Lewis County
Public Utility District

# 2024 WILDFIRE MITIGATION PLAN

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# 1 Executive Summary

Unusually large wildfires are on the rise in the Pacific Northwest, with an increase in fires in west-side conifer forests including a 170-day event in the Queets Rainforest on the Olympic Peninsula[1]. 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 4 in 2041-2070 compared to 1971-2000[2]. As a result of this increased wildfire risk, Washington State legislation was enacted requiring utilities to implement practices 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.

Lewis County Public Utility District #1 (LCPUD or District) believes the proactive development of a thorough WMP prior to the approaching mandate is a prudent and responsible effort to prepare for an increase of wildfire occurrences in LCPUD's service territory. For LCPUD, 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, LCPUD 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 https://outdoor-society.com/as-seen-from-space-the-2015-paradise-fire-in-olympic-national-park/

2 Northwest Climate Adaptation Science Center

WILDFIRE MITIGATION PLAN DISCLAIMER

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# 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 LCPUD'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.

LCPUD believes the strategies and activities described in this WMP, with associated goals and metrics, are a practical approach to reducing fire-related risk for LCPUD's customers in the near term and will allow for refinement and improvement over time. As LCPUD gains experience implementing the WMP's mitigation programs and new information emerges, the District 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 LCPUD's service area, such as topography, weather, infrastructure, grid configuration, and potential wildfire risks. LCPUD board of commissioners reviews the plan at least every 3 years, responsibility for design, applicability and implementation resides with the General Manager (GM) and staff.

## 2.2 Description of Where the WMP Can Be Found Online

The LCPUD WMP will be available for the public through LCPUD's website under the Safety tab.

## 2.3 Best Practices Cross-reference Table

**Table 1. 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 | Sec. XX, pp. XX |
| RCW 64.12.035<br>Cutting or removing vegetation—Electric utility—Liability—Definitions. | Sec. 7.3.1. pp. 23<br>Sec. 7.3.2. pp. 23 |
| • OHSA 1910.269: Qualified electrical workers<br>• ANSI Z133.1 (2000): Safety requirements<br>• WAC 296-45-455: Line-clearance tree-trimming operations | 7.3.3, page 18 |
| (ANSI) A300 Part 1: Tree, Shrub, and Other Woody Plant Maintenance. | 7.3.3, page 18 |

# 3 Utility Overview

**Table 2. Utility Context Setting Information**

| General Utility Information | |
|---|---|
| **Service Territory Size (sq miles)** | 2,402 |
| **Service Territory Make-up**<br>[ ]% Urban<br>[ ]% Agriculture<br>[ ]% Barren/Other<br>[ ]% Conifer Forest<br>[ ]% Conifer Woodland<br>[ ]% Desert | [ ]% Hardwood Forest<br>[ ]% Hardwood Woodland<br>[ ]% Herbaceous<br>[ ]% Shrub<br>[ ]% Water<br>[X] NA / Not tracked |
| **Service Territory Wildland Urban Interface** | 4.41% Wildland Urban Interface<br>9.65% Wildland Urban Intermix |
| **Consumers Served** | 35,960 |
| **Account Demographic**<br>*[provide as % of total customers served]* | [ ]% Residential<br>[ ]% Agricultural<br>[ ]% Commercial/Industrial<br>[X] NA / Not tracked |
| **Utility Equipment Make-up**<br>*Calculated using GIS data* | Overhead Distribution: 1447.5 miles<br>Overhead Transmission: 140 miles<br>Underground Distribution: 1566.5 miles<br>Underground Transmission: 0 miles<br>Substations: 23 |
| Have customers have ever been notified of a potential loss of service due to a forecasted utility de-energization event? | Yes: [ ]<br>No: [X] |
| Has the utility developed protocols to pre-emptively shut off electricity in response to elevated wildfire risks? | Yes: [ ]<br>No: [X] |
| Has the utility previously implemented a PSPS in response to elevated wildfire risk? | Yes: [ ]<br>No: [X] |

## 3.1 Utility Description and Context Setting

In 1936, Public Utility District No. 1 of Lewis County was created by a vote of the people. In 1938 construction began on 66 miles of rural lines and in March 1939, the Alpha section of the line was energized. LCPUD now provides power to over 35,000 customers over 3,000 miles of distribution line, 140 miles of transmission line, including 20 miles of 230 kV lines, 23 substations and associated equipment.

BPA-supplied power is delivered to LCPUD at five points of delivery. LCPUD also owns a 70mW hydroelectric facility that feeds into the BPA transmission grid.

LCPUD is governed by a board of elected commissioners. Each commissioner represents a defined geographic section of the county and serves for six years. It is the Board's responsibility to set utility policy and to hire and oversee the work of the general manager.

## 3.2 The Service Area

LCPUD provides electric service to residential, commercial, industrial and street lighting customers throughout Lewis County and extends slightly into Pacific and Thurston Counties (Figure 1). The Service area touches eight other counties and is divided into three districts, each represented at the District by an elected commissioner. The service territory spans approximately 94 miles east to west and 25 miles north to south (2,402.8 square miles). Approximately one third of the county is designated as national forest with 72% devoted to forest resources and 6% to agriculture[3].

Topography of the area varies widely, from the broad, relatively flat and low-lying western section of the county to the Cascade Mountains to the east. Elevations range from 82 feet above sea level along Highway 5 to approximately 6,000 feet in the Cascade Range to the east. Roughly three-fourths of the county is rugged, mountainous and forested. The remainder is characterized by low rolling hills interspersed with rivers and tributaries including the Cowlitz and Chehalis systems. The major population centers of Centralia, Chehalis, and Napavine, are located on the flood plains of the Chehalis River and its tributaries, including the Skookumchuck and Newaukum rivers.

