June 28, 2021

Via Electronic Filing
Public Utility Commission of Oregon
Attention: Filing Center
P.O. Box 1088
Salem, OR 97308-1088

RE: RO 14– Lane Electric Cooperative's Wildfire Protection Plan

Dear Filing Center:

Please find attached the Lane Electric Cooperative's 2022 Wildfire Mitigation Plan (WMP) which is being submitted as required per Oregon Administrative Rule 860-300-0002(2).

Our plan highlights our efforts to develop a risk-based plan that will help us navigate the current challenges of rebuilding following the devastating Holiday Farm Fire in 2020, and hardening our assets against future wildfires.

We appreciate the work that staff and parties are doing to make Oregon a safer, more resilient state. We look forward to continuing to work with staff and parties to develop more comprehensive wildfire mitigation rules in AR 638, Phase II.

Respectfully Submitted,

/s/ Debi Wilson
Debi Wilson
General Manager, Lane Electric Cooperative

Aerial view of 2020 Holiday Farm Fire, Lane County, OR. Photo taken by ICF in support of Lane Electric.

Wildfire Mitigation Plan

Lane Electric Cooperative

787 Bailey Hill Road
Eugene, OR 97402

06/27/2022

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1 Introduction

Lane County includes large areas identified in the Oregon Natural Hazards Mitigation Plan[1] (NHMP) as being likely to experience increasing wildfire frequency and intensity under future climate change. The increase in fuel loads after decades of fire suppression activities combined with more drought and extreme heat has already led to an escalation of wildfire frequency and intensity. This escalation was witnessed in the especially destructive 2020 wildfire season, which demonstrated the validity of climate impact predictions and underscored the need for immediate action.

The 2020 wildfires that impacted Lane Electric Cooperative's (Lane Electric) electrical system occurred in areas previously determined to have moderate to low wildfire probability, further emphasizing the need to reevaluate wildfire risk and to develop cost-effective mitigation measures. To that end, Lane Electric has conducted a Geographic Information System (GIS) assessment to better identify and understand the highest wildfire risk areas along our electric grid. Over the next several months, Lane Electric will be evaluating these maps carefully and updating our mitigation strategies where necessary.

Lane Electric is already expanding its efforts to mitigate against wildfire. Whereas for the past 25 years, Lane Electric has consistently hardened 1% annually of its lines by undergrounding them, this year, Lane Electric is expanding its hardening efforts to include the installation of aerial cable systems where undergrounding is infeasible. In addition, Lane Electric is hardening lines that were damaged as a result of the 2019 winter storms and the 2020 Holiday Farm Fire to reduce future potential ignition threats from those lines.

With the threat of climate change accelerating the potential of damage to the cooperative's assets and outages faced by the customers we serve, Lane Electric is seeking Federal Emergency Management Agency (FEMA) funds to assist with the acceleration of its hardening efforts. To date, Lane Electric has received funding to proceed with several projects and is awaiting word on several additional projects. In addition to seeking to accelerate hardening efforts, Lane Electric also applied for a grant to develop and implement a communications outreach strategy to aid our customers in preparing for wildfire season and mitigating against wildfires in our area.

In 2021, the Oregon legislature passed the state's first comprehensive wildfire preparedness and resiliency bill, Senate Bill 762 (SB 762). Lane Electric is committed to continuing to make long-term investments to reduce the chances of catastrophic wildfire caused by the electric grid and to reduce risk to the grid from wildfires of all sources. Over the years, Lane Electric's policies, programs and procedures have evolved to adjust to the increasing threat of wildfires. In addition to complying with the mandates of SB 762, this Wildfire Mitigation Plan (Plan) offers the opportunity to document and assess these policies and practices and adopt new ones that will contribute to a more resilient Lane County.

[1] Oregon's Natural Hazards Mitigation Plan (NHMP) provides statewide and regional information on the natural hazards most likely to occur in the state. The Plan also reports on the potential impacts of natural hazards on people, property, and the environment, and establishes a mitigation strategy to reduce those impacts. The first Oregon NHMP was completed in 1992 and is updated every five years. Oregon's latest NHMP was approved by FEMA on September 24, 2020.

1.1 About Lane Electric Cooperative

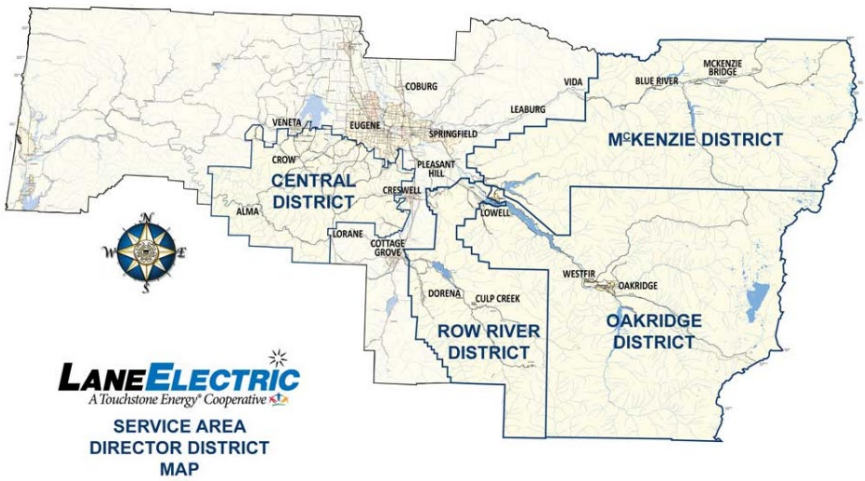
Lane Electric Cooperative (Lane Electric) was incorporated on May 17, 1939, to provide electric service on a cooperative basis to rural areas in Lane County that were not being served by other utilities. A small member-owned rural electric cooperative servicing 13,000 members through 1,479 miles of distribution line and 54 miles of energized transmission lines, Lane Electric's primary mission is to provide safe, reliable, and economical electric service to its member/owners.

Lane Electric's service territory covers 2,600 square miles including federal Forest Service land. It is bounded to the north by Linn County, to the east along the foothills of the Cascade Mountains, to the south by the Row River Valley and Oakridge, and on the west from the city of Veneta to the Coast Range. This service territory includes portions of Willamette National Forest in the east and Suislaw National Forest in the west. Lane Electric serves the following cities and towns: Blue River, Cottage Grove, Creswell, Culp Creek, Dexter, Dorena, Eugene, Fall Creek, Lorane, Oakridge, Pleasant Hill, Veneta, Vida, and Westfir.

