2024 WILDFIRE MITIGATION PLAN

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1 Executive Summary

Unusually large wildfires are on the rise in the Pacific Northwest. Although naturally occurring wildfire is necessary for healthy forests and ecosystems, Washington State has seen an increase in acres burned as well as a lengthening of the fire seasons. In the western U.S. region encompassing the Pacific Northwest, the annual probability of very large fires is projected to increase by a factor of four from 2041 to 2070 compared to 1971 to 2000 data[1]. As a result of this growing risk, legislation was enacted requiring utilities to put practices in place aimed at reducing the risk of wildland fire, damage, and losses resulting from those fires through the development of Wildfire Mitigation Plans (HB-1032). In April 2024, the Department of Natural Resources (DNR) published a template and list of recommended elements for electric utility Wildfire Mitigation Plans (WMP). This plan shall adhere to those guidelines and will be revised every three years going forward.

Public Utility District No. 1 of Okanogan County (OKPUD, PUD, or the District) believes the proactive development of a thorough WMP prior to the approaching mandate is a prudent and responsible effort to prepare for increased wildfire conditions in Okanogan County. For OKPUD, which aims to protect public safety and preserve the reliable delivery of electricity, wildfire mitigation is a top priority. While an electric utility can never fully eliminate the risk of fire, OKPUD is committed to taking practical actions to reduce the devastation that a wildfire could bring to the people and communities we serve. This Wildfire Mitigation Plan lays out the steps we are taking to do so.

[1] Northwest Climate Adaptation Science Center

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Table 1. Version Tracker

Date	Version	Author	Revision Description
Oct. 2024	V0	BKI	Original document adopted and submitted in 2024

2 Wildfire Mitigation Plan Overview

2.1 Purpose of the Wildfire Mitigation Plan

Reducing the risk of utility-caused wildfire plays an essential role in OKPUD's operational practices. Its existing policies, programs, and procedures, as well as the incorporation of emerging technologies, are intended to directly or indirectly manage or reduce the risk of its utility infrastructure becoming the origin or contributing factor for wildfire.

OKPUD believes the strategies and activities described in this WMP, with associated goals and metrics, are a practical approach to reducing fire-related risk for the PUD's customers in the near term and will allow for refinement and improvement over time. As the PUD gains experience implementing the WMP's mitigation programs and new information emerges, the PUD will assess, evaluate, enhance, and refine its practices.

The WMP describes vegetation management, asset inspection and maintenance, recloser setting protocols, restoration of service processes, and community outreach efforts. Additionally, it spells out plan ownership, performance metrics, deficiency identification, and the plan's audit and approval process. It also addresses the unique features of OKPUD's service area, such as topography, weather, infrastructure, grid configuration, and potential wildfire risks. While OKPUD's Board of Commissioners provides supervision over the plan, its implementation primarily resides with Operations Manager (OM) and Chief Engineer (CE), but it is the General Manager (GM) who is ultimately responsible.

2.2 Description of Where the WMP Can Be Found Online

The OKPUD WMP will be available through the PUD website at the following link: https://www.okanoganpud.org/.

2.3 Best Practices Cross-reference Table

Table 2. Best Practices Cross-reference Table

Standard or Best Practice Name and Description	Section & Page Number
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	
RCW 64.12.035 Cutting or removing vegetation—Electric utility—Liability—Definitions.	Sec. 7.3.1. pp. 23 Sec. 7.3.2. pp. 23
• OHSA 1910.269: Qualified electrical workers • ANSI Z133.1 (2000): Safety requirements	7.3.2, page 23
(ANSI) A300 Part 1: Tree, Shrub, and Other Woody Plant Maintenance.	7.3.2, page 23
RT-130 Wildland Fire Training	7.1.1, page 24

3 Utility Overview

Table 3. Utility Context Setting Information

General Utility Information	
Service Territory Size (sq miles)	2,693
Service Territory Make-up [ ]% Urban [ ]% Agriculture [ ]% Barren/Other [ ]% Conifer Forest [ ]% Conifer Woodland [ ]% Desert	[ ]% Hardwood Forest [ ]% Hardwood Woodland [ ]% Herbaceous [ ]% Shrub [ ]% Water [X] NA / Not tracked (see section 3.2)
Service Territory Wildland Urban Interface	2.11% Wildland Urban Interface 2.54% Wildland Urban Intermix
Consumers Served	22,000 meters
Account Demographic *[provide as % of total customers served]*	[51]% Residential [10]% Agricultural [39]% Commercial/Industrial [] NA / Not tracked
Utility Equipment Make-up *Calculated using GIS data*	Overhead Distribution: 1,384 Overhead Transmission: 131 Underground Distribution:506 Underground Transmission:0 Substations: 17
Have customers ever been notified of a potential loss of service due to a forecasted utility de-energization event?	Yes: [ ] No: [X]
Has the utility developed protocols to pre-emptively shut off electricity in response to elevated wildfire risks?	Yes: [ ] No: [X]
Has the utility previously implemented a PSPS in response to elevated wildfire risk?	Yes: [ ] No: [X]

3.1 Utility Description and Context Setting

Founded in 1936, OKPUD serves approximately 22,000 residential, commercial, and agricultural and industrial customers in approximately half of Okanogan County. The electric system comprises roughly 1,384 miles of overhead and 506 miles of underground distribution lines and located primarily along the many river valleys and creeks of east county. A transmission system is also owned consisting of about 131 miles of 115kV line and 17 substations. Additionally, wholesale, cost-based broadband service is offered to retail providers, who then supply it to the residents and businesses of Okanogan County. This system also supports the District's communication and SCADA needs.

The main office is located in the city of Okanogan, with additional offices in the towns of Oroville, Tonasket, and Brewster.

The primary power sources are hydro and wind. The district currently receives 10% of the output from the Wells Hydro Project, 16% from the Nine Canyon Wind Farm, and is a BPA block customer. Additional power is provided by Douglas PUD, and Energy NW. The District is exploring additional power sources to address future demand growth and comply with I-937 (Energy Independence Act) and the Clean Energy Transformation Act.

3.2 The Service Area

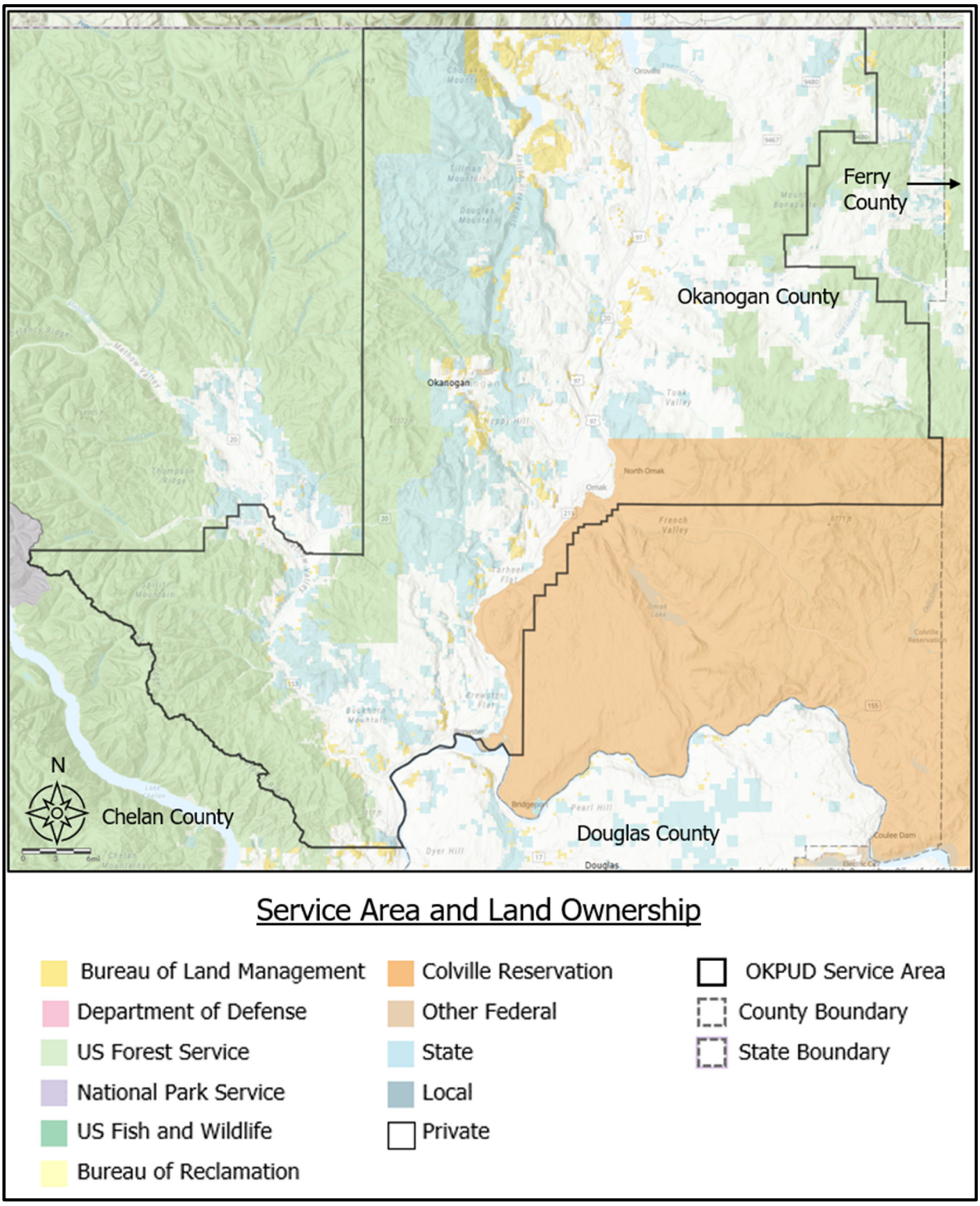
The 2,693 square mile service territory (Figure 1) spans ~73 miles north to south and ~80 miles east to west. Roughly 46% of Okanogan County is owned and managed by federal agencies; only 30% of the land is in private ownership. Federal lands are primarily managed by the US Forest Service and the Bureau of Land Management. The Confederated Tribes of the Colville Reservation occupies about 1,054 square miles, or 20% of the county.

