



2022 WILDFIRE MITIGATION PLAN

**MIDSTATE ELECTRIC
COOPERATIVE, INC.**

DATE: JUNE, 2022



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1 Introduction/Executive Summary

Oregon has experienced some of the most devastating and catastrophic wildfires in the country. These unusually large wildfires are on the rise in the PNW with an increase in fires in west-side conifer forests. In the western U.S. region encompassing the PNW, the annual probability of very large fires is projected to increase by a factor of 4 in 2041-2070 compared to 1971-2000¹.

As a result of this increased wildfire danger the Oregon legislature passed Senate Bill 762 which Gov. Kate Brown signed into law in 2021. SB 762 establishes new programs to fight and mitigate wildfires, bolster recovery, help communities adapt to smoke, and implement changes to the state's building code for structures within high-risk areas in the wildland-urban interface (WUI). It also requires consumer owned electric utilities develop risk-based wildfire mitigation plans and submit them to the Oregon Public Utility Commission (OPUC) by June 30, 2022.

For Midstate Electric Cooperative (MEC), which aims to protect public safety and preserve the reliable delivery of electricity, wildfire mitigation is without question a top priority. While an electric utility can never fully eliminate the risk of fire, MEC is committed to taking all practical actions available to it to prevent 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.

1.1 Purpose of the Plan

The Plan describes the MEC's strategies, programs, and procedures to mitigate the threat of electrical equipment ignited wildfires, and addresses the unique features of its service territory, such as topography,

¹ Northwest Climate Adaptation Science Center

weather, infrastructure, grid configuration, and areas most prone to wildfire risks. This includes the maintenance of its transmission and distribution (T&D) assets as well as the management of vegetation in the ROWs that contain these assets.

This plan expands upon our existing Maintenance and Safety Programs to reduce the risk of fire ignitions and is part of ongoing strategic efforts to improve the safety and resiliency of our electric system. MEC will have a wildfire mitigation plan in place by June 30, 2022, and will be reviewed annually thereafter and updated every 3 years.

1.2 Objectives of the WMP

The main objective seeks to implement an actionable plan to create increased reliability and safety while minimizing the likelihood that MEC assets may be the origin or contributing factor in the ignition of a wildfire. This plan was developed to be consistent with current industry best management practices and will comply with regulations and guidelines set by the Oregon Public Utilities Commission (OPUC), current Oregon State law, and National Electric Safety Code (NESC). To help develop the Plan, MEC compared emerging technologies that not only reduce the likelihood of a service interruption, but also minimize the risk of ignition from the fault causing the outage.

The secondary goal of this Wildfire Mitigation Plan is to improve the resiliency of the electric grid. As part of the development of this plan, MEC assesses new industry practices and technologies that will reduce the likelihood of a disruption in service and improve the restoration of service.

The final objective is to measure, through the annual evaluation of certain performance metrics, the effectiveness of the specific wildfire mitigation strategies. Where a particular action, program component or protocol proves unnecessary or ineffective, MEC will assess whether modification or replacement is merited. This plan will also help determine if more cost-effective measures would produce the same or better results.

1.3 Policy Statement

Midstate Electric Cooperative's (MEC) overarching goal is to provide safe, reliable, and economic electric service to its local community. To meet this goal, MEC constructs, maintains, and operates its electrical lines and equipment in a manner that minimizes the risk of catastrophic wildfire posed by its electrical lines and equipment.

1.4 Utility Profile and History

The MEC is a private, non-profit electric cooperative incorporated in 1948 and energized in 1952 to provide reliable electric service to its member-owners at the lowest rates possible. Having grown from 153 consumer-owners in 1952, MEC now serves over 16,900 members in four counties in the Central Oregon area².

² Deschutes County, Klamath County, Lake County, Lane County

MEC is governed by a nine-member popularly elected Board of Directors (BOD) that determines cooperative policy. While MEC's BOD review and approve the Plan as needed, its implementation resides primarily with the Operations and Engineering Managers (OEMs), and it is the General Manager (GM) who is ultimately responsible.

MEC is one of 18 rural electric cooperatives in Oregon and is a member of the National Rural Electric Cooperative Association (NRECA) and Oregon Rural Electric Cooperative Association (ORECA).

1.5 The Service Area

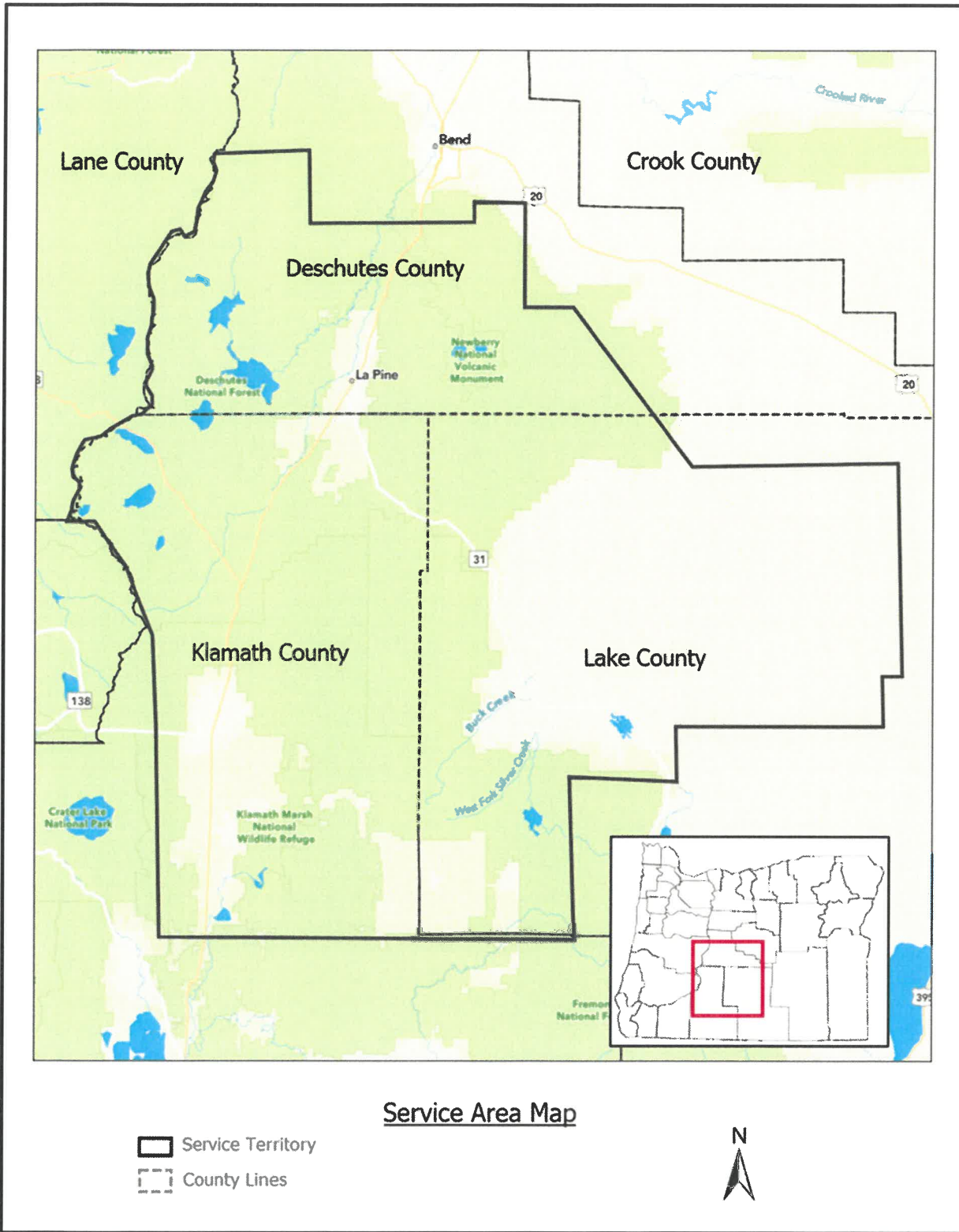
Operating out of offices located in La Pine, Oregon, MEC's service territory covers 5,600 square miles from the Cascade Mountains on the Western boundary, Lava Butte on the North boundary, Klamath Marsh to the South, and East of Christmas Valley on the East boundary (Figure 1). The system spans approximately 100 miles east to west and 90 miles north to south.