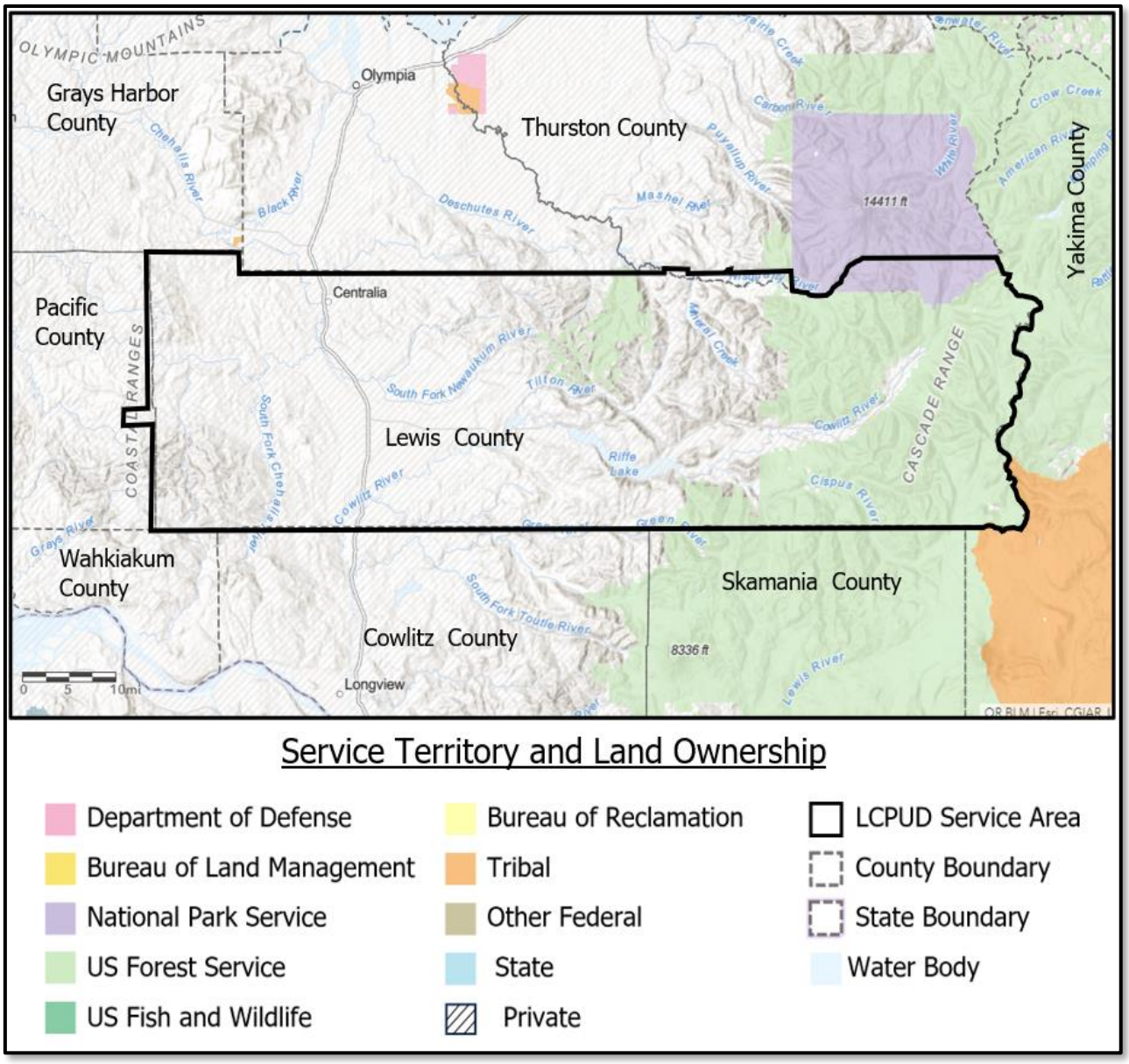
Prevailing winds in LCPUD vary with the seasons. In summer, the most common wind directions are from the west or northwest; in winter, they are from the south and east. Local topography, however, plays a major role in affecting wind direction[4].

LCPUD experiences a temperate climate, with mild summers and winters. August 3, the hottest day of the year on average, temperatures at South Lewis County Airport typically range from 52°F to 81°F, while on December 29, the coldest day of the year, they range from 34°F to 44°F. The hottest days have occurred almost exclusively in July and August[5], with

[3] https://lewiscountywa.gov/media/documents/Draft_Land_Use_Element.pdf
[4] Office of the Washington State Climatologist, www.climate.washington.edu.
[5] https://data.app.com/weather-data/lewis-county-washington/53041/2016-08-01/table/

averages temps in the low to mid 60s and maximum highs in the upper 70°Fs and low 80°Fs with occasional +90°F days. The driest months tend to be July through September with humidity remaining relatively low.

**Figure 1. Service Area and General 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 prevention strategies can be categorized into five main mechanisms that align with LCPUD's best practices. Together, the five components create a comprehensive wildfire preparedness and response plan with a principal focus on stringent construction standards, fire prevention through system design, proactive operations and maintenance programs, and specialized operating procedures and staff training.

