most vulnerable** to a fast-moving fire.
- It provides insurers with **defensible data** about how mitigation changes risk.
- Most importantly, it aligns everyone around a shared understanding of how fire actually spreads — and what can realistically slow or stop it.

OUR TECHNOLOGY

FIRE PATHWAYS™ ARCHITECTURE

SIMULATION ENGINE

Models fire pathways and powers predictive visuals

RISK ENGINE

Turn fire science into actionable risk intelligence

Data, APIs, Integrations

A REAL-WORLD APPROACH

XyloPlan's Fire Pathways™ Architecture models how Fast Fire moves based on three realities:

- **Speed** — How fast will it get there?
- **Connectivity** — What will it ignite along the way?
- **Consequence** — What happens when it arrives?

Unlike static hazard maps, XyloPlan captures:

- **Wind-driven fire spread** across vegetation
- Fire behavior **at the transition** between wildland and urban environments
- **Ember transport** and spotting
- **Structure-to-structure** ignition
- How **fire arrival time** compares to evacuation windows and suppression capacity

By putting time and connectivity at the center of our technology, we can show where fire is most likely to outpace response — and where targeted mitigation can slow it down or break the chain.

WHAT XYLOPLAN DELIVERS

- Dynamic **fire spread simulations** show how fire may move through wildlands, transition zones, and dense neighborhoods
- **Mitigation prioritization** ranks actions by how much they reduce structure loss or delay fire arrival
- “What-if” modeling tests vegetation treatments, defensible space, or home hardening **before committing crews and budget**
- Progress tracking shows whether mitigation actually **reduces exposure over time**

XyloPlan supports stronger planning, better coordination across agencies and utilities, and clearer communication with regulators and the public.

And it gives fire leaders confidence that the work being done today will change what happens on the next Red Flag Day.



International Wildfire Risk Mitigation Consortium

Connect with utilities worldwide to share data, technology, and expertise, and establish wildfire risk mitigation strategies through learning and collaboration.

Working Group Topics

Operations and Protocols

- Grid-edge digital orchestration and optimization tools
- Interventions for risk prevention
- Power shutoff processes and decision criteria

Asset Management

- Risk-based asset inspections
- Aerial inspections and smart image processing
- Robotic process automation assessments

Vegetation Management

- Data management and mobility solutions
- Risk-based vegetation management
- Holistic land management strategies

Risk Management

- Risk-based protection techniques
- Advanced weather forecasting and modeling
- Comprehensive value frameworks

Member Benefits

Monthly Working Groups

Meet with focused interest groups to address wildfire-related issues, share strategies, and set industry standards.

Quarterly Webinars

Learn from members, industry leaders, and technology vendors about emerging challenges and advancements.

Benchmarking

Participate in surveys, compare your performance with the metrics of your peers, and apply findings to improve your strategy.

Wildfire Risk Mitigation Maturity Model

Assess wildfire risk status and build a roadmap for continuous improvement and risk mitigation.

Technology Reviews

Evaluate technology solutions and engage vendors through facilitated sessions.

Conferences

Attend multiday events for presentations, priority setting, and networking.

Member Portal

Access wildfire mitigation plans, past materials, meeting notes, webinar recordings, industry news, and research.

Opt-in Opportunities

Participate in focused, opt-in projects like research, joint development, new technologies, benchmarking, and performance analysis.

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Steering Group Members



KEADJIAN

This Guidebook was developed in partnership with PG&E by Keadjian Associates, a leader in strategic wildfire communications and engagement.