



Wildfire Workbook

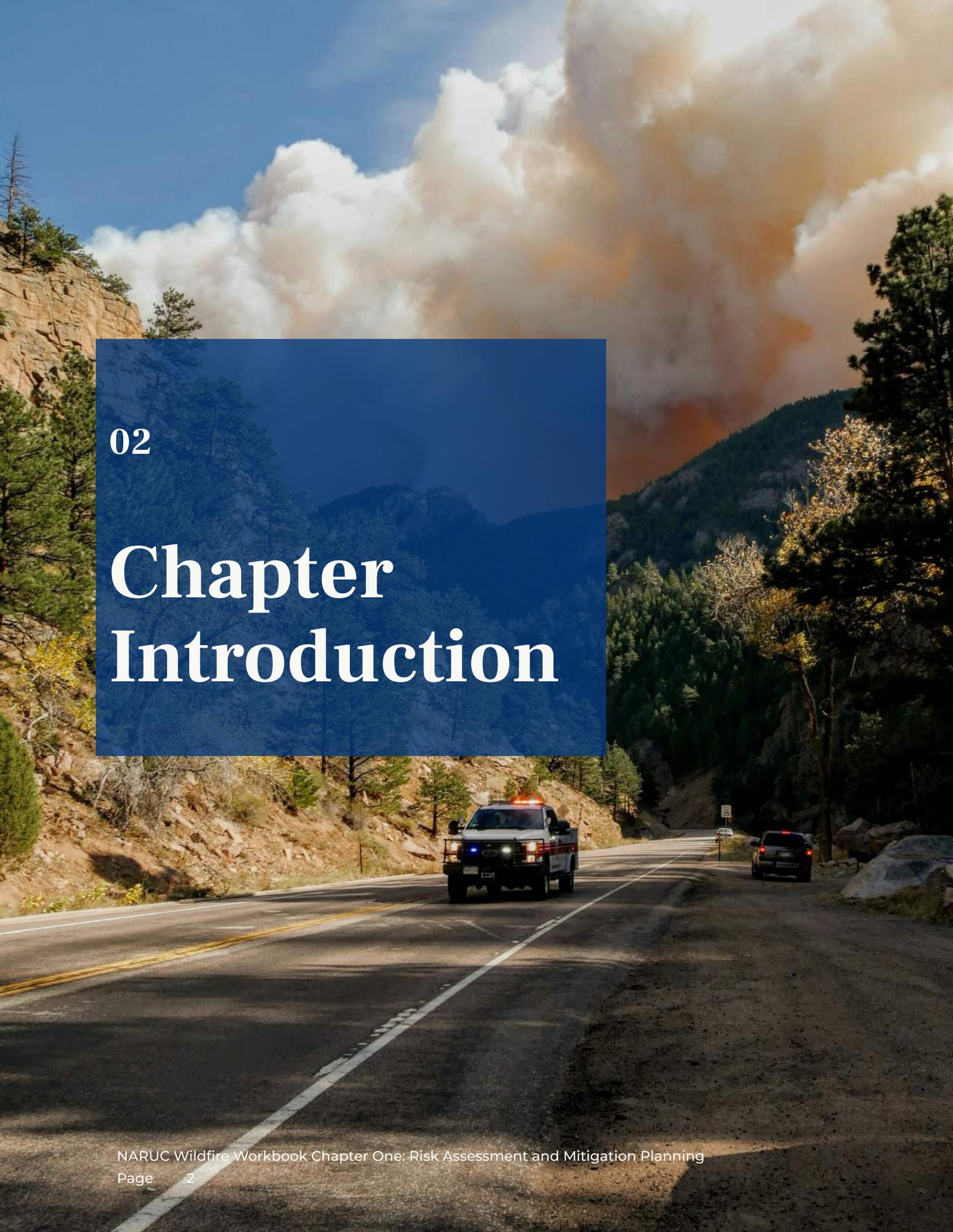
Chapter One

Risk Assessment and Mitigation Planning

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Chapter Introduction

Electric utilities are adopting proactive risk management measures in response to the growing threat of wildfires, in particular those that are linked to electric utility infrastructure. The risk of liability to customers for wildfire damage is driving the utility sector's focus on risk management. In addition, the utility insurance industry and financial credit ratings agencies are demanding a fundamental shift in how utilities assess physical and financial risk from wildfires.



Understanding wildfire risk and improving wildfire mitigation measures not only protects utility infrastructure but also contributes to the overall safety, reliability, and sustainability of the communities utilities serve. Utilities are responsible for ensuring the reliability of power systems while mitigating the risk of ignitions from their infrastructure, such as power lines and transformers.

Electric utility wildfire mitigation plans, as described in this chapter, represent a very broad look at wildfire risk assessment and mitigation. A utility's wildfire mitigation plan assesses wildfire ignition risk and defines the methodology to reduce the risk of wildfire to infrastructure as well as communities. Such plans may include broad-based risk assessment, planning, operations, and emergency response during the event as well as plans for restoration. A host of regulatory bodies, national labs, and industry associations are continuing to develop standards and metrics to guide these efforts, with state-specific variations reflecting local conditions.



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Background and Regulatory Context

Wildfire mitigation plans for electric utilities have become increasingly critical, especially following devastating wildfires in states like California and Oregon, where legislative action such as California [Senate Bill 901 \(2018\)](#) mandated annual plans to prevent, combat, and respond to wildfires. [The Office of Energy Infrastructure Safety](#) oversees these plans, ensuring utilities assess risks and implement strategies to minimize catastrophic wildfire ignition from electrical infrastructure.



To learn more about the unique relationship between the California Public Utility Commission and the Office of Infrastructure Safety, you can listen to [Episode 4 of Tech Talk for Regulators](#) where Commissioner Darcie Houck and Director Caroline Thomas Jacobs explain how their respective agencies work together to mitigate utility caused wildfire hazards.

The regulatory framework highlights the need for comprehensive, multi-faceted approaches, which vary by utility and region but share common categories of action. As other states develop requirements for wildfire plans, whether and how states choose to create requirements for their utilities will vary due, in part, to risk and regulatory constructs.

Components and Examples

The following components of wildfire plans were identified through an analysis of utility practices and regulatory guidelines, with examples demonstrating implementation.

Risk Mapping

Utility wildfire ignition risk maps are specialized tools used by electrical utilities to identify areas where their infrastructure (e.g., power lines, transformers) could ignite wildfires.

- **Pacific Gas and Electric Company (PG&E) in California** utilizes the [High Fire Threat District map for all of California](#) as a basis and incorporates other areas of risk, called High Fire Risk Areas (HFRA).
- California publishes Fire Risk Maps that identify High Fire-Threat Districts (HFTDs) in Tiers 2 (elevated risk) and 3 (extreme risk), covering areas prone to utility-caused ignitions due to factors like vegetation proximity, wind patterns, and aging infrastructure. Additionally, [PG&E offers a map as a tool](#)
- for customers to look up addresses to see how they are impacted or their eligibility for certain programs or support.
- **Idaho Power in Idaho & Oregon** developed bow-tie risk analysis regarding ignition risk drivers to better understand the various initiating events that could result in an ignition, which might then spread under various climate conditions. (Page 58, [Figure 24. Idaho Power 2025 Wildfire Mitigation Plan](#))
- **Oncor Electric Delivery in Texas** uses risk assessment tools incorporating 10-meter resolution data on ignition risk from the Texas Wildfire Risk Assessment Portal ([TxWRAP](#)) to prioritize vegetation management and spark-preventing measures.

Vegetation Management

Vegetation management is a cornerstone of wildfire mitigation and reliability performance, focusing on reducing fuel loads near power lines and other utility assets to prevent ignition and fire spread. This may include regular trimming, hazard tree removal, or creating shaded fuel breaks.

- **Salt River Project (SRP) in Arizona** under its Resilient Water and Forest Initiative, in partnership with Apple, aims to strategically thin nearly 30,000 acres of forest over 10 years to reduce catastrophic wildfire risk and protect water infrastructure. This initiative is expected to yield 1.8 billion gallons of water benefits over 20 years. Modeling by Arizona State University shows significant water savings (e.g., 230 acre-feet from 3,400 acres in Kaibab National Forest in the first year). ([Salt River Project Initiative](#))
- **Liberty Utilities in California** emphasizes year-round vegetation management, including inspections and pruning or removal of trees too close to power lines, complying with state laws and safety best practices. Customers can request inspections, enhancing community engagement. ([Liberty Utilities Plan](#))



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- **Trinity Public Utilities District (Trinity PUD) in California** under its Right of Way Wildfire Mitigation Project, funded by a \$9.5 million Community Wildfire Defense Grant, increases shaded fuel breaks, abates hazard trees, and removes ladder fuels, focusing on high-risk areas in California. ([Trinity Wildfire Risk Reduction Project](#))
 - **Core Electric Cooperative in Colorado** manages vegetation across a 5,000-square-mile area to minimize fire risks. They inspect every distribution circuit at least once every six years, ensuring pruning clearances of 10 to 24 feet depending on tree species, and remove hazardous trees at no cost to customers, enhancing safety near power lines. ([CORE Vegetation Management](#))
 - **Portland General Electric (PGE) in Oregon** oversees 2.2 million trees along nearly 12,000 miles of overhead power lines. They conduct year-round tree-trimming and vegetation management, with enhanced efforts in High Fire Risk Zones, and use fire-resistant poles and covered power lines to further reduce risks. ([PGE Wildfire Safety](#))



Infrastructure Hardening and Maintenance

Infrastructure hardening involves upgrading electrical systems to reduce ignition risks, such as replacing aging poles, installing fire-resistant materials, and enhancing grid technology. This category is crucial for long-term resilience.

