

Public Utility District No. 1 of Chelan County
203 Olds Station Road
Wenatchee, WA 98801

Chelan County PUD Wildfire Mitigation Plan

October 31, 2024

Version 1.0

1.0 Executive Summary

Chelan County PUD (the PUD) recognizes the increasing risk wildland fires poses to our state and region due to many factors, such as climate variability, forest management practices, and human activities, in general. Additionally, the PUD acknowledges that power utilities play an important societal role in reducing wildland fire risk similar to other key stakeholders in our communities and region, including local, state, and federal agencies. Chelan County PUD is committed to safely and responsibly supplying power and other utility services to our customers. To address the risk of utility operations igniting wildland fires, the PUD established a comprehensive wildfire risk program that coordinates the planning, development, and implementation of effective wildfire mitigations. The PUD's wildfire mitigation program was founded on our values: Safety for both employees and the public, Trustworthiness, Stewardship, and Operational Excellence. Since the inception of the program in 2017, Chelan County PUD designed and executed a broad range of wildfire risk mitigation strategies that reduce the likelihood of wildland fire ignitions involving power infrastructure. The Chelan County PUD Wildland Fire Mitigation Plan (hereafter "Plan") documents current mitigations that have either been implemented or are in the process of implementation.

In recent years, the utility industry has rapidly developed many innovative wildfire risk mitigations in response to increasing wildland fire risk. To identify utility best practices, the PUD has participated in numerous industry groups and forums in order to evaluate these emerging mitigations for potential inclusion into the PUD's wildfire risk program. Many mitigations now considered as best practices have been adopted by the PUD, including an expansive Public Safety Power Shutoff (PSPS) program, also locally known as Fire Safety Outage Management (FSOM) program, a reclosing strategy during peak fire conditions, and a revised vegetation management program that incorporates a rigorous inspection schedule. While recognizing that much work remains and factors beyond the PUD's control impact risk, current mitigations and additional strategies outlined in this Plan have the PUD well positioned to confront wildland fire risk today and into the future. The PUD's rolling 5-year wildfire mitigation planning process will ensure emerging best practices are properly considered for the wildfire risk program going forward as the PUD continues to enhance its program. These planning efforts enable the PUD to comply with Washington State House Bill 1032, which requires utilities to review and, if appropriate, revise their wildfire mitigation plans every three years beginning in October 2024.

Additional documentation provided with submission:

1. Chelan County PUD Revised Vegetation Management Program
2. Transmission and Distribution system wildfire risk map with PSPS (FSOM) zones

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2.0 Wildfire Mitigation Plan Overview

2.1 Purpose of the Wildfire Mitigation Plan

This Wildfire Mitigation Plan describes in detail the range of activities that Chelan County PUD is taking to mitigate the threat of utility involved wildfires, including various programs, policies, and procedures. This plan complies with the requirements of HB1032 for customer owned electric utilities (COU) to prepare a wildfire mitigation plan by October 31, 2024, and every three years thereafter.

2.2 Description of Where WMP Can be Found Online

The public can find information on the PUD's WMP on our website: <https://www.chelanpud.org/learning-center/wildfire-mitigation-program>.

2.3 Best Practices Cross-Reference Table

Standard or Best Practice Name and Description	Document, page number, or citation
HB 1032 – By October 31, 2024, and every three years thereafter, each Investor-owner and Consumer-owned Utility must review, if appropriate revise, and adopt its wildfire mitigation plan	Sec. 3.1
2018 International Wildland-Urban Interface Code	Table A102.3.2.2
ANSI A300	Part 7, Best Management Practices of Integrated Vegetation Management

3.0 Utility Overview

3.1 Utility Description and Context Setting Table

The PUD was created by a vote of the people in 1936 and delivered its first power in 1947. The PUD is governed by a locally elected five-member Board of Commissioners. The General Manager uses the policies and guiding principles set by the Commission to generate and deliver electricity from our three dams to utilities that serve customers across the Pacific Northwest, as well as to more than 51,000 retail customers in the county. Chelan PUD also provides water, sewer, and wholesale telecommunications services.

Table 1. Context-Setting Information Table

Utility Name	Public Utility PUD No. 1 of Chelan County
Service Territory Size (sq miles)	482
Service Territory Make-up	[3.3]% Urban [9.4]% Agriculture [0.1]% Barren/Other [25.0]% Conifer Forest [0.3]% Mixed Forest [0.2]% Hardwood Forest [4.0]% Interface [50.2]% Herbaceous [3.4]% Water [4.0]% Intermix
Service Territory Wildland Urban Interface (based on total area)	[4.0]% Wildland Urban Interface [4.0]% Wildland Urban Intermix

<p>Customers Served</p>	<p>~52,000 electric utility retail customers</p>
<p>Account Demographic <i>[Note: Please provide as a percent of total customers served]</i></p>	<p>[83.1]% Residential []% Agricultural [16.9]% Commercial/Industrial [X] NA / Not tracked (please add any other detail below) Chelan PUD does not track Agricultural customers.</p>
<p>Utility Equipment Make-up (circuit miles) <i>[Note: Please provide brief description of how line miles are measured or calculated]</i></p>	<p>Overhead Dist.: 881 Overhead Trans.: 335 Underground Dist.: 1,024 Underground Trans.: 0</p>
<p>Has developed protocols to pre-emptively shut off electricity in response to elevated wildfire risks?²</p>	<p>Yes [X] No [] A summary or description of protocols can be provided in section 7.</p>
<p>Has previously pre-emptively shut off electricity in response to elevated wildfire risk?</p>	<p>Yes [] No [X] If yes, then provide the following data for the three trailing calendar years: N/A Number of shut-off events: [] Customer Accounts that lost service for >10 minutes: [] For prior response, average duration before service restored: []</p>