- **Design & Construction:** LCPUD'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 LCPUD's systems becoming a source of ignition.
- **Inspection & Maintenance:** LCPUD'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. LCPUD have enhanced its ignition response capabilities by outfitting each field vehicle with 5-gallon water packs and has a 500-gallon water tanker or equivalent onsite for mechanical vegetation management work (i.e. Mulching and/or mowing) during fire season.
- **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 LCPUD'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

The utility's assets are primarily overhead, wood pole construction located across a heavily forested and landscape terrain. Although large wildfires are historically uncommon in the service area, LCPUD's distribution assets are moderately susceptible to wildfire. Resilience vulnerabilities include older copper conductor and aging oil-filled reclosers, although these are progressively being converted to modern solid dielectric units.

The electric grid is relatively small, with no vast distances for utility crews to travel. 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 grid is a radial, rather than looped system with no micro-grids.

# 5 Roles and Responsibilities

## 5.1 Utility Roles and Responsibilities

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

- The General Manager (GM) is responsible for the implementation of the WMP in general. Staff will be directed as to their roles and responsibilities.
- The GM directs management staff responsible for operations, engineering, and information technology.
- The GM responds to the news media and the general public.
- The Operations Manager (OM) is responsible for monitoring and auditing the metrics specified in the WMP to confirm that the objectives of the WMP are met.
- The OM determines when and how to notify outside agencies in cases of wildfire emergency events.
- The OM communicates with first responders, health agencies, and communication providers.
- The OM is responsible for oversight of the in-house and contracted VM operations and inspections.
- The Engineering Manager(EM) is responsible for oversight of the electric system's design.

## 5.2 Coordination with Local Utility and Infrastructure Providers

LCPUD 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

There are no tribal entities within the service area.

## 5.4 Emergency Management/ Incident Response Organization

During active emergencies, LCPUD 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 LCPUD's 24/7 dispatch personnel will coordinate recovery efforts with first responders. This coordination will be maintained until first responders declare the emergency over.

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

Some LCPUD facilities utilize Incident Command System (ICS) to respond to emergency situations. ICS is a standardized approach to the command, control, and coordination of on-scene incident management that provides a common hierarchy within which personnel from multiple organizations can be effective. ICS specifies an organizational structure for incident management that integrates and coordinates a combination of procedures, personnel, equipment, facilities, and communications.

# 6 Wildfire Risks

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

Some of the main risk drivers associated with design, construction, operation, and maintenance at LCPUD are:

- Aging equipment such as reclosers
- Aging copper wire
- Vehicle impacts
- Wire down events
- Expulsion fuses

## 6.2 Risk Drivers Associated with Topographic and Climatological Factors

LCPUD staff evaluated its own fire causes in the region and applied its own field experience to determine the key potential risk drivers.

Tree failure is the main factor identified in driving risks of wildfire for LCPUD, especially its encroachment onto electrical assets. Portions of the service area have steep and rugged terrain with thick vegetation. These factors, along with abnormal summer conditions, makes it more vulnerable to wildfire than areas of the system with less extreme urban topography. This can make access to remote sections of some distribution lines very difficult and time consuming. Fire-fighting activities in this type of terrain are also much more challenging.

## 6.3 Enterprise-wide Safety Risks

In order to establish a baseline understanding of the risks and risk drivers involved, LCPUD looked at all aspects of LCPUD's exposure to fire related hazards. Although there are inherent risks in the operation of an electric utility, it is possible to put in place strategies and processes to better plan and manage them. The overall goal is to determine the residual risk level after all mitigation factors have been applied to the initial inherent risk.

Enterprise-wide safety risks that are specific to the organization and region include:

- Operational
  - Ability to appropriately respond to vegetation encroachment. (Primarily trees)
- Procedural
  - Effective processes to maintain vegetation encroachment or perceive when action is needed.
- System Sensitivities
  - Line contact from objects. (Trees cause a majority of incidents)

## 6.4 Wildfire History and Outlook

Wildfire is a general term for an uncontrolled fire that often occurs in wildland areas but can consume agricultural resources and houses as well. Wildland areas include, but are not limited to, grasslands, agricultural land, and forests. Most wildfires are human caused (89% of the average number of wildfires from 2018 to 2022). The causes of wildfires vary, but most often include lightning, human carelessness, and arson. Wildfires caused by lightning tend to be slightly larger and burn more acreage (53% of the average acreage burned from 2018 to 2022) than human-caused fires[6].

Although fire is a natural occurrence that can be a beneficial process, the large buildup of vegetation due to historic fire suppression policies can act as extra fuel and increases the intensity and devastation of these fires. While most large Washington wildfires occur on the drier east side of the Cascade Range, some of the largest fires have been on the wetter west side. Fast-moving large-scale grassland fires are more common to the east, but the west side is less adapted to wildfire, resulting in more severe fires due to the accumulation of fuels. As illustrated in Figure 2, large-scale wildfires have occurred in Lewis County and adjacent counties.

LCPUD's fire season runs from approximately mid-May through October with several Red Flag Warnings issued per year. Figure 3 depicts the RFWs issued in the Lewis Counties two main fire weather zones from 2015 through 2024 (WAZ655 and WAZ659). While dry periods can extend throughout the season, the possibility of a wildland fire depends on fuel availability, topography, the time of year, weather, and activities such as debris burning, land clearing, camping, and recreation.

In Washington, wildland fires start most often in lawns, fields, open areas, transportation areas, and wooded wildland areas. They are usually extinguished with less than one acre damaged but can spread to over 100,000 acres. Wildland fire protection in LCPUD's service territory is provided by federal, state, county, and city fire protection agencies. The agencies responding to wildland fires depend on the fire's location.