Elevation ranges from ~1000 feet to ~4,000 feet above sea level. Located on the drier side of east of the Cascade Range, geography consists of forested highlands, shrub and grass-covered rolling hills, and river valleys dominated by irrigated farmlands. Vegetation is a mix of forestland and agricultural ecosystems. The primary natural vegetative cover types are Douglas-fir, herbaceous, shrub, subalpine forest mix, ponderosa pine, and lodgepole pine. Many rivers and creeks crisscross the landscape with the major body of water being the Okanogan River running north to south from Canada to the Columbia river.

During the summers, the plains experience sunny, warm, and dry weather with some hot days. In the lower elevations, extreme highs may reach 100°F or more for 4 to 5 months, while in higher elevations, temperatures above 90°F are common for a few months.

Precipitation is generally light in the summer and heaviest in the winter. Valleys and lowlands receive an average of 10 to 14 inches of precipitation, while in the mountains, precipitation increases with elevation. Higher ridges can expect 25 to 30 inches per year, with the majority occurring as snow.

Figure 1. OKPUD Service Territory and Land Ownership



4 Objectives of the Wildfire Mitigation Plan

The WMP's main objective is to implement an actionable plan to:

- Create increased reliability and safety
- Prevent, mitigate, respond/assist, and recover from wildfires
- Comply with the National Electric Safety Code (NESC) regulations and guidelines
- Comply 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
- Reduce liability
- Continually improve the plan

4.1 Minimizing Sources of Ignition

The proposed wildfire mitigation strategies can be categorized into five main mechanisms that align with OKPUD's best practices. Together, the five components create a comprehensive wildfire preparedness and response plan with a principal focus on stringent construction standards, fire mitigation through system design, proactive operations and maintenance programs, and specialized procedures and staff training.

- **Design & Construction:** OKPUD's design and construction consists of system, equipment, infrastructure design and technical upgrades. These practices aim to improve system hardening to prevent contact between infrastructure and fuel sources to minimize the risk of OKPUD's systems becoming a source of ignition.
- **Inspection & Maintenance:** OKPUD's inspection and maintenance strategies consist of diagnostic activities as well as various methods of maintaining and ensuring all equipment and infrastructure is in proper working condition.
- **Operational Practices:** Comprised of proactive day-to-day actions taken to mitigate wildfire risks and to ensure preparedness in high-risk situations, such as dry and windy climatological conditions.
- **Situational & Conditional Awareness:** This component consists of methods to improve system visualization and awareness of environmental conditions. The practices in this category aim to provide tools to improve the other components of the plan.
- **Response & Recovery:** This strategy consists of OKPUD's procedures in response to wildfire, de-energization, and other emergency events. This component aims to formalize protocols for these situations for thorough and efficient communications, emergency response and recovery.

4.2 Resiliency of the Electric Grid

Considering that approximately 75% of the utility's assets are overhead, wood pole construction located across a dry and fire prone landscape, OKPUD's distribution grid is very susceptible to wildfire.

The electric grid is quite expansive with vast distances and indirect routes for utility crews to travel in response to outages. During or immediately after a wildfire, restoration and recovery time is highly dependent on wildfire response agency's ability to contain and extinguish any fires. The forested areas, without active forest management, tend to grow thick with heavy underbrush making navigation difficult.

The local distribution grid is radial with some open looped circuits, with no micro-grids. Some of the transmission system is looped. Segments that experience wildfire-related outages at circuit extremities would remain de-energized until the feeders can be repaired or, where possible, manually switched to an alternate feed.

5 Roles and Responsibilities

5.1 Utility Roles and Responsibilities

The Board of Commissioners makes policy decisions for OKPUD and will be responsible for approving the Wildfire Mitigation Plan. Staff responsibility for plan implementation and general communications is described below.

- The **General Manager (GM)** directs management staff responsible for operations, engineering, and information technology.
- The **Operations Manager (OM) and Chief Engineer (CE)** are responsible for the implementation of the WMP in general. Staff will be directed as to their roles and responsibilities.
- The **OM** and **CE** are responsible for monitoring and auditing the metrics specified in the WMP to confirm that the objectives of the WMP are met.
- All communications are reviewed by the **OM** and **CE** before distribution, and by any other staff members contributing information to the communication.
- The **OM** and **CE** communicates with key accounts.
- The **OM** and **CE** determines when and how to notify outside agencies in cases of wildfire emergency events.
- The **Public Information Officer (PIO)** responds to the news media and the general public.
- The **OM** and **PIO** communicates with first responders, health agencies, and communication providers.
- The **Right-of-Way Superintendent (ROWS)** is responsible for oversight of the in-house and contracted VM operations and inspections.
- The **CE** is responsible for oversight of the electric system's design.

5.2 Coordination with Local Utility and Infrastructure Providers

OKPUD will alert local utility staff to ensure advanced warning prior to planned outages that would impact their operations. Regular updates will be provided via phone or email during the restoration process.

5.3 Coordination with Local Tribal Entities

OKPUD may coordinate with the Confederated Tribes of the Colville Reservation (CCT) Public Safety Department in the event of a PUD-related wildfire impacting the reservation or adjacent lands. The CCT has limited wildland fire response personnel and equipment. Wildland fire fighting within the reservation is the primary responsibility of the BIA Fire program at Mt. Tolman.

5.4 Emergency Management/ Incident Response Organization

During active emergencies, OKPUD coordinates and collaborates with our local emergency response agencies as well as other relevant local and state agencies, as a peer partner. A small-scale emergency requires less resources and coordination than a large-scale event. Therefore, a two-tiered approach to emergency management interaction is sensible.

During small-scale events OKPUD's dispatch personnel will coordinate with Incident Command as needed to protect OKPUD assets. This coordination will be maintained until Emergency Managers declare the emergency over.

When large scale emergencies require County emergency managers to stand up their emergency operations center (EOC), it means that many diverse resources are needed. During such events, OKPUD's System Operator will contact the local EOC and establish themself as the duty officer for coordination. The SC will work with emergency management staff to ensure OKPUD is contributing the necessary resources to the areas needed. Depending on the circumstances this coordination may be via phone, email, or in person. OKPUD's primary coordination point is Okanogan County DEM.

5.5 Customer Communication

For scheduled planned outages, OKPUD provides as much notice as possible. OKPUD currently notifies customers impacted by Planned Outages through NISC's Multi-Channel Messenger during large unplanned outages, information is distributed by the PIO. Depending on how many customers will be affected by the outage, customers may also receive advance notification via the Okanogan County Office of Emergency Management.