4.0 Objectives of the Wildfire Mitigation Plan

4.1 *Minimizing likelihood of ignition*

Subsequent to the formation of the Chelan County PUD's wildfire mitigation planning program in 2017, the PUD implemented wildfire mitigations that support the following objectives (some activities below pre-date 2017):

1. Vegetation Management

Maintain a vegetation management program that prioritizes high wildfire risk locations to reduce the likelihood that vegetation contacts power infrastructure.

2. De-energization

De-energize power lines located in medium to high-risk locations during periods of elevated fire potential through operation of the PUD's PSPS program and adjusting recloser settings.

3. Identify Equipment Deficiencies

Ensure power equipment is properly maintained and replaced when necessary by tracking underground and overhead line faults, and, by conducting periodic inspections including physical inspections, pole testing, and thermography.

4. System Hardening

In higher fire risk locations, replace legacy hardware, poles, and related equipment with fire-resilient equipment that limits the potential for utility-involved wildfire ignitions and also may reduce damage if a fire starts.

5. System Design and Construction

Construct new and replacement infrastructure in accordance with modern National Electrical Safety Code (NESC) standards and, when warranted, exceed NESC standards for the purpose of wildfire risk reduction.

6. Community Stakeholder Engagement

Partner with stakeholders in the community, including fire districts and other local, state, and federal agencies, to coordinate wildfire risk mitigation initiatives and projects. Educate customers regarding the PUD's risk mitigation operations and the potential impacts to their utility services.

7. Situational Awareness

Assess wildfire risk potential by conducting risk modeling of the PUD's service territory and monitoring weather forecasts.

Chelan County PUD mitigations included in the following list have either been fully implemented or are in the process of implementation.

Reference Number	Business Line	Potential Risk	Mitigation(s)
1	Transmission Distribution Operations	Operating outside of procedures causing fires to start or spread	Annual fire prevention training for crews
2	Transmission Distribution	Transmission structure/Distribution pole failures; downed power-lines	Structural pole replacement program; pole testing and treatment; Transmission pole fire protection program
3	Transmission Distribution	Malfunction of equipment on poles/grounding causing explosions, sparking and/or pole fires	Annual transmission maintenance inspections; vegetation management inspection assistance for distribution
4	Transmission Distribution	Heat or sparks from crew vehicles/equipment ignite wildfire	Crew water tanks to extinguish small fires: No line maintenance during DNR Red Flag conditions and IFPL work practices
5	Transmission	Reclosing into permanent fault	Automatic reclosing disabled on the AC-Bev line during summer
6	Transmission Distribution	Switch adjustment and line equipment	Thermography; annual thermography program for selective line switches and equipment
7	Transmission	Line fault causing sparking and/or lines on ground	Fast tripping, communication aided tripping; fault location mapping; Line patrol inspections after fault before energizing line
8	Distribution Vegetation Management	Vegetation approaching unsafe clearances or hazard trees falling into lines	4-2-1 or 4-2 inspection and pruning cycles with full pruning for distribution lines every 4 years, 2 year inspections for grow-ins and hazard trees; annual inspections in high fire risk locations.
9	Transmission vegetation	Vegetation approaching unsafe clearances or hazard trees falling into lines	Annual aerial vegetation inspections for all transmission lines followed by ground inspections based on aerial data
10	Transmission Distribution	Brush/small trees growing under wires and blocking vehicle access and visual line of site within the corridors	Operate slash buster mowers on a given cycle to keep access roads open.
11	Distribution	Animal contact with power equipment, which may cause sparking and/burning materials to fall to ground	Identify problem locations and retrofit power equipment with animal guards; bi-annual nest inspection and monitoring; 4300 animal guards installed to date. Animal outages monitored and analyzed for follow-up in fire danger areas.