[6] Congressional Research Service, March 2023

**Figure 2. Historic Wildfire Perimeters 2000-2023**

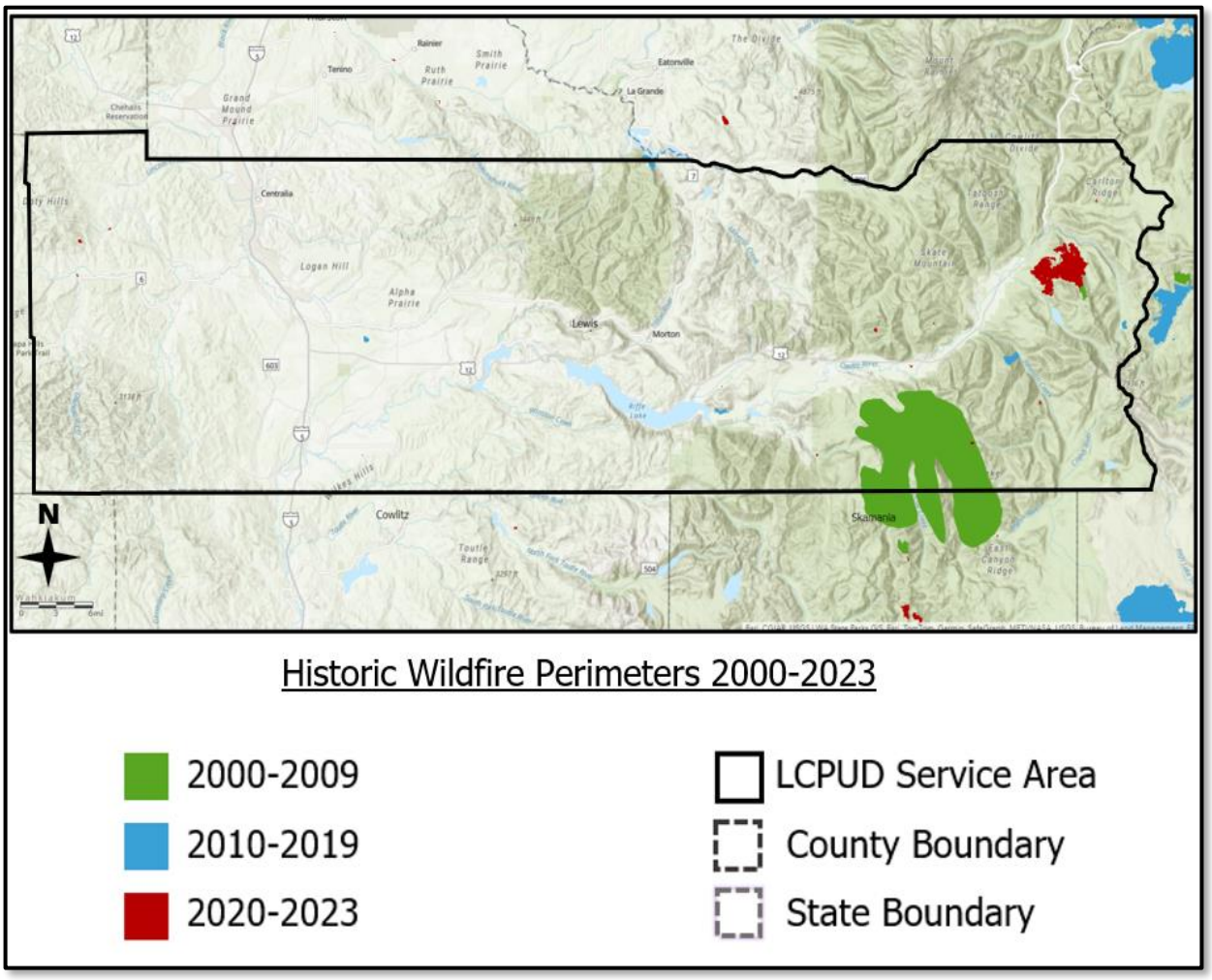
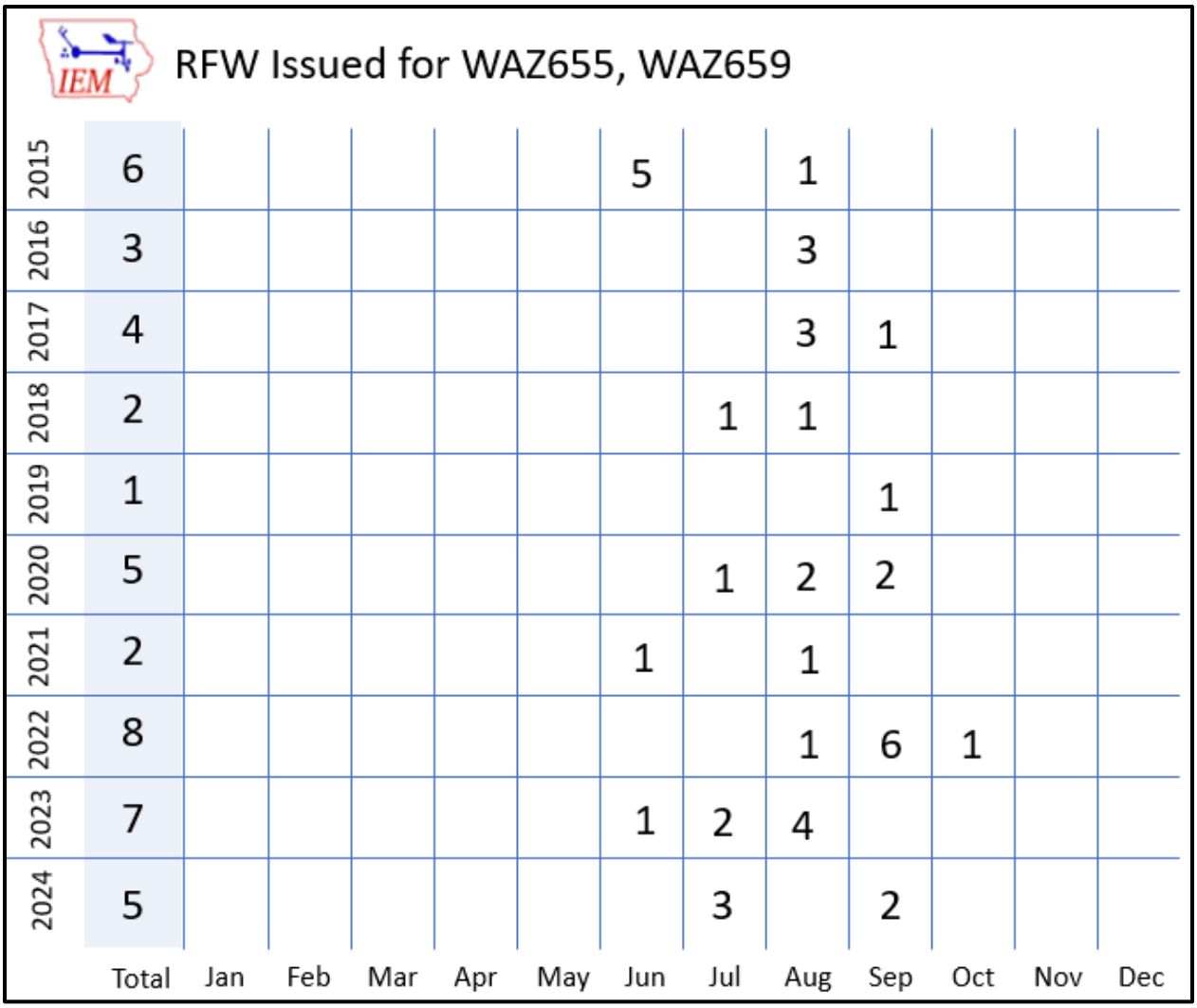