6 Wildfire Risks

6.1 Risk Drivers Associated with Design, Construction, Operation, and Maintenance

Wildfire risks related to the design, construction, and operation of utility equipment and facilities are influenced by several factors, including the age of equipment, difficult rural service territory access, budgetary issues, and the expansion of service territory into wildland-urban interface (WUI) areas.

Assets in remote areas with difficult terrain are more challenging to access, monitor, and maintain. In rural service territories, poor access can also delay fire crew response times, allowing fires to spread rapidly. Sparse populations mean fewer people are available to report issues or fires, reducing the likelihood of early detection and increasing the risk of large, uncontrolled fires.

The continued extension of service territory into WUI areas increases human activity, raising the potential for fires to start from construction, vehicle accidents, debris burning, and other activities. These areas often have significant vegetation, providing ample fuel for fires ignited by utility equipment. Urban expansion requires utilities to extend services into vegetated and fire-prone areas, necessitating careful planning to balance service needs with fire safety and environmental concerns.

6.2 Risk Drivers Associated with Topographic and Climatological Factors

Wildfire risks in Okanogan County are highly influenced by both topographic and climatological factors. The region's unique geography and climate contribute to a very high fire risk, with several specific drivers increasing the likelihood and severity of wildfires.

One of the primary climatological drivers of wildfire risk in Okanogan County is the frequent drought conditions. The lack of moisture reduces the natural barriers that can slow fire progression, making the landscape more susceptible to large-scale outbreaks with rapid spread potential.

The diversity of vegetation across the county further complicates wildfire risks. The county's landscape includes a variety of terrain, from shrub-steppe valleys to timbered highlands, each presenting unique challenges and risks for wildfire management. In the valley bottoms, the presence of light, flashy fuels, such as grasses and shrubs, can lead to fast-moving surface fires. These types of fuels ignite easily and burn quickly, often acting as a catalyst for larger fires by spreading flames to more substantial, harder-to-burn fuels. In contrast, higher elevations with timbered lands can support crown fires, which burn the canopy of trees and are difficult to control. The accumulation of dead wood and forest debris combined with dense tree cover creates a highly combustible environment that can sustain intense and long-lasting wildfires.

Climatologically, the county is prone to summer wind events that can rapidly expand the size and intensity of new fires by carrying embers over long distances and igniting spot fires well ahead of the main fire front. These conditions can overwhelm firefighting efforts and increase the difficulty of containment. Wind-driven fires are particularly dangerous because they can change direction suddenly and spread across vast areas.

The varied topography of Okanogan County adds to the complexity of managing wildfire risks with its steep hills and valleys, can influence fire behavior by funneling winds and creating microclimates that affect fire intensity and spread. Additionally, there are a number of areas that do not allow automated vehicle location, radio, cell, or satellite phone communications.

6.3 Enterprise-wide Safety Risks

All utilities face enterprise-wide safety risks that are specific to the organization and region. For OKPUD, some risk areas may include:

- Operational
    - Due to the remote areas we serve, response time can be a factor
    - Limited communications (radio, cell phone or satellite) due to topography
- Procedural
    - Effective processes to maintain vegetation encroachment or perceive when action is needed
    - Effective processes for distribution and transmission line inspections
- System Sensitivities
    - Line contact from objects.

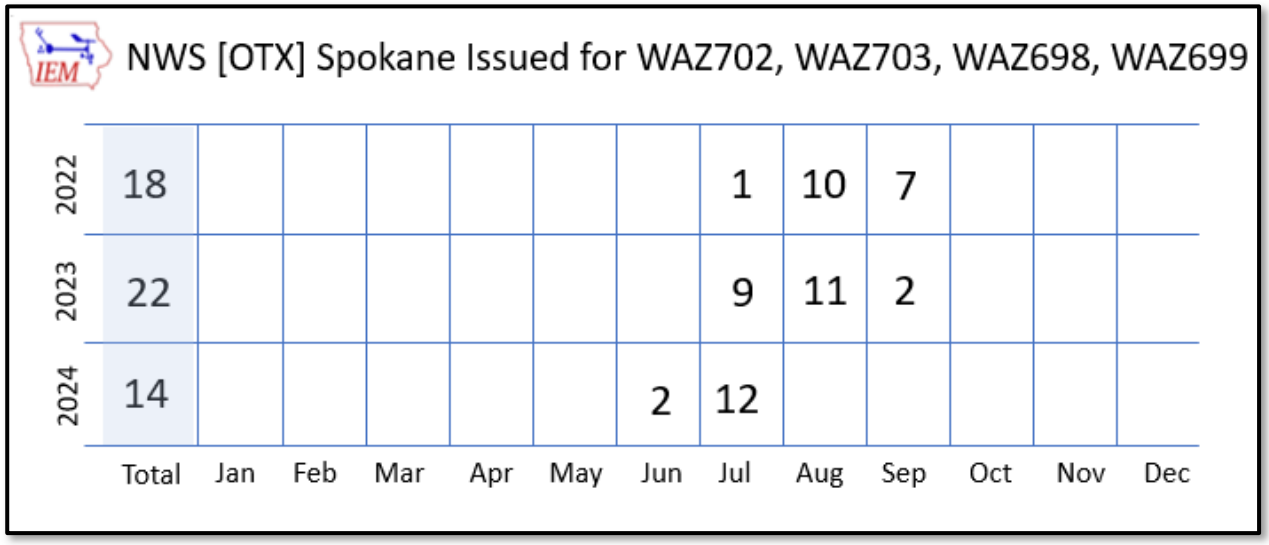
6.4 Wildfire History and Outlook

While wildfires occur in all regions of the state, Washington's largest wildfires occur on the drier east side of the Cascade Range due to hot, dry and windy conditions. The 2014 lightning-caused Carlton Complex fire in Okanogan County is still the state's largest wildfire to date. As shown in Figure 3, large-scale wildfires occur regularly throughout the service area and adjacent counties.

Generally speaking, fire season in Washington lasts from April through the end of October, but wildland fires have occurred in every month of the year. Fire seasons from 2003 through 2012 averaged more than 84 days longer than in 1973 to 1982[2]. According to NIFC data, the total number of fires and total number of acres burned are trending upward with a significant increase in the number of acres burned since 2000. The largest fire years coincide with warm spring and summer temperatures, and early spring snowmelt. Annual large wildfire frequency in US Forest Service (USFS), National Park Service and Bureau of Indian Affairs (BIA) forests is significantly correlated with spring and summer temperature. Projected warmer and drier summers and declining snowpack and correlated decreases in summer soil moisture will increase the risk of wildfires, particularly in forested areas where fuels are abundant[3].