MEC's service area has a Northern Pacific coastal climate and a summer fire season running In the region of Central Oregon, summers are short, warm, dry, and mostly clear and the winters are very cold, snowy, and partly cloudy. Over the course of the year, the temperature typically varies from 23°F to 82°F and is rarely below 0°F or above 91°F³.

Located in the foothills on eastern side of the Cascade Range, the service area is heavily treed with a large portion comprised of National Forest System lands and private tree farms. The areas east of Highway 31, and south of the Deschutes National Forest, are made up of drier, more flat and irrigated croplands. Transmission and Distribution (T&D) assets range in altitude from ~4,260' in La Pine to ~7,000 at the communication tower sites on the mountain peaks.

³ <https://www.usclimatedata.com/climate/la-pine/oregon/united-states/usor0529>

Figure 1. Service Area



2 Overview of Utility’s Fire Prevention Strategies

2.1 Strategy and Program Overview

MEC has developed many programs to address safety and environmental stewardship. Many of these relate directly to wildfire safety while others are just supporting other goals of our operations. Beyond the actual Vegetation Management Policy and Plans, MEC’s other programs listed below are integral supplements to the Vegetation Management Plan and reduce wildfire ignition through their structure and practices.

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

- **Design & Construction:** MEC’s design and construction consist of system, equipment, infrastructure design, and technical upgrades. These practices aim to improve system hardening to reduce contact between infrastructure and burnable fuel sources to minimize the risk of MEC’s systems becoming a source of ignition.
- **Inspection & Maintenance:** MEC’s inspection and maintenance strategies consist of diagnostic activities as well as various methods of maintaining and ensuring all equipment and infrastructure is in functional working condition.
- **Operational Practices:** Comprised of proactive day-to-day actions taken to mitigate wildfire risks and to ensure preparedness in high-risk situations, such as dry and windy climatological conditions.
- **Situational & Conditional Awareness:** This component consists of methods to improve system visualization and awareness of environmental conditions. The practices in this category aim to provide tools to improve the other components of the Plan.
- **Response & Recovery:** These strategies consist of MEC’s procedures and protocols for response to wildfire, the process for restoring power after a major outage, and the methods for efficient communications with emergency responders.

This WMP integrates and interfaces with MEC’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 1 summarizes MEC’s five mitigation components with associated programs and activities that support MEC’s ongoing commitment to wildfire prevention and mitigation and overall system resiliency.

Table 1. Mitigation Strategies/Activities

DESIGN AND CONSTRUCTION

Strategic undergrounding of distribution lines

Underground secondary line construction
Field recloser to vacuum-type breaker change-out program
Covered jumpers and animal guards
Replace expulsion fuses with OCRs in select locations
Wildlife protection construction standards
Avian Protection Plan
SCADA controlled line reclosers
Line fault indicators
Alternative pole construction in select locations (steel poles)
Substation perimeter fencing for security and protection
Looped transmission and distribution systems
12' cross arms on dead ends
Construction standards to minimize threat

INSPECTION AND MAINTENANCE

Infrared inspections of substation equipment
Detailed NESC safety inspections of transmission lines
Detailed NESC safety inspections of distribution lines
Routine T&D line inspection cycle
Hazard tree identification and removal program
Vegetation management program
Midline recloser maintenance procedures
UAV IR and LiDAR inspection program
Wood pole intrusive inspection and testing
Substation detailed inspection program

OPERATIONAL PRACTICES

Work procedures and Fire Hazard training for persons working in locations with elevated fire risk conditions

Community outreach/wildfire safety awareness

Contractor/staff safety training and orientation for vegetation management work

Alternate recloser practices during fire weather

Wildfire mitigation efforts integrated into budget cycles

Fire suppression equipment on worksite during fire season

Monitoring emerging mitigation and resilience technologies

Provide liaison to county offices of emergency services (OES) during fire event

Tacking current and emerging technologies

SITUATIONAL AWARENESS

Weather monitoring in the service area

Utility-owned weather station (by year end 2022)

Monitoring active fires in the Pacific Northwest

RESPONSE AND RECOVERY

Pre-emptive de-energization protocols

Coordination with local Department of Emergency Management

Customer assistance programs for post-disaster recovery

Line patrols before re-energization

Business Continuity Plan

3 Utility Asset Overview

Power is provided to MEC member-customers by way of bulk substations, overhead transmission lines, and overhead and underground distribution line assets. The utility has its headquarters office, operations center, and equipment storage facility in La Pine, OR and provides electrical service to over 21,400 meters over 2,411 miles of energized line.

As a preferred customer of the Bonneville Power Administration, MEC retains first right to low-cost federally owned hydroelectric resources. MEC buys 100% of its wholesale power from the Bonneville Power Administration (BPA).

The local power network is a part of a larger electrical grid serving the Central Oregon and greater Pacific Northwest region and other electric power providers own and maintain transmission facilities within the service area. Major BPA transmission corridors with 115kV, 230kV, and 500kV lines carry power into and through the service area.

Table 2 provides a high-level description of MEC’s T&D assets.

Table 2. Asset Overview

ASSET CLASSIFICATION	ASSET DESCRIPTION
Transmission Assets	Approximately 220 miles of conductor, transmission structures and switches at 69kV and 115kV
Distribution Assets	Approximately 1,262 miles of overhead (OH) and 778 miles of underground (UG) conductor, cabling, transformers, voltage regulators, capacitors, switches, lined protective devices operating at or below 24.9kV.
Substation Assets	Major equipment such as power transformers, voltage regulators, capacitors, reactors, protective devices, relays, open-air structures, switchgear, and control houses in 13 substation/switchyard facilities.

4 Risk Analysis and Risk Drivers

4.1 Fire Risk Drivers Related to Construction and Operations

MEC staff evaluated other utility’s fire causes and

applied its own field experience to determine the critical potential risk drivers. The categories listed below were identified as having the potential for causing powerline sparks and ignitions:

- Equipment/facility failure
- Foreign contact
- Vehicle impact

- Wire to wire contact
- Standard expulsion fuses
- Vandalism

4.2 Fire Risk Drivers Related to the Service Area

Within MEC's service area the following are additional environmental risk drivers for wildfire:

- A shift to dryer and hotter summers than normal
- Vegetation Type
- Tree mortality/tree failure
- High winds
- Steep terrain
- Wildlife contact
- Red Flag Warning Conditions

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.

4.3 Key Risk Impacts

Ignitions caused by the aforementioned Risk Drivers (RDs) have many possible outcomes. The list below outlines some of the worst-case scenarios, the prevention of which is the impetus for the development of this WMP:

- Personal injuries or fatalities to the public, employees, and contractors
- Damage to public and/or private property
- Damage and loss of MEC owned infrastructures and assets
- Impacts to reliability and operations
- Damage claims and litigation costs, as well as fines from governing bodies
- Damage to MEC's reputation and loss of public confidence

4.4 Wildfire History and Outlook

Fire season in Oregon generally lasts from mid-May through mid-September, but research indicates that this is changing. Fire seasons from 2003 through 2012 averaged more than 84 days longer than in 1973 to 1982⁴ in the Western U.S. region and the largest fire years coincide with warm spring and summer temperatures, and early spring snowmelt. Annual large wildfire frequency in USFS, National Park Service, and Bureau of Indian Affairs (BIA) forests is significantly correlated with spring and summer temperature.

⁴ Westerling, A.L. 2016 Increasing Western US Forest Wildfire Activity; <https://royalsocietypublishing.org/doi/10.1098/rstb.2015.0178>

Projected warmer and drier summers and declining snowpack and correlated decreases in summer soil moisture will increase the risk of wildfires, particularly in forested areas where fuels are abundant⁵. What the US Forest Service once characterized as a four-month-long fire season now stretches into six to eight months of the year. Wildfires are starting earlier, burning more intensely and scorching swaths of land larger than ever before. Eight of the top 20 fires in Oregon have occurred since 2018⁶.