**Figure 3. Red Flag Warnings 2015-2024**



### 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:

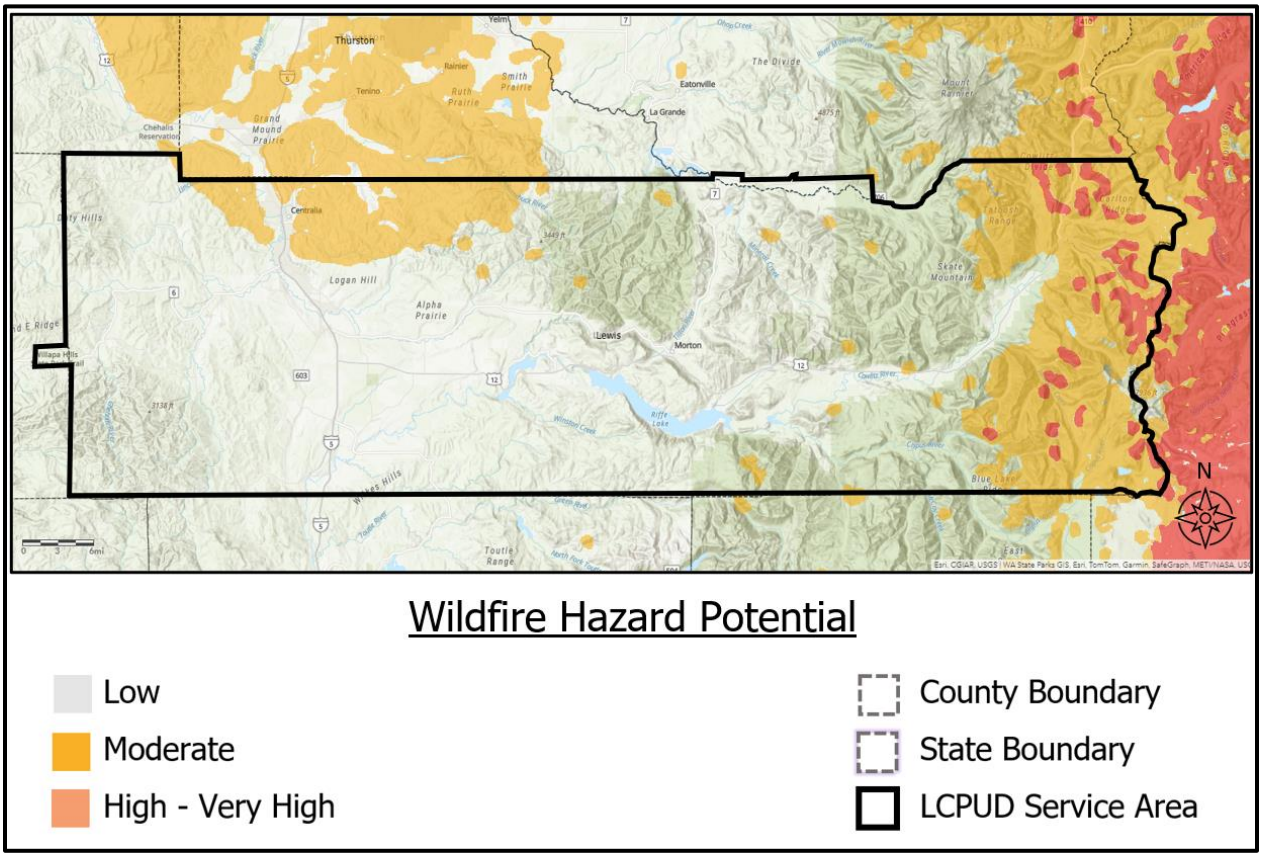
- Spatial vegetation and wildland fuels data from *LANDFIRE 2020* (version 1.4.0). The *LANDFIRE* Fire Behavior Fuel Models layer is a primary input to the FSim Burn Probability (BP) and Fire Intensity Level (FIL) datasets and forms the foundation for WHP.
- Spatial datasets of wildfire likelihood and 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.