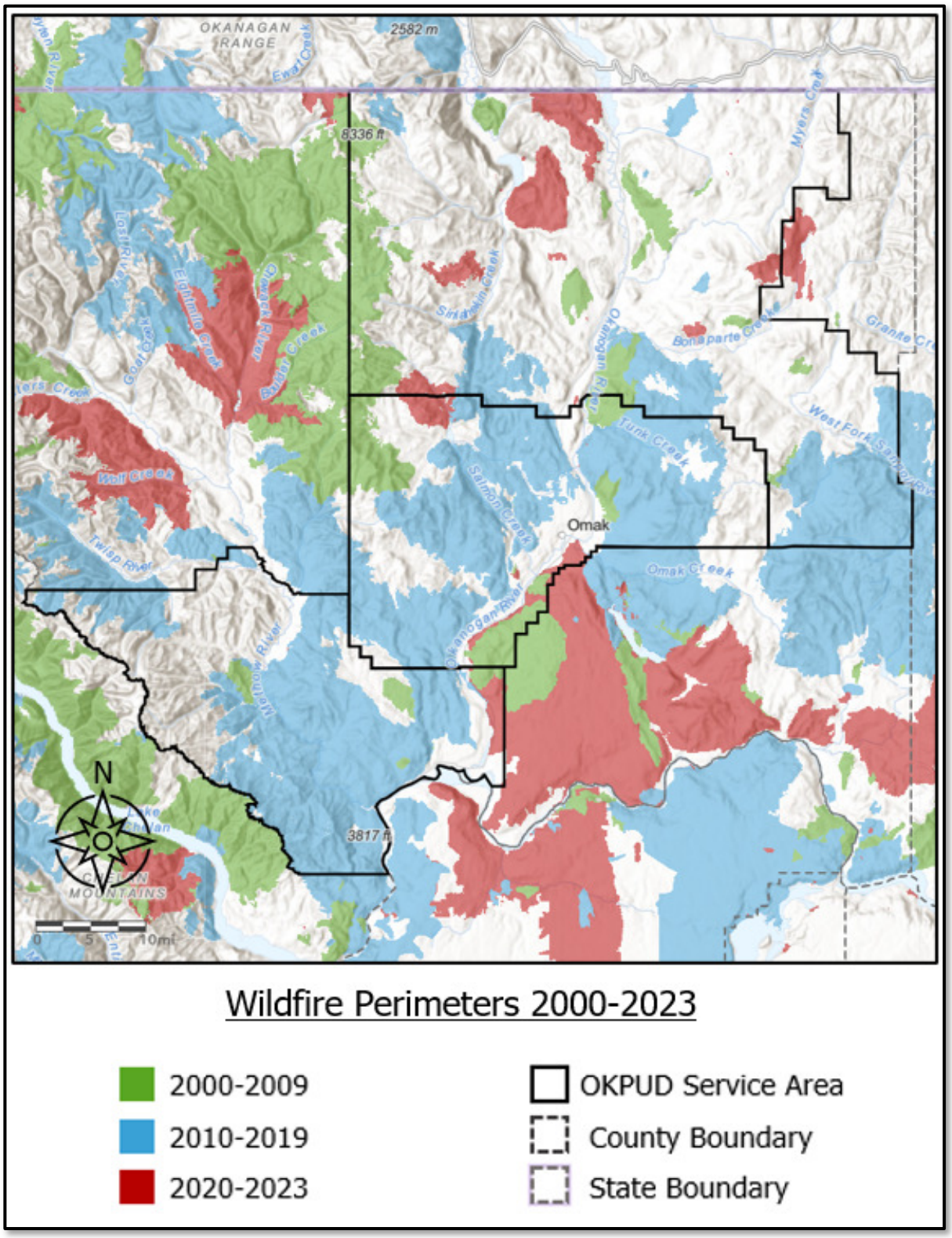
Figure 2 illustrates the Red Flag Warning data from 2022 through 2024 for the four fire weather zones in proximity to the service area. All RFWs in these zones have occurred between June and September for the past 3 years.

Figure 2. Red Flag Warning by Year & Month (2022-2024)



[2] Westerling, A.L. 2016 Increasing Western US Forest Wildfire Activity; https://royalsocietypublishing.org/doi/10.1098/rstb.2015.0178
[3] RMJOC 2018; Gergel et al 2017

Figure 3. Wildfire Perimeters 2000-2021



6.4.1 Wildfire Hazard Potential

The Wildfire Hazard Potential (WHP) map (Figure 4) used in this plan is a raster geospatial dataset produced by the USDA Forest Service, Fire Modeling Institute (FMI). It is intended to inform evaluations of wildfire risk or prioritization of fuels management needs across large landscapes. The specific objective of the WHP map is to depict the relative potential for wildfire that would be difficult for suppression resources to contain.

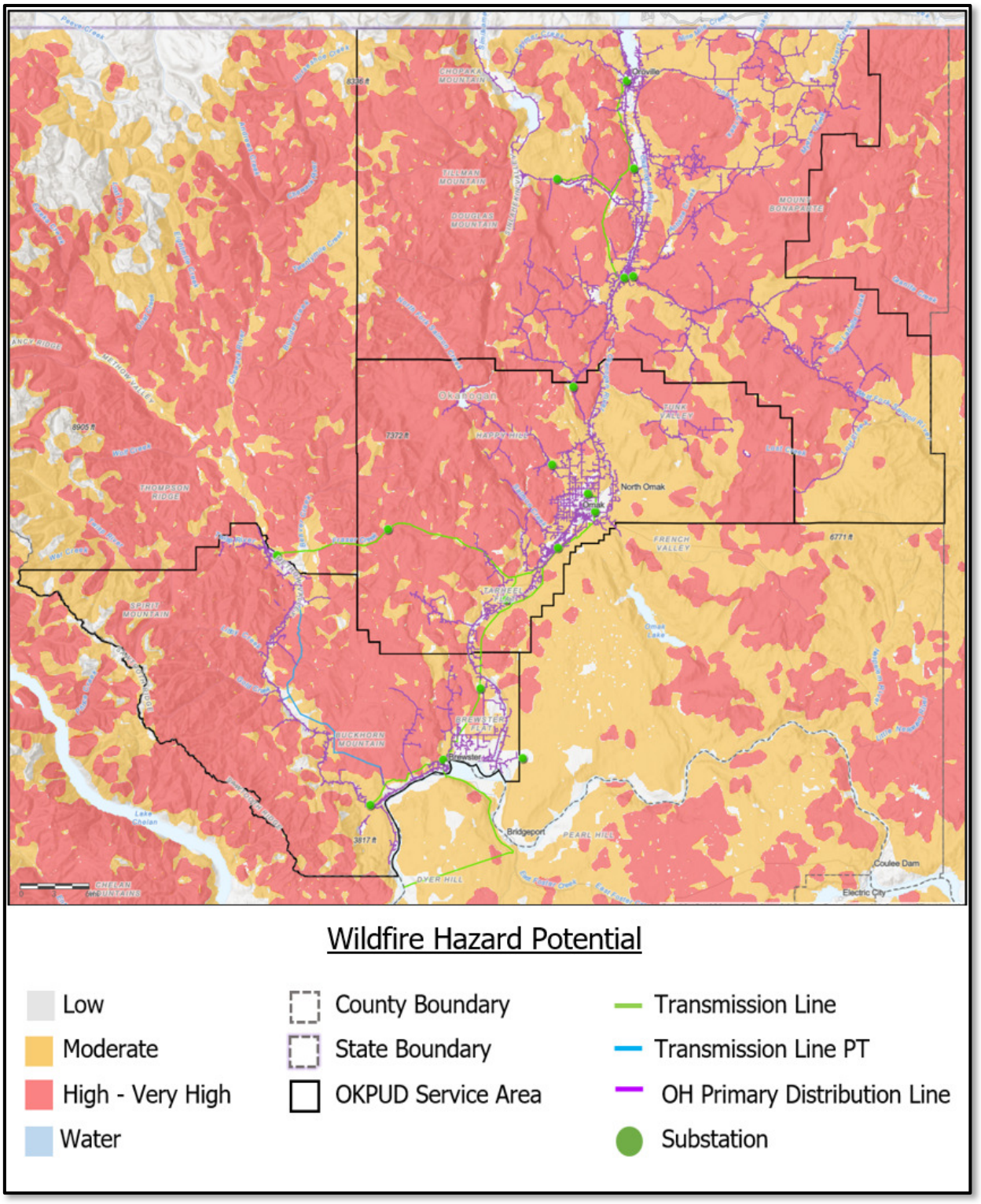
The WHP-2023 dataset was built upon:

- Spatial vegetation and wildland fuels data from *LANDFIRE 2020* (version 1.4.0). The *LANDFIRE* Fire Behavior Fuel Models layer is a primary input to the FSim Burn Probability (BP) and Fire Intensity Level (FIL) datasets and forms the foundation for WHP.
- Spatial datasets of wildfire likelihood and intensity were generated for the conterminous U.S. with the *Large Fire Simulator* (FSim). FSim simulates the growth and behavior of hundreds of thousands of fire events for risk analysis across large land areas using geospatial data on historical fire occurrence, weather, terrain, and fuel conditions. Effects of large-fire suppression on fire duration and size are also simulated. This research aims to develop a practical method of quantifying geospatial wildfire impacts, including annual probabilities of burning and fireline intensity distributions at any point on the landscape.
- Point locations of past fire occurrence from 1992 through 2020

Areas mapped with higher WHP values represent fuels with a higher probability of experiencing torching, crowning, and other extreme fire behavior under conducive weather conditions. An essential aspect of the WHP method is the use of "resistance to control weights" at the end of the mapping process. This serves to reduce the WHP index in areas with light fuels, such as grass and shrubs. This helps to inform where forest fuel reduction treatments might be most needed.

On its own, WHP is not an explicit map of wildfire threat or risk, but when paired with spatial data depicting highly valued resources and assets such as communities, structures, or powerlines, it can approximate relative wildfire risk to those resources and assets. WHP is not a forecast or wildfire outlook for any particular season as it does not include any information on current or forecasted weather or fuel moisture conditions.