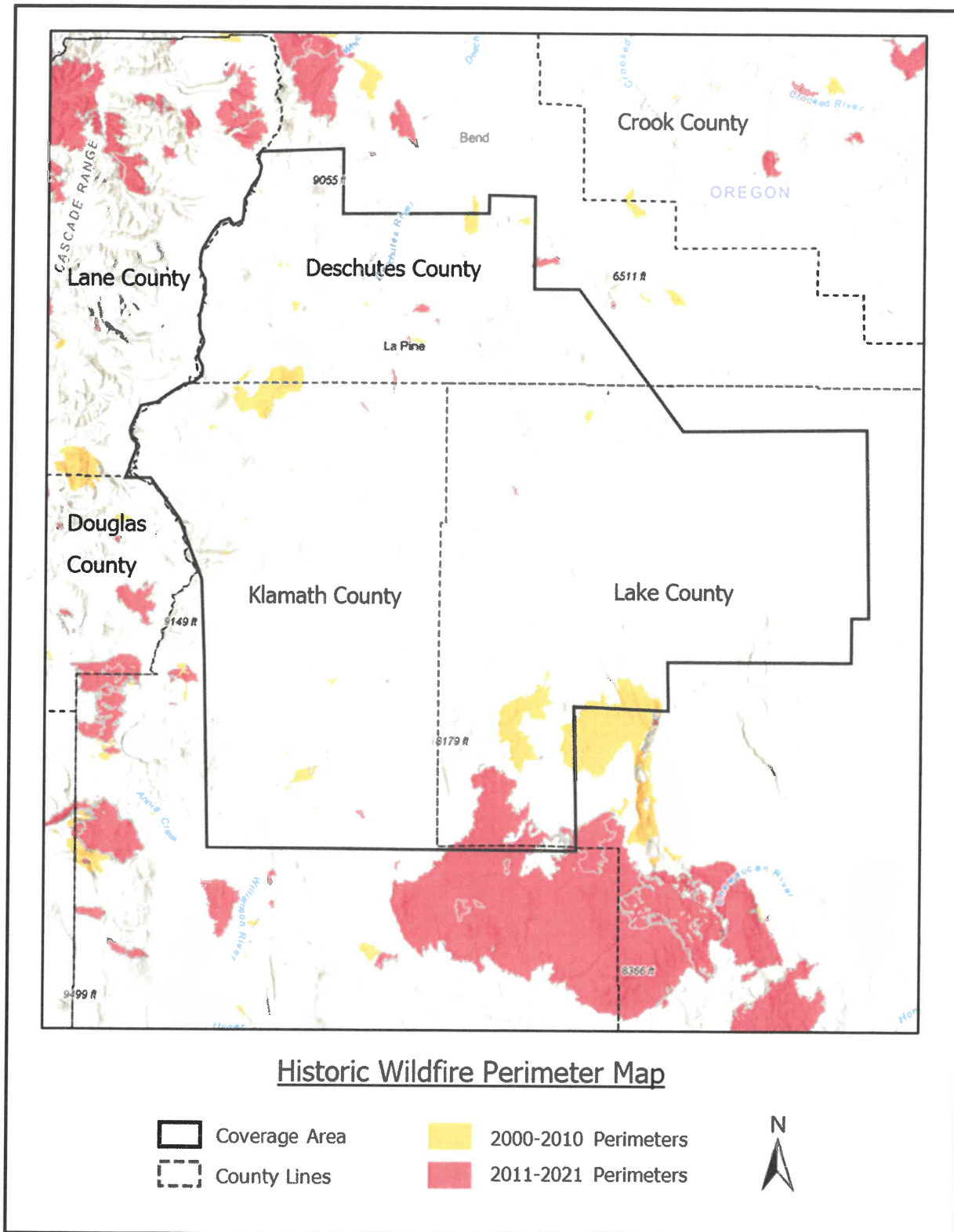
Vegetative fuel levels in the area are very high and the potential for very large fires now exists nearly year-round. More than one-third of Oregon, on average, has been in severe drought or worse from 2000 to 2020, according to the fifth and latest Oregon Climate Assessment. Three-quarters of the state currently remain in severe drought conditions or worse.

Figure 2 illustrates the fire history within and surrounding the service area from 2000 through 2021.

⁵ RMJOC 2018; Gergel et al 2017

⁶ Firefighter's Support Alliance

Figure 2. Historic Wildfire Perimeters 2000-2021



4.5 Wildland Urban Interface

The United States Forest Service (USFS) defines the wildland urban interface (WUI) as a place where humans and their development meet or intermix with wildland fuel. Communities that are within 0.5 miles of the zone are included. According to the USDA Forest Service, the area considered WUI has expanded 39% in Oregon from 1990 to 2010, with the number of homes increasing by 53.6%⁷. There are now over 615,000 homes in Oregon located in the WUI⁸.

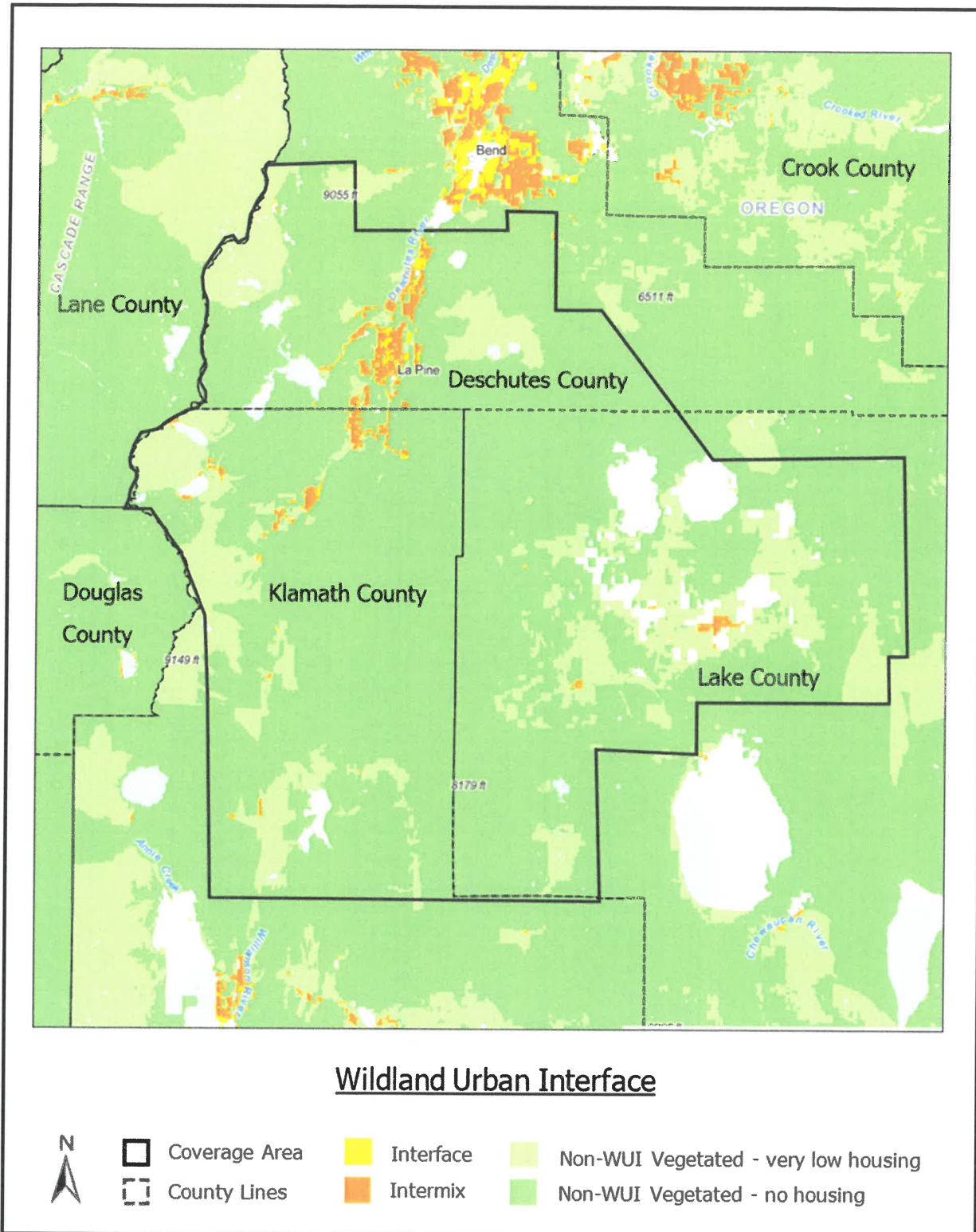
The WUI is composed of both interface and intermix communities. The distinction between these is based on the characteristics and distribution of houses and wildland vegetation across the landscape. Intermix WUI refers to areas where housing and wildland vegetation intermingle, while interface WUI refers to areas where housing is in the vicinity of a large area of dense wildland vegetation. Figure 3 illustrates the distribution of WUI areas in the service area.