As a cooperative, Lane Electric is owned by our member/owners who exercise control through an elected board of directors. The board determines strategic plans, general operating policies, electric rates, and the annual operating budget for the cooperative. The seven board members are elected to serve three-year terms from four Districts: Central District, the McKenzie District, the Row River District and the Oakridge District.

The General Manager is responsible for implementing the board directions and guidelines through the staff in the day-to-day operations of the cooperative.

Figure 1. Map of Lane Electric Territory



1.2 Goals and Objectives for Wildfire Mitigation Plan

The purpose of this Plan is to catalogue existing programs and activities, assess wildfire risk, and develop and implement policies and procedures that will minimize the risk from and impact on wildfire from the construction, maintenance and operation of Lane Electric's powerlines and equipment. This Plan is guided by mandates established in SB 762. To maintain consistency with other planning efforts, where appropriate, the Lane Electric Plan will draw on elements from the Lane County Community Wildfire Protection Plan

(LCCWPP)[2], the Lane County Multi-Jurisdiction Hazard Mitigation Plan[3], and the Oregon NHMP.

1.2.1 Regulatory Requirements for Senate Bill 762

The Oregon Public Utility Commission (PUC) is currently developing specific rules and plan requirements in response to SB 762. At present, much of the language in SB 762 applies only to investor-owned utilities. Until the Oregon PUC finalizes the rules, the mandates that currently pertain to Lane Electric as a consumer-owned utility are as follows:

- A consumer-owned utility must have and operate in compliance with a risk-based wildfire mitigation plan approved by the governing body of the utility. The plan must be designed to protect public safety, reduce risk to utility customers and promote electrical system resilience to wildfire damage.
- The consumer-owned utility shall regularly update the risk-based wildfire mitigation plan on a schedule the governing body deems consistent with prudent utility practices.
- A consumer-owned utility shall conduct a wildfire risk assessment of utility facilities. The utility shall review and revise the assessment on a schedule the governing body deems consistent with prudent utility practices.
- A consumer-owned utility shall submit a copy of the risk-based wildfire mitigation plan approved by the utility governing body to the Public Utility Commission to facilitate commission functions regarding statewide wildfire mitigation planning and wildfire preparedness by June 30, 2022.

1.2.2 Lane Electric Plan Objectives

The policies and procedures included in this Plan will address strategies to prevent fires and to reduce the impact of wildfires on the community and the provision of electricity. This Plan not only addresses the legislative intent of SB 762 to protect public safety, reduce risk to the community, and promote a more resilient electric system, it will also provide a foundation to build on as strategies are implemented, conditions change, and regulations are updated.

1.2.2.1 Minimize Sources of Ignition

A primary goal of this Plan is to minimize the probability that Lane Electric's transmission and distribution system may be the origin or contributing source for the ignition of a fire. Lane Electric has initiated an assessment of a range of improvements to its physical assets, operations, and training to meet this objective.

[2] Lane County Community Wildfire Protection Plan (LCCWPP) is a collaborative, community-based forest planning and prioritization process, developed by communities at risk from wildfire to help clarify and refine priorities for the protection of life, property, and critical infrastructure. Lane County is currently working in collaboration with the Oregon Department of Forestry and other agencies to update the 2005 Plan.
[3] Lane County Multi-Jurisdictional Hazard Mitigation Plan: The current version of the plan is 2017-2025 and aims to support all of Lane County, including both rural areas and incorporated cities, in becoming more aware of natural hazards and their associated risks

1.2.2.2 Improve Resiliency of the Electric Grid

Another important goal of this Plan is to improve the resiliency of the electric grid. As part of the development of this Plan, Lane Electric evaluated additional industry best practices, and new and emerging technologies, to add to our existing efforts to reduce the frequency and duration of service interruptions.

1.2.2.3 Implement Plan of Action

The final goal for this Plan is to implement the mitigation strategies recommended in this Plan as expeditiously as appropriate and to seek funding to support these upgrades. Lane Electric is already seeking grant funding for several of the mitigation strategies included in this Plan.

2 Risk Assessment

As the fires of 2020 revealed, the wildfire risk in our service territory is changing. Areas such as the McKenzie Valley that were previously deemed low or medium wildfire risk were the site of significant damage. To better understand the changing risk levels within our service territory, Lane Electric conducted a risk assessment to determine the areas that would suffer the greatest consequence from a wildfire and to identify the assets within those areas. This initial assessment will be evaluated over the next year to aid in the further development of wildfire mitigation strategies. Additional assessments are also under consideration.

The Risk Assessment for this Plan included an evaluation of the environmental-related risks such as topography and changing weather patterns, a review of the history of wildfires in the service territory, as well as a GIS analysis of the consequence of wildfire risk at the system, substation and critical infrastructure levels.

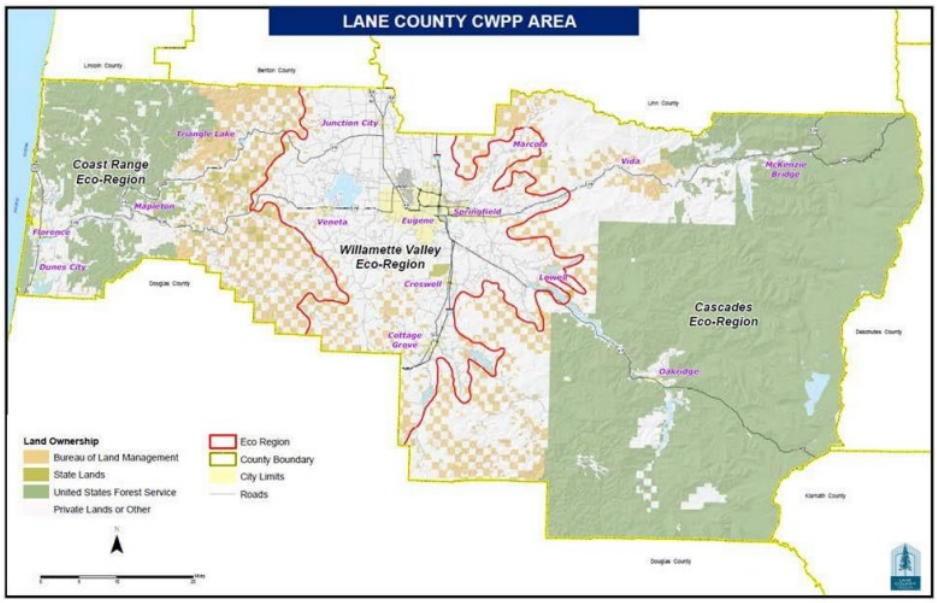
2.1 Environmental-Related Risks

2.1.1 Regional Description

Lane County covers 2.9 million acres, stretching from the Pacific Ocean to the crest of the Cascade Mountains. Nearly 90% of Lane County is forestlands. Lane County is made up of three distinct ecoregions with differing vegetative, geographic, and fire regime characteristics. Ecoregions were chosen as the assessment level for the LCCWPP to accommodate the scale provided by the Oregon Wildfire Risk Explorer, as well as reflect the dominant fire regimes in Lane County. These ecoregions are (from west to east) the Coast Range, Willamette Valley and Cascades.