Figure 4. Wildfire Hazard Potential



7 Wildfire Preventative Strategies

Table 4 summarizes OKPUD's five mitigation components with associated programs and activities that support OKPUD's ongoing commitment to wildfire prevention and mitigation. Not all construction standards, such as underground lines, are employed solely for wildfire mitigation, or installed in all areas of the service territory.

Within these sections you will find specific information regarding current prevention strategies, lessons learned from the prevention activities, and considerations for the future state.

Table 4. Mitigation Programs and Activities

DESIGN AND CONSTRUCTION
Underground distribution lines where practical
Substation perimeter fencing for security and protection
Polymer crossarms
Animal guards on new transformer installations
Avian protection operations manual
Fire-resistant mesh wrap on transmission poles in high-risk areas
Elevated nesting platforms
Steel pole construction in select areas
Covered Jumpers and animal guards on new construction
Vise-top polymer insulators
Electronic reclosers
INSPECTION AND MAINTENANCE
Infrared inspections of substations and large transformers
Substation inspections
Distribution system right-of-way (ROW) maintenance
Transmission ROW Clearing
Vegetation management program
Mid-cycle vegetation trimming
Wood pole intrusive inspection and testing
Brush Clearing around structures
Substation Weed control plan
OPERATIONAL PRACTICES
Community outreach/Controlling incompatible vegetation
Hazard tree removal
Fire suppression equipment on service vehicles
Slip tank trucks used for ignition prevention and support on active fires

Table 4. Mitigation Programs and Activities (continued)

SITUATIONAL AWARENESS
Weather Monitoring (USFS-WFAS, NWS)
Industrial Fire Protection Level (IFPL) monitoring
RESPONSE AND RECOVERY
Outage response communications
Coordination with local first responders
Line patrols prior to re-energization
Regular communication with Washington Dept. of Natural Resources & USFS

7.1 Weather Monitoring

7.1.1 Current Strategy Overview

Situational assessment is the process by which current operating conditions are determined. Situational Awareness (SA) is the understanding of the working environment, which creates a foundation for successful decision making and the ability to predict how it might change due to various factors.

OKPUD uses various situational awareness resources to monitor evolving fire weather, fuel, and other climatological conditions that may lead to fire events. OKPUD may evaluate information such as Industrial Fire Protection Levels, real-time field observations, GIS data, asset maintenance reports, ongoing wildfire reporting and other resources. Management staff may also attend local NOAA weather briefings to remain fully informed on upcoming forecast risks. Based on available information, OKPUD appropriately prepares for fire weather conditions as needed.

- **The National Weather Service (NWS):** The NWS provide on-line predictive fire weather forecasting tools in the form of a current fire-weather outlook, 2-day, and a 3-8 day outlook. (https://www.spc.noaa.gov/products/fire_wx/)
- **NOAA Weather and Hazards Data Viewer:** This on-line map provides historic or real-time surface observations including wind speed and direction, wind gust, dew point, relative humidity, and sea level pressure collected from remote automated weather stations (RAWS). Extreme-weather alerts such as fire weather watch, high wind watch, and red flag warning are provided from this resource. (https://www.wrh.noaa.gov/map/?wfo=psr)
- **Industrial Fire Level Precaution Levels (IFPL):** Fire season requirements become effective when fire season is declared in each Washington DNR Protection District. (https://www.dnr.wa.gov/ifpl)

7.1.2 Industrial Fire Precaution Levels

When conditions of fire hazard exist each summer, Washington Department of Natural Resources, United States Forest Service, or the Bureau of Land Management declare fire season to be in effect. Title 36 of CFR 261.50(a) gives each Forest Supervisor the authority to issue orders which close or restrict use of the area over which he/she has jurisdiction. As conditions warrant, the forester will issue an Industrial Fire Precaution Level[4] (IFPL) at one of four levels. The declaration of fire season affects utility and other commercial operations and as well as recreational activities by the public. Fire season remains in effect until terminated by each Agency or by reducing the IFPL until conditions for fire hazard no longer exist. OKPUD operates within lands managed by the US Forest Service (USFS) and Bureau of Land Management (BLM). To maintain safety during maintenance and VM work, the Operations Department monitor IFPL levels regularly (during fire season) and directs staff and VM crews to take the necessary precautions and deploy available fire suppression equipment to job sites.

7.2 Fire Response Equipment

OKPUD equip field vehicles with 5-gallon water packs, fire extinguishers and equipment required by IFPL rules for operating on state and federal lands during seasonal restrictions. The District has also recently acquired a 2300-gallon tanker for pre-watering work sites during fire season. Two additional seasonally-mounted slip tanks on flatbed trucks provide T6 level water capacity for ignition prevention on work sites.

7.3 Design and Construction Standards

7.3.1 Current Strategy Overview

This WMP integrates and interfaces with OKPUD's existing operations plans, asset management, and engineering principles, which are themselves subject to change. Future iterations of the WMP will reflect any changes to these strategies and will incorporate new best management practices as they are developed and adopted.

Part of OKPUD's preventative strategy is to update and leverage their design and construction standards to help mitigate wildfire risks. This is being done currently using fire-averse equipment and material when possible along with new recloser technologies.

7.3.1.1 Overhead vs Underground Conductor

The benefits of overhead conductor is that it is much less costly and much easier to troubleshoot following an outage event, making restoration times shorter compared to underground construction. The downside to overhead conductor is its susceptibility to contact from foreign objects such as wildlife, vegetation, and equipment.

[4] https://fortress.wa.gov/dnr/protection/ifpl/

The undergrounding of distribution lines improves reliability in high wind events and functions as an effective mitigation against wildfire. Most new residential subdivision developments are built using UG construction. OKPUD has approximately 506 miles of UG distribution line on its network. While there are many benefits to UG infrastructure, UG lines don't prevent all outages, and can have their own unique maintenance problems. In rural areas, underground service may be unaffordable, as it requires longer stretches of line per customer and can cost from 4 to 14 times more to install than overhead conductor[5].

7.3.1.2 Fire Retardant Pole Wrap

OKPUD is transitioning away from painted protective coatings to a fiberglass-core, fireproof mesh wrap on select transmission poles in high-risk areas. The goal is to improve the resilience of the grid and prevent outages due to range fires that are common in the service area. This material, when affixed to wooden poles, activates within 20 seconds when in contact with wildfire, withstands temperatures up to 2,100°F, and prevents burning, strength loss, and pole failure.

7.3.1.3 Planned Updates

OKPUD will continue to implement fire safety into their design and construction practices. Planned updates include installing avian protection equipment on transformers, reclosers, and dead ends to prevent nesting and birds contacting energized equipment. In the future, new electronic reclosers will incorporate SEL ArcSense and high impedance fault detection (HIF) software as this becomes feasible. OKPUD is also transitioning to metal poles on transmission lines and in selected distribution areas, along with adopting fiberglass arms as the new construction standard, represents a significant upgrade. The use of vise-top polymer insulators and insulating at 25kV are also part of the improvements. To further enhance efficiency, the purchase of a smaller single-axle water truck is being considered for pre-watering work areas in fire-prone regions during fire season.

7.1 Fuel and Vegetation Management

When work is well planned and completed, the overall impact on the desirable vegetation on the ROW is reduced, and the neighboring landowners, the motoring public, and the wildlife that uses the ROW for nesting and foraging will benefit. With a prescriptive and balanced approach to VM, OKPUD can focus more of its energy and resources on preparing for future weather events, improving the reliability of the grid, and controlling maintenance costs.

7.1.1 Current Strategy Overview

Trees that grow within or adjacent to powerline right-of-ways (ROWs) are a common cause of outages and damage to facilities, as well as a potential cause for wildfire.

[5] https://www.power-grid.com/td/underground-vs-overhead-power-line-installation-cost-comparison/#gref
https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/infrastructure/electric-reliability/undergrounding-program-description#Perspective

OKPUD maintains over 1,500 miles of overhead T&D ROW to minimize interruptions of services and to provide a safe and reliable supply of electricity to its customers. This includes not only the maintenance of hardware, conductors, and poles but trees and other vegetation that threatens to fall onto or grow into the electrical conductors. To this end, OKPUD has developed a VM program intended to maintain safe and reliable electric facilities, provide safety for the public and for utility workers, and fire mitigation throughout the service area.