- **Snohomish County PUD in Washington**, under its SnoSMART project, with a total cost of \$60 million (half funded by the [Grid Resilience and Innovation Partnerships program](#)), replaces fire-causing expulsion fuses and installs hundreds of wireless smart grid devices. It also includes targeted tree trimming near primary conductors in areas like Darrington, Gold Bar, and Index, Washington. ([Snohomish PUD Project](#))
- **In Washington State, Puget Sound Energy (PSE)** provides a clear example of electric utility infrastructure maintenance for wildfire mitigation and hardening. PSE's 2024 Wildfire Mitigation and Response Plan includes targeted efforts in Kittitas County, where they are undergrounding power lines to reduce ignition risks from overhead lines in high-risk wildfire areas. They are also modernizing electrical equipment by installing non-combustion fuses and fire-resistant pole wraps to enhance grid resilience. Additionally, PSE employs enhanced vegetation management, using AI-powered smoke-detecting cameras and increased tree trimming near primary conductors to prevent vegetation-related ignitions. These measures align with Washington's requirements for utilities to submit annual wildfire mitigation plans, as mandated by the Utilities and Transportation Commission since 2021.

- **Liberty Utilities in California** has infrastructure hardening efforts that include installing covered conductors (insulated wires), replacing conventional fuses with limiting fuses to prevent arc faults, testing and replacing aging poles, and enhancing grid topology to reduce ignition risks. ([Liberty Utilities Plan](#))
- **PG&E in California** is working to install thousands of miles of power lines below ground in high wildfire risk areas. They are also upgrading their electric system by installing strong poles and covered power lines. PG&E uses a risk model to determine where to complete wildfire safety work. ([System Hardening & Undergrounding](#))





Situational Awareness including Fire Detection and Monitoring

Early detection is vital for rapid response, leveraging technologies like AI, cameras, aerial surveillance, satellites, and sensors to identify fires before they escalate. Deployment of wildfire technology must consider challenges due to each region's climate, geography, and urban development.

- **Austin Energy in Texas** utilizes Pano AI technology, deploying high-definition cameras for smoke detection across Travis County and Austin service territories. This enhances situational awareness and supports quick response. ([Austin Energy AI](#))
- **PacifiCorp in California** collects real-time data from over 540 weather stations for situational awareness, which directly supports fire readiness by monitoring conditions that could lead to wildfire spread. ([PacifiCorp Practices](#))

Emergency Response Plans

Emergency response plans are evolving to include wildfires as part of an all-hazard approach to assure utilities can act swiftly, coordinating with fire departments and public safety partners and potentially de-energizing lines.

- **Seattle City Light in Washington** relies on a wildfire risk reduction strategy for emergency management, covering risk assessment, mitigation (grid hardening, vegetation management), stakeholder engagement, and governance. This ensures a coordinated response during events. ([Seattle City Light Strategy](#))
- **Bonneville Power Administration (BPA) in the Pacific Northwest** has incorporated improvements in customer communication into its emergency response strategy, based on lessons learned from PSPS procedures between 2021 and 2023, which ensures better coordination during outages. ([BPA Communication](#))

Public Safety Power Shutoffs (PSPS)

PSPS is a measure to prevent ignition during high-risk weather, though it faces controversy due to customer impacts, especially in vulnerable communities. PSPS is a strategy used by electric utilities to temporarily deenergize power lines in specific areas to reduce the risk of wildfire during periods of high fire danger. This is done when conditions like strong winds, dry vegetation, and low humidity are present.



- **PacifiCorp in California** includes PSPS as an operational practice, with methods like emergency de-energization during extreme conditions, investing \$2.5 billion across their six-state system for prevention. ([PacifiCorp Practices](#))
- **Liberty Utilities in California** uses PSPS as regulated by the California Public Utilities Commission, implementing de-energization when weather conditions present increased fire risk, with measures to minimize scale and duration. ([Liberty Utilities Plan](#))
- **Xcel Energy in Colorado, Texas, and New Mexico** implemented various PSPSs, which have had a customer impact as low as 150 customer and as high as 50,000, highlighting the high level of variability of scale that flow from the geography and severity of forecasted weather, with challenges in right-of-way access and customer agreements complicating implementation. ([Xcel Energy Wildfire Mitigation](#))

Community Engagement and Communication

Public education and communication are essential for community preparedness, informing customers about risks and emergency procedures.

- **PG&E** implemented Rapid Earth Fault Current Limiter (REFCL) systems to improve detection of sustained faults and assess the reliability impacts. ([PG&E Wildfire Mitigation Plan 2026-2028 Volume 1](#), see pages 336-337.)
- **Bonneville Power Administration (BPA)** collaborates with Pacific Northwest National Laboratory for evolving wildfire modeling and data integration, applying the International Wildfire Risk Mitigation Consortium Maturity Model for program improvements. ([BPA Research](#))
- **Salt River Project (SRP)** partners with Arizona State University for modeling water benefits from forest thinning, contributing to long-term research on wildfire impacts. ([Salt River Project Initiative](#))

- **Bonneville Power Administration (BPA) in the Pacific Northwest** improved customer communication during PSPS events, based on lessons from 2021-2023, ensuring better public awareness and preparedness. ([BPA Communication](#))
- **Xcel Energy in Colorado** emphasizes public education through community engagement efforts. The company hosts community meetings to discuss its 2025–2027 [Wildfire Mitigation Plan](#), shares presentation recordings online and uses social media to educate customers about reducing wildfire risks and preparing for outages or evacuations. These efforts aim to engage communities in high-fire-threat areas, such as the wildland-urban interface in mountain and front-range regions.

Research and Development

Investing in R&D ensures utilities can adopt innovative solutions, improving mitigation over time.

Comparative Analysis and Regional Variations

While these categories are consistent across utilities, implementation of these strategies varies by region. For instance, California utilities like PG&E and Liberty Utilities face stricter regulations due to past wildfires, emphasizing PSPS and infrastructure hardening. In contrast, utilities in the Pacific Northwest, like BPA and Seattle City Light, focus on vegetation management and R&D due to different risk profiles. This variation underscores the need for tailored plans, guided by regulatory oversight and local conditions.

Table: Summary of Utility Examples by Category

Category	Utility Example	Specific Action	URL
Risk Mapping	Oncor	Ignition risk incorporating TxWRAP data analysis	Oncor Risk Plan
Risk Quantification	Idaho Power	Ignition risk bow tie analysis with utility asset and triggering event	Idaho Power WMP
Vegetation Management	Salt River Project	Thinning nearly 30,000 acres over 10 years	Salt River Project Initiative
Vegetation Management	Liberty Utilities	Year-round inspection and pruning of vegetation near power lines	Liberty Utilities Plan
Infrastructure Hardening	Snohomish County PUD	Replacing fuses, installing smart grid devices in SnoSMART project	Snohomish PUD Project
Infrastructure Hardening	Liberty Utilities	Installing covered conductors, replacing fuses, testing poles	Liberty Utilities Plan
Fire Detection and Monitoring	Austin Energy	AI-powered smoke detection with Pano AI cameras	Austin Energy AI



Category	Utility Example	Specific Action	URL
Emergency Response Plans	Seattle City Light	Emergency management in wildfire risk reduction strategy	Seattle City Light Strategy
Public Safety Power Shutoffs	PacifiCorp	PSPS as part of operational practices during high-risk conditions	PacifiCorp Practices
Public Education and Communication	Bonneville Power Administration	Improved customer communication during PSPS events	BPA Communication
Research and Development	Bonneville Power Administration	Wildfire modeling with Pacific Northwest National Laboratory	BPA Research

Summary

Wildfire mitigation plans for electric utilities should be a broad and comprehensive review of risk, including risk mapping, vegetation management, infrastructure hardening, fire detection, emergency response, PSPS, public education, and R&D. Each of these topics will be explored further in later chapters.



Additional Citations and Resources

- American Public Power Association Wildfire Mitigation Planning
- Analysis of Utility Wildfire Risk Assessments in California
- Austin Energy's AI Technology for Smoke Detection
- Bonneville Power Administration's Updated Wildfire Mitigation Plan
- Brookings Proposal for Federal Backstop on Utility Wildfire Risk
- California State Auditor Report on Utility Wildfire Mitigation 2021
- Excel Wildfire Mitigation Plan
- Liberty Utilities' Wildfire Mitigation Plan
- NERC Wildfire Mitigation Reference Guide January 2021
- NFPA Education and Research on Wildfire
- Northeast-Midwest Wildfire Risk Assessment Portal
- PacifiCorp's Wildfire Mitigation Plans
- PG&E Community Wildfire Safety Program
- Salt River Project's Resilient Water and Forest Initiative
- Seattle City Light's Wildfire Risk Reduction Strategy
- Snohomish County PUD's SnoSMART Project
- Texas Wildfire Risk Assessment Portal
- Utility Dive Article on Wildfire Risks for Utilities



04

Deeper Dive: Electric Utility Wildfire Risk Assessment Models

Key Points

- Effective wildfire risk assessment relies on data-driven models to identify high-risk wildfire areas, considering weather, vegetation, population, topography, and infrastructure.
- There is controversy over whether current models adequately account for extreme weather, potentially affecting risk prioritization, given the rapidly changing environment.

Overview

Electric utilities in wildfire-prone states like California, Oregon, Washington, Colorado, and Texas assess wildfire risks to prevent their infrastructure from sparking fires. This process involves analyzing data to identify high-risk areas and modeling potential fire scenarios before they plan their mitigation strategies. Each state has unique regulations, with California imposing the strictest requirements, while others have varying levels of oversight.