Lane Electric's service area, which spans all three ecoregions within Lane County, is split into four districts: McKenzie, Oakridge, Row River and Central. The McKenzie, Oakridge and Row River districts are located almost entirely within the Cascades ecoregion, with small sections in the Willamette Valley. The Central district is in both the Willamette Valley and the Coast Range. The Lane County CWPP characterizes the three ecoregions as described in the following subsections.

Figure 2. Lane County Ecoregions



Source: Lane County Public Works GIS, 2020

2.1.1.1 Willamette Valley

The valley landforms include floodplains and terraces interlaced with surrounding rolling hills. The natural vegetation includes a mix of oak prairies and hardwood forests composed of oak, cottonwood, alder, Oregon ash, and big leaf maple. Douglas-fir, ponderosa pine, grand fir, incense-cedar, and western red cedar occur in moister areas. The valley has lower precipitation, warmer temperatures, and historic fire regimes of higher frequency and lower severity than adjacent Cascades or coast range.

2.1.1.2 Coast Range

This ecoregion is characterized by steep, highly dissected slopes with narrow ridges. The natural vegetation includes forests of Douglas-fir, western hemlock, western red cedar, and Sitka spruce. The coast range historically experienced lower frequency, higher severity fires when compared to both the Willamette Valley and Western Cascades.

2.1.1.3 Cascades

This ecoregion is characterized by ridge crests at similar elevations, separated by steep valleys. The natural vegetation consists of forests of Douglas-fir, western red cedar, and western hemlock at lower elevations and silver fir and mountain hemlock at higher elevations. The Cascade region typically sees more fire than the coast range, at mixed to high severities due to more natural ignitions via lightning events.

2.1.2 Communities At-Risk Assessment

Wildfire risk is very site specific and affected by the complex interaction of a variety of factors including topography, vegetation, and climate as noted in the section above. Another important factor is human influences. Districts most vulnerable to wildfire are the result of a dispersed population near abundant vegetative fuels. These forestlands contain extensive fuels composed of flammable grasses, brush, slash and timber.

Communities within or on the edge of the forest are also referred to as "Wildland-Urban Interface Communities." The wildland urban interface (WUI) is an area where residential or commercial structures and infrastructure are built in or near areas of undeveloped wildland or forests. These communities and ecosystems are often at greater risk of catastrophic wildfire because of the combined fuel of the wildlands and the infrastructure. This fuel can include wildland vegetation, infrastructure, and buildings.

According to Oregon Department of Forestry's (ODF) 2020 Communities at Risk report[4], wildfire vulnerability is generally low to moderate in Region 3 (which includes Lane County). Pleasant Hill is the only community within Lane County that is listed as a high-risk community. Upper McKenzie and Lower McKenzie were categorized as "moderate" wildfire risk, yet both of these communities were severely impacted by the 2020 Holiday Farm fire. Lane Electric has therefore conducted a detailed risk assessment for critical facilities relied upon by communities in the Risk Assessment section of this report (Section 2.3).

2.2 Wildfire History in Oregon

2.2.1 Holiday Farm Fire

The Holiday Farm Fire started along Highway 126 west of the McKenzie Bridge to Vida, Oregon. On September 7, 2020, unusually high east west winds propelled rapid fire growth. The fire burned over 173,000 acres in the McKenzie District of the Lane Electric service area. It destroyed 574 homes and 95 other structures, caused major damage to 41 additional homes, and left one man dead.

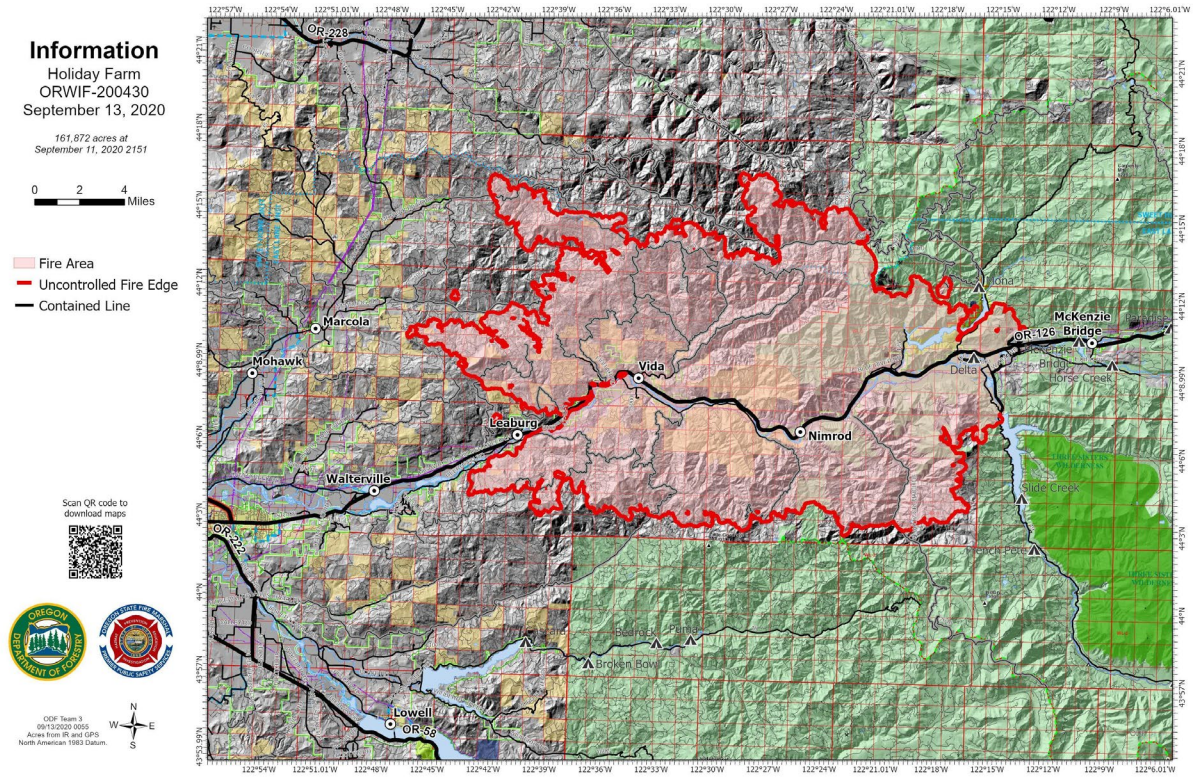
During the incident which lasted from September 7, 2020, to November 3, 2020, catastrophic damage to the Lane Electric power distribution network was experienced in the McKenzie District between the towns of Vida and Rainbow along State Highway 126. The wildfire and straight-line winds caused damage to main and secondary distribution circuits, burned and destroyed poles, crossarms, transformers, conductor, and miscellaneous structure hardware, and caused trees and broken limbs to fall into and across overhead power lines. Damage and power outages were recorded to the entire customer base.