Reference Number	Business Line	Potential Risk	Mitigation(s)
12	Transmission Distribution	Wind causing power lines to contact, causing sparking and/or downed lines	Utilize sophisticated modeling and modern construction standards designed to meet or exceed the NESC, including pole height
13	Transmission Distribution	Normal switch and fusing operations can result in sparks falling to ground	Develop grubbing and sterlant program around poles with fuses; Utilize non-spark emitting fuses when feasible on high-risk distribution lines
14	Distribution	Re-closers automatically restore power to downed lines igniting wildfires	Changing re-closer sensitivities on high-risk lines in Blewett, Colockum, Antoine Creek, and Lake Wenatchee/Plain/Coles Corner during peak fire season requiring manual reset following inspection of lines
15	Transmission Distribution	Weather conditions cause vegetation to contact power lines and/or other equipment failures that ignite fires	Public Safety Power Shutoff (PSPS) program established in Tier 2 and Tier 3 risk locations throughout Chelan County; customer communications regarding PSPS impacts to utility services
16	Vegetation Management	Contracted tree crews ignite fires while pruning vegetation	Tree crew requirements during fire season: 400-gallon firefighting water wagon trailer, hand tools consisting of shovel, rake, Pulaski, McLeod, 5-gallon backpack hand pump water sprayer and fire extinguishers, fire blankets, battery powered chainsaws and daily crew wildfire briefing documents. The Contractor must have a designated employee providing training to crew personnel on situation awareness and document performing random fire preparedness inspections per crew.
17	Distribution	Aging powerlines fail and fall to ground	Developed a wire down practice and program in 2020 tracking all wire down instances then replacing or refurbishing. Replaced approximately 10 miles of aged copper wire annually. Program resulted in zero asset related wire down causes from 2021 to 2023.
18	Transmission Distribution	Line fault causing sparking and/or lines on ground	The PUD uses drones to assist in inspection of poles and failing equipment
19	Strategic and External Affairs	General wildfire risk; agency coordination; public communication	Wildfire Mitigation Program Manager approved for hiring in 2024
20	Distribution Vegetation Management	Excessive forest fuels lead to fires with higher intensity and damage potential	Financially partnering with Chelan County and other stakeholders to reduce fuels on 5,000 acres in Lake Wenatchee and Plain

Reference Number	Business Line	Potential Risk	Mitigation(s)
21	Transmission and Distribution	Fires result in public injuries	Donated labor to install poles for fire warning sirens in Lake Wenatchee
22	Distribution	Overhead lines ignite wildfires	River Road undergrounding project under construction in 2024
23	Transmission	Wood transmission structures fail causing downed lines and outages	\$54M McKensie-Beverly steel pole conversion project scheduled for 2026 (fire hardening project)
24	Transmission and Distribution	Pole hardware and crossarms fail causing sparking	Retrofitting ceramic bushings with polymer components and replacing wood crossarms with fiberglass crossarms in accordance with PUD's standards for new construction
25	Transmission and Distribution	High risk locations are not identified and prioritized for wildfire mitigation projects	Contracting with fire risk engineering consultant to conduct and maintain wildfire risk modeling of service territory

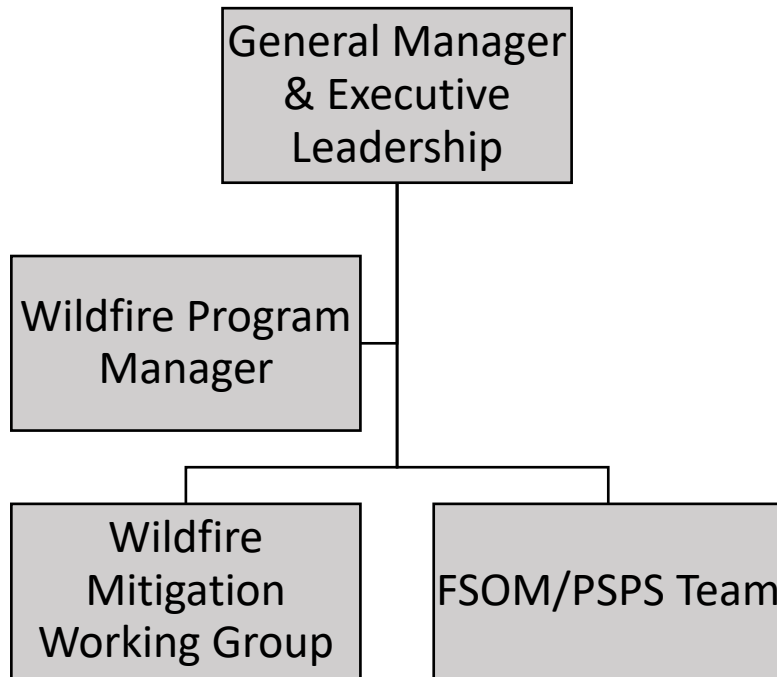
4.2 Resiliency of the electric grid

The ecological characteristics in Chelan County, including forested and shrub steppe terrain, historically support naturally occurring wildfires. The PUD has significant experience responding to wildfires that have threatened or damaged power infrastructure. As part of our strategy to meet those challenges, the PUD trained leadership and staff in the Incident Command System (ICS), a system that was developed by federal agencies to coordinate responses to catastrophic wildfires and other emergency responses. By establishing ICS teams during wildfire events, the PUD is quickly able to plan and execute effective recovery operations. ICS also allows for efficient coordination with other federal, state and local agencies that utilize ICS to manage wildfire responses. In addition to the PUD's recovery efforts, assistance is available for repairs to power infrastructure through existing mutual aid agreements with other regional utilities.

In part due to the County's wildfire history, the PUD's longstanding practice is to build redundancy and configurability into the transmission and distribution system designs allowing for alternative power delivery routes during outages. The PUD is constructing underground power lines and converting existing overhead lines to underground in particularly vulnerable locations. While much work remains, the PUD also supports community fuel reduction through customer engagement by our vegetation management arborists that promotes removal of customer owned vegetation. The PUD is also partnering with Chelan County in a project matched by federal funds to remove fuels in the Lake Wenatchee/Plain area.