State-Specific Approaches

- **California:** Utilities submit detailed Wildfire Mitigation Plans (WMPs), integrating risk assessments with factors like weather and vegetation, but some models may miss extreme weather impacts.
- **Oregon:** Annual Wildfire Protection Plans require identifying high-risk zones using scientific data and real-time monitoring technologies.
- **Washington:** Utilities file yearly wildfire plans, using risk modeling to monitor environmental conditions and infrastructure risks.
- **Colorado:** Without specific mandates, utilities like Xcel Energy use state risk assessments and data-driven approaches.
- **Texas:** Utilities access the Texas Wildfire Risk Assessment Portal and employ advanced monitoring to evaluate risks. HB 145, signed into law in June, created a requirement for Wildfire Mitigation Plans for all utilities within a “wildfire risk area” as determined by the Texas Division of Emergency Management or by the utility itself. The Public Utility Commission of Texas (PUCT) is working on implementing this requirement, including those for these plans.

Regulatory Context

Regulations vary, with California’s Public Utilities Commission enforcing rigorous standards, while Oregon and Washington have clear but less intensive rules. Colorado lacks specific mandates, and Texas supports utilities through state-provided tools. These frameworks help utilities and regulators balance safety with cost, though debates persist about model accuracy, prioritization of mitigation measures, and cost allocation.



Electric Utility Wildfire Risk Assessment Processes

Wildfires pose a significant threat to communities and infrastructure, particularly in regions with dry climates and dense vegetation. Electric utilities, whose power lines, and equipment can ignite fires, are under increasing pressure to assess and mitigate wildfire risks. This report details the wildfire risk assessment processes employed by utilities in California, Oregon, Washington, Colorado, and Texas, focusing on their methodologies, regulatory requirements, and state-specific examples. It also examines utility commission rules, orders, or regulations where available, providing an overview of how utilities address this critical issue.

California: Rigorous Risk Assessment Under Strict Regulation

Risk Assessment Process

In California, electric utilities are required to submit Wildfire Mitigation Plans annually to the Office of Energy Infrastructure Safety under [California Public Utilities Code Section 8386](#). These plans work together with risk assessments in the broader [Risk Assessment Mitigation Phase \(RAMP\)](#) of their General Rate Case (GRC) applications, overseen by the California Public Utilities Commission (CPUC). The process includes:

- 
1. **Identification of High-Risk Areas:** Utilities like Pacific Gas & Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E) use data and fire science methodologies to pinpoint areas with elevated wildfire risk. This involves analyzing historical fire data, weather patterns (e.g., wind, humidity, temperature), vegetation conditions, and infrastructure locations.
 2. **Risk Modeling:** Sophisticated models predict the likelihood and potential impact of wildfires, incorporating factors such as fuel load, topography, and extreme weather risks. The utilities have several inputs/factors that are considered when building risk models which are regularly reviewed for accuracy and effectiveness as new information becomes available and has been thoroughly vetted.
 3. **Infrastructure Assessment:** Utilities evaluate the condition and placement of power lines, transformers, and other equipment that could spark fires, identifying vulnerabilities in high-risk zones.
 4. **Mitigation Planning:** Based on risk assessments, utilities develop strategies like vegetation management, grid hardening (e.g., undergrounding lines), and operational changes such as recloser settings and Public Safety Power Shutoffs (PSPS).
 5. **Performance Metrics and Validation:** Utilities define metrics to evaluate plan effectiveness, ensuring assumptions align with risk models and regulatory requirements.

Regulatory Framework

The CPUC's risk-based decision-making framework requires utilities to use quantitative, probabilistic, and transparent risk assessment standards ([CPUC Risk Assessment](#)) to identify significant risks facing their systems before each general rate case cycle. The CPUC's framework ensures consistency across utilities. The WMPs must address risks identified in RAMP filings, ensuring a comprehensive approach to wildfire risk management.



Example

PG&E's 2026-2028 WMP, submitted on April 4, 2025, includes a risk modeling framework that assesses wildfire risks across its service territory, incorporating data on vegetation, weather, and infrastructure. The plan aims to reduce ignitions while maintaining system reliability. ([PG&E Community Wildfire Safety](#))

Challenges

Risk models can be complex and opaque, increasing the difficulty of explaining the value of proposed mitigations to regulators and the public. Risks that have not resulted in observed adverse outcomes, such as outages or ignitions, can be difficult to identify and prioritize. Due to lack of data, the probability and/or consequence of some risks may rely on professional judgment rather than objective criteria. The cost of wildfire mitigation can be high and must be balanced against other customer priorities and state goals.



Oregon: Data-Driven Assessments with Real-Time Monitoring

Risk Assessment Process

Oregon utilities are mandated to submit Wildfire Protection Plans under [Oregon Administrative Rule 860-300-0020](#), following the passage of Senate Bill 762 in 2021. The risk assessment process includes:

1. **Identification of High-Risk Areas:** Utilities identify areas within and outside their service territories with heightened wildfire risk, using scientific data, risk modeling, and collaboration with stakeholders like the Oregon Department of Forestry, and local fire districts. Factors include proximity to fire response, remoteness, egress options, historic drought, and weather conditions.
2. **Risk Modeling and Technology:** Utilities employ advanced modeling to predict fire behavior and use technologies like weather stations and AI-powered smoke detection cameras for real-time risk assessment. For example, PGE uses over 80 weather stations and 30 Pano AI cameras. ([PGE Wildfire Safety](#))
3. **Infrastructure and Environmental Analysis:** Assessing the condition of power lines and surrounding vegetation to identify potential ignition sources.
4. **Cost-Benefit Analysis:** PGE, for instance, integrates weather, environmental factors, and fire behavior models into a cost-benefit approach for vegetation management, balancing costs with risk reduction. ([T&D World](#))



Regulatory Framework

The Oregon Public Utility Commission (PUC) oversees the submission and approval of Wildfire Protection Plans, requiring utilities to file initial plans by December 31, 2021, and updates as needed. The plans must be based on reasonable and prudent practices identified through PUC workshops and comply with applicable rules and standards.

Approval does not shield utilities from enforcement actions, emphasizing proactive risk management.

Example

PGE's 2023 Wildfire Mitigation Plan, approved by the PUC, identifies High Fire Risk Zones (HFRZs) using data-driven assessments and implements enhanced safety settings during fire season to reduce ignition risks. ([OPB](#))

Challenges

The reliance on real-time technologies requires significant investment, and ensuring equitable risk reduction across diverse communities remains a concern.

Washington: Annual Plans with Risk Modeling

Risk Assessment Process

Washington utilities submit annual wildfire plans to the Utilities and Transportation Commission (UTC) as required by [RCW 76.04.185](#) updated by [HB1522](#). The risk assessment process includes:

1. **Identification of High-Risk Areas:** Utilities identify areas with heightened wildfire risk, considering environmental and weather conditions.
2. **Risk Modeling:** Using risk modeling to monitor real-time data on wind, vegetation dryness, and humidity, as seen with Puget Sound Energy (PSE). ([PSE Wildfire Program](#))
3. **Infrastructure Assessment:** Evaluating power lines and equipment for potential ignition risks, particularly in high-risk zones.
4. **Operational Adjustments:** Implementing enhanced power line settings during high-risk periods to quickly de-energize lines if hazards are detected.

Regulatory Framework

The UTC requires utilities to present their wildfire plans at public meetings, ensuring transparency and stakeholder input. The Department of Natural Resources (DNR) collaborates with the UTC to develop plan templates, with a deadline for a compilation of plans by December 31, 2024. The plans must include preventive actions, vegetation management, and community engagement strategies.



Example

PSE's 2024 Wildfire Mitigation and Response Plan uses situational awareness through risk modeling to evaluate wildfire risks, incorporating data on weather and vegetation conditions. ([PSE Wildfire Preparedness](#))

Challenges

Washington's regulatory framework is less stringent than California's, and there are concerns about accountability, as utilities may not face penalties for fires unless they cause serious harm. ([Seattle Times](#))

Colorado: Voluntary Assessments with State Support

Risk Assessment Process

Colorado lacks specific mandates for wildfire mitigation plans, but utilities like Xcel Energy and Core Electric Cooperative voluntarily develop programs. The risk assessment process includes:

- 
1. **Data Utilization:** Leveraging the Colorado Wildfire Risk Assessment from the Colorado State Forest Service, which uses geospatial data to model burn probability and fire behavior. ([Colorado Forest Atlas](#))
 2. **Infrastructure Analysis:** Assessing power lines and equipment in high-risk areas, particularly in the wildland-urban interface.
 3. **Technology Integration:** Using AI and camera systems to monitor high-risk areas for smoke and vegetation conditions, as done by Core Electric. ([CBS Colorado](#))
 4. **Community Collaboration:** Working with local fire agencies and communities to prioritize mitigation efforts.

Regulatory Framework

The Colorado Public Utilities Commission reviews wildfire mitigation investments during general rate cases but does not mandate specific plans. Utilities operate under voluntary frameworks, guided by state resources like the Wildfire Risk Viewer.

Example

Xcel Energy's 2025-2027 Wildfire Mitigation Plan proposes \$1.9 billion in investments, including risk assessments to identify high-risk areas and implement mitigation strategies. ([Xcel Energy](#))

Challenges

The absence of mandatory regulations may lead to inconsistent risk management practices, and the high cost of mitigation efforts raise concerns about ratepayer impacts.



Texas: State-Supported Tools and Advanced Monitoring

Risk Assessment Process

Texas utilities benefit from the [Texas Wildfire Risk Assessment Portal](#), which provides high-resolution data for risk assessment. The process includes:

1. **State Data Integration:** Using the portal's data on burn probability, vegetation conditions, and weather scenarios to assess risk across service territories.
2. **Advanced Monitoring:** Implementing technologies like electrical waveform monitoring to detect ignition threats, as part of the Texas Wildfire Mitigation Project. ([Texas Wildfire Mitigation](#))
3. **Infrastructure Assessment:** Evaluating power lines for risks like high-impedance faults that could ignite fires.
4. **Collaboration with Agencies:** Partnering with the Texas A&M Forest Service to integrate wildfire forecast models.