The USFS has established five classes of WUI in its assessment:

- **WUI Intermix:** Areas with ≥ 16 houses per square mile and ≥ 50 percent cover of wildland vegetation
- **WUI Interface:** Areas with ≥ 16 houses per square mile and < 50 percent cover of vegetation located < 1.5 miles from an area ≥ 2 square miles in size that is ≥ 75 percent vegetated
- **Non- WUI Vegetated (no housing):** Areas with ≥ 50 percent cover of wildland vegetation and no houses (e.g., protected areas, steep slopes, mountain tops)
- **Non-WUI (very low housing density):** Areas with ≥ 50 percent cover of wildland vegetation and < 16 houses per square mile (e.g., dispersed rural housing outside neighborhoods)

Figure 3. Wildland Urban Interface

⁷ https://www.nrs.fs.fed.us/data/wui/state_summary/



4.6 Fire Threat Assessment Mapping

The Wildfire Hazard Potential (WHP) risk map shown in Figure 4 is derived from a 270-meter resolution raster geospatial product created by the USDA/USFS, Fire Modeling Institute. This specific dataset is the Wildfire Hazard Potential⁹ Version 2020, which is the third edition of the WHP product and depicts landscape conditions of the conterminous United States as of the end of 2014.

WHP was built upon spatial datasets of wildfire likelihood and fire intensity using the Large Fire Simulator (FSim), as well as spatial fuels and vegetation data from Landfire 2014, and point locations of historic fire occurrence (ca. 1992-2015). The objective of the map was to depict relative potential for wildfire that would be difficult for suppression resources to contain and for long-term strategic fuels management planning. MEC has incorporated the High Fire Threat areas into its construction, inspection, maintenance, repair, and clearance practices.

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 structures or powerlines, it can approximate relative wildfire risk to those specific resources and assets.

The data described here are derived from wildfire simulation modeling, and their exact accuracy cannot be measured. They are intended to be relative measures of wildfire risk for planning purposes. WHP is also 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.

4.6.1 High Fire Threat Areas

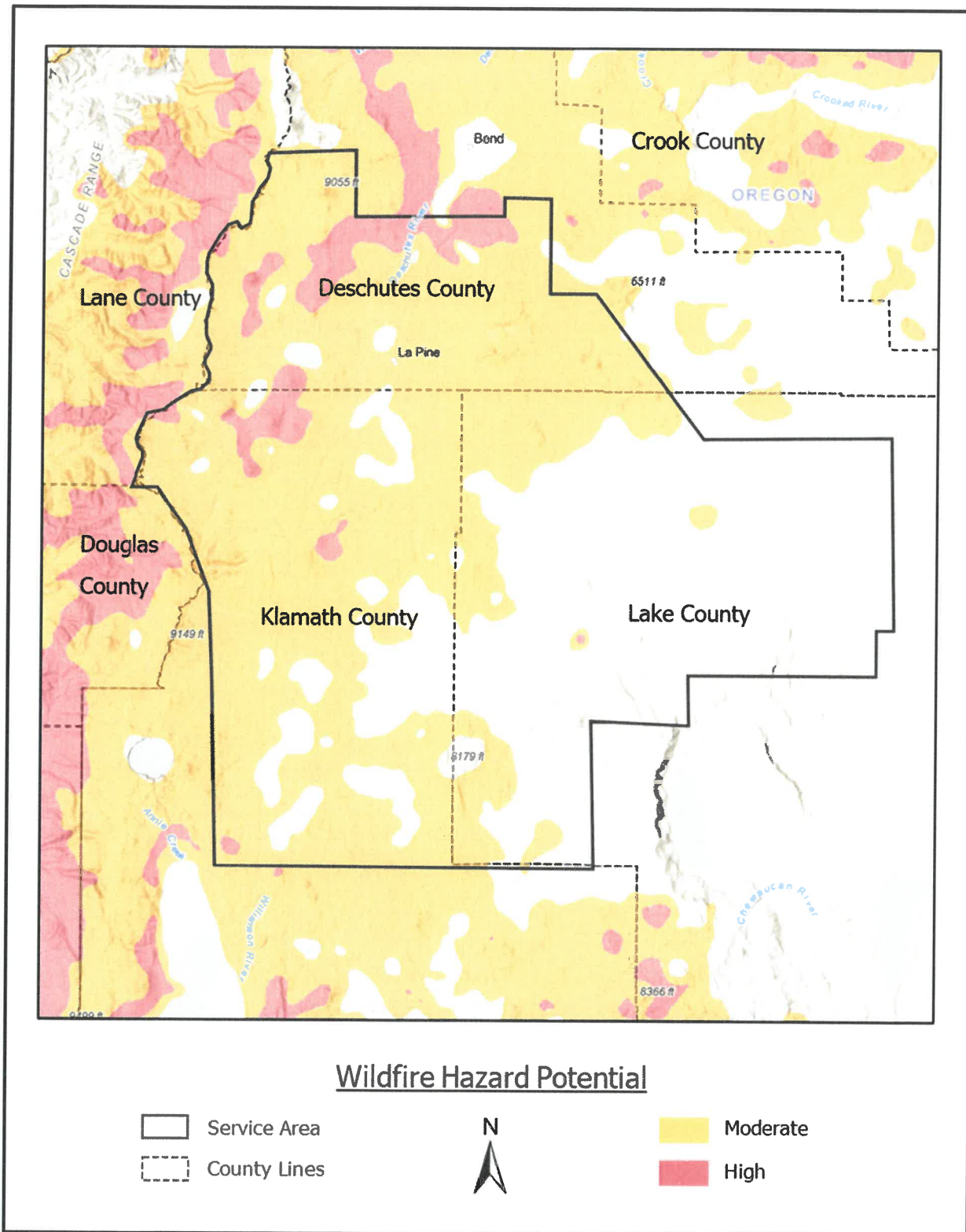
Through the risk mapping process, as well as extensive knowledge of the service area, the following areas have been identified as having moderate to high risk:

1. Highway 97 Corridor
2. Cascade Lakes Highway
3. Newberry Estate / Paulina Lake
4. Highway 58
5. Silver Lake

MEC has reviewed the areas that are at an elevated risk of power line ignited wildfires and has incorporated these High Fire Threat Areas (HFTAs) into its construction, inspection, maintenance, repair, and clearance practices.

⁹ Product citation: *Dillon, Gregory K. 2015. Wildfire Hazard Potential (WHP) for the conterminous United States (270-m GRID), version 2020 classified. 3rd Edition. Fort Collins, CO: Forest Service Research Data Archive. <https://doi.org/10.2737/RDS-2015-0047-3>*

Figure 4. Wildfire Hazard Potential



5 Wildfire Prevention Strategy and Programs

5.1 Transmission and Distribution System Operational Practices

5.1.1 De-energization – Public Safety Power Shutoff

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, MEC examines the impacts on fire response, water supply, public safety, and emergency communications. MEC considers the external risks and potential consequences of de-energization while striving to meet its main priority of protecting the communities and members 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.
- 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 can lead to injuries and fatalities.

The risks and potential consequences of initiating a PSPS are significant and extremely complex. Based on the above considerations, MEC reserves the option of implementing a PSPS when conditions dictate. While MEC 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 in a potential crisis.

On a case-by-case basis, MEC has historically and will continue to consider de-energizing a portion of its system in response to a known public safety issue or response to a request from an outside emergency management/response agency. Any de-energization decision will be based on multiple factors as well as the unique understanding of the MEC system, including any enterprise risks involved. No single element is determinative.

While de-energizing of the lines is performed in coordination with key local partner agencies, the final determination is made by MEC.

5.1.2 Recloser Operational Practices

MEC has identified circuits that are at higher risk of fire due to proximity of the circuit and the wildland urban interface. During high fire risk events, protective reclosers on these circuits are placed in a non-reclose setting. This will ensure that if a circuit fault is detected, the circuit recloser will open and not have the ability to auto-

reclose. Manual closing of the recloser will only occur after a patrol of the circuit and any hazards identified have been isolated.

5.1.3 Industrial Fire Precaution Levels

Each summer, when qualifying conditions of fire hazard exist, the State Forester will declare fire season to be in effect. The Industrial Fire Precaution Level (IFPL) system is intended to help prevent wildfires by regulating industrial and recreational activities on ODF, Forest Service or BLM forestlands.