The Holiday Farm Fire was one of the largest fires in Oregon's history. It was just one of many fires that burned in 2020.

[4] 2020 Oregon NHMP

Lane Electric has submitted a proposal to FEMA to replace overhead lines damaged in the fire with underground lines or a new aerial cable system, depending on feasibility. More detail on these mitigation strategies is included in Section 3 of this Plan.

Figure 3. Map of 2020 Holiday Farm Fire Area



2.2.2 Historical Fires

For centuries, wildfire has played a critical ecological role in the Oregon and Lane County ecosystems. Native Americans annually burned large areas of the Willamette Valley and coastal valleys to help maintain grasslands and savannahs.[10] Forest fires were relatively infrequent, although their size and severity were often large. Between 1846 and 1853, a series of large fires burned over 800,000 acres in the central Oregon coast range.[11] Over the last century, however, the disruption of natural fire cycles has created dangerous vegetative fuel loads and made forests vulnerable to catastrophic wildfires.

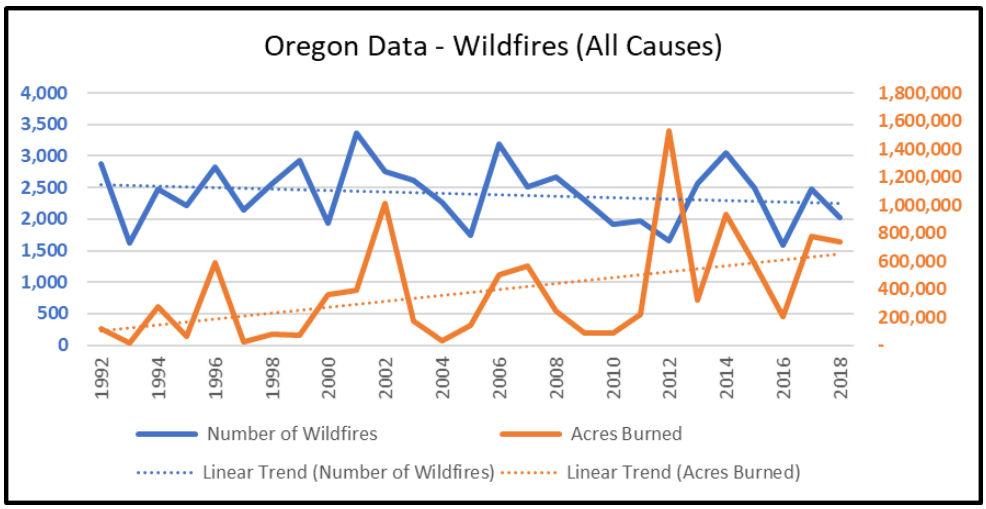
There are many examples of disastrous fires in Lane County. In 1910, the Nelson Mountain Fire burned many areas that are now state forestlands. Large fires burned in western Lane County in 1917, 1922, and 1929.[13] The 1966 Oxbow Fire, started by a faulty spark arrester, burned 44,000 acres in Lane County.[14] To the north of Lane County, the 1933 & 1951 Tillamook Burn fires consumed a combined 355,000 acres.[15]

2.2.3 Fire Trends

USFS research data regarding wildfire trends demonstrates that both the number of wildfires and the acreage burned are increasing nationally. Conversely, the same USFS wildfire

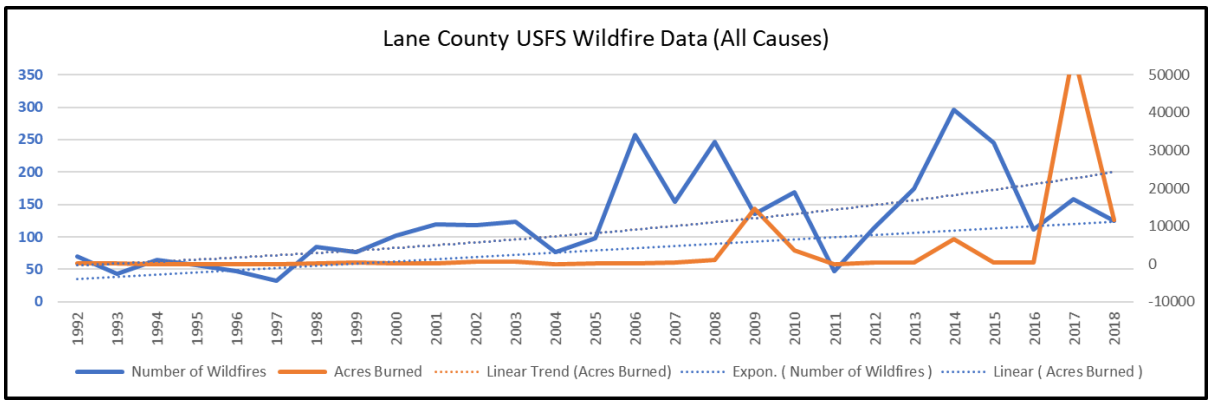
database shows that while the overall number of wildfires in Oregon has a long-term downward trend, the number of acres burned continues to increase.