5.0 Roles and Responsibilities

5.1 Utility Roles and Responsibilities



Wildfire Mitigation Working Group

In 2017, the PUD formed a Wildfire Mitigation Working Group comprised of subject matter experts from business units impacted by wildfire risk. The working group was tasked with identifying, evaluating, and planning for utility-focused wildfire mitigations aimed at reducing the PUD's exposure to wildfire risk. The result of those efforts included the adoption of an internal wildfire mitigation plan in 2022 that recorded mitigations that were either implemented or in the process of implementation.

5-Year Planning Process with executive oversight

In 2023, the PUD established a 5-year planning process with oversight by executive leadership. In addition to annually approving updates to the PUD's wildfire mitigation plan, a 5-year plan was created to aid in the coordination and planning of future wildfire mitigations. Bi-annually, the working group presents mitigation proposals to the PUD's General Manager and executive leadership for potential inclusion into the 5-year plan. The presentations also include reports on progress that has been achieved towards the evaluation and development of potential future mitigations. In these 5-year planning meetings, executive leadership provides direction as

decisions are made to approve, reject, or revise proposals made by the working group. Fully developed mitigations are also approved for inclusion into the PUD's wildfire mitigation plan and authorized to proceed with implementation.

The PUD recognizes that wildfire mitigation efforts require significant internal resources and determined in 2024 that a new Wildfire Program Manager position is warranted. Currently, the PUD is making preparations for the recruitment process to hire a qualified candidate for this position.

Proposed Wildfire Program Manager duties include:

- Managing the wildfire mitigation planning process
- Engaging community stakeholders including local, state, and federal agencies
- Researching and evaluating emerging best practices in utility wildfire mitigation
- Evaluating the effectiveness of the PUD's Wildfire Mitigation Program
- Supporting implementation of wildfire mitigations
- Developing customer communication plans and community engagement

Wildfire Mitigation Working Group Members:

Wildfire Program Manager (new position)
Director – Distribution Asset Management
Director – Enterprise Planning, Risk and Analytics
Manager – Transmission and Distribution Engineering
Manager – Insurance and Risk Management
Manager – Utility Vegetation
Senior Communications Strategist
Staff Attorney
Senior Analyst, Enterprise Risk Management

Wildfire Planning Executive Sponsors:

General Manager
Managing Director – Customer Utilities
Managing Director – Generation and Transmission
General Counsel/Chief Compliance Office
Chief Financial/Risk Officer
Managing Director – Fiber and Telecom
Chief Strategy and Stakeholder Officer

The PUD also assembled a team to coordinate and manage the Fire Safety Outage Management (FSOM)/PSPS de-energization program. Led by the PUD's System Operations & Coordination Manager, the team is made up of staff in business units that participate in the FSOM program including several members of the Wildfire Mitigation Working Group.

5.2 Coordination with local utility and infrastructure providers

The PUD maintains strong working relationships with local utilities providing water, wastewater and phone/cable and internet services. In critical locations, the PUD has assessed the ability of service providers to install back-up generators during periods of de-energization due to fires or due to fire weather conditions. In addition to our experience working with local utilities during construction and maintenance projects, we have a shared history with many local utilities with coordinating responses to naturally occurring wildfires.

In 2021, the PUD established an expert working group comprised of representatives from: Chelan County fire districts, Chelan County Emergency Management, Washington Department of Transportation, telecom companies, Cascadia Conservation District, U.S. Forest Service, and Department of Natural Resources. We facilitated a series of three focus groups with the expert working group in March 2021 to communicate and collaborate on the PUD's wildfire mitigation plan and PSPS program. We inform this group of updates to the Wildfire Mitigation Plan every spring and throughout the year as needed.

In 2021, the PUD hosted a series of advisory focus groups to explore potential mitigations in FSOM/PSPS zones. The advisory groups included telecom/radio communications, vulnerable populations, contingency planning for active fire scenarios, neighborhood water supplies, economic impact, and logistics. Their feedback was incorporated into operational and outreach planning.

In 2024, the PUD staff met with seven fire districts and several more local utility providers, including water districts and municipalities, in communities where we expanded the FSOM/PSPS zones to review the PUD's wildfire mitigation plan and PSPS protocols.

5.3 Coordination with local Tribal entities

Due to the limited number of tribal properties located within Chelan County, and the low wildfire risk profiles of those properties, the PUD has not pursued coordination efforts specific to Tribal entities beyond communications intended for all PUD customers.

5.4 Emergency Management / Incident Response Organization

As referenced in section 4.2, the PUD operates under the Incident Command System (ICS) to coordinate emergency responses both internally and with relevant safety agencies. During active wildfires, Chelan PUD coordinates with fire command.

Section 7.7 outlines the PUD's FSOM/ PSPS program that includes exercises to test preparedness.

Chelan County Emergency Management and seven Chelan County fire districts have been involved in the development and evolution of Chelan PUD's Wildfire Mitigation Plan and PSPS policy as part of the expert working group referenced in section 5.2.

We consult with the expert working group annually to review the wildfire mitigation plan and PSPS procedures ahead of fire season. The procedures include activation of ICS and early notification/consultation with first response agencies in advance of a potential PSPS/FSOM event.