Regulatory Framework

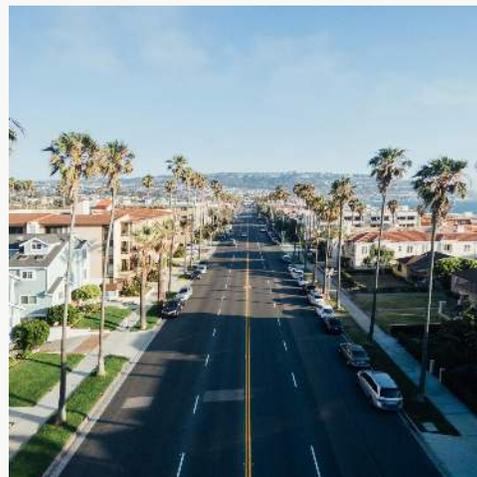
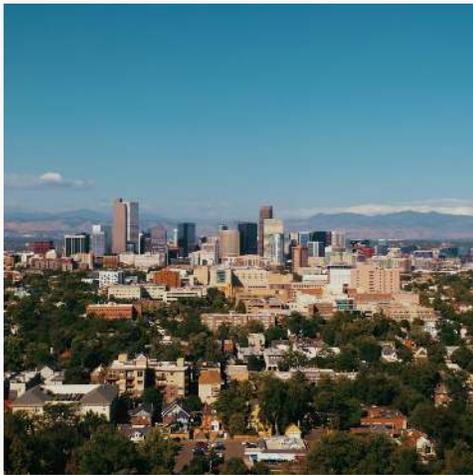
Texas created a requirement for utilities to submit Wildfire Mitigation Plans for approval if they operate within areas determined to be “wildfire risk areas.” The requirements for these plans are expected to be in place by the end of 2025, but in the meantime, utilities are encouraged to use state resources and participate in projects like the Texas Wildfire Mitigation Project to enhance risk management.

Example

Xcel Energy, operating in Texas, uses system-wide wildfire risk mitigation strategies, including vegetation clearing and advanced monitoring, supported by federal funding. (DOE)

Challenges

The lack of mandatory regulations may limit accountability, and aging infrastructure poses ongoing risks, as seen in the Smokehouse Creek fire. (NPR)



Comparative Analysis

State	Regulatory Body	Key Regulation	Risk Assessment Components	Example Utility
California	CPUC, Office of Energy Infrastructure Safety	PUC Section 8386	Data science models, weather, vegetation, infrastructure, real-time monitoring	PG&E
Oregon	Oregon PUC	OAR 860-300-0020	Scientific data, risk modeling, weather stations, AI cameras	PGE
Washington	UTC, DNR	RCW 76.04.185	Risk modeling, environmental data, enhanced power settings	PSE
Colorado	Colorado PUC (voluntary oversight)	None (voluntary plans)	State risk assessment data, AI monitoring, infrastructure analysis	Xcel Energy
Texas	PUCT, TDEM	HB145/PURA 25.60(in development)	State portal data, advanced waveform monitoring, infrastructure assessment, vegetation management.	Xcel Energy



Summary

Electric utilities in California, Oregon, Washington, Colorado, and Texas employ data-driven risk assessment processes to manage wildfire risks, tailored to their regulatory environments. California's stringent regulations drive comprehensive assessments, while Oregon and Washington require annual plans with robust modeling. Texas is working on the implementation of new requirements for utility WMPs enacted by the 89th legislative session. Colorado relies on voluntary efforts supported by state tools. Ongoing challenges include ensuring model accuracy, managing costs, and addressing risk reduction. Utilities must continue to refine their approaches, integrating new technologies and stakeholder input to enhance wildfire resilience.

Key Citations

- Analysis of Utility Wildfire Risk Assessments
- California Public Utilities Code Section 8386
- Colorado Forest Atlas Risk Viewer
- Colorado Utilities and Wildfire Risk
- DOE Grid Protection from Wildfire
- NPR on Texas Utility Fire Risks
- Oregon Administrative Rule 860-300-0020
- Oregon Regulators Approve Utility Plans
- PGE Holistic Approach to Mitigation
- PGE Wildfire Safety and Prevention
- PG&E Community Wildfire Safety Program
- PSE Wildfire Preparedness Program
- PSE Wildfire Program Details
- Texas Wildfire Mitigation Project
- Texas Wildfire Risk Assessment Portal
- Utility Dive on Wildfire Risk Strategies
- Washington RCW 76.04.185
- Washington Utilities and Wildfires
- Xcel Energy Wildfire Mitigation Program



05

Deeper Dive: State Utility Commission Requirements for Wildfire Mitigation Plans

State responses to increasing wildfire risk are evolving very quickly. In Idaho, the Public Utilities Commission ordered specific utilities to file WMPs in 2024 as part of its approval of a petition for deferred accounting treatment of increased wildfire insurance premiums. In 2025, the Idaho state legislature adopted annual utility filing requirements for WMPs.

Meanwhile, in Oregon, the Oregon Public Utility Commission began investigating wildfire risks with utilities in 2022, developed a requirement to co-design the wildfire protection plans with community input, and approved the first round of plans in 2025.





State Requirements Overview

Several states have established requirements for electric utilities to submit WMPs, particularly in areas prone to wildfires. Below are five states with confirmed requirements:

- **California:** Utilities must meet comprehensive wildfire safety requirements, including submission of annual WMPs, receiving annual safety culture assessments, and adhering to performance oversight, under California Public Utilities Code [Section 8386](#) et seq. California Office of Energy Infrastructure Safety oversees these requirements, including approval of the plans, and the California Public Utilities Commission oversees cost recovery and penalty enforcement. SB1028 in 2016 first required the WMPs, and SB 901 in 2018 added additional requirements. The CPUC assesses cost, conducts enforcement, safety culture evaluation, and creates high threat maps.
- **Utah:** Electric public utilities and co-operatives file wildland fire protection plans with the Utah Public Service Commission every three years under the Utah [Wildland Fire Planning and Cost Recovery Act](#) (2020) and the Utah PSC [rules](#) adopted later that same year.

- **Washington:** Utilities file annual WMPs with the Washington Utilities & Transportation Commission under Revised Code of Washington Chapters [76.04.780](#) and [80.28.440](#), first adopted in 2021.
- **Oregon:** Utilities file annual WMPs with the Oregon Public Utilities Commission under [Oregon Revised Statutes 757.963](#) and [Oregon Administrative Rules Section 860-300](#).
- **Idaho:** Utilities will file annual WMPs with the [Idaho Public Utilities Commission](#) under [Senate Bill 1183](#), going into effect on July 1, 2025.

While other states may require utilities to submit plans, it's unclear if these are required by statute or Commission order or voluntary. This reflects the complexity of state regulations, which vary based on local wildfire risks and legislative priorities.

Identified States with Requirements

The regulated landscape is changing rapidly regarding wildfires. As of the time of this document, the following states have confirmed requirements for electric utilities to submit WMPs. Note: citations to relevant legislation or regulatory actions:

1. California

- **Legislative Basis:** California Public Utilities Code Section 8386, enacted through Senate Bill 901 (SB 901) in 2018, mandates that electric utilities develop and submit annual WMPs. This legislation was a response to devastating wildfires in 2017 and 2018, aiming to reduce utility-related fire risks.
- **Details:** The plans must address wildfire prevention, response, and mitigation strategies, including wildfire risk methodology and assessment strategy; grid design, operations, and maintenance; vegetation management, situational awareness; emergency preparedness, collaboration, and public awareness; enterprise systems; lessons learned; and public safety power shutoffs (PSPS). The Office of Energy Infrastructure Safety oversees the review and approval of these plans and assesses implementation performance. The California Public Utilities Commission oversees the cost of implementing the plans and enforces electrical safety regulations. For example, 2026-2028 base plans from utilities like Pacific Gas and Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E) are available here: ([California Public Utilities Commission Utility Wildfire Mitigation Plans](#)).
- **Frequency:** Utilities submit base plans that cover a three-year period and then file annual updates in the intervening years.

2. Utah

- **Regulatory Basis:** The Utah Legislature requires electric utilities to file with the Utah PSC, a wildland fire protection plan beginning October 1, 2020, and every third year after calendar year 2020. Utah enacted the [Wildland Fire Planning and Cost Recovery Act](#) in 2020, and the Utah PSC adopted [rules](#) to implement the legislative mandate later that same year.
- **Details:** These plans identify Fire High Consequence Areas (FHCAs) and include mitigation measures like enhanced vegetation management, frequent asset inspections, and system hardening, such as installing non-combustion fuses and steel poles. For electric public utilities, the Act requires the Utah PSC to approve a plan if the plan is reasonable and in the public interest and appropriately balances the costs of implementing the plan with the risk of a potential wildland fire. Cost recovery for approved plan activities is tracked through a balancing account. PacifiCorp, which operates in Utah as Rocky Mountain Power, filed its 2023 plan with the PSC in September 2023 and a revised plan in February 2024. The PSC retained an independent evaluator to evaluate the plan as part of Rocky Mountain Power's general rate case filing. The Utah PSC declined to adopt the plan finding that the record did not contain substantial evidence showing that it appropriately balances the costs of implementing the plan with the risk of potential wildland fires.
- **Frequency:** Plans are submitted every three years, with the most recent filing in September 2023, as modified by the revised plan filed with the Utah PSC February 2024. Cost and compliance reports are submitted annually.