Figure 4. Number of Fires and Acres Burned Oregon-wide



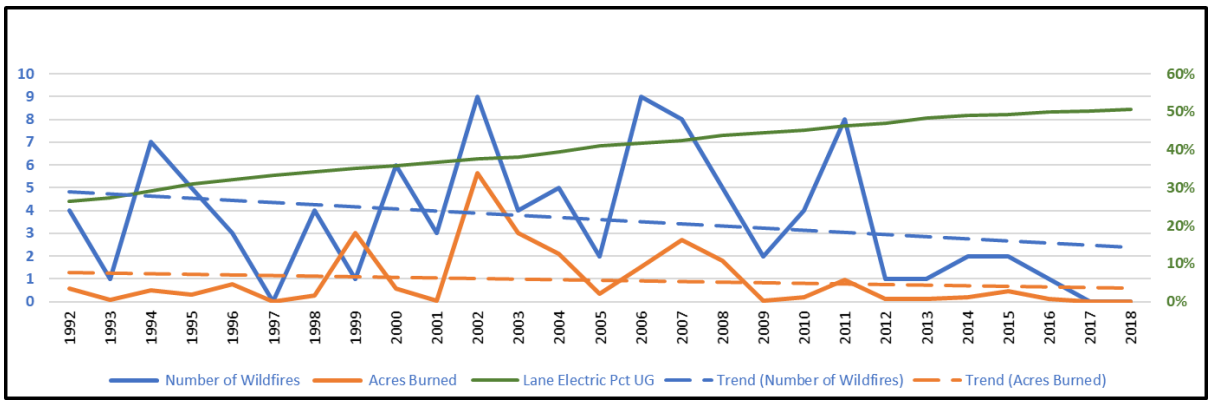
Unfortunately, the data for Lane County contradicts the Oregon trend of a declining number of wildfires. Both the number of wildfires in this traditionally 'wet' climate and the acres burned are increasing. This wildfire trend has a strong correlation with the long-term drought trend for the Lane County area.

Figure 5. Lane County Wildfires and Acres Burned From All Causes



However, within Lane County, both the number of wildfires attributed to powerlines and the acres burned in such fires are decreasing over time as is depicted in Figure 6 below. The green line in the figure shows the percentage of powerlines that Lane Electric has converted to underground increasing as the number of fires attributed to utility lines has decreased.

Figure 6. Lane County Fires from Utility Assets, Acres Burned and Undergrounding



2.2.4 Current and Future Climate Conditions

The fifth Oregon Climate Assessment was released in January 2021 by the Oregon Climate Change Research Institute.[5] It details both recent and anticipated changes in Oregon's climate. Summarized below are the weather-related factors that have the most impact on wildfire conditions.

2.2.4.1 Increased Average Temperatures

Oregon's annual average temperature increased by about 2.2°F since 1895. If greenhouse gas emissions continue at current levels, temperature in Oregon is projected to increase on average by 5°F by 2050 and 8.2°F by 2080, with the greatest seasonal increases in summer.

2.2.4.2 Increased Extreme Heat Events

The frequency and magnitude of days that are warmer than 90°F are increasing across Oregon. During summer, relative increases in nighttime minimum temperatures have been greater than those in daytime maximum temperatures. The frequency, duration, and intensity of extreme heat events is expected to increase throughout the state during the twenty-first century.

2.2.4.3 Variable Participation

Precipitation is projected to increase during winter and decrease during summer. The number and intensity of heavy precipitation events, particularly in winter, is projected to increase throughout the twenty-first century. Furthermore, as temperatures warm, the proportion of precipitation falling as rain rather than snow in Oregon is projected to increase, especially at lower to intermediate elevations in the Cascade Range.

[5] The Oregon Climate Change Research Institute (OCCRI) was created in 2007 by the Oregon State Legislature to assess the "state of climate change science, including biological, physical and social science, as it relates to Oregon and the likely effects of climate change on the state."

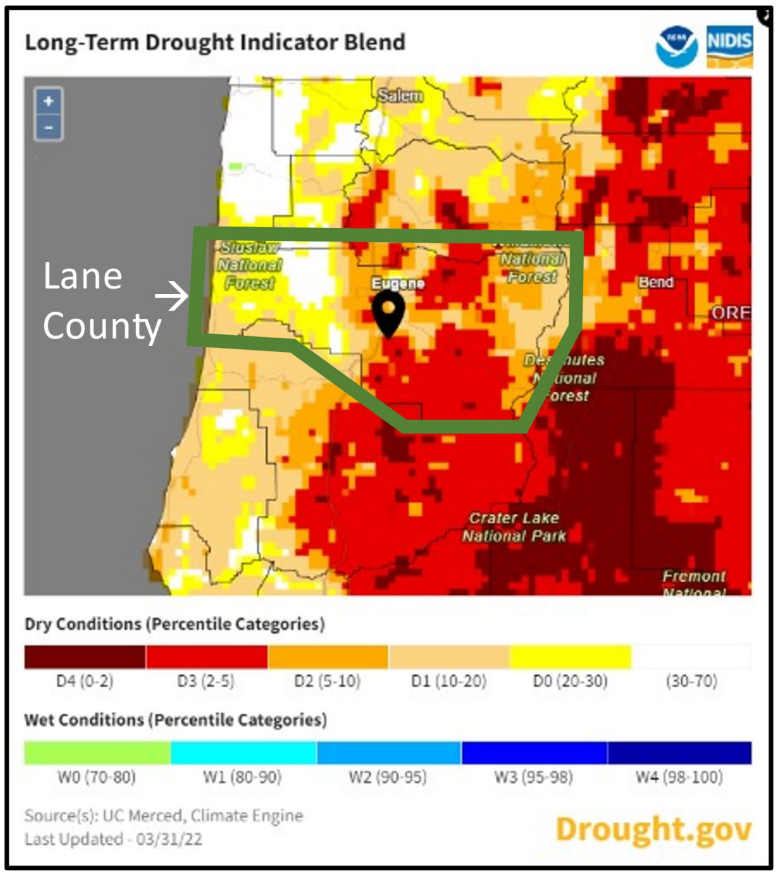
2.2.4.4 Decreased Snowpack and Variable Runoff

Snowpack throughout Oregon, especially on the west slope of the Cascade Range, is accumulating more slowly, reaching lower peak values, and melting earlier. These trends are likely to continue, and may accelerate, as temperature increases. Concomitantly, runoff is expected to begin and peak earlier in the year, decline in summer, and increase in winter, but will vary geographically.