Chelan County Emergency Management has agreed to coordinate with the PUD regarding use of Everbridge, Chelan County's Emergency notification system, during the warning phase of a potential FSOM/PSPS event. A representative from Chelan County's Emergency Management attended the most recent exercise held in July 2024.

In 2021, the PUD met with representatives of the State Governor's Office, State Emergency Management, Department of Commerce to coordinate and seek feedback on the PUD's Wildfire Mitigation Plan and the development of the PUD's PSPS policy.

The PUD is also an active participant in DNR's utility advisory board, Commerce's weekly utility coordination call during fire season and Chelan County's Wildfire Community Protection Plan.

6.0 Wildfire Risks and Drivers Associated with Design, Construction, Operation, and Maintenance

6.1 Risks and risk drivers associated with topographic and climatological risk factors

Chelan County topographical and climatological risk factors:

- Average annual precipitation of 11.4 inches
- Average high temperatures of 85 degrees Fahrenheit in July and August
- Peak temperatures exceeding 100 degrees Fahrenheit in summer
- Forested and shrub steppe vegetation
- Mountainous terrain

6.2 Enterprise-wide Safety Risks

To identify enterprise-wide wildfire risks, Chelan County PUD utilizes several methodologies:

Wildfire Planning

As described in section 5.1, the Wildfire Mitigation Working Group has been directed to evaluate the PUD's wildfire risk as part of the established planning process and to propose mitigations. In order to effectively evaluate wildfire risk, Working Group members rely on their own experience as well as leveraging information provided by subject matter experts at other utilities by participating in various industry groups, forums, and seminars. Working group members also monitor risk indicators such as line faults, animal involved incidents, and inspection results. An

ignition tracking process is under development that will identify locations of utility involved ignitions resulting in fires greater than one foot in diameter.

Risk Modeling

In 2020, the PUD contracted with a highly regarded wildfire risk engineering consulting firm to model the PUD's wildfire risk. Drawing on decades of academic and US Forest Service Research, the consultant established a wildfire risk modeling methodology that has been performed for utilities throughout the western US and including the California Public Utilities Commission. The consultant's fire probabilistic model factors in vegetation type, historical weather patterns, topography, structure locations, and density. The model incorporates this data to calculate the likelihood for catastrophic fire ignitions utilizing millions of Monte-Carlo simulated fires throughout the PUD's service territory. The resulting model output established risk tiers for all Chelan County PUD distribution and transmission power lines.

Enterprise Risk Management

In 2010, the PUD established an Enterprise Risk Management program to identify and monitor all PUD risks, including risks associated with wildfires. The program has matured over time and has currently identified wildfire-related risks that are monitored and updated by risk owners on a quarterly schedule. All PUD risks that exceed criticality thresholds are reviewed by executive management and, when appropriate, discussed in quarterly executive Risk Committee meetings.

Risk drivers are identified in the risk mitigation table provided in section 4.1.

7.0 Wildfire Preventative Strategies

7.1 Weather Monitoring

7.1.1 Current Strategy Overview

The PUD receives weather forecast data every six hours from May through October as part of our ongoing contract with our wildfire risk consulting firm. This data is used to evaluate fire weather conditions as part of our PSPS de-energization program covered in section 7.7.

The consultant sources forecast data from the following weather models:

- High Resolution Rapid Refresh (HRRR): a NOAA operational weather prediction system providing high-resolution short-range weather forecasts (3 km hourly data up to 48 hours).
- North American Mesoscale (NAM): an NCEP weather modeling system providing 6-hour forecasts at 3 km and 12 km resolution up to 84 hours out.
- Global Forecast System (GFS): a National Weather Service (NWS) global numerical weather prediction system providing hourly forecasts every 6-hours up to 5 days out and 3 hour forecasts every 6-hours from 5 days to 16 days with a resolution of 28 km up to 1 week and 44 km after 1 week up to 16 days.

- European Centre for Medium-Range Weather Forecasts (ECMWF): uses an Integrated Forecast System to provide hourly forecasts every 6-hours up to 10 days out with a resolution of 9 km.
- National Blend of Models (NBM): a blend of NWS and non-NWS weather prediction systems and post-processed model guidance.

PUD staff also monitor local drought conditions provided by the NOAA National Integrated Drought Information System. Red flag days are also monitored in accordance with our procedure to reduce line maintenance in high-risk locations during fire weather conditions.

7.1.2 Planned Updates

The PUD is evaluating the possible acquisition of weather stations for installation throughout high and moderate risk tier locations for improved real-time weather situational awareness.

7.2 Design and Construction Standards

7.2.1 Current Strategy Overview

Section 4.1 identifies system hardening strategies and construction standards to mitigate wildfire risk including:

- Replacing ceramic pole-top hardware with polymer hardware
- Fiber glass cross-arms construction
- Animal guarding
- Fire retardant paint or mesh applied to wooden power poles
- Pilot program to clear brush 10 feet away from the base of poles
- Replacing wood poles with steel poles at select high risk locations
- Transmission line rebuild projects are of steel construction
- Replacing wood transmission pole inventory with all steel replacements

7.2.2 Planned Updates

Members of the Wildfire Mitigation Working Group will continue to participate in industry discussions and forums to identify emerging best practices in construction standards and system hardening. Currently, the PUD is considering covered conductor as a potential system hardening strategy for PUD distribution power lines in high-risk locations.