3. Idaho

- **Regulatory Basis:** The Idaho Public Utilities Commission (PUC) has required some electric utilities to file annual wildfire mitigation plans beginning April of 2024 as a condition of approval for accounting petitions to defer increased wildfire insurance premium costs. Since that time, Idaho’s legislature has passed the [Wildfire Standard of Care Act](#), effective July 1, 2025, requiring annual wildfire mitigation plans on a schedule approved by the PUC.
- **Details:** The plans must include risk mapping, preventative actions, community outreach and awareness efforts, coordination of wildfire preparedness and emergency response, financially prudent and reasonably practicable methods of line design to mitigate fire risk, monitoring of forecasted and current weather data, and standards for PSPS and vegetation management. The legislation also includes a right-of-way access notice requirement, that, if not responded to by the landowner within 30 days, grants the utility access to the property.
- **Frequency:** Every year, beginning in 2026.



4. Washington

- **Regulatory Basis:** Since 2021, as required by [Engrossed Senate Bill 5158](#), the Washington Utilities and Transportation Commission (UTC) has required regulated electric utilities to file annual wildfire mitigation plans as part of its economic regulation of private, investor-owned electric utilities. This requirement has been expanded and amended several times and is found in the Revised Code of Washington Chapters [76.04.780](#) and [80.28.440](#). The UTC conducts a public investigation via [an open meeting](#) into the utility's plans, requiring utilities to respond publicly to its questions. Others may also comment on both the submitted materials and on other related issues. Docket U-210254. The UTC limits its review to the utility's compliance with the law and does not approve the plan.
- **Details:** The plans include tools for wildfire prevention and response, such as vegetation management, line hardening, depowering methods, customer communication plans, and criteria for implementing these measures. The 2022 Wildfire Preparedness Plan was presented at a public meeting, with video and audio available for review. ([Washington Utilities and Transportation Commission Wildfires](#))
- **Frequency:** Annual, with submissions required since 2021. While the WMP are filed annually, the UTC conducts open meetings on the plans both before and after each fire season, and more frequently as needed.

5. Oregon

- **Regulatory Basis:** The Oregon Public Utility Commission (PUC) process surrounding Wildfire Protection Plans has evolved substantially in the last 5 years. The PUC first initiated Docket No. AR 638 on August 25, 2020, as an informal rulemaking process to address electric utility risk-based wildfire protection plans. This process incorporated recommendations from the Governor's Council on Wildfire Response and Executive Order 20-04. Since that time, the PUC has completed its formal rulemaking processes in Dockets AR 648 and AR 638. The PUC now approves an investor-owned utility's WMP on an annual basis. The review process includes hiring an independent evaluator, consultation with stakeholders, and workshops about different areas of the WMP.
- **Details:** Utilities such as PGE, PacifiCorp, Idaho Power, AT&T, and Lumen have submitted or presented their plans, with all utility plans accessible online (<https://oregon.gov/puc/safety/Pages/Wildfire-Mitigation.aspx>). The WMP process establishes plans for multi-year decisions about wildfire mitigation efforts, and utilities are seeking rapid cost recovery of related costs. Thus, the review of the plans must be very robust, evaluating utility planning processes and carefully considering the utility's selected evaluation metrics. The PUC oversees public engagement and workshops, with details available at specific URLs, including timelines and work group topics like risk analysis and vegetation management. (Oregon Public Utility Commission Wildfire Mitigation). (Staff Memo on WMP Approval)
- **Frequency:** Annual, with ongoing submissions under the docket.

Table of State Requirements

State	Requirement Description	Legislative/Regulatory Basis	Frequency	Supporting Details
California	Wildfire mitigation plans	California Public Utilities Code Section 8386 Et Seq, SB 901	3-year base with annual updates	Plan review overseen by Office of Energy Infrastructure Safety; plan costs and enforcement overseen by CPUC, includes grid hardening, PSPS.
Utah	Wildland fire protection plans	Rule 746-315	Every 3 years	Fire High Consequence Areas, vegetation management, system hardening
Washington	Wildfire mitigation plans	Revised Code of Washington 80.28.440	Annual	Vegetation management, line hardening, public presentations.
Oregon	Risk-based wildfire protection plans	Docket No. AR 638, PUC, EO 20-04	Annual	Workshops, public engagement.
Idaho	Wildfire mitigation plans	Senate Bill 1183, Laws of 2025	Annual	Risk assessments, preventive actions, vegetation management

Analysis of Other States

Research suggests that other states may have or are considering similar requirements. For instance:

- **Colorado:** The Colorado Public Utility Commission (CPUC) maintains jurisdiction over IOUs that develop and file WMPs as part of their operational or rate case proceedings. Although Colorado does not have a standalone statute like California’s Public Utilities Code Section 8386, the PUC evaluates WMPs under its general authority to ensure safe and reliable service (Colorado Revised Statutes, Title 40). Xcel Energy voluntarily submitted a 2025-2027 Wildfire Mitigation Plan to the Colorado Public Utilities Commission (CPUC), requesting \$1.9 billion for execution. ([Xcel Energy Wildfire Mitigation Program](#)) (CPUC Proceeding 24A-0296E Detail)
- **New Mexico:** The New Mexico Public Regulation Commission (PRC) began an inquiry in 2022 into utilities' vegetation management plans and other wildfire protection practices. In 2025, PNM (Public Service Company of New Mexico) filed an updated Wildfire Mitigation Plan and SPS (Southwestern Public Service Company) filed its Wildfire Mitigation Plan in 2024. El Paso Electric is developing an ignition management plan. The PRC scheduled a series of workshops regarding wildfire mitigation and preparedness strategies in 2025. While New Mexico does not yet have comprehensive, standardized legislative mandates for WMPs, the PRC has initiated regulatory inquiries and task force recommendations since 2022. In 2025, Senate Bill 281 (Rural Electric Cooperatives Wildfire Liability Act) was introduced, extending wildfire mitigation requirements to rural electric cooperatives, which were previously less regulated than IOUs. ([New Mexico Political Report State Regulators Discuss Wildfire Mitigation](#)).

- **Hawaii:** The Hawaii Public Utilities Commission (PUC) mandates that electric utilities, including Hawaiian Electric Company (HECO), develop and operate risk-based WMPs to enhance public safety and grid resilience, as outlined in Hawaii Revised Statutes § 269. These plans must be filed annually for PUC evaluation and approval, ensuring alignment with reasonable and prudent practices to mitigate wildfire risks. On January 10, 2025, HECO submitted its 2025-2027 Wildfire Safety Strategy, a comprehensive \$450 million plan focusing on system hardening, vegetation management, and AI-powered monitoring, with \$137 million allocated for 2025. The PUC is reviewing this plan under Docket No. 2025-0156, with public informational meetings held to gather community input. (Hawaii PUC Wildfire Mitigation Plan Review: <https://puc.hawaii.gov>) (HECO Wildfire Safety Strategy: <https://www.hawaiianelectric.com>)
- **Idaho:** Introduced in February 2025, Senate Bill 1124 (Wildfire Standard of Care Act) proposes to formalize WMP requirements by creating Chapter 18, Title 61, Idaho Code. Although not yet passed, the bill outlines potential future mandates and offers insights into Idaho’s evolving approach. The Idaho Public Utilities Commission (IPUC), in its **Order No. 36045** approving an accounting order to address increased wildfire insurance costs, required PacifiCorp to file a **Wildfire Mitigation Plan** by Apr. 15, 2024. The IPUC acknowledged rather than approved the plan in **Order No. 36405** and deferred its consideration of prudence to a later rate case.
- **Other States:** Utilities in states like Nevada (NV Energy) have mitigation plans, but these appear to be part of broader disaster protection strategies rather than specific legislative mandates.



The American Public Power Association notes that public power utilities across the US are developing wildfire mitigation plans, suggesting a trend, but compliance with regulatory standards varies by state. ([American Public Power Association Wildfire Mitigation Planning](#))

Additional Resources

- [American Public Power Association Wildfire Mitigation Planning](#)
- [California Public Utilities Commission Utility Wildfire Mitigation Plans](#)
- [New Mexico Political Report State Regulators Discuss Wildfire Mitigation](#)
- [Oregon Public Utility Commission Wildfire Mitigation](#)
- [PacifiCorp Community Safety Wildfire Mitigation Plans](#)
- [Utah Office of Administrative Rules - R746-315. Wildland Fire Protection Plans](#)
- [Utah Public Service Commission](#)
- [Washington Utilities and Transportation Commission Wildfires](#)
- [Xcel Energy Wildfire Mitigation Program](#)

06

Deeper Dive: Types of Maps Utilities Should Use for Wildfire Risk Assessment

Overview

Utilities and regulators need a variety of maps to help them effectively assess wildfire risk. Maps can be used to help with longer-term planning, identify high-risk areas, prioritize safety measures, and protect communities. Various maps can be layered to identify coincident risk. Maps can be used in the shorter-term operational horizon, allowing utilities to quickly address both underlying conditions that increase risk, as well as temporal risks like dry and windy weather conditions that help determine whether to order a PSPS.

Types of Maps

Several types of maps are used:

- **Wildfire Hazard Maps:** Show areas prone to fires based on vegetation, weather, and terrain. In California, [Cal Fire's Fire Hazard Severity Zone maps](#) identify high-risk zones. In Oregon, the [Oregon Statewide Wildfire Risk Map](#) identifies homes in the wildland-urban interface.