The WHP map can be used to prioritize vegetation management activities, determining the location for focused recloser operational protocols, and future sectionalizing studies and associated remedial actions.

**Figure 4. Wildfire Hazard Potential**



# 7 Wildfire Preventative Strategies

This WMP integrates and interfaces with LCPUD'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. Table 3 summarizes LCPUD's five mitigation components with associated programs and activities that support LCPUD'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.

**Table 3. Mitigation Programs and Activities**

| DESIGN AND CONSTRUCTION |
|---|
| Strategic undergrounding of distribution lines |
| Substation perimeter fencing for security and protection |
| Polymer crossarms |
| Future evaluation of covered conductor in select areas (pilot project) |
| Animal guards on transformers |
| **INSPECTION AND MAINTENANCE** |
| Infrared inspections of substation and field equipment |
| Substation inspections |
| Distribution system right-of-way (ROW) maintenance |
| Distribution system line patrols |
| GIS assisted maintenance and VM tracking |
| Vegetation management program |
| Mid-cycle vegetation trimming and enhanced VM work in high-risk areas |
| Wood pole intrusive inspection and testing |
| Satellite scanning of ROW |
| "Tree Concerns" Hotline for customers |

**Table 3. Mitigation Programs and Activities (continued)**

| OPERATIONAL PRACTICES |
|---|
| Community outreach/wildfire safety awareness |
| Enhanced hazard trees removal |
| Fire suppression equipment on service vehicles |
| Increased Right of Way |
| **SITUATIONAL AWARENESS** |
| Tracking of Industrial Fire Precaution Levels (IFPL) |
| Weather Monitoring |
| **RESPONSE AND RECOVERY** |
| Outage response communications |
| Coordination with local first responders |
| Line patrols prior to re-energization |
| Regular communication and coordination with DNR & USFS |

## 7.1 Design and Construction Standards

### 7.1.1 Current Strategy Overview

Part of LCPUD's preventative strategy is to leverage their design and construction standards to help mitigate wildfire risks. This is done currently through initiatives like:

- Circuit recloser upgrades
- Using more fire-averse equipment when possible
    - Covered jumpers in substations
    - Tree wire on lines (used minimally)
    - Non-expulsion fuses in pad mounted fuse cabinets

LCPUD is currently replacing old, hydraulic reclosers with solid dielectric reclosers that feature SEL-651R or SEL-351 controls for three phase or single-phase power respectively.

### 7.1.2 Planned Updates

It is LCPUD's long-range goal to continue to implement fire safety into their design and construction practices. One way they will accomplish this is to progressively replace oil-filled

hydraulic reclosers with modern solid dielectric recloser units that provide better line protection that minimize fault energy, reducing the ignition potential to start a wildfire.

This new equipment will also allow for high impedance fault detection to be progressively implemented across the service area. As the current equipment continues to be replaced, it will eventually allow LCPUD to set reclosers to a "one-shot" or "hot-line tag" settings remotely via a SCADA system.

The continued adaptation of more fire averse equipment such as jumper covers, tree wire, non-expulsion fuses, and more will also help minimize the risk of ignition.

## 7.2 Weather Monitoring

### 7.2.1 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.

LCPUD uses various situational awareness resources to monitor evolving fire weather, fuel, and other climatological conditions that may lead to fire events, including notifications from the Lewis County Emergency Management System for Red Flag Alerts, NOAA, and NWS. It evaluates information such as Industrial Fire Protection Levels, real-time field observations, GIS data, asset maintenance reports, ongoing wildfire reporting and other resources. Based on available information, LCPUD appropriately schedules work crews and prepares for imminent fire conditions as needed.

## 7.3 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, LCPUD can focus more of its energy and resources on preparing for future weather events, improving the reliability of the grid, and controlling maintenance costs.

### 7.3.1 Current Strategy Overview

Currently, LCPUD uses a prescribed substation/feeder annual inspection cycle, led by the VM supervisor and carried out by two LCPUD in house crews, three contract crews, and supported by an ISA arborist, abiding by RCW 64.12.035. These cycles are scheduled five years in advance, but address issues annually to consider system conditions and how much previous work was completed. Transmission trimming occurs every five years for 69 kV lines, and annually for the 230 kV lines. VM methods may entail hazard tree removal, mowing, mulching helicopter side trimming, chemicals, etc. Distribution prefers a ground to sky clearance with a 12' horizontal clearance. From Glenoma to the Cowlitz Falls Project the easement corridor is typically 100'.

Additionally, as per NERC requirements, the 20 mile 230 kV lines are inspected and managed annually for vegetation encroachment issues.

### 7.3.2 Multi-Spectral Satellite Imagery

LCPUD has employed advancements in satellite scanning technology and artificial intelligence to identify vegetation encroachment issues and hazard trees in and outside the ROW. Through a contracted VM analytics company, LCPUD can acquire a complete overview of the entire system just days after the data has been recorded, which provides a view of vegetation conditions and trimming status.

Machine learning algorithms can accurately distinguish between grassland, agricultural or urban areas, and vegetation that poses a risk to LCPUD assets. Algorithms can detect, at scale, the species and health of vegetation and its proximity to the overhead conductors, allowing for informed decision-making. The service also provides work prioritization and post-work verification.