Planning considers seasonal and climate considerations. For instance, winter conditions at higher elevations can make it challenging or unsafe to carry out trimming activities due to snow, ice, and cold temperatures. Consequently, crews might limit their work in these areas during winter and instead focus on other zones. In the summer, the Industrial Fire Precaution Levels (IFPL) system imposes restrictions on activities that could ignite fires, particularly in forested or grassland areas. Depending on the fire risk, activities such as using power tools might be restricted during certain times.

Schedules are based around seasonal limitations to optimize efficiency. This involves assessing which areas require immediate attention based on vegetation growth, fire risk, and community needs, and then allocating resources accordingly.

7.1.2 Trimming Standards

OKPUD is authorized by RCW 64.12.035 to trim or remove any tree or vegetation that poses an imminent hazard to the general public or is a potential threat that could damage electric facilities. Trees are trimmed or removed for safety, reliability, board policies, and compliance with the National Electric Safety Code (NESC).

OKPUD's tree trimming contractors are governed by principles of modern arboriculture using the following standards:

- American National Standards Institute (ANSI) A300 Part 1 concepts and utility directional pruning
- Standard for Arboricultural Operations – Safety Requirements (ANSI Z133-2017)
- OSHA 29 CFR Parts 1910.269

7.1.3 Trimming Schedule

Cycle trimming is the cornerstone of the vegetation management program. Under this concept all system electrical distribution lines are assigned a schedule for tree trimming and/or removal. OKPUD contracted crews are responsible for trimming trees and vegetation to obtain the minimum required clearance with due regard to current and future tree health and symmetry.

To accomplish this, OKPUD contracts full-time tree trimming crews for year-round vegetation management work on a 3-year pruning cycle. Areas with fast-growing species are typically trimmed mid-cycle as needed to maintain safe vegetation clearance from the power lines and

associated equipment. Line crews also address vegetation concerns in response to service calls or field observations by employees or customers.

Depending on the environmental conditions at any given time, work may be redirected to accommodate limitations from Industrial Fire Protection Levels or winter weather conditions in the higher alpine regions.

7.1.4 Trimming Specifications

OKPUD has an operational and management responsibility to maintain the right of way, under or around its power lines. OKPUD will meet the minimum standards for conductor clearances from vegetation to provide safety for the public and utility workers, reasonable service continuity and fire prevention.

During tree work, trimmers aim to achieve the clearance specifications described below.

- **OH Transmission:** Minimum of 10 feet for from the outside conductor
- **OH Distribution:** Minimum of 6 feet for from the outside conductor
- **Trees Under Conductors:** Removal is preferred, otherwise 12 feet below the conductor.
- **Overhanging Branches:** Removed to a height of 15 feet above all distribution conductors and all branches over transmission conductors. All weak, diseased and dead limbs above the conductors shall be removed.
- **Secondary/Service Wire:** Trees interfering with secondary voltage insulated, duplex or triplex secondary lines will NOT be trimmed by Okanogan County PUD tree trimming crews, as it is the customer's responsibility to maintain secondary lines.
- **Pole Clearing:** Vines growing on poles and guy wires shall be cut at ground level to a 3-foot circumference.
- **Brush Removal:** In residential or maintained areas, tree limbs resulting from crew activities are typically chipped and removed from the site. Large tree limbs and logs greater than six inches in diameter are left onsite. Worksites will be left in a safe and orderly condition.

7.1.5 Vegetation Control Options

Methods for controlling vegetation along the ROW include chemical, biological, manual, or mechanical techniques. The choice of control option(s) is based on effectiveness, environmental impact, site characteristics, worker and public health and safety concerns.

7.1.6 Hazard Tree Removal

A subset of Danger Trees[6], a Hazard Tree is defined as any tree or portion of a dead, dying, rotten, or decayed tree that may fall into or onto the overhead primary lines, or trees leaning

[6] As defined by ANSI 300 Part 7 standards

toward distribution facilities. OKPUD makes it a priority to remove hazard trees as soon as they are identified using the district's Vegetation Program as a general guideline.

Tree removal eliminates hazardous conditions, improves access to facilities, and reduces future work and will be pursued wherever feasible. Hazard trees are typically removed only when there is a threat of the tree or limbs failing and contacting transmission or primary conductors. While tree removal requires signed permission from the property owner, ROW easements or permits may have already granted permission for tree removal, in which case the property owner is notified.

Hazard tree removals are assessed and completed as part of the normal cycle trim. These trees are generally outside the right-of-way and are deemed by an Arborist to pose a potential threat to the lines. This is especially important in those areas that have had previous fires where dead or dying trees could fall on conductors or become fuel for a new fire event. Leaning trees beyond the ROW which would strike the power line in falling, and which would require topping if not removed, shall either be removed or topped.

Tree removal candidates include the following:

- Fast-growing trees that interfere with primary conductors
- Deciduous trees that require excessive trimming
- Dead, dying or defective trees that have a high probability of falling and contacting the primary conductors
- Trees with tree houses or climbable trees in close proximity to transmission or primary conductors
- Naturally seeded trees or smaller trees that will eventually interfere with primary conductors

7.1.7 Herbicide Treatment

Twice a year, the OKPUD contracts for the application of soil sterilization herbicides to eradicate vegetation in substations, pole yards, and various other locations throughout Okanogan County. This includes noxious weed and insect control. Herbicides or chemicals may only be used with authorization from the District ROWS.

All soil sterilization work at substations must be completed between April 1st and May 1st for spring applications, and between September 1st and November 1st for fall applications. The scheduling is at the discretion of the District. The District requires that one qualified District employee be present as an observer and to provide access to locked areas in substations.

7.1.8 Brush Mowing

The brush mowing process is used to remove under-growth within the OKPUD ROWs. Brush and small trees are removed with a large tractor mounted shredder that cuts and mulches the undergrowth into small pieces and spreads them across the ROW. The result is a ROW that is

resistant to fire and easy to navigate by repair crews. This work is prioritized in areas identified as having high fire risk where access to lines may be difficult.

7.2 Asset Inspections and Responses

7.2.1 Current Strategy Overview

Recognizing the hazards of equipment that operate high voltage lines, OKPUD maintains formal time-based inspection and maintenance programs for distribution and substation equipment, which plays an essential role in wildfire mitigation, reliability, and safety.

Recognizing the hazards of equipment that operate high voltage lines, OKPUD asset inspections include:

- Time-based inspection for wood poles
- Monthly substation inspections
- Annual infrared/FLIR substation inspections

7.2.2 Pole Management Program

To maintain OKPUD's utility poles, a Pole Management Program was initiated with the goal of inspecting approximately 10% of the poles per year. Contracted pole testers perform the pole inspections on a planned basis to determine whether they have degraded below National Electric Safety Code (NESC) design strength requirements with safety factors.

Poles up to nine years old will undergo a visual inspection with no further action unless necessary. Poles that are 10 years and older will be inspected both above and below the ground. All inspection findings are recorded and maintained by OKPUD.

Qualified contractors will handle all aspects of the inspection and treatment process, including supervision, labor, tools, equipment, data collection devices, transportation, and materials. A visual inspection of all poles shall be made from groundline to the top of the pole. The pole will be inspected for issues per the District provided overhead facilities inspection form. OKPUD provide the necessary specifications and maps to guide the contractors in locating and servicing the poles. If the pole inspection results in the rejection of the pole, the pole will be photographed and marked for replacement or reinforcement.

7.2.3 Infrared Thermography

Hundreds of different pieces of equipment may be found in an electrical distribution system. They start with electricity production, high voltage distribution, switchyards and substations, and end with service transformers, switchgear, breakers, meters, local distribution. Abnormal heating associated with high resistance or excessive current flow is the main cause of many problems in these electrical systems.

Using FLIR cameras, also referred to as IR thermography, OKPUD inspects its substations to locate hidden electrical and mechanical issues before they become a reliability issue. FLIRs

create images from heat, rather than visible light. But thermal imagers don't just make pictures from heat; they make pictures from the minute differences in heat between objects. Because excess heat is a sign of increased resistance, FLIR technology is well suited to locating defects in connections and components. Thermal imagers enable inspectors to see the heat signatures associated with high electrical resistance long before the circuit becomes hot enough to cause an outage or damage.