IFPL restrictions are issued at one of four levels that begin with Level One at the start of the “closed fire season” and progress through Level Four as conditions warrant. Because conditions vary across the state, each protection district will declare fire season separately. The declaration of fire season affects forestry and other commercial operations as well as the activities of the general public. Fire season remains in effect until terminated by an additional declaration or the State Forester declares that conditions of fire hazard no longer exist.

During fire season, MEC monitors the status of these precaution levels daily and issues instructions to its crew and contractors accordingly. In-house and contracted crews have a fire tanker/trailer with at least 300 gallons, as well as fire tools on site when required by IFPL.

Precautionary Conditions – The USFS monitors fire danger levels and issues an alert whenever conditions begin to change in the Deschutes and Fremont-Winema National Forests. MEC has line reclosers at locations that affect USFS lands. When IFPL Level IV is reached, MEC sets these line devices to non-reclose. If one of these devices operates, MEC will dispatch a line crew to investigate before closing back in to restore power. (See Modified settings map and documentation sheet in appendix A.)

Since much of MEC's Service Area is in rural forests and high-desert vegetation we generally try to keep power on to our customers since most of our members are on private wells. Also, we have a strong inspection program in place which we keep up with and make repairs as needed.

5.1.4 Situational Awareness

Situational assessment is the process by which current operating conditions are determined. Situational Awareness 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.

MEC's System Operators rely on various resources to monitor evolving fire weather and climatological conditions that may lead to fire events. Sources for weather information include, but are not limited to the following:

- **USFS-Wildland Fire Assessment System (WFAS):** For immediate and short-term situational awareness, mapping tools from the USFS-WFAS help determine daily and short-term forecasted risk, with daily or weekly fire weather status maps produced as needed to assess PNW wildfire conditions. (<https://www.wfas.net/index.php/fire-danger-rating-fire-potential--danger-32/fire-danger-subsets-fire-potential--danger-55>)
- **The National Weather Service (NWS):** The NWS provide on-line predictive fire weather forecasting tools in the form of a current fire-weather outlook, 2-day, and a 3-8 day outlook. (https://www.spc.noaa.gov/products/fire_wx/)
- **The National Interagency Fire Center:** The National Interagency Fire Center (NIFC), located in Boise, Idaho, is the nation's support center for wildland firefighting. Eight different agencies and organizations are part of NIFC. (<https://www.nifc.gov/>)
- **The Northwest Interagency Fire Center:** Located in Portland, OR, the NWCC serves as the focal point for interagency resource coordination, logistics support, aviation support and predictive services for all state and federal agencies involved in wildland fire management and suppression in the region. (<https://gacc.nifc.gov/nwcc/>)
- **NOAA Weather and Hazards Data Viewer:** This on-line map provides historic or real-time surface observations including wind speed and direction, wind gust, dew point, relative humidity, and sea level pressure collected from remote automated weather stations (RAWS). Extreme-weather alerts such as fire weather watch, high wind watch, and red flag warning are provided from this resource. (<https://www.wrh.noaa.gov/map/?wfo=psr>)
- **MEC Weather Stations:** MEC will be installing its own weather station (WS) at one substation in the service area. The WS will be monitored remotely and provide temperature, wind speed, wind direction, barometric pressure, and relative humidity. It is anticipated that this WS will be operational in late 2022.

5.2 Infrastructure Inspections and Maintenance

Recognizing the hazards of equipment that operate high voltage lines, MEC maintains a formal inspection and maintenance program for distribution, transmission, and substation equipment which play an essential role in wildfire prevention. MEC currently patrols its system regularly and is increasing the frequency of inspections in high-risk areas. Table 3 summarizes the inspection schedule for all assets, while the following sections outline inspection practices for the utility.

Oregon Administrative Rules Chapter 860-024-0011 provides inspection schedule requirements for electric distribution and transmission facilities. These standards require that an operator of electric supply facilities to:

- Construct, operate, and maintain its facilities in compliance with the Commission Safety Rules.

- Conduct detailed inspections on a prescribed schedule of its overhead facilities to identify violations of the Commission Safety Rules.

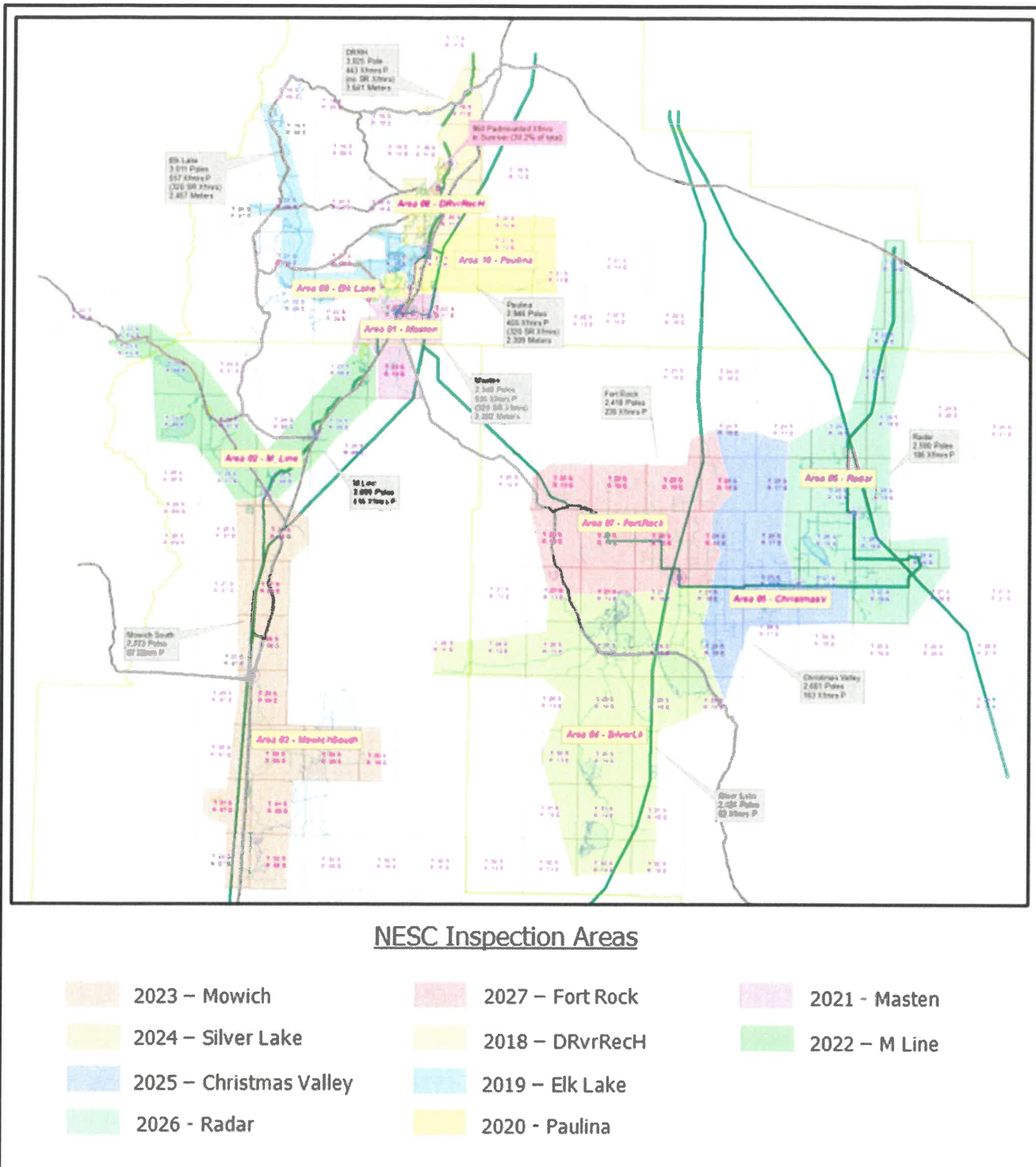
Table 3 summarizes the inspection schedule for all assets, while the following sections outline inspection practices for the utility.

5.2.1 Definition of Inspection Levels

1. **Routine Safety Patrol Inspection:** A simple visual inspection of applicable utility equipment and structures designed to identify obvious structural problems and hazards. Patrol inspections may be carried out in the course of other company business.
2. **Detailed Inspection:** Individual pieces of equipment and structures are carefully examined visually, or through use of routine diagnostic testing.
3. **Intrusive Pole Inspection:** Inspections involving the movement of soil, taking samples of the wood pole for analysis, and/or using more sophisticated diagnostic tools beyond visual inspections.