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- **Utility-Specific Risk Maps:** Focus on utility equipment, pinpointing where infrastructure might spark fires. They show assets like power lines, vegetation, and communities, and help identify risks like the chance of a fire starting or its potential damage. California’s CPUC Fire-Threat Map is a key example, although State specific. In 2018 the California Public Utilities Commission 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. Utilities will use this as a starting point and build upon it with service territory specific risk maps that are reviewed at least annually and updated as warranted. PG&E calls the additions to the HFTD map the “High First Risk Area” (HRFA) map.
 - **Fire Potential Index (FPI) Maps:** Rate fire risk levels based on weather and fuel conditions, aiding decisions like power shutoffs. For PG&E they issue daily FPI maps to disseminate weather-related information to inform operations. The FPI is a forecast describing the potential for the fires to ignite and spread with a scale from R1 (lowest) to R5 (highest) specific to each FPI rating area.
 - R5-Plus indicates there is elevated fire potential PLUS potential for wind-related outage activity, which may warrant a Public Safety Power Shutoff (PSPS) event. The FPI model was calibrated using a high-resolution dataset of historical weather, fuel conditions, geographic-features, and fires.
 - **Vegetation Risk Index (VRI) Maps:** Highlight vegetation near power lines that could ignite fires, guiding trimming efforts.
 - **Interactive Maps:** Offer real-time data, like the USDA Forest Service’s [Wildfire Risk to Communities](#).



Assets and Risk Metrics

A utility can overlay a map of spatial and temporal risk onto their electric circuits. The result is a comprehensive view of areas prone to wildfire risk. It can also compile data on how many circuits, assets and communities are impacted. A utility can break down circuits and assets by type and prioritize mitigation efforts within those categories. Then, further analysis can be conducted into the communities that appear in these high fire-risk areas.

These maps variously display:

- **Utility Infrastructure:** Power lines, substations, and transformers.
- **Vegetation:** Types of plants that fuel fires.
- **Community Assets:** Homes, businesses, and critical facilities.
- **Terrain and Weather:** Factors affecting fire spread.

These maps can measure:

- **Likelihood:** Chance of a fire starting.
- **Intensity:** Fire severity, like flame length.
- **Exposure and Vulnerability:** Assets at risk and their susceptibility.
- **Economic Loss:** Potential financial impact.

Pros and Cons

Pros:

- Help utilities focus on high-risk areas, improving safety.
- Guide efficient use of resources, like vegetation management and system hardening measures (e.g., overhead hardening, undergrounding, or microgrids).
- Support community awareness and preparedness.



Cons:

- Expensive to develop and update.
- Risk of outdated or inaccurate data.
- Multiple maps may confuse the public, as reported in Oregon.
- Maps may be used for other purposes and impact residential or commercial property value and/or insurance.

Examples in California and Oregon

- **California:** Cal Fire's 2025 maps show increased fire hazards, but utility maps, unchanged for eight years, face criticism for being outdated. Utility maps are updated more frequently.
- **Oregon:** The statewide wildfire risk map informs utility planning, but its use has sparked insurance coverage disputes for some residents.



Analysis of Maps for Utility Wildfire Risk Management in California and Oregon

Introduction

Utility infrastructure related wildfires, especially from power lines, pose major risks to communities and ecosystems, particularly in dry, vegetated states like California and Oregon. Utilities and regulators rely on specialized maps to assess and mitigate these risks, ensuring public safety and regulatory compliance.

Types of Maps Used for Risk Management

1. **Wildfire Hazard Maps:** These maps assess the potential for wildfires based on factors such as vegetation type, weather conditions (e.g., wind speed, moisture content), and topography. They provide a baseline for identifying areas and communities at high-risk of wildfire in the utility's service territory or a particular state or states.
 - **California Example:** The [Cal Fire Hazard Severity Zone maps](#), updated in 2025, classify lands into Very High, High, Moderate, and Low fire hazard zones. These maps reflect increased risks due to environmental factors and vegetation growth, with over 1 million additional acres now classified as high or very high hazard.

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- **Oregon Example:** The [Oregon Statewide Wildfire Risk Map](#), developed by Oregon State University, provides detailed risk assessments for different regions, helping utilities identify high-risk areas for infrastructure.
2. **Utility-Specific Risk Maps:** These focus on the risk to utility infrastructure, such as power lines and substations, identifying areas where equipment could ignite wildfires. They are often tailored to utility service territories and regulatory requirements.
- **California Example:** The California Public Utilities Commission (CPUC) Fire-Threat Map delineates High Fire Threat Districts (HFTD), where utilities must implement stricter safety measures. Originally, the need for these maps to be refreshed was anticipated in ten-year cycles, therefore these maps are eight years old as of April 2025, which could impact relevance and accuracy ([Could Utility Gear Set Your Neighborhood on Fire?](#)). While this is actively under review, the utilities, such as PG&E will expand upon the CPUC HFTD map to create a High Fire-Risk Area (HFRA) map that builds on the HFTD map by adding fire scars, potential for fire spread, National Service Red Flag Warnings (RFW) and other historical data. The HFRA are overlaid on circuit maps to identify high risk areas within the service territory. This map is updated and re-evaluated annually.
 - **Oregon Example:** While specific utility-focused maps are less documented, utilities in Oregon use the state's wildfire risk maps to inform planning and mitigation strategies, though there is less emphasis on utility-specific data compared to California.

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3. **Fire Potential Index (FPI) Maps:** These categorize wildfire risk levels (e.g., normal, elevated, extreme) based on utility-specific data, including weather, fuel moisture, and infrastructure conditions. They support operational decisions like Public Safety Power Shutoffs (PSPS).
 - **California Example:** Utilities like Pacific Gas and Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E) develop their own FPI maps, with varying levels tailored to their service territories.
 4. **Vegetation Risk Index (VRI) Maps:** These assess ignition risk from vegetation near utility infrastructure, particularly power lines, to prioritize mitigation efforts like trimming or removal.
 - **California Example:** SDG&E's VRI helps prioritize vegetation management near power lines, enhancing safety.
 5. **Interactive and Dynamic Maps:** These allow utilities to explore current, past, and potential future wildfire conditions, integrating real-time data like drought and smoke levels. They support dynamic risk assessment and planning.
 - **U.S. Example:** The USDA Forest Service's [Wildfire Risk to Communities](#), updated in May 2024, provides interactive maps used by utilities in California and Oregon to assess community and infrastructure risks.
 6. **Risk Assessment and Mapping:** Advanced models integrate utility infrastructure, vegetation, fuel stocks, community locations, and evacuation routes to assess ignition probability and consequences. These are often part of broader risk management frameworks.

- California Example:** Utilities used sophisticated models like the Multi-Attribute Value Function (MAVF) to quantify risks, combining likelihood and consequence data ([Analysis of Utility Wildfire Risk Assessments](#)). This approach has since been superseded by a cost-benefit ratio approach which is more transparent and legible to the public, stakeholders, and decisionmakers, yet preserves the underlying sophisticated risk analysis. From the utility standpoint, risk models are separated into two types: operational models used for quick decision making and planning models used for long-term mitigation decision making.

Assets Shown on These Maps

The maps display a range of assets critical to assessing and mitigating wildfire risk:

Asset Type	Description
Utility Infrastructure	Power lines, substations, transformers, and other equipment that could ignite wildfires.
Vegetation and Fuel Types	Types of vegetation (e.g., trees, shrubs, grass) that act as fuel, especially near utility lines.
Community Structures	Homes, businesses, and critical facilities at risk of fire impact.
Topography and Terrain	Elevation, slope, and aspect influencing fire spread and intensity.
Weather Conditions	Wind speed, direction, moisture content, and drought levels affecting fire risk.

Risk Metrics Identified

The maps identify key risk metrics to support decision-making and mitigation:

Metric	Description
Wildfire Likelihood	Annual probability of a wildfire occurring at a specific location, derived from historical ignition data and burn probability models.
Wildfire Intensity	Potential severity, measured by flame length or fire intensity levels, often using exceedance probabilities (e.g., 4ft or 8ft flame length).
Exposure	Assets (e.g., homes, infrastructure) at risk of being affected by a wildfire, categorized as direct, indirect, or minimal exposure.
Vulnerability	Susceptibility of assets to fire damage, considering factors like building materials and proximity to vegetation.
Expected Annual Loss	Potential economic impact, including damage to buildings, infrastructure, and agriculture, calculated as a percentage of exposed value.
Population at Risk	Number of people potentially affected, derived from population density data and exposure maps.
Utility-Specific Metrics	Probability of ignition from equipment and consequences, often modeled using simulations like “match-drop” wildfire spread modeling.



Pros and Cons of These Maps

The use of maps for utility wildfire risk management offers significant benefits but also faces challenges, particularly at the public utility level.

Pros

- **Improved Risk Awareness:** Maps help utilities identify high-risk areas, enabling targeted mitigation efforts like vegetation management and infrastructure hardening. For example, California utilities use CPUC Fire-Threat Maps to focus on HFTD.
- **Resource Prioritization:** Highlighting high-risk zones allows efficient allocation of resources for maintenance, inspections, and mitigation projects, as seen in Oregon's use of statewide risk maps.
- **Regulatory Compliance:** Maps assist utilities in meeting regulatory requirements for risk assessment and mitigation planning, mandated by bodies like the CPUC in California.
- **Community Engagement:** Publicly available maps, such as those from [Wildfire Risk to Communities](#), foster community preparedness and engagement in both states.
- **Advanced Data Integration:** Modern maps use sophisticated modeling, integrating real-time weather data and long-term climate trends for better planning, as evidenced by Cal Fire's 2025 updates.