7.1 Workforce Training

7.1.1 Current Strategy Overview

OKPUD has developed rules and complementary training programs for its workforce to reduce the likelihood of an ignition. All field staff are:

- Trained on the content of the WMP
- Trained in proper use and storage of fire extinguishers
- During pre-job briefings, to discuss the potential(s) for ignition, environmental conditions
- Required to identify the closest fire extinguisher and other fire abatement tools
- Required to report all ignition events to management for follow-up
- Attend an RT-130 Wildland Firefighting Training annual refresher.

7.2 Relay and Recloser Policy

7.2.1 Current Strategy Overview

It is not a current practice to configure reclosers with alternate settings.

7.3 De-energization / Public Safety Power Shutoff

7.3.1 Current Strategy Overview

A Public Safety Power Shutoff (PSPS) preemptively de-energizes power lines during high wind events combined with hot and dry weather conditions. OKPUD has considered the extremely complex external risks, and potential consequences of de-energization while striving to meet its main priority of protecting the communities and customers we serve. They include:

- Potential loss of water supply to fight wildfires due to loss of production wells and pumping facilities.
- Negative impacts to emergency response and public safety due to disruptions to the internet and mobile phone service during periods of extended power outages.
- Loss of key community infrastructure and operational efficiency that occurs during power outages.
- Medical emergencies for members of the community requiring powered medical equipment or refrigerated medication. Additionally, the lack of air conditioning can negatively impact medically vulnerable populations.
- Negative impacts on medical facilities, fire, police, and schools.

- Traffic congestion resulting from the public evacuation in de-energized areas can lengthen response times for emergency responders.
- Negative economic impacts from local businesses forced to close during an outage.
- The inability to open garage doors or motorized gates during a wildfire event.
- Loss of power for fuel station pumping

The risks and potential consequences of initiating a PSPS are significant and extremely complex. Based on the above considerations, OKPUD reserves the option of implementing a PSPS when conditions dictate but does not currently plan to proactively de-energize its system.

On a case-by-case basis, the OKPUD will consider de-energizing a portion of its system in response to a known public safety issue or response to a request from an emergency management agency. Any de-energizing of the lines is performed in coordination with key local partner agencies, but the final determination is made by OKPUD.

8 Community Outreach and Public Awareness

8.1 Current Community Outreach and Public Awareness Program

OKPUD encourages its customers to take proactive measures to safeguard their homes from wildfire danger and to prepare for emergency events. To help create an awareness of fire danger in the service area, and what homeowners can do to minimize it, OKPUD provides information on prevention and mitigation on its website and social media platforms.

Customers will find links to the following information:

- Incompatible vegetation
- Fire and Infrastructure safety zones (Home ignition zones)
- Tree trimming and planting guidelines
- Tree replacement program
- Tree trimming schedule
- National Fire Prevention Association (NFPA) which has additional information on home ignition zones, wildfire mitigation for homeowners and emergency planning.
- Okanogan County Emergency Management, which provides NWS links, active incident info, burn ban status, and a county-wide advisory map.

9 Restoration of Service

OKPUD work crews will take the following steps before restoring electrical service after a de-energization event. These measures are intended to protect the worker, the general public, and the system's reliability.

- **Patrol:** De-energized lines are patrolled to ensure no hazards have affected the system during the outage. If an outage is due to a wildfire or other natural disaster, as soon as it is deemed safe by emergency response officials, lines and equipment are inspected for damage or foreign objects contacting the lines, and to assess the need for equipment repairs and reconstruction. Lines located in remote and rugged terrain with limited access may require additional time for inspection. VM crews are called on to assist in clearing downed trees and limbs as needed.

- **Isolate:** Isolate the outage and restore power to areas not affected.

- **Repair:** After the initial assessment, OKPUD supervisors, managers, and engineers meet to plan the needed work. Re-building will commence as soon as affected areas become safe. Repair plans prioritize substations, then distribution circuits that serve the most critical infrastructure needs. While the goal is to reenergize all areas as soon as possible, emergency services, medical facilities, and utilities are given first consideration when resources are limited. Additional crews and equipment will be dispatched as necessary.

- **Test:** After repairs are completed and the equipment is safe to operate, line segments are energized and tested.

- **Restore:** After successful line testing, power is restored to homes and businesses as quickly as possible. After initial power restoration, further demolition and rebuilding may be necessary.

10 Evaluating the Plan

In addition to a robust mitigation strategy, OKPUD has developed performance metrics to monitor its efforts over time. The goal of these metrics is to provide a data-driven evaluation of plan performance to help determine the effectiveness of various programs and to identify areas for improvement.

This chapter also identifies OKPUD's management responsibilities for overseeing this WMP, the methods for identifying plan deficiencies, and the inspection and VM program monitoring processes.

10.1 Metrics and Assumptions for Measuring Plan Performance

OKPUD has developed performance metrics intended to gauge the effectiveness of OKPUD's various programs and strategies for mitigating wildfire ignitions. The annual tracking of these metrics will help identify circuits most susceptible to unexpected outages, time-of-year risks, and the adequacy of the VM and asset inspection schedules.

The following metrics will be used:

- External Metric
    - Red Flag Warnings
- Distribution Performance Metrics
    - SAIDI score

    - SAIFI score
    - CAIDI score
- Transmission Performance Metric
    - Circuit Miles Inspected
- Vegetation Inspections
    - Circuit Miles Inspected
- Outage Metrics
    - Number of Distribution Outages
    - Number of Transmission Outages (TADS)

Because this plan is in the initial stage of implementation, relatively limited data is on hand. However, as results of the mitigation programs become evident and additional data is collected, OKPUD will identify areas of its operations that will require a different approach, as well as develop additional methods to achieve the goal of eliminating OKPUD asset-sourced ignitions.

As the metrics are analyzed in the following years, refinements will be made to the Plan and the selected metrics, as with other aspects of the plan, will likely evolve in future iterations.

10.2 Identifying and Addressing Areas of Continued Improvement

Because this plan is in the initial stage of implementation, relatively limited data is on hand. However, as results of the mitigation programs become evident and additional data is collected, OKPUD will identify areas of its operations that will require a different approach, as well as develop additional methods to achieve the goal of eliminating OKPUD asset sourced ignitions.

As the metrics are analyzed in the following years, refinements will be made. The selected metrics, as with other aspects of the plan, will likely evolve in future iterations. As results of the programs become evident and additional data is collected, OKPUD will identify areas of its operations that will require a different approach, as well as methods that are working towards the goal of eliminating OKPUD asset related ignitions.

The OM/CE is responsible for ensuring the WMP meets all Washington State guidelines to mitigate the risk of its assets becoming the source or contributing factor of a wildfire. Staff responsible for assigned mitigation areas must vet current procedures and recommend changes or enhancements to build upon the Plan's strategies. Due to unforeseen circumstances, regulatory changes, emerging technologies, environmental changes, or other rationales, deficiencies within the WMP are reported to the OM.

The OM/CE or their designee are responsible for spearheading discussions on addressing deficiencies and collaborating on solutions when updating the WMP. When deficiencies are identified, the OM/CE and designated staff evaluate each reported deficiency to determine their

validity. The OM/CE records the agreed upon corrective actions and plan steps for implementation and inclusion in future iterations of the WMP.

10.3 Monitoring the Performance of Inspections

The utility manages the distribution line and substation assets inspection and maintenance routines. These inspections help to ensure the safe operation of OKPUD line and substation facilities.

Key imperatives are to:

- Reduce the risk of power-related wildfire
- Meet federal and state regulatory requirements
- Achieve reliability performance within mandated limits and to optimize capital and O&M investments

Designated staff regularly monitors inspection and corrective maintenance. OKPUD makes all efforts to follow best industry practices in developing its maintenance programs.

OKPUD's ROWS is responsible for performing the pole inspections while the OM/CE is responsible for the substation inspections. As a result of the inspections, the priority for corrective maintenance is to remove safety hazards immediately and repair deficiencies according to the type of defect and severity of the risk level associated with the asset location.

Appendix A: Definitions

Bonneville Power Administration: The Bonneville Power Administration (BPA) is an American federal agency based in the Pacific Northwest created in 1937 to market electric power from the Bonneville Dam and to construct transmission facilities. BPA is the marketing agent for power from all 31 of the federally owned hydroelectric projects in the Pacific Northwest. The BPA is one of four regional Federal power marketing agencies within the U.S. Department of Energy (DOE).

Circuit Breaker: An electrical switch designed to protect an electrical circuit from damage caused by overcurrent/overload or short circuit. The basic function is to interrupt current flow after protective relays detect a fault.