Table 3. Inspection Program Summary

Figure 5.



Inspection Zones and Schedule

5.2.2 Routine Safety Patrol Inspections

MEC meets or exceeds the minimum inspection requirements provided by OAR 860-024. Pursuant to these rules, MEC inspects electric facilities in the High Fire Threat District more frequently than the other areas of its service territory. Additionally, MEC staff uses their knowledge of the specific environmental and geographical conditions to determine when areas outside of the High Fire Threat District require more frequent inspections.

MEC works to ensure that all inspections to be performed within the High Fire Threat District are completed before the beginning of the historic fire season. MEC monitors drought conditions and other relevant factors throughout the year to determine if inspections should be completed on a shorter timeframe.

MEC Transmission and Distribution systems are inspected as follows:

- Annually, 100% of MEC'S Transmission system is inspected for safety issues.
- Annually, 50% of MEC's Distribution system is visually inspected for safety issues.
- Per NESC Standards, MEC's entire system adheres to a pole test and treat program. 10% of the system is tested annually.

Inspectors are looking for low clearance of primary conductor, secondary wires, and service drops; objects too close to electric lines; encroachments; physical damage to facilities; deterioration of facilities.

If MEC staff discovers a facility in need of repair that is owned by an entity other than MEC, MEC notifies that utility, and tracks their repair activities through the National Joint Use Notification System (NJUNS). Figure 5 illustrates the inspection cycles from 2018 through 2026.

5.2.3 Detailed Inspections of Transmission and Distribution Lines

MEC meets or exceeds the detailed inspection schedule established in OAR 860-0240-0011 (b) (A). These detailed inspections are performed by MEC personnel trained in the identification of safety hazards and NESC rules associated with an electric utility's assets.

Detailed recordkeeping of areas inspected, violations or hazards identified, and corrections performed are retained in electronic and hard-copy format. These inspections are performed with a requirement of a minimum 10% of system coverage on an annual basis, but this is often exceeded, and inspections are performed at a higher percentage rate. Inspection of areas considered at higher fire risk near the wildland urban interface receive enhanced patrol on annual schedule. Infra-red inspections of all equipment and connections are performed as part of these detailed inspections in an attempt to proactively identify any assets nearing failure. All primary underground assets also receive a detailed inspection including a visual and infra-red inspection of internal components and connections.

Non-emergency issues found during these inspections are identified to Operations for routine correction. Immediate hazard issues identified prompts an immediate response and correction.

5.2.4 Transmission Line Unmanned Aerial Vehicle (UAV) Inspections

Beginning in 2019, MEC began incorporating UAV inspection technology to enhance its transmission asset inspection program. These inspections are planned to occur annually and will be performed by an outside

contractor. The UAV would be equipped with a high-resolution camera, infrared, and LiDAR technologies allowing for detailed inspections of crossarms, hardware and other equipment not easily visible from the ground.

5.2.5 Wood Pole Testing and Inspection

To maintain wood poles, a formal Wood Pole Assessment Plan was initiated with the goal to inspect 10% of the system each year. Wood pole inspections are carried out on a planned basis to determine whether they have degraded below National Electric Safety Code (NESC) design strength requirements with safety factors.

A third-party contractor inspects and tests all poles on a cycle meeting the interval recommended in RUS Bulletin 1730B-121. Circuits are identified, mapped, and scheduled for inspection and testing using latest industry standards and practices. If a pole must be replaced or reinforced for any reason, a priority code is assigned and entered into records for correction.

As an added benefit, all poles are visually evaluated for the condition of cross arms, hardware, and devices, as well as the condition and clearances of the wire spans. This process serves as a systematic scheduled inspection for MEC's T&D assets. Although not every component in need of repair may be identified, this additional set of eyes on the system has proven to be very valuable in identification and proactive repair of system components.

5.2.6 Substation Inspections

The Preventive Maintenance Plan provides for regular inspections of MEC substations on a 31 day cycle. Qualified personnel will use prudent care while performing inspections following all required safety rules to protect themselves, other workers, the general public, and the system's reliability.

The substation inspection involves a thorough look at the system to confirm that there are no structural or mechanical deficiencies, hazards, or tree trimming requirements. Individual pieces of equipment and or structures receive careful visual examination and routine diagnostic tests as appropriate.

5.2.7 Recloser Procedure

MEC has a Breaker and Relay Maintenance procedure which we follow to maintain our transmission, substation, and distribution equipment in good working order. MEC has expanded this procedure to include distribution line devices as well. MEC will reconfigure the recloser settings as needed dependent upon seasonal needs.

5.2.8 Prioritization of Repairs

MEC's maintenance plan is based on sound industry principles and practices and is designed to provide safe reliable service. Maintenance work shall be based on a three-level rating system to prioritize action items to resolve safety and reliability issues.

MEC considers and prioritizes maintenance work by assessing the most urgent needs. The inspector will document the overhead and underground systems' condition, recording defects, deterioration, violations, safety concerns, or any other factors requiring attention on the inspection records. The inspection should focus on any hazards that could affect the system's integrity or the safety of line workers and the public.

Inspection data (overhead & underground) will be prioritized and issued as follows per OAR 860-024-0012¹⁰ safety standards:

- **Priority # 1** – Immediate hazard: A violation of the Commission Safety Rules posing imminent danger to life or property must be repaired, disconnected, or isolated by the operator immediately after its discovery. Priority #1 tags will be responded to **immediately** and appropriate action taken until the hazardous condition is remedied.
- **Priority # 2** – Non-emergency repair condition: Except as otherwise provided by this rule, the operator must correct violations of Commission Safety Rules no later than one- year after discovery. If the Priority Level 2 issue is located in a High-Risk zone and poses a potential fire risk, correction of the deficiency will be upgraded to a Priority #1 and be treated as an immediate hazard.
- **Priority # 3** – Non-emergency repair condition: An operator may elect to defer correction of violations of the Commission Safety Rules that pose little or no foreseeable risk of danger to life or property until the next major work activity. Priority #3 tags will be submitted by the inspector with the time interval recommended. In the judgment of the Operations Department, work will be scheduled to be completed within five years.

5.3 Vegetation Management (VM)

MEC maintains approximately 2,411 miles of distribution and transmission line and/or ROW within Deschutes, Klamath, Lake, and Lane Counties in Oregon. As a rule, MEC's power lines are located within the County road right-of-ways, which we have been given permission by the counties to maintain.

Trees that grow on or adjacent to powerline rights-of-ways are a common cause of outages and damage to facilities and are a potential cause for wildfire. By properly maintaining the right-of-way, the majority of our tree-related outages are eliminated, and the time taken to restore power in case of an outage is reduced. Clear access to our equipment saves time and money if repairs are needed. Proper right-of-way maintenance not only saves money and time, but it also increases our reliability and service to our membership.

Scheduled patrols ensure all lines are inspected for vegetation hazards and systematically trimmed. On-going, year-round field patrols identify targeted areas for vegetation pruning or removal and ensure compliance with state and federal regulatory requirements and alignment with standards in OAR 860-024.

¹⁰ Stat. Auth.: ORS 183, 756, 757 & 759 Stat. Implemented: ORS 757.035

Hot-spots and mid-cycle clearing areas are identified through observations from staking and line crews as well as calls from customers regarding at-risk vegetation. MEC will also use specific knowledge of growing conditions and tree species to determine the appropriate time of trim clearance in each circumstance.

5.3.1 Vegetation to Conductor Clearance

MEC has an operational and management responsibility, and is required by State and Federal Agencies, to maintain the right of way under or around its power lines. MEC 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.

Vegetation management (VM) operations are scheduled to ensure all lines are cleared of vegetation hazards on a 10-year timeline. During tree work, contractors aim to achieve the clearance specifications described below, which meet or exceed OAR 860-024-0016¹¹ clearance guidelines.

- **OH Distribution:** 10 feet from the conductor
- **Roadside Transmission with distribution underbuild:** 10 feet from the conductor
- **Transmission ROW (defined width):** 10 feet between the conductor and the rooted tree stem. Defined width ROWs are generally found on cross-country corridors.
- **Trees Under Conductors:** Trees that are under conductors should have crowns reduced to a height 5 feet below the primary conductors or be removed.
- **Overhanging Branches:** Shall be removed.
- **Secondary Conductor:** Trees near secondary service wire are pruned to provide a minimum of 3 feet of clearance.
- **Service Wire:** Branches that deflect or weigh heavily upon service or other secondary wires beyond the last MEC pole are removed.
- **Pole Base:** A 6 foot radius area around the base of all poles is cleared of vegetation that would prevent the pole from being safely accessed and climbed.