7.3 Fuel & Vegetation Management

7.3.1 Current Strategy Overview

Chelan County PUD's Vegetation Management Program is included with this submission.

In 2019, the PUD contracted with a vegetation management consultant with expertise in wildfire risk mitigation to evaluate Chelan County PUD's vegetation management program. As a result of the findings in the report provided by the consultant, the PUD made significant updates to the program including:

- Doubling the annual vegetation management budget to ensure at least 450 miles of distribution lines are annually inspected and pruned as needed including removing hazard trees
- Trimming entire system every 4 years
- Interim trim of entire system every 2 years targeting fast growing species and hazard trees

The updated vegetation management program, by design, has significantly reduced the PUD's wildfire risk.

7.3.2 Planned Updates

No significant updates are planned at this time.

7.4 Asset Inspections and Response

7.4.1 Current Strategy Overview

Chelan County PUD inspection practices include the following:

- Drone inspections of equipment by trained linemen for challenging locations
- LIDAR inspection on one transmission corridor with additional locations under consideration
- Annual vegetation fire inspections that include reporting on damaged power equipment
- Pole testing program
- Annual helicopter flight inspections of transmission lines
- Annual thermal scan of switchyards, substations, and selective line equipment

7.4.2 Planned Updates

No updates are planned at this time.

7.5 Workforce training

7.5.1 Current Strategy Overview

Training specific efforts:

- Annual fire extinguisher training
- Safety meeting fire safety topics on how to avoid igniting fires during elevated fire conditions including vehicle operations in dry areas
- Instruction on using water trucks, water buffalo tanks, and other water suppression devices

Work practices:

- Patrolling lines following all reclose operations on transmission and distribution system during high fire season
- Scheduling planned work away from dry areas when feasible during peak fire conditions
- When work in dry areas cannot be avoided, water trucks, water buffalo tanks and other water suppression devices are provided to crews

- Evaluate if follow-up work is needed to mitigate fire hazards following outage repairs including tree trimming or adding poles to lift wire and shorten spans
- Work is performed in compliance with Industrial Fire Precaution Levels

7.5.2 Planned Updates

The PUD's Wildfire Mitigation Working group is attempting to identify a formalized wildfire prevention training program to incorporate into our existing training. To date, these attempts have been unsuccessful and the PUD may choose to develop additional training internally.

7.6 Relay and Recloser Practices

7.6.1 Current Strategy Overview

The PUD implemented a reclosing strategy in 2021 in targeted high wildfire risk locations in Chelan County as identified through risk modeling. When fire hazard conditions are met, system operators receive alarms advising that applicable reclosers must be disabled to non-reclose settings. Some of the PUD's reclosers and relays are controlled remotely. The remaining reclosers in the targeted locations must be reset manually. The fire hazard condition thresholds were established based on recommendations from a fire risk engineering consultant. Following an outage involving disabled reclosers, a line patrol will attempt to locate a possible cause using relay targets, fault detectors, customer calls, a visual review of area, etc. prior to re-energization.

7.6.2 Planned Updates

Additional remote-controlled reclosers are planned for installation in the targeted high-risk locations. Additionally, PUD engineers are working to automate changing of protection level tiers based on real-time weather data. The PUD is also considering implementing newly developed methods by the utility industry to detect faults that are more difficult to detect using conventional means.

7.7 De-energization / Public Safety Power Shutoff

7.7.1 Current Strategy Overview

De-energization Overview

In 2020, the PUD's wildfire risk engineering consultant provided a risk assessment report for the PUD's transmission and distribution service territory. Additional information on the risk modeling methodology is covered in section 6.2. The risk assessment divided the service territory into three tiers of wildfire risk with Tier 1 powerlines calculated as the lowest risk lines and Tier 3 powerlines rated as the highest risk. The consultant recommended the PUD consider developing a de-energization program to reduce the risk that PUD powerlines ignite wildfires during peak fire conditions such as low humidity, high temperatures and extreme winds.

In 2021, the PUD designed a de-energization program that was targeted at the highest risk location in our service territory, Lake Wenatchee/Plain. This program was initially termed the "Fire Safety Outage Management Program (FSOM)" but the PUD recently added "Public Safety Power Shutoff (PSPS)" to the title to match accepted industry terminology. To manage the PSPS program, the PUD created a standard operating procedure outlining the steps required to initiate, execute and conclude PSPS events.

As part of the PUD's wildfire planning process, the working group continued to evaluate the potential effectiveness of de-energization strategies. Based on the results of the evaluation, executive leadership, including the Board of Commissioners, agreed to expand the PSPS program to include virtually all Tier 2 and Tier 3 powerlines in 2024. A communication plan was developed for customers and is further described in section 8.1. Included in the submittal is a map of the 24 PSPS zones located throughout the PUD's service territory.

PSPS Procedure

From May through October, the PUD's wildfire risk consultant provides seven days of forecasted weather data as well as a Composite De-energization Index (CDI). The PUD established CDI thresholds, as recommended by the consultant for risk reduction, that are considered during the decision on whether or not to declare PSPS events. Updated every 6 hours, the CDI incorporates forecasted fire weather conditions that predict future fire risk. The PUD created a dashboard that compiles the weather data and CDI forecasts to allow system operators and other staff to monitor and compare forecasts to exceedance thresholds. When 7-day CDI forecasts exceed the fire risk thresholds, the procedure requires the PUD to begin the preparation process in case an PSPS event is declared.