Cons

- **Data Accuracy and Currency:** Outdated maps can lead to misinformed decisions. ([Could Utility Gear Set Your Neighborhood on Fire?](#)). Recent Cal Fire updates address some issues but may still lag in certain areas. (Utility maps adjust and are frequently assessed.)
- **Complexity:** Integrating multiple data layers requires specialized expertise and advanced analytics, which may challenge smaller utilities in Oregon.
- **Cost:** Developing and maintaining high-resolution maps is expensive, and resource intensive.
- **Potential for Over-Reliance:** Over-dependence on maps without local knowledge can lead to suboptimal decisions, especially in dynamic fire weather conditions.
- **Insurance and Financial Implications:** High-risk areas identified on maps can increase insurance rates or lead to policy non-renewals, as seen in Oregon where wildfire risk maps caused confusion and coverage issues.
- **Public Confusion:** Conflicting maps from various sources (e.g., utility vs. state agency maps) can undermine trust and clarity, reported in both California and Oregon.





Focus on Public Utility Level Research in California and Oregon

Research at the public utility level underscores the critical role of maps in wildfire risk management, with specific insights from California and Oregon.

California

- **Recent Updates:** Cal Fire released new **Fire Hazard Severity Zone maps** in 2025, showing a significant increase in high and very high fire hazard areas, affecting over 1 million additional acres. These maps incorporate updated climate and extreme weather data, reflecting the growing threat from dry, scorching summer weather, fierce winds, and increased vegetation due to wet winters.
- **Utility Maps:** The CPUC Fire-Threat Maps, used to identify HFTD, are in the eighth year of an update cycle, originally approved to cover ten years. Small changes have been made at the utility request, and another change is currently pending before the CPUC.
- **Utility Practices:** Major utilities like PG&E, SCE, and SDG&E use FPI and VRI maps for operational risk management and vegetation control. PG&E's maps cover 70,000 square miles (about twice the area of South Carolina), but the lack of standardized FPI maps across utilities complicates comparability ([Analysis of Utility Wildfire Risk Assessments](#)).
- **Regulatory Context:** The CPUC and the Office of Energy Infrastructure Safety mandate utilities to submit detailed data on infrastructure, outages, and ignitions, and use advanced models to quantify risks. However, it can be difficult to quantify risks that have not yet resulted in significant adverse outcomes, and to incorporate such risks into models.

Oregon

- **Wildfire Risk Maps:** The [Oregon Statewide Wildfire Risk Map](#) provides detailed risk assessments, helping utilities identify high-risk areas for infrastructure. These maps are used to guide mitigation efforts but have also caused confusion regarding insurance coverage.
- **Utility Practices:** Utilities in Oregon use state-provided wildfire risk maps to inform planning, though specific utility-focused maps are less documented compared to California. There is a noted need for more granular, utility-specific data to enhance risk management.
- **Insurance Issues:** Wildfire risk maps in Oregon have led to insurance policy non-renewals for some property owners, highlighting the broader financial implications of these tools. This issue underscores the need for clear communication about map purposes and impacts.
- **Challenges:** Oregon utilities face similar challenges to California, including the need for skilled workers to execute vegetation management and fuel reduction programs, and barriers in implementing best practice emergency preparedness programs.

Summary

Maps are indispensable for utilities and regulators in managing and informing wildfire risks, particularly those caused by utility infrastructure. They range from wildfire hazard maps to utility-specific risk assessments, displaying assets like power lines, vegetation, and community structures, and identifying metrics such as wildfire likelihood, intensity, and economic loss. While these maps offer significant benefits, including improved risk awareness and resource prioritization, they face challenges like data accuracy, complexity, and cost. Recent updates to Cal Fire's maps in California reflect the increasing threat from environmental factors, but outdated utility-specific maps remain a concern. In Oregon, statewide risk maps guide utility planning but have sparked insurance-related challenges. As wildfire risks continue to evolve, updating and standardizing these mapping solutions will be important for effective risk management in the United States.



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- [Cal Fire's Fire Hazard Severity Zone Maps](#)
 - [California Public Utilities Commission Wildfire Safety](#)
 - [Oregon Statewide Wildfire Risk Map](#)
 - [USDA Forest Service Wildfire Risk to Communities](#)
 - [Analysis of Utility Wildfire Risk Assessments](#)
 - [Could Utility Gear Set Your Neighborhood on Fire? California Risk Maps Are 8 Years Old](#)
 - [New California Wildfire Maps: See 'Very High' Fire Hazard Zones by County](#)
 - [New Fire Maps Increase Hazard Zones in L.A. and Southern California](#)
 - [New Cal Fire Maps Show 1 in 8 Californians Face Extreme Fire Danger](#)
 - [With Growing Fire Risk, Governor Newsom Proclaims State of Emergency](#)
 - [Live California Fire Map and Tracker](#)
 - [Wildfire National Risk Index](#)



07

Deeper dive: Don't Forget the Poles



Key Points

- Utility poles are typically, but not always, owned by electric utilities. There can also be joint ownership by multiple utilities or municipalities.
- Entities that attach equipment to utility poles include telephone, cable, and internet providers, varying by state regulations. In some jurisdictions, the utility pole is owned by the telephone company.
- Ownership and attachment practices differ across states, affecting maintenance and liability.
- There is some controversy over liability, especially when multiple attachers are involved, with pole owners often deemed primarily responsible.

Ownership of Utility Poles

Utility poles are usually owned by electric utility companies, such as Pacific Gas & Electric (PG&E) in California or CenterPoint Energy in Texas. In some cases, they may be jointly owned by multiple utilities, such as in California where joint pole committees include electric, telephone, and municipal entities. While not common poles on private property, may be owner-maintained by homeowners, as seen in New York.



Entities Attaching to Utility Poles

Attached entities typically include telephone companies, cable television providers, and internet service providers, leasing space from pole owners. For example, in Connecticut, Eversource owns the poles and licenses space for communication lines. ([Eversource: Utility Poles](#))

State Variations

Ownership and attachment regulations vary by state. California has detailed rules through the CPUC, with joint ownership common [California Joint Pole Committee](#). Texas follows state laws for cable attachments to electric co-op poles [Texas Utilities Code Chapter 252](#), while New York has cases where homeowners maintain poles on private property. ([WRRV: Who's Responsible if a Utility Pole Falls in NYS?](#))

Impact on Wildfire Mitigation and Liability

Ownership affects wildfire mitigation, as pole owners are responsible for maintenance to prevent fires. In California, utilities face strict liability under inverse condemnation for fire damages [Legal Planet: Wildfire Liability in California](#). With multiple attachers, liability can be complex; pole owners are often primarily liable, but attachers may share responsibility if their equipment causes fires, depending on contracts. ([Western Energy Institute: Mitigating Tort Liability](#))



Analysis of Utility Pole Ownership, Attachments, and Wildfire Implications

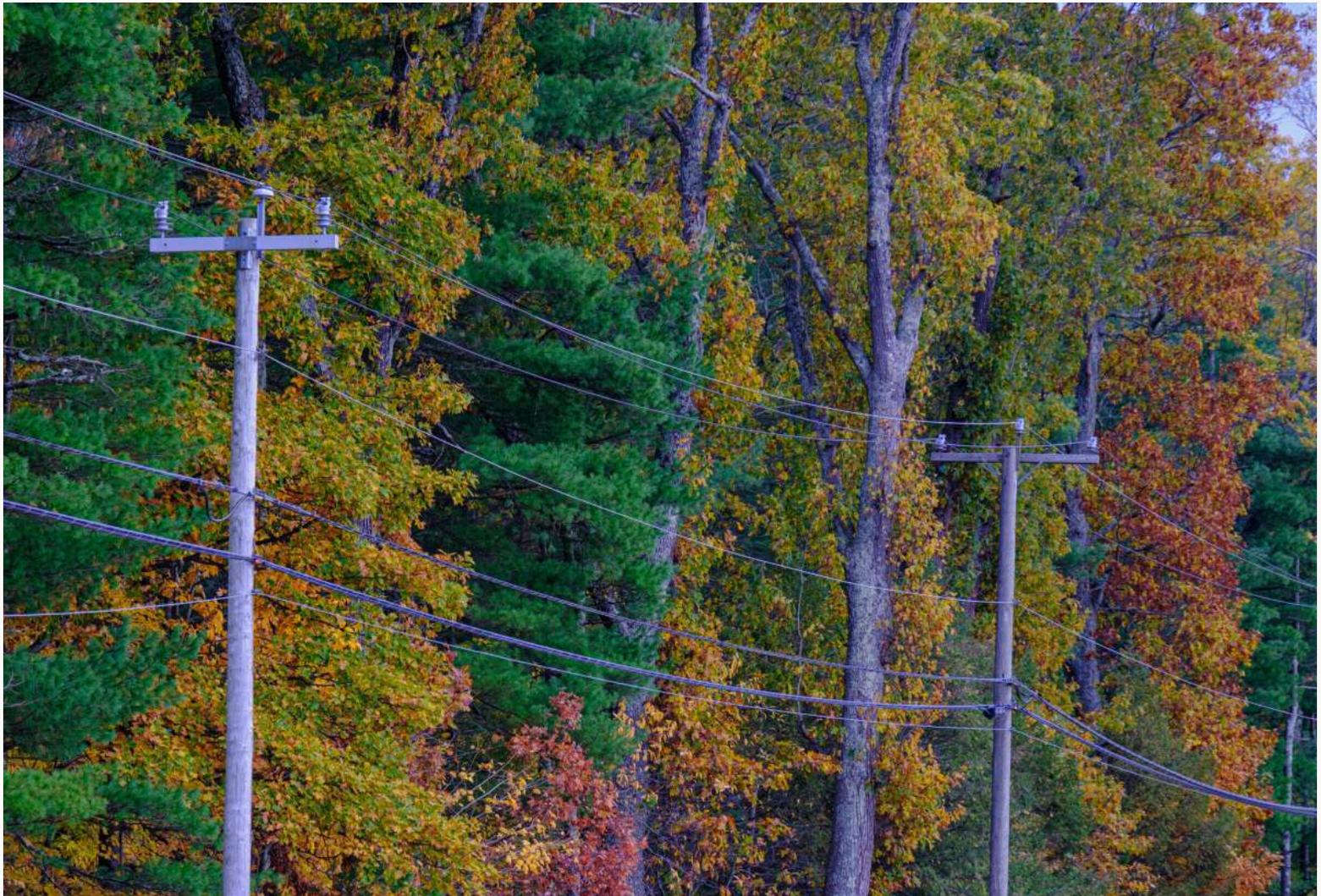
Introduction

Utility poles are critical infrastructure supporting electricity, telecommunications, and other services, but their ownership and the entities attached to them can vary significantly, impacting wildfire mitigation efforts and liability, especially in wildfire-prone regions.