5.3.2 Vegetation Trimming Standards

MEC's contractors follow American National Standards Institute (ANSI) A300 concepts and utility directional pruning, which supports proper pruning/tree health while achieving and maximizing the pruning cycle. The VM program was developed with RUS, ANSI A300, ANSI C2, National Electrical Safety Code (NESC)¹², and OAR 860-024-0017 requirements.

Work performed to the above guidelines provides reasonable service continuity, public safety, and guards against wildfire damage caused by supply conductors. Consideration is given to the impact of pruning on power line reliability, individual tree condition, and tree aesthetics. All work is conducted in a safe manner in accordance with the work rules set forth in OR-OSHA 1910.269 and MEC's Technical Guidelines.

¹¹ Rule 860-024-0016: Minimum Vegetation Clearance Requirements

¹² Rules 012,013 and 218

5.3.3 VM Trimming and Inspection Schedule

MEC personnel and contractors perform annual, ground-based inspections of tree conductor clearances and hazard tree identification for MEC ROWs and easements. MEC contracts full-time tree trimming crews for year-round vegetation management work. MEC line crews also address vegetation concerns in response to service calls or field observations. Proactive maintenance during routine operations and prompt action during emergency events maintain system reliability, a safe work environment, and reduces fire danger. Any VM issues that cannot be immediately handled by the line crews are referred to the VM contractor for priority trimming. Scheduled patrols ensure all lines are inspected for vegetation hazards and systematically trimmed. On-going, year-round field patrols identify targeted areas for vegetation pruning or removal and ensure compliance with state and federal regulatory requirements.

Table 4. VM Inspection and Trimming Cycles

ASSET CLASSIFICATION	OPERATION TYPE	FREQUENCY
69kV-115kV Transmission	Inspection	Annual
	Trimming	Every 10 years
14.4 Overhead Distribution	Inspection	50% per year
	Trimming	Every 10 years
Fast Growth Rate Areas	Trimming	Year-round as needed

5.3.4 Hazard Trees

A subset of Danger Trees¹³, A Hazard Tree is defined as any tree or portion of a tree that is dead, rotten, decayed, or diseased and which may fall into or onto the overhead lines or trees leaning toward transmission and distribution facilities. These trees are sometimes located beyond the easement or ROW. Any tree that is

¹³ As defined by ANSI 300 Part 7 standards

located outside of the ROW and is deemed a hazard tree will be removed or topped to make safe for conductors.

A hazard tree will have one or more of the following characteristics:

- Dead or dying - all dead or dying trees along, or outside the MEC right-of-way may be removed depending on the height of tree and the direction of the lean.
- Leaning trees - trees that have such a lean toward the right-of-way that they cannot be trimmed without removing the tops and slanting the tree back. Removal depends on height and species of the tree and direction of the lean.

Within the High Fire Threat areas, MEC performs an evaluation of every tree that has the potential to strike overhead facilities if it were to fail. MEC performs more frequent and detailed inspections of any such trees, and in severe cases will work with the landowner to remove the tree.

5.3.5 Controlling Incompatible Vegetation

In addition to the annual patrols by MEC field staff observing and reporting on incompatible uses and encroachments, MEC make efforts to educate public and private landowners about incompatible vegetation that can pose risks if planted under or near conductors. MEC's website provides guidance on "Right Tree/Right Place", as well as answers to tree trimming frequently asked questions.

5.3.6 Community Outreach

Defensible Space is often defined as an area around a home or outbuilding, where the flammable vegetation is modified and maintained to slow the rate and intensity of an advancing wildfire. In practice, this is an area with a minimum of 30 feet around a structure that is cleared of flammable brush or vegetation. This area would also provide room for firefighters to work to protect a structure from advancing wildfire as well as protect the forest from a structure fire.

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

Customers will find links to information on the MEC website regarding:

- Home Emergency Planning
- Defensible space guidelines
- Trees Near Power Lines/Right Plant, Right Place

5.4 Fire Mitigation Construction

MEC's electric facilities are designed and constructed to meet or exceed the relevant federal, state, or industry standard. MEC meets or exceeds all standards the National Electric Safety Code.

This section outlines any construction standards or designs in use to reduce the likelihood of an ignition. Examples include:

- Steel poles
- Increased conductor spacing
- Undergrounding of distribution lines
- Fireproof pole-wrap or coatings
- High impedance fault detection
- Polymer crossarms

5.4.1 Avian Protection Program

Birds tend to interact with overhead electrical assets by perching or nesting on utility poles or other electrical equipment such as substation transformers and switches. These contacts can lead to avian electrocutions and collisions, with the potential for outages and wildfire ignitions.

Since 2005, MEC has implemented design and construction standards to protect raptor and migratory birds throughout the service area. The measures outlined in its Avian Protection Plan (APP) have substantially reduced the electrocution risk to raptors and the number of injured wildlife. Concurrently, these measures have reduced the incidence of fire ignitions while also improving compliance with the Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act (BGEPA), and the Endangered Species Act (ESA).

To minimize risks from electrocution or collision, new MEC facilities, built after adoption of its APP, will consider using engineering-approved, avian-friendly designs that meet or exceed standards presented in *Suggested Practices for Avian Protection on Power Lines (APLIC 2006)* and *Reducing Avian Collisions with Power Lines (APLIC 2012)*. Avian protection devices are also installed in existing locations where recurring nesting issues are found. Current avian protective measures include:

- 60 inches of phase-to-phase and phase-to-neutral (or phase-to-ground) separation is provided. When this is not feasible, insulation or isolating measures are used.
- 40 inches of vertical separation is provided. When this is not feasible, insulation or isolating measures are used.
- New equipment includes bushing covers and covered jumpers.
- Arresters and cutouts are installed with wildlife caps and covered jumpers.
- Primary jumpers with less than adequate separation for eagles or hawks are covered with insulation.
- Elevated nesting platforms
- Fiberglass crossarms

5.5 Emerging Technologies

MEC has initiated various pilot projects to explore new technologies and best management practices. These pilot projects will serve to evaluate the effectiveness of emerging technologies while controlling unwarranted expenditures on unproven methods. MEC may elect to integrate these technologies or practices into its ongoing maintenance programs based on the outcomes. These technologies include, but are not limited to:

- Drone inspection program
- High impedance fault detection
- UV, LiDAR, IR inspection



- Fireproof wood coatings

6 Emergency Response

6.1 Preparedness and Response Planning

In response to active emergencies, MEC coordinates and collaborates with the local Department of Emergency Management (DEM) and relevant state agencies as a peer partner. During such emergencies, MEC provide a utility representative to the county and/or city DEM to ensure effective communication and coordination.

Ancillary emergency planning documents may include:

- Crisis Communication Plans (CCP)
- Emergency Restoration or Response Plans (ERP)
- Incident Command System (ICS)

6.1.1 Emergency Management Communication and Coordination

Deschutes, Klamath, Lake, and Lane Counties serve as important resources in MEC's Operational Area. Their programs administered by an Emergency Management Division that include a full-time Emergency Management staff. Each Operational Area includes local and regional organizations that bring relevant expertise to the wildfire prevention and recovery planning processes. These participants include school districts, utilities, Fire Districts, non-profits (such as the United Way and/or the American Red Cross), Hospitals, special districts, communications providers, and others.

MEC's primary coordination point for Deschutes County DEM is the Emergency Services Coordinator, Special Services Unit, which in Deschutes County is administered by the Sheriff's office with the county Sheriff designated

as the Director of Emergency Services. A member of MEC's Management Team will contact the local DEM and establish themselves as the duty officer for coordination. The CEO/General Manager or Communications Coordinator acts as the communications officer during an emergency.

MEC's primary coordination point for Klamath County is the County DEM, which in Klamath County is administered by the Sheriff's office with the county Sheriff designated as the Director of Emergency Services. A member of MEC's Management Team will contact the local DEM and establish themselves as the duty officer for coordination. The CEO/General Manager or Communications Coordinator acts as the communications officer during an emergency.