2.2.4.5 Increased Drought

Over the past 20 years, the incidence, extent, and severity of drought in the Northwest increased. These changes are partially attributable to human-caused climate change. As summers in Oregon continue to become warmer and drier, and mountain snowpack decreases, the frequency of droughts, particularly snow droughts such as those in 2014 and 2015, is likely to increase.

Figure 7. Lane County Long-Term Drought Map



2.2.4.6 Increased Wildfire

Wildfire dynamics are affected by climate change, past and contemporary land management and human activity, and expansion of non-native invasive grasses. From 1984 through 2018, annual area burned in Oregon increased considerably. Over the next 50 to 100 years, area burned and fire frequency are projected to increase substantially, initially east of the crest of

the Cascade Range and then in the western Cascade Range. Over the long term, depending on how vegetation and fire weather shift with climatic changes and fuel and fire management, fire severity also may increase.

2.3 High Wildfire Risk Areas

A key effort in Lane Electric's Plan was the assessment of the highest-risk wildfire areas in our service territory. As part of that effort, Lane Electric conducted a thorough Geographic Information Systems (GIS) analysis to determine its wildfire risk from three distinct perspectives:

- System-wide risk: Lane Electric analyzed its infrastructure to determine how many cumulative miles are in high fire risk areas.
- Substation-level risk: To further guide mitigation decisions, Lane Electric segmented this analysis by substation to analyze its system on a more granular level.
- Critical infrastructure risk: Lane Electric contracted with ICF to conduct a geo-spatial analysis of critical infrastructure facilities within a 1-mile radius of its infrastructure to better understand the impact of wildfire on the community.

A wildfire risk assessment is a quantitative analysis of the assets and resources across a specific landscape and how they are potentially impacted by wildfire. The GIS fire data used in our analysis is a product of the USFS Pacific Northwest Quantitative Wildfire Risk Analysis (PNRA). This data is from 2018 and does not include historical fire occurrences and weather since 2018.

ICF used the "Overall Potential Impact" layer, which represents the consequence of wildfire, if it occurs, on all mapped highly valued assets and resources combined: critical infrastructure, developed recreation, housing unit density, seed orchards, sawmills, historic structures, timber, municipal watersheds, vegetation condition, and terrestrial and aquatic wildlife habitat. This data layer does not include the likelihood of an area burning; it shows potential impact only to characterize exposure. Areas are placed in four categories from low to very high overall potential impact. The category "Very High" is defined as: "Wildfire risk is very high to all mapped resources and assets combined: critical infrastructure, powerlines, developed recreation, housing unit density, timber, municipal watersheds, vegetation condition, and terrestrial and aquatic wildlife habitat. Very High represents the top 5 percent of values across the landscape."

2.3.1 System-Wide Risk

Lane Electric focused our system-wide risk analysis on the 655 miles of overhead primary lines that connect to Lane Electric's sub-transmission lines or to transmission lines owned by the Bonneville Power Administration. ICF compared our infrastructure to the US Forrest Service geo-database and found that approximately 200 line-miles are located above "very high fire-risk" vegetation areas. If an ignition were to start in these areas during a high-fire risk day, there is a strong probability the ignition could start a wildfire. Coupled with the critical infrastructure located within these areas, the wildfire would have a higher probability of causing significant damage. With this information in hand, Lane Electric can now re-evaluate the mitigation strategies in those potential high-risk areas to ensure they are sufficient to reduce the risk.

As noted earlier in this Plan, Lane Electric has been aggressively moving primary overhead lines underground for years. Of the 1,178 total miles of primary lines, 532 miles have already been moved underground. In the McKenzie District another 10 miles have been proposed to be undergrounded, or mitigated using an Aerial Cable System, as part of the rebuild from the 2020 Holiday Farm Fire. Several other projects are in progress ranging from one to five miles each.

2.3.2 Substation-Level Risk

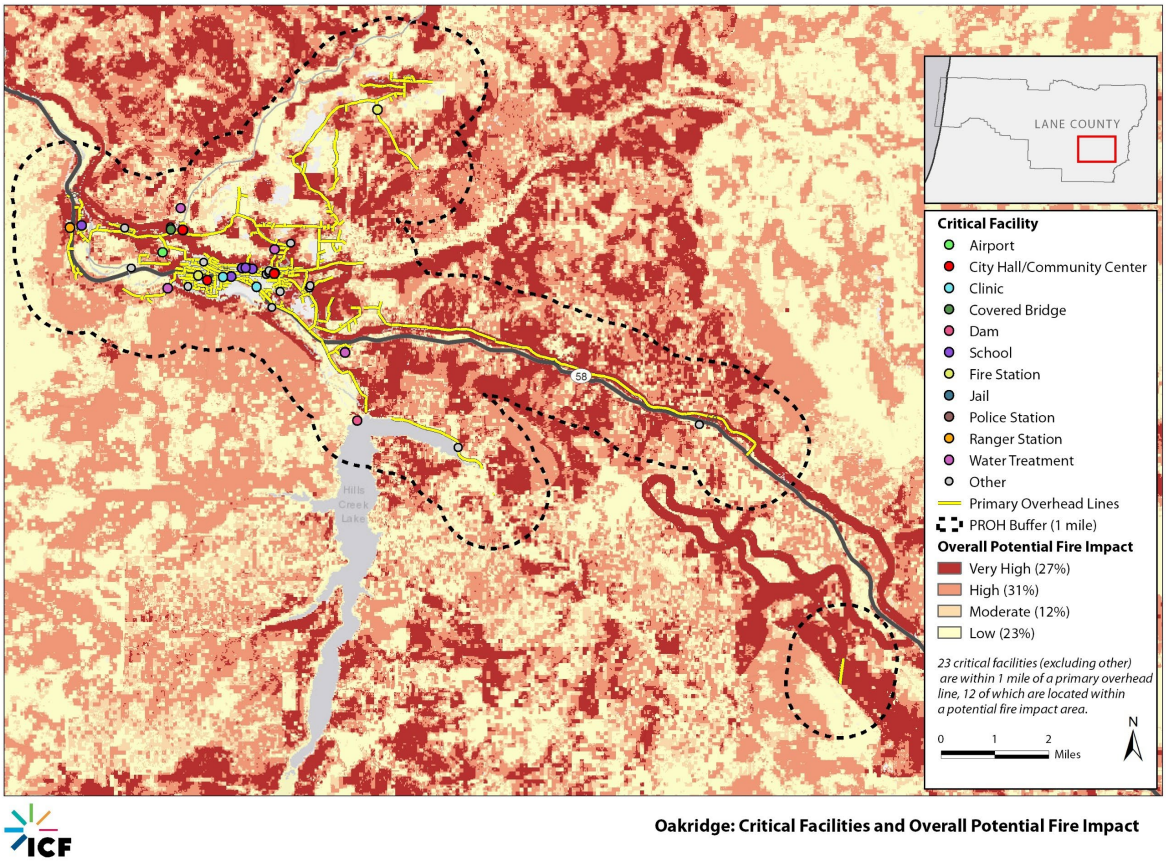
Below is a breakdown of the 200 miles of primary overhead lines that traverse potentially very high-fire risk vegetation by each of Lane Electric's 12 substations.