Commission: Publicly elected three-member board of commissioners.

Danger Tree: A danger tree is any tree, on or off the right of way, that can contact electric power lines. A danger tree may be completely healthy and intact, or it may be sick or dead. Even a healthy tree could sustain damage in a severe storm and impact nearby power lines, thus the potential for "danger."

Distribution System: The final stage in the delivery of electric power carrying electricity from the transmission system to individual consumers. The OKPUD distribution system includes 13.2 KV and 24.9 KV lines not tied to generation facilities.

Drop Crotch Tree Trimming: A form of thinning used to reduce the size of large trees, involves the removal of a main branch (or leader) by cutting it back to a large, lateral branch.

Fire Hazard: "Hazard" is based on the physical conditions that give a likelihood that an area will burn over a 30 to 50-year period without considering modifications such as fuel reduction efforts.

Fire Risk: "Risk" is the potential damage a fire can do, to the area under existing conditions, including any modifications such as defensible space, irrigation and sprinklers and ignition resistant building construction which can reduce fire risk. Risk considers the susceptibility of what is being protected.

Fire Season: 1) Period(s) of the year during which wildfires are likely to occur, spread, and affect resource values sufficiently to warrant organized fire management activities. 2) A legally enacted time during which burning activities are regulated by state or local authority.

Fire Weather Watch: A term used by fire weather forecaster to notify using agencies, usually 24 to 72 hours ahead of the event, that current and developing meteorological conditions may evolve into dangerous fire weather.

Hardening: Modifications to electric infrastructure to reduce the likelihood of ignition and improve the survivability of electrical assets.

Hazard Tree: A specific type of danger tree that poses a greater likelihood of causing damage to electric power lines or equipment. In this case, the tree is structurally unsound and positioned in such a way that it could fall onto conductors.

Industrial Fire Precaution Level (***IFPL):*** Activated when needed during the summer fire season, IFPL are an activity closure system to reduce wildfire risk. By law (WAC 332-24-301), it applies to woods workers and other industrial forest users on 13 million acres of unimproved private, federal, and state forestlands protected by the WADNR, BLM or USFS. Levels range from Level-1 to Level-4.

Landscape: Refers generally to the area of interest in a project or study and could refer to modeled or on-the-ground conditions.

National Fire Danger Rating System (NFDRS): A uniform fire danger rating system that focuses on the environmental factors that control the moisture content of fuels. It combines the effects of existing and expected states of selected fire danger factors into one or more qualitative or numeric indices that reflect an area's fire protection needs.

Raster: An array or regular grid of square cells used to store data. Raster data is made up as a matrix of pixels, also referred to as cells in much the same way as you might find when working within a spreadsheet. They are often square and regularly spaced on a field divided into a grid of squares with each square representing a value which can be discrete (e.g. soil type) or continuous (e.g. elevation).

Recloser: Recloser is a device that is used in over-head distribution systems to interrupt the circuit to clear faults. Automatic reclosers have electronic control senses and vacuum interrupters that automatically reclose to restore service if a fault is temporary. There are several attempts that may be made to clear and reenergize the circuit and if the fault still exists the recloser locks out. Reclosers are made in single-phase and three-phase versions and use oil or vacuum interrupters.

Red Flag Warning (RFW)[7]: A term used by fire- weather forecasters to call attention to limited weather conditions of importance that may result in extreme burning conditions. It is issued when it is an on-going event, or the fire weather forecaster has a high degree of confidence that Red Flag criteria will occur within 24 hours of issuance. Red Flag criteria occurs whenever a geographical area has been in a dry spell for a week or two, or for a shorter period, if before spring green-up or after fall color, and the National Fire Danger Rating System (NFDRS) is high to extreme and the following forecast weather parameters are forecasted to be met:

- A sustained wind average 15 mph or greater;

7 Source: https://w1.weather.gov/glossary/index.php?word=Red%20Flag%20Warning

- Relative humidity less than or equal to 25%, and;
- A temperature of greater than 75 degrees Fahrenheit

In some states, dry lightning and unstable air are criteria. A Fire Weather Watch may be issued prior to the RFW.

Right-of-Way (ROW): The corridor of land under (and adjacent to) a transmission or distribution line.

Risk: A measure of the probability and severity of adverse effects that result from exposure to a hazard.

Substation: Part of the electrical generation, transmission and distribution system, substations transform voltage from high to low, or the reverse, or perform any of several other important functions. Between the generating station and consumer, electric power may flow through several substations at different voltage levels. A substation may include transformers to change voltage levels between high transmission voltages and lower distribution voltages, or at the interconnection of two different transmission voltages.

Summer Fire Rules (DNR): Washington's "summer fire rules" are in effect April 15 through October 15. These rules apply to the 13 million acres of private and state forestlands protected from wildfire by the Washington Department of Natural Resources.

These regulations affect loggers, firewood cutters, land clearers, road builders, heavy equipment operators, off-road motorcyclists, and others. During fire season, people using motorized equipment in the woods must have approved spark arresters and follow fire safety precautions. In addition, those working in the woods must have fire prevention and extinguishing equipment in good working order at the job site and workers trained in proper use.

The rules are intended to prevent forest fires and to extinguish small fires before they spread to the forested lands. These rules restrict cigarette smoking in forested areas to roads, gravels pits, or other clearings and prohibit lighting fireworks on forestland.

Transmission System: The bulk delivery of electrical energy from a generating site to an electrical substation. While OKPUD does not currently own any transmission system assets, BPA does operate several transmission lines in the county.

UAV: An unmanned aerial vehicle is a powered, aerial vehicle that does not carry a human operator, uses aerodynamic forces to provide vehicle lift, can fly autonomously or be piloted remotely.

Vegetation: Trees, shrubs, and any other woody plants.

Vegetation Management: A broad term that includes tree pruning; brush removal through the use of power saws and mowers; the judicious use of herbicides and tree growth

regulators; hazard tree identification and removal; the implementation of strategies to minimize the establishment of incompatible species under and near power lines; and the control of weeds.

Wildfire: Also called wildland fire, an unplanned, uncontrolled fire in a forest, grassland, brushland or land sown to crops.

Wildfire Mitigation Plan (WMP): A comprehensive plan to reduce the threat and severity of wildfire within an electric utility's service area. Plans include the preventive strategies and programs adopted by the utility to minimize the risk of its facilities causing wildfires along with its emergency response and recovery procedures.

Wildlands: Forests, shrub lands, grasslands, and other vegetation communities that have not been significantly modified by agriculture or human development. A more specific meaning for fire managers, used by the National Wildfire Coordinating Group (which coordinates programs of participating wildfire management agencies nationwide), refers to an area in which development is essentially non-existent (except for roads, railroads, power lines, and similar transportation facilities); structures, if any, are widely scattered.

Wildland Urban Interface (WUI): Line, area, or zone where structures and other human development meet or intermingle with vegetative fuels in wildlands.

Appendix B: Acronym Glossary

ANSI	American National Standards Institute
BLM	U.S. Bureau of Land Management
BMP	Best Management Practices
BPA	Bonneville Power Administration
CSR	Customer Service Representative
DEM	Department of Emergency Management
DNR	(Washington) Department of Natural Resources
EOC	Emergency Operation Center
GM	General Manager
HFTA	High Fire Threat Area
HIF	High Impedance Fault
IFPL	Industrial Fire Protection Level
KV	Kilovolt
KWH	Kilowatt Hours
LDE	Line Down Event
MW	Mega Watts
MVCD	Minimum Vegetation Clearance Distance
NERC	North American Electric Reliability Corporation
NESC	National Electric Safety Code
NFDRS	National Fire Danger Rating System
NF	National Forest
OH	Overhead
OKPUD	Public Utility District #1 of Okanogan County
OEM	Office of Emergency Management
PUD	Public Utility District
PSPS	Public Safety Power Shutoff
PM	Project Manager
QA	Quality Assurance
QC	Quality Control

RAWS	Remote Automated Weather Station
RFW	Red Flag Warning
ROW	Right-of-Way
ROWS	Right-of-Way Superintendent
SCADA	Supervisory Control and Data Acquisition
UG	Underground
USDA	United States Department of Agriculture
USFS	United States Forest Service
VM	Vegetation Management
WA	Washington State
WDFW	Washington Department of Fish and Wildlife
WHP	Wildfire Hazard Potential
WMP	Wildfire Mitigation Plan
WUI	Wildland Urban Interface