FSOM/PSPS Timeline

Initial Forecast: 5 – 7 days ahead:

- Stand up Incident Command System (ICS) team
- Monitor weather data/thresholds
- Notify emergency response and telecommunication partners

Watch: 3 – 4 days ahead:

- Hold briefings with emergency response partners
- Prepare communications
- Verify staffing for call center/dispatch/line crews
- Begin preparation for mutual aid assistance, if applicable

Warning: 2 days ahead, repeat at 24 hours

- Continue briefing emergency response partners
- Contact medical needs registry participants
- Execute communication plan to all customers and key accounts

Outage

- Continued briefings with emergency response partners
- Continued customer notifications and media releases
- Weather monitoring
- Line inspections when weather event clears

Restore

- Debrief with emergency response partners and impacted community
- Customer notifications and media advisory

The decisions to declare a PSPS event and to restore power resides with the PUD's General Manager under the advisement of the ICS team.

7.7.2 Planned Updates

Describe any changes to the de-energization strategy or program that are anticipated in the next three years. If applicable, describe what led to the change and the anticipated benefit or improvement once implemented.

Chelan County PUD will continue to refine the PSPS zones as the transmission and distribution system design allows to include additional wildland-urban interface locations. The PUD is also evaluating weather monitoring tools such as wind gauges to improve situational awareness of weather conditions.

8.0 Community Outreach and Public Awareness

8.1 Current Community Outreach and Public Awareness Program

Summary

The PUD understands the importance of two-way communication between the utility and the people it serves. Our long-term goal is to build a relationship with customers and emergency management partners that demonstrates our commitment to safely and responsibly operate the electrical grid in Chelan County.

Research

Chelan PUD relied on primary, secondary, and tertiary research to inform the communication plans regarding the utility's wildfire mitigation plan, and the rollout of FSOM/PSPS.

The PUD hosted a series of meetings with the expert working group (see section 5.2) and advisory groups, which informed the communications plan about effective communication tactics specific to each community in FSOM/PSPS zones. We also consulted with Fire Adapted Communities Learning Network, Cascadia Conservation District, Chumstick Wildfire Stewardship Coalition and other community organizations.

In 2021, The PUD staff researched industry best practices from utilities with advanced PSPS programs including PG&E, San Diego Gas and Electric and JD Power & Associates' quantitative research on effective PSPS communications strategies. The PUD also coordinated with other utilities through the Washington Public Utility District Association, Northwest Hydropower Association and Western Energy Institute. Chelan PUD continues to learn from trade partners as best practices evolve, including a visit in 2024 to observe Portland General Electric's PSPS tabletop exercise and annual participation in various utility wildfire forums.

The PUD's communication plan is also informed by empirical data on communication preferences from Chelan PUD's bi-annual customer satisfaction survey, and by qualitative research from the Wildfire Research Center on three fire-prone communities in Chelan County.

Planning

The PUD coordinated with fire districts, local fire experts and emergency management to develop and refine the PUD's wildfire mitigation plan and PSPS policy. Research indicates that these are the most credible, trusted institutions in fire-prone communities. That's why it was important to include those partnerships as a key element of the PUD's communication strategy during the initial launch of PSPS in 2021, continuing outreach in 2022 and 2023, and the county expansion of PSPS in 2024.

We presented the plan and fielded questions at public meetings and events facilitated by key community organizations, including: Fire districts and auxiliary groups, municipalities, county commissioners, Chumstick Wildfire Stewardship Coalition, North Central Accountable Communities of Health, Community for the Advancement of Family Education (Café), homeowner associations, and Firewise community meetings.

Whenever possible, Chelan PUD's communication tactics such as radio interviews, online videos or mailers, often included logos or subject matter experts from fire districts or community nonprofits.

The key messages included:

- An overview of fire risk assessments in Chelan County
- An overview of the PUD's wildfire mitigation strategies
- An overview of the PSPS program
- Emergency notification in advance of a potential PSPS event
- Wildfire safety resources to assist homeowners with wildfire readiness

Implementation:

The research demonstrated that communication preferences varied widely between communities in Chelan County. The PUD used all available tactics, including: Our website, events, community meetings (online and in person), mailers, radio, TV news, newspaper, community blogs and social media.

In 2021, The PUD prepared a [comprehensive website](#) with information about wildfire mitigation and PSPS/FSOM. We sent mailers co-branded with fire districts to all residents in the initial PSPS zones. The PUD also conducted interviews with a variety of media, including online, print, radio and television, and wrote online blogs for Lake Wenatchee Info and Fire Adapted Learning Communities Learning Network.

The PUD conducted more than a dozen virtual and in-person presentations for the public and community leaders – most were facilitated by community partners. We staffed two community events – Lake Wenatchee Safety Day and Wildfire Preparedness Day in Wenatchee. In 2022 and 2023, the PUD continued public outreach beginning in spring to remind communities within the FSOM/PSPS zones about preparedness, emergency notification and our evolving wildfire mitigation plan.