Figure 8. Number of High-Risk Miles by Substation

Substation	Sum of miles
Blue River	18.1
Culp Creek	15.7
Cloverdale	4.8
Dexter	39.2
Dorena	10.7
Fox Hollow	5.8
Fern Ridge	26.7
Hideaway	14.2
Lynx Hollow	4.8
Mosby Creek	4.8
Oakridge	29.3
Rainbow	26.3
Grand Total (Miles)	**200**

ICF created maps to visually display the fire risk for each of our 12 substations. The map for the Oakridge substation is provided below as an example. In Appendix A we have provided detailed information about the high-fire risk categories, study area, and adjacent critical infrastructure facilities.

Figure 9. Oakridge Overall Potential Fire Threat and Critical Facilities Map



In this example, you can see there is high fire risk in the proximity of Lane Electric's infrastructure as well as many of Oakridge's critical facilities.

2.3.3 Critical Infrastructure Risk

As a final part of our analysis, the GIS maps include a one-mile radius around Lane Electric's infrastructure to help identify critical infrastructure facilities near Lane Electric's infrastructure to determine what the community impact would be for a wildfire. Critical infrastructure facilities include schools, fire stations, medical facilities, and other utility services. In total, there are 97 facilities within very high-fire risk zones, 54 facilities within high-fire risk zones, and another 42 within moderate-fire risk zones. This information helps Lane Electric prioritize future mitigation projects as communities with a higher density of critical infrastructure facilities would have a disproportionate impact during a wildfire. Specific critical infrastructure facilities are noted in the legend for each map.

3 Wildfire Mitigation Strategies

Lane Electric is committed to making long-term investments to reduce the chances of catastrophic wildfire caused by the electric grid. Over the years, Lane Electric's policies, programs and procedures have evolved to adjust to the increasing threat of wildfires. In addition to complying with the mandates of SB 762, this Plan offers the opportunity to

document and assess our wildfire mitigation policies and practices and adopt new ones that will contribute to a more resilient Lane County.

This Plan focuses on our primary mitigation strategies: vegetation management, system hardening, public safety power shut offs (PSPS), and communications with our members.

3.1 Vegetation Management

In addition to complying with federal, state and local laws regarding vegetation management, Lane Electric has developed a set of policies to guide the management of trees and vegetation around its transmission and distribution facilities in a professional, cost effective and environmentally conscientious manner to provide safe, reliable, and exceptional service to its members.

While vegetation management has been an integral part of maintaining overhead electric distribution and transmission lines since the first poles were put in the ground, the increasing threat of wildfires has brought changes to traditional practices. To address this increasing threat, many utilities have enhanced their vegetation management practices in high-risk wildfire areas to reduce chances that downed powerlines will ignite a wildfire. Lane Electric is considering incorporating the following practices into its vegetation management protocols:

- Exceeding state standards for minimum clearances around power lines.
- Conducting pre-wildfire season vegetation inspections and remediation work on the highest wildfire risk distribution circuits.
- Identifying trees that could encroach on live conductors during the summer growing season and increasing trimming to ensure clearance from conductors for the entire growing season.
- Identifying and removing dead, diseased, dying or defective trees that could harm power lines or equipment during the pre-wildfire season vegetation inspection.
- Developing a more data-driven approach to vegetation management by using ground inspection data.

3.2 System Hardening

System Hardening is a key element of the Lane Electric Plan. Lane Electric has been undergrounding distribution lines wherever possible. To date almost half of the lines are undergrounded. But undergrounding is not always feasible, so Lane Electric has investigated other approaches to harden our overhead lines, namely the aerial cable system and compact modular reclosers. All three strategies are detailed below.

3.2.1 Overhead to Underground Conversion

Undergrounding existing overhead electrical infrastructure is known as the most effective way to reduce wildfire risk. Lane Electric has been a regional leader in undergrounding electric lines, with almost half of our electric lines already undergrounded. This mitigation strategy ensures communities and critical infrastructure maintain continuity of electrical

service and have continuous access to potable water during wildfire, ice, wind, and other extreme weather scenarios.

Undergrounding electric lines:

- Reduces the risk of wildfires caused by damage to overhead power lines in this critical ecosystem
- Decreases the instances of outages, especially as extreme weather events become more common due to climate change
- Ensures continuous energy to critical infrastructure and services in both rural communities and urban centers during fire, winter storms, and wind events

To date, Lane Electric has undergrounded almost half of our distribution and transmission system.

3.2.2 Aerial Cable System

Not all areas are suitable for undergrounding, often due to access, ground type and soil conditions. Where undergrounding is not technically or financially feasible, Lane Electric is considering the deployment of an overhead spacer-cable system to significantly reduce the likelihood of future outages in those areas where undergrounding is infeasible.

The current overhead system uses a standard “bare wire” design that is prone to outages from natural hazards and is known to be a wildfire ignition source when energized lines contact vegetation. To improve the resiliency of these lines, Lane Electric is considering the use of a new aerial cable system that upgrades three critical components. The first component of the system is a “covered conductor” that builds a barrier between the electric line and any objects that may make contact. Second, the new system employs spacers between lines to ensure that lines are unable to contact each other. Lastly, the system utilizes a stronger ‘messenger’ to support the wiring independently of the electrical conductors themselves. Used together, this system can withstand the weight of a heavy tree, strong winds, and severe ice storms without losing power.

Lane Electric has four projects totaling almost 11 miles over the next few years that will utilize this new system.

3.2.3 Compact Modular Reclosers

Lane Electric is set to begin the process of transitioning its oil-filled breakers to compact modular reclosers (CMR). By eliminating the insulating oil, the CMR reduces the risk of a failure potentially ejecting hot oil into surrounding vegetation and sparking a wildfire. The CMR is also known to reduce maintenance costs, utilize line voltage for power, leverage wireless communications for maintenance and to change configuration during ‘red flag’ days. Lane Electric will be looking to strategically target areas where this equipment can be the most impactful with its first round of installations later this year. We will be utilizing risk mapping analysis to aid in our decision making.