Ownership of Utility Poles

Utility poles are typically owned by electric utility companies, which are responsible for maintaining the poles to ensure safety and reliability. For instance, in Connecticut, Eversource owns the poles and manages power lines, licensing space for communication lines below [Eversource: Utility Poles](#). Similarly, in Texas, electric utilities like CenterPoint Energy and cooperatives own most poles, as seen in discussions about rural broadband deployment. ([Connect The Future Texas: Utility Poles](#))

However, ownership models can vary. In California, there are instances of joint ownership, where multiple utilities, including electric, telephone, and municipal entities, hold equity interests in poles. The Southern California Joint Pole Committee, established in 1906, manages joint equity in poles, ensuring coordinated maintenance and ownership records [California Joint Pole Committee](#). The Northern California Joint Pole Association operates similarly, indicating a regional practice of shared ownership [Northern California Joint Pole Association: About](#). This joint ownership is less common in other states but can occur where multiple utilities operate in the same area.





Entities Attached to Utility Poles

The entities that attach to utility poles include telephone companies, cable television providers, internet service providers, and occasionally other utilities like street lighting or traffic signal operators. These attachers lease space on the poles from the owners under joint use agreements, which outline terms for attachment, maintenance, and liability. For example, in Connecticut, Eversource licenses space for third-party communication lines, such as telephone and cable wires, below the power lines. ([Eversource: Utility Poles](#))

The number and type of attachers vary by location and state regulations. In urban areas, poles often carry multiple attachments, including fiber-optic cables for internet, coaxial cables for cable TV, and twisted pair for telephone services, as noted in a Wikipedia entry on utility poles. ([Wikipedia: Utility Pole](#))

In rural areas, attachments might be fewer, but still include telecommunications providers seeking to expand broadband, as seen in Texas discussions about pole attachment delays for rural broadband. ([Connect The Future Texas: Utility Poles](#))



State Variations in Ownership and Attachment

Pole ownership and attachment practices vary significantly across states, and are influenced by state utility commissions and federal regulations. California has one of the most detailed regulatory frameworks, with the CPUC overseeing pole safety and joint use through General Order 95, which specifies rules for overhead electric and communications line construction. ([CPUC: Utility Pole Safety](#)). The state's joint pole committees, like the Southern California Joint Pole Committee (SCJPC), manage shared ownership, reflecting a collaborative approach. ([California Joint Pole Committee](#))

In Texas, state law, such as Chapter 252 of the Utilities Code, governs cable attachments to electric cooperative poles, ensuring just and reasonable rates and terms. ([Texas Utilities Code Chapter 252](#)) Electric utilities like AEP Texas and CPS Energy have their own pole attachment policies, indicating ownership by electric utilities with regulated attachments. ([AEP Texas: Pole Attachment Policy](#)), ([CPS Energy: Pole Attachment Standards](#))

New York presents a unique case, with instances where utility poles on private property are owner-maintained, as seen in a 2022 article about homeowner responsibility for fallen poles. ([WRRV: Who's Responsible if a Utility Pole Falls in NYS?](#)) This contrasts with typical practices where poles are on public rights-of-way, owned by utilities like Con Edison, and regulated by the New York Public Service Commission, which assumed jurisdiction over pole attachments in 2020. ([PA PUC: Pole Attachments](#))

Federal regulations, such as the Pole Attachment Act (47 U.S. Code § 224), provide a baseline, but states can self-certify, leading to variations. For example, some states follow FCC guidelines, while others, like California and Texas, have state-specific rules, affecting how ownership and attachments are managed. ([Varasset Software: A Quick Reference Guide to Utility Pole Attachments](#))

Ownership and attachment structures significantly impact wildfire mitigation efforts. Pole owners, typically electric utilities, are responsible for maintaining poles to prevent fires, including inspections for rot, decay, and overloading. In California, utilities like PG&E implement Wildfire Mitigation Plans, which include measures such as undergrounding lines and vegetation management, to reduce ignition risks. ([PG&E Community Wildfire Safety](#)) “Pole brushing” is a type of vegetation management activity that refers specifically to clearing vegetation around the base of poles. These efforts are mandated by state law, with detailed risk assessments required. ([Wildfire Mitigation Plans | Office of Energy Infrastructure Safety](#)) [Texas Utilities Code Chapter 252](#)

When multiple attachers are involved, coordination becomes complex. Pole owners must ensure all attachments comply with safety standards, which can delay maintenance if attachers fail to submit permits or respond promptly, as noted in an Alden Systems article: [Alden Systems: Your Attachment, My Liability](#). This can increase wildfire risks, as seen in cases where overloaded poles failed, causing fires. ([Alden Systems: Lawsuits and Liability](#))





In states with owner-maintained poles, like New York, homeowners may lack the expertise or resources for proper maintenance, **potentially increasing fire risks**. However, utilities still own the lines, so liability might shift back to them if a fire is caused by their equipment.

Impact on Liability

Liability for wildfires caused by utility poles is a contentious issue, with significant variations by state. In California, the doctrine of inverse condemnation imposes strict liability on utilities for damages caused by their equipment, as seen in PG&E's \$13.5 billion settlement for 2019 wildfires. (**Clery Gottlieb: Utility Companies with Wildfire Liability Exposure**) This applies primarily to electric utilities, given their eminent domain powers, but telecommunications attachers might face liability under negligence if their equipment causes a fire.

For poles with multiple attachers, liability can be shared. The Western Energy Institute recommends pole owners ensure attachers indemnify them against tort claims and carry liability insurance, suggesting a contractual approach to shared liability. (**Western Energy Institute: Mitigating Tort Liability**) A 2009 case mentioned a \$740 million settlement where overlash communications lines contributed to a wildfire, with the electric utility bearing the cost, potentially seeking indemnification from the attacher. (**Western Energy Institute: Mitigating Tort Liability**)

In Texas, the Smokehouse Creek fire in 2024 was caused by a decayed utility pole, with the utility held liable, but specific attacher liability wasn't detailed. ([AP News: Decayed Pole Caused Texas Wildfire](#)) In New York, with owner-maintained poles, liability might fall to the homeowner for maintenance, but utilities likely remain liable for lines, complicating legal outcomes.

The controversy lies in balancing responsibility, with utilities pushing for liability protections in states like Oregon and Arizona, while wildfire victims argue for accountability. ([Governing: Utility Company Pushing Bills Limiting Wildfire Liability](#)) This debate affects how costs are allocated, often passed to ratepayers, raising equity concerns.



Comparative Table of State Practices

State	Typical Pole Owner	Common Attachers	Regulatory Framework	Wildfire Liability Notes
California	Electric utilities, joint ownership common	Telephone, cable, internet providers	CPUC General Order 95, strict liability under inverse condemnation	Utilities strictly liable, attachers may share via contracts
Texas	Electric utilities, cooperatives	Cable, telecommunications providers	Chapter 252 Utilities Code, state-specific attachment rules	Utilities liable for pole failures, attacher liability less clear
New York	Electric utilities, some owner-maintained	Telephone, cable providers	PSC jurisdiction since 2020, owner-maintained poles on private property	Utilities liable for lines, homeowners for maintenance, complex liability

Conclusion

Utility pole ownership and attachments vary by state, with electric utilities typically owning poles and leasing space to attachers like telecommunications providers. These variations impact wildfire mitigation, as coordination with multiple attachers can delay maintenance, and liability, with pole owners often primarily responsible, though attachers may share liability through contracts. States like California impose strict liability, while others balance responsibility, highlighting ongoing debates over cost and equity in wildfire risk management.

Key Citations

- [AEP Texas Pole Attachment Policy Document](#)
- [Alden Systems Lawsuits and Liability When Poles Break](#)
- [Alden Systems Your Attachment, My Liability Article](#)
- [AP News Decayed Pole Caused Texas Wildfire Report](#)
- [California Joint Pole Committee Details](#)
- [Cleary Gottlieb Utility Wildfire Liability Analysis](#)
- [CPS Energy Pole Attachment Standards Guide](#)
- [CPUC Utility Pole Safety Regulations](#)
- [Eversource Utility Poles Information](#)
- [Governing Utility Company Pushing Bills Limiting Wildfire Liability](#)
- [Legal Planet California Wildfire Liability Primer](#)
- [McGriff California Wildfires Liability Risks for Contractors](#)
- [Northern California Joint Pole Association About Page](#)
- [PA PUC Pole Attachments Information](#)
- [Texas Utilities Code Chapter 252 Cable Attachments](#)
- [TRC Company Joint Use for Utility Companies Explainer](#)
- [Varasset Software Quick Reference Guide to Pole Attachments](#)
- [Western Energy Institute Mitigating Tort Liability for Pole Owners](#)
- [Wikipedia Utility Pole Overview](#)
- [WRRV Owner-Maintained Utility Poles in New York](#)



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