**Figure 5. Satellite Vegetation Scan Output**

### 7.3.3 Trimming Standards

State and Federal Agencies require maintenance of the ROW under or around LCPUD's power lines. LCPUD 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) and RCW requirements. If a tree's proximity to power lines is a threat to our electric system, our tree crew will trim the growth away from our equipment.

LCPUD's tree trimming crews and 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 1910-1926

### 7.3.4 Vegetation Management Trimming Schedule

LCPUD has evaluated the vegetation characteristics and growth rates of the predominant species along the OH lines to determine the years of growth until they contact the conductor.

Historically, cycle trimming has been 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. This has entailed 5-year inspection cycles with annual clearing work. Beginning in 2024, LCPUD will transition to a risk based approach leveraging advancements in satellite vegetation scanning technologies. Circuits will be trimmed strategically based on the risk scores of each T&D line section.

### 7.3.5 Trimming Specifications

LCPUD has an operational and management responsibility to maintain the right of way, under or around its power lines. LCPUD 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. A typical ROW clearance area is 30 feet in total width with the conductor in the center. Trees are trimmed to a minimum clearance of 12 feet at time of trim. Limbs may be cut farther from the conductors to comply with later trim methods. In all cases, tree removal is preferred over tree trimming.

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

- **Transmission:** Cleared to 50 feet from centerline.
- **OH Distribution:** Minimum of 12 feet from the outside conductor, or as much as possible given conditions. Cleared ground to sky where feasible.

- **Trees Under Conductors:** Trees directly below conductors are removed or trimmed as low as is allowed by the landowner.
- **Overhanging Branches:** Removed to a height of 15 feet above all distribution conductors where feasible. No overhanging branches are allowed above transmission lines.
- **Secondary/Service Wire:** Branches that deflect or weigh heavily upon service or other secondary wires beyond the last LCPUD pole are removed, but not pruned in their entirety without specific direction by LCPUD operations.

### 7.3.6 Vegetation Control Options

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

### 7.3.7 Hazard Tree Removal

A subset of Danger Trees[7], 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 lines, or trees leaning toward distribution facilities. LCPUD makes it a priority to remove hazard trees as soon as they are identified using RCW 64.12.035 as a general guideline.

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 ISA Arborist to pose a potential threat to the lines. 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.

### 7.3.8 Herbicide Treatment

Herbicide use is an integral part of a utility vegetation management program for control of brush and resprouting tree species. Selective herbicide use controls target tree species that will grow into the conductors, while avoiding damage to desirable trees, shrubs, and ground cover.

As the density of undesirable trees decrease, the environmental impacts of our vegetation management activity will decrease, with a corresponding decrease in maintenance costs. The utility, its customers and the environment all benefit from this integrated approach to vegetation management.

LCPUD uses select herbicide products that will control deciduous tree species with minimal damage to desirable surrounding plants due to the selective activity of the herbicide on broadleaf

[7] As defined by ANSI 300 Part 7 standards

plants, and lack of activity on grasses. When applied as labeled, little to no off-target damage should occur.

### 7.3.9 Brush Mowing

The brush mowing process is used to remove under-growth within the LCPUD 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.

### 7.3.10 Site preservation

Care shall be taken to preserve the natural ground covers where possible. Rivers, lakes, streams, natural draining areas, ponds, etc. shall not be disturbed. All local, state, and federal laws and regulations will be followed when performing work around fish spawning streams.

## 7.4 Asset Inspections and Responses

### 7.4.1 Current Strategy Overview

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

- Maintaining time-based inspection for wood pole testing & treating
- Annual infrared/FLIR substation and transmission inspections
- Annual NERC compliant inspections on the 20 miles of 230 kV lines
- GIS tracking for inspections, maintenance work, and NISC service orders

### 7.4.2 Pole Management Program

To maintain LCPUD'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 as well as conductor clearance violations.

This program facilitates a one-stop assessment of a pole's condition, both above and below ground, on an 10 year cycle. LCPUD utilizes a 3 – Tier rating system that identifies poles as: pass, reject, and priority reject. The pole inspection procedure includes a visual inspection of the entire pole with photographs and documentation of noted deficiencies. Poles that fail inspection are prioritized based on the level of the structural defect and scheduled for replacement or corrective repair accordingly. Wood poles that pass the intrusive inspections are re-tested with a target interval of 10 years.

### 7.4.3 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, LCPUD inspects its substations to find, and measure 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 providing information critical to avoid system failures and fires.

### 7.4.4 Planned Updates

It is LCPUD's goal to expand the use of FLIR inspection methods to include the distribution lines in the coming years.

### 7.4.5 Geographic Information Systems (GIS) Mapping

Each component of the distribution system, as well as each meter, has a physical location and associated data. To plan, construct, maintain, operate, and manage the network, it is beneficial to create and manage this geospatial data.

LCPUD geolocates and manages its assets as well as outages utilizing GIS mapping technology which has been integrated into its asset inspection and maintenance programs. This provides the ability to record and map this work to ensure assets are maintained on a prescribed schedule.

## 7.5 Workforce Training

### 7.5.1 Current Strategy Overview

LCPUD 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
- Required, during pre-job briefings, to discuss the potential(s) for ignition, environmental conditions (current and forecasted weather that coincides with the duration of work for the day)
- Required to identify the closest fire extinguisher and other fire abatement tools

- Required to report all ignition events to management for follow-up

Key staff attend trainings, wildfire conferences, and engineering seminars to help increase their knowledge of system reliability and wildfire mitigation strategies. Examples of such learning events include:

- DNR trainings on basic wildfire response techniques
- SEL events that highlight wildfire safety form a protection and control point of view
- Western Protective Relay Conferences
- NWPPA Wildfire Conferences

## 7.6 Relay and Recloser Policy

### 7.6.1 Current Strategy Overview

It is not a current practice to configure reclosers with alternate settings for wildfire mitigation. Hotline settings are used for line worker protection only.