The outreach included public events, community and neighborhood meetings. We revamped the mailer to summarize wildfire mitigation efforts in an appealing, accessible infographic instead of a text-based format in an effort to increase readership and comprehension.

In 2024, the PUD conducted similar outreach activities county-wide with the expansion of FSOM/PSPS. The effort focused on more broad communication tactics, such as media outreach, all-customer mailers and emails, community events, and three community forums in fire-prone areas: Entiat, Leavenworth and the Wenatchee foothills.

Outreach will continue as a perennial communications campaign to keep our customers apprised of Chelan PUD's evolving wildfire mitigations and measures customers can take to be prepared for a potential FSOM/PSPS event.

Evaluation

Qualitatively, the PUD collected a wide variety of public feedback during its outreach efforts, which were catalogued and responded to by the PUD staff. Public reception of the outreach efforts was mixed. Many customers recognized Chelan County's fire risk and supported the PUD's proactive approach. Many customers expressed concern about the impact of PSPS events on vulnerable populations, small businesses, and water supply for irrigation and fire suppression. The PUD incorporated many of the key themes that emerged from public feedback into its 5-year wildfire mitigation plan for further research and potential implementation, including a generator rebate program, online address look-up tool and more site-specific weather data.

In an effort to obtain more quantitative data, the PUD coordinated with Cascadia Conservation District to include questions about PSPS policies in a series of three quantitative surveys conducted by Wildfire Research Center (WiRe) in the Stemilt Basin, Chumstick Corridor (Leavenworth) and Lake Wenatchee. The survey was conducted in 2022, and the results were released in 2023.

In Lake Wenatchee and Leavenworth, where Chelan PUD had conducted significant public outreach about wildfire mitigation, 67-72% of the survey participants said that the approach of temporarily shutting off the power grid during extreme fire risk days was "moderately acceptable" to "extremely acceptable." In Stemilt Basin, the Chelan PUD had not yet conducted public outreach, 36% of survey participants considered temporary power shut-offs "moderately acceptable" to "extremely acceptable."

In 2024, the PUD customer satisfaction survey included two new questions to quantify customer opinions on wildfire risk and their level of preparedness for a potential PSPS event. About 72% considered the wildfire risk in Chelan County to be "somewhat high" or "high". About 59% of customers said they were "moderately prepared" to "extremely prepared" for a temporary shutoff.

The PUD will continue to evaluate public awareness and preparedness using a variety of measures as a guide for improving ongoing communication efforts year after year.

8.2 Planned Updates

The PUD will continue the development of communication plans to further inform the public on wildfire mitigation efforts, wildfire safety and the PSPS program. The Wildfire Program Manager position duties include expanding PUD outreach and communication efforts.

9.0 Restoration of Service

Once the PUD is satisfied that fire weather conditions have returned to safe levels below the PSPS thresholds, PUD linemen will be directed to inspect all power lines, including service lines, before power is restored. During inspections, linemen will look for any conditions that could prevent safe re-energization including:

- Vegetation or other debris contacting lines
- Damaged vegetation or structures that threaten lines
- Damage to lines or transmission and distribution equipment in general

Depending upon the scope of the PSPS event, the PUD may request assistance with inspections and/or damage repairs from other regional utilities under existing mutual aid agreements. Priority for power restoration of power will be given on circuits with the most customers or with customers providing important services to the community including emergency services.

10.0 Evaluating the Plan

10.1 Metrics and Assumptions for Measuring Plan Performance

The PUD monitors the evaluation and implementation of wildfire mitigations during the planning process covered in section 6.2 that includes bi-annual updates to executive leadership. Once implemented, wildfire mitigation performance is monitored by the business units that manage the mitigation projects. The PUD recognizes that additional monitoring capability is warranted and the Wildfire Program Manager position will be tasked with identifying metrics that verify the program's effectiveness.

Metrics currently being used by business units to monitor wildfire mitigations include:

- Tracking downed power lines caused by asset failures
- Recording and investigating animal involved outages
- Reliability metrics in locations impacted by disabled reclosers
- Compliance metrics associated with the PUD's vegetation management program
- Monitoring mileage of replaced copper wire
- Verifying contractor compliance with pole testing program
- Monitoring contractor performance for undergrounding and steel pole replacement projects

10.2 Identifying and Addressing Areas of Continued Improvement in the Plan

Animal Guarding

Locations of animal involved outages are recorded and assessed. Additional animal guards are targeted in areas where outage trending occurs.

Pole Testing Program

Distribution engineers strive to continuously improve the PUD's pole testing program and have achieved a rejection rate of well under 1% of inspected poles. Recent improvements to the program include:

- Testing non-owned poles when PUD equipment is attached
- Requesting contractor recommendations identifying poles that would benefit from fire mesh wrapping

10.3 Monitoring the Performance of Inspections

Vegetation Management

The PUD's Utility Foresters inspect/inventory all tree work, notify landowners and develop work plans to issue to contracted vegetation tree crews. Completed work from contacted tree services are audited for contract specification compliance.

Pole Testing Program

Distribution engineers verify the accuracy of contractor pole testing reports by assigning PUD crews to inspect and repair/replace poles when warranted.