3.2.4 Situational Awareness

Rural electric cooperatives such as Lane Electric rely on a variety of sources to provide information about current conditions. For example, day-to-day coordination activities with

large landowners such as the United States Forest Service is a critical resource. For wildfire risk forecasts, Lane Electric subscribes to National Weather Service (NWS) forecasts. Red Flag Warning days issued by the NWS serve as a "trigger" event for Lane Electric, including the positioning of vegetation management staff and evaluating recloser settings.

Lane Electric also is part of a consortium of utilities and government agencies seeking to collaborate on a regional hazard detection and alert-and-warning system through the Oregon Hazards Lab at the University of Oregon (OHAZ).[6] Once completed, this project would provide a redundant network of weather stations, fire cameras, and technology connectivity to help utility supervisory control and data acquisition (SCADA) systems. As this system is being evaluated, Lane Electric is researching targeted pilot technologies in the form of communications back-haul[7], SCADA[8], and automated reclosers to serve in some of the highest risk areas of its network. The communication system back-haul can serve a dual purpose of added situational awareness tools in a future date. Lane Electric will continue to build out its technological capabilities where targeted solutions are preferred and support regional initiatives when shared resources are the best alternative.

3.3 Public Safety Power Shutoffs

Utilities may temporarily turn off power to specific areas to reduce the risk of fires caused by electric infrastructure. This action is called a Public Safety Power Shutoff (PSPS) or "de-energization." A PSPS could be triggered when on-the-ground factors and weather conditions create an extreme wildfire risk that could lead to loss of life, catastrophic damage and be difficult to fight. Communities not in a high fire-threat area or an area experiencing high winds may have power shut off if that community relies on a line that runs through areas that are. The goal is to impact as few members as possible in pre-identified areas through highly targeted circuit by circuit shutoffs.

Discontinuing service is not a mitigation strategy taken lightly by Lane Electric. The decision to discontinue electric service would be based in part on a red-flag warning issued by the NWS that is based on conditions including extremely low humidity, sustained high winds, and the state of fuels such as small vegetation. Lane Electric would also consider current and forecasted weather conditions reported from multiple third parties, real-time observation from on-the-ground experts and Lane Electric crew, and input from local public safety and health agencies. In the event of a PSPS event, Lane Electric crews will patrol lines after extreme conditions lessen to inspect for damage and hanging debris. Power would be restored once all lines are cleared and repairs are made.

Lane Electric will use all communication channels available to notify members before, during and after a PSPS event. This includes outbound calls, social media updates, media advisories, website banners and alerts. Lane Electric would develop specific communications protocols for a PSPS event. The communication plan in Section 3.5 below

[6] Oregon Hazards Lab | Environment Initiative (uoregon.edu)
[7] In a hierarchical telecommunications network, the backhaul portion of the network comprises the intermediate links between the core network, or backbone network, and the small subnetworks at the *edge* of the network.
[8] Supervisory control and data acquisition (SCADA) is a control system architecture comprising computers, networked data communications and graphical user interfaces for high-level supervision of machines and processes. It also covers sensors and other devices, such as programmable logic controllers, which interface with process plant or machinery.

will also include PSPS communications strategies.

3.4 Communications

Lane Electric is in the beginning stages of developing a system-wide public education campaign for wildfires and PSPS. For the general wildfire threat, Lane Electric will supplement the county and state's whole-community preparedness efforts. This effort will result in Lane Electric's members knowing their evacuation routes, preparing go-kits, and engaging in residential wildfire mitigation. This information will save lives and protect property.

In addition, this campaign will help prepare residents for any adverse impacts occurring as the result of a PSPS. The campaign would allow members to take basic actions to make sure they are safe when their electricity is turned off. Members could also take basic precautions to make sure they are subscribed to their alert and warning system, have alternative food storage, and have enough water available if they rely on electricity to operate a well pump. The initial phase of the campaign includes research on how to appropriately message a PSPS to make sure that adverse impacts are minimized to the general population.

Further, this campaign will involve the development of targeted solutions to help access and functional needs populations. Many individuals rely on electricity that is critical for public health, safety, and enabling daily activities including oxygen support, dialysis, power wheelchairs, and refrigeration for medication. With the advanced notice that a PSPS requires, these individuals can make sure that they have access to a secondary location for the duration of the event or that their backup batteries are charged. Many utilities in California who have implemented PSPS focus considerable attention on individuals with access and functional needs for this purpose and have reported success in preventing adverse conditions.

Lane Electric's Wildfire Preparedness Campaign will consist of four phases. The first two phases include one-time campaign development and planning. The second two phases include annual campaign implementation and continuous improvement.

4 Future Activities

Lane Electric is committed to protecting its customers and employees against utility-caused wildfire. In addition to the efforts outlined in this Plan to accelerate the hardening of the system assets and improving communications with our members we are also looking for additional ways to improve our performance.

Prior to the next update of its WMP, Lane Electric may conduct the following activities:

- Asset inventory: Lane Electric's grid has been constructed over decades as the community it serves has grown. While Lane Electric knows the general components and condition of its grid, documenting more granular information can help the utility anticipate future preventative maintenance and replacement needs.
- Public Safety Power Shutoff: Lane Electric has a plan in place to implement a PSPS should the environmental conditions dictate a situation where de-energizing a line increases community safety. To better inform a future situation, Lane Electric may

conduct additional preparedness studies to gain further insight on how their infrastructure responds to wind or other conditions.

- Critical infrastructure vulnerability assessment: With an up-to-date asset inventory, Lane Electric may conduct additional risk assessments to determine the vulnerability of different parts of its grid.
- Prioritize future mitigation actions: Lane Electric may use the risk assessment information from the WMP development process to prioritize key mitigation projects.
- Virtual town hall meetings: Lane Electric may conduct outreach to its members regarding the Plan via virtual town hall meetings.
- Virtual stakeholder meetings: Lane Electric may conduct stakeholder meetings with forest management organizations, critical infrastructure partners, and neighboring utilities.
- Public comments: Lane Electric plans to collect comments and incorporate feedback into its Plan, where appropriate.
- Develop Plan maintenance process: Lane Electric will determine the appropriate time interval to review and update its Plan.