### 7.6.2 Planned Updates

It is LCPUD's long-range goal to progressively replace oil-filled hydraulic reclosers with modern electronic units along with the associated communications equipment that will allow connection to the operations center via the SCADA system. This would allow LCPUD to alter recloser settings remotely in response fire-weather conditions.

## 7.7 De-energization / Public Safety Power Shutoff

### 7.7.1 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. When considering de-energization, LCPUD examines the impacts on fire response, water supply, public safety, and emergency communications.

LCPUD considers the 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, LCPUD reserves the option of implementing a PSPS when conditions dictate. While LCPUD believes the risks of implementing a PSPS far outweigh the chances of its electric overhead distribution system igniting a catastrophic wildfire, the PSPS provides a last resort tool and another mitigation option.

On a case-by-case basis, LCPUD 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 LCPUD.

### 7.7.2 Customer Communication for Outages

LCPUD currently notifies customers impacted by de-energized lines through NISC's Multi-Channel Messenger. Customers either receive an email or phone call, as well as the county's website and Facebook page being updated with an informative message.

### 7.7.3 Planned Updates

LCPUD intends to develop a formal PSPS policy and conduct table-top exercises to ensure all stakeholder interests are considered in any de-energization event.

# 8 Community Outreach and Public Awareness

## 8.1 Current Community Outreach and Public Awareness Program

LCPUD 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 or other emergencies in the service area, and what homeowners can do to minimize it, LCPUD provides information on prevention and mitigation on its social media accounts, and company website. There, customers can access energy conservation and safety related information from the Outage and Safety tab.

The Outage Center is a direct interface for the customers to access:

- Outage Map
- Power outage information
- Report a Power Quality Issue
- Emergency Preparedness Recommendations

The Safety Section contains information regarding:

- Medical Health Alert
- Generator Use Precautions
- Public Electrical Safety
- Down Power Line Safety

# 9 Restoration of Service

If an outside emergency management/emergency response agency requests a power shutdown, or if LCPUD elects to de-energize segments of its system due to extreme weather, LCPUD staff will patrol the affected portions of the system before the system is re-energized. Suspect equipment or distribution lines that cannot immediately be patrolled will remain de-energized until visual confirmation of safe conditions can be established. Poles and structures damaged in a wildfire must be assessed and rebuilt as needed prior to re-energization. Periodic customer and media updates of restoration status prior to full restoration will be made.

After a large outage, transmission circuits are given priority over distribution lines during the restoration process. LCPUD prioritizes outages at the higher-voltage level, which power substations serving large numbers of customers, schools, businesses, and hospitals first, then work is done to restore the largest feeders.

## 9.1 Restoration Process

LCPUD 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, LCPUD staff 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. Customers are then notified of the restoration of electric service. After initial power restoration, further demolition and rebuilding may be necessary.


# 10 Evaluating the Plan

In addition to a robust mitigation strategy, LCPUD 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 LCPUD'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

LCPUD has developed performance metrics intended to gauge the effectiveness of LCPUD's various programs and strategies for mitigating power-related ignitions. The 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 metrics are also intended to assess the performance of different aspects of the plan. These metrics quantify the risk environment of LCPUD's service territory and the designated mitigation practices of LCPUD.

LCPUD will evaluate the following metrics:

- **External Metric**
  - Number and duration of Red Flag Warning days
- **Reliability Metrics**
  - SAIDI data during fire season
  - SAIFI data during fire season
- **Distribution Performance Metrics**
  - Circuit Miles inspected via infrared
  - Count of inspection findings
- **Transmission Performance Metrics**
  - Circuit Miles inspected via infrared
  - Count of inspection findings
- **Vegetation Inspections**
  - Circuit miles trimmed
  - Circuit miles inspected
  - Circuit miles rated via satellite imagery
- Utility equipment caused ignitions

## 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, LCPUD will identify areas of its operations that will require a different approach, as well as develop additional methods to achieve the goal of eliminating LCPUD 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, LCPUD will identify areas of its operations that will require a different approach, as well as methods that are working towards the goal of eliminating LCPUD asset related ignitions.

The OM 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 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 and designated staff evaluate each reported deficiency to determine their

validity. The OM 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

LCPUD routinely coordinates and monitors the effectiveness of inspections with Operations staff, its VM contractors, and any company with whom LCPUD has contracted for pole inspections to ensure that all system inspections are completed as scheduled. These programs ensure the safe operation of LCPUD 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 managers regularly monitor inspection and corrective maintenance records and diagnostic test results to adjust maintenance plans and develop new programs. LCPUD make all efforts to follow best industry practices in developing its maintenance programs.

LCPUD's Vegetation Management Supervisor is responsible for performing the inspections and corrective maintenance. 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 LCPUD distribution system includes 7.2Kv 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)[8]:*** 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;
- Relative humidity less than or equal to 25%, and;
- A temperature of greater than 75 degrees Fahrenheit

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

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 LCPUD 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 |
| OM | General Manager |
| HFTA | High Fire Threat Area |
| IFPL | Industrial Fire Protection Level |
| KV | Kilovolt |
| KWH | Kilowatt Hours |
| LCPUD | Lewis County Public Utility District #1 |
| LDE | Line Down Event |
| LS | Line Superintendent |
| 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 |
| 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 |
| 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 |