MEC's primary coordination point for Lake County is the County DEM, which in Klamath County is administered by the Sheriff's office with the county Sheriff designated as the Director of Emergency Services. A member of MEC's Management Team will contact the local DEM and establish themselves as the duty officer for coordination. The CEO/General Manager or Communications Coordinator acts as the communications officer during an emergency.

MEC's primary coordination point for Lane County DEM, which in Lane County. A member of MEC's Management Team will contact the local DEM and establish themselves as the duty officer for coordination. The CEO/General Manager or Communications Coordinator acts as the communications officer during an emergency.

6.1.2 Oregon Wildfire and Electric Cooperative

On March 10, 2020, Governor Brown issued Executive Order 20-04, which directs the Oregon Public Utility Commission (OPUC) to convene workshops to assist electric companies, consumer-owned utilities, and operators of electrical distribution systems to develop and share best practices for mitigating wildfire risk. MEC has been participating in these workshops, which are intended to foster collaboration between Oregon electric utilities on "best practices regarding wildfires" to include both risk-based wildfire protection and mitigation procedures, standards, emerging technologies, and wildfire-related operational and policy issues.

6.1.3 Mutual Aid Agreements

MEC understands the importance of proactive planning and coordinating closely with its partner utilities in Oregon in preparation for seasonal storms as well as other natural disasters. These mutual aid agreements are voluntary partnerships of utilities formed to help restore power when disaster strikes one or more of its members. Participating utilities agree to provide assistance when resources can be made available in response to any request.

MEC has mutual aid agreements in place through the following organizations:

- Oregon Rural Electric Cooperative Association (ORECA),
- National Rural Electric Cooperative Association (NRECA),
- Northwest Public Power Association (NWPPA), and;
- Bonneville Power Administration (BPA).

6.1.4 Workforce Training

MEC has implemented following work rules and complementary training programs for its workforce to help reduce the likelihood of the ignition of wildfires.

- Wildfire Mitigation Plan development seminars
- Oregon Rural Electric Cooperative Association workgroup participation
- Northwest Public Power Association seminars
- SCADA training
- Supervisory training
- Employee training

6.1.5 Jurisdictional Structure

MEC has considered the jurisdictional structure of the service area when developing or implementing its strategic plan, including those related to wildfires. Figure 6 illustrates the land ownership within the service area. The following describes the various stakeholders or districts with management responsibilities.

MEC serves areas in the following counties:

- Deschutes
- Klamath
- Lake
- Lane

Oregon Department of Fish and Wildlife:

- Klamath Marsh National Wildlife Refuge

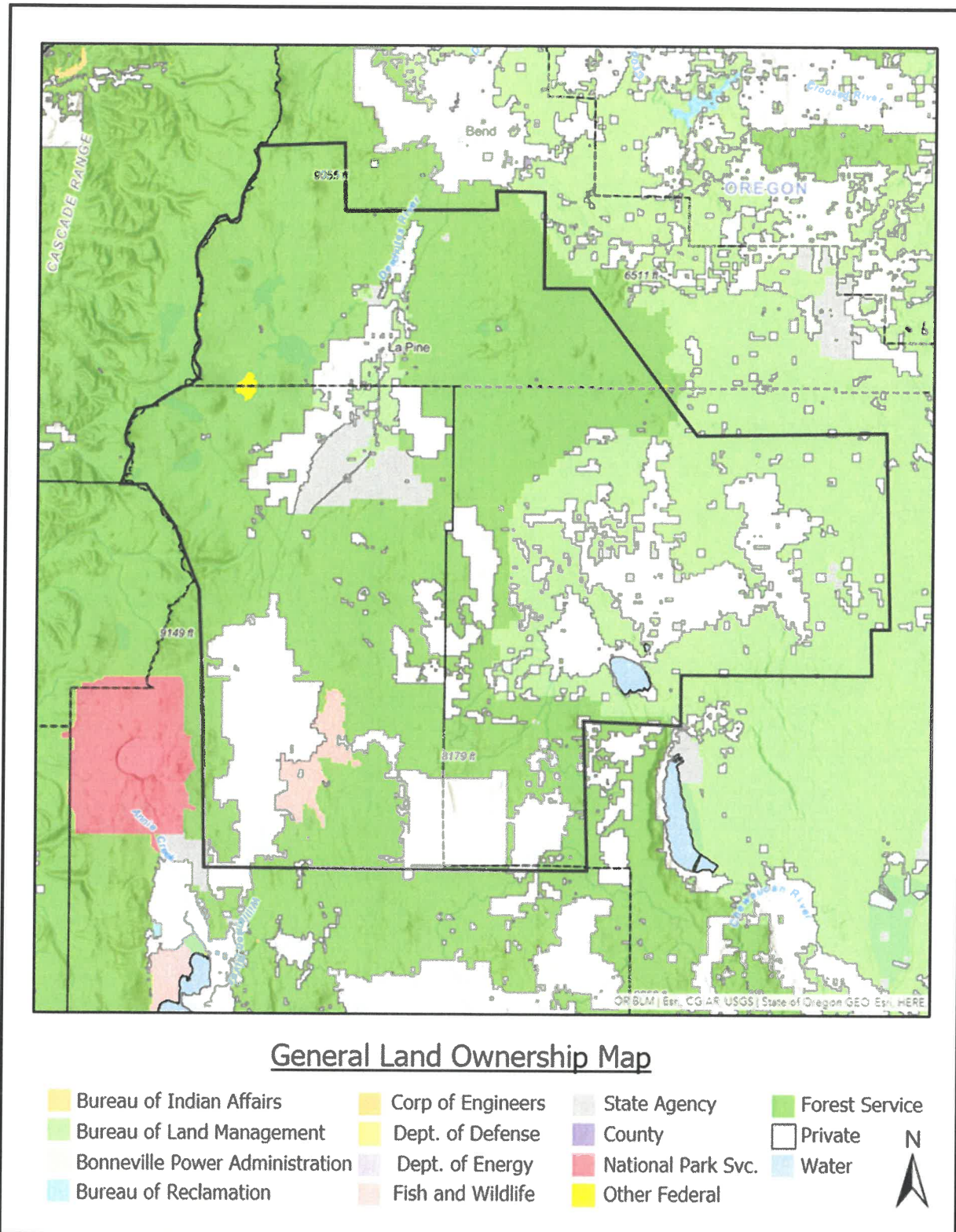
Oregon State:

- La Pine State Park
- Gilchrist State Forest

The Federal Lands in the service area are managed by the following protection districts:

- Deschutes National Forest
- Fremont-Winema National Forest
- Bureau of Land Management

Figure 6. General Land Ownership



6.1.6 Coordination With Water Utilities/Districts

The MEC Operations Manual contains information on the key resource account information with current contacts for all the first responders in our community. This includes municipal and private water systems. This allows MEC to understand where these critical water resources are during emergencies in relation to our facilities and keep them energized. (See appendix B for list of utilities.)

6.1.7 Public Agency and Customer Communications for Outages

MEC's Incident Management Team, comprising of managers and other key leaders, work closely with MEC's Communications team to disperse information regarding outages or other events that affect our Membership. Means of communication include but are not limited to:

- Public-facing electric outage web map
- Automated phone calls and text messages
- Email notification
- Social Media
- Traditional media (television and radio)

6.1.8 Community Outreach

The State of Oregon has organized a program called the Community Wildfire Protection Plans (CWPP) which has helped communities work together to achieve common goals and deal with often controversial issues. There are several local CWPP's in MEC's Service Area. MEC will be contacting these organizations to help educate members of our communities to help address the wildfire risks and strategies to keep our communities and our electrical facilities safe from fires.

Fuel reduction projects and vegetation treatments have been identified as a means of mitigating wildfire hazards. Each year, wildland fires consume hundreds of homes in the Wildland-Urban Interface. Studies show that as many as 80% of the homes lost to wildland fire could have been saved if their owners had only followed a few simple fire-safe practices¹⁴. Projects of this type include fuel breaks, thinning, pruning, landscape modifications, etc. Homeowners and local government bear much of the responsibility for improving the defensibility of homes in the WUI but may lack knowledge and information regarding what needs to be done and how to do it.

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

Customers will find links to useful information on the MEC website regarding:

- Fire Season Preparation
- Defensible Space Guidelines for Property Owners

¹⁴ <http://dnrc.mt.gov/divisions/forestry/fire-and-aviation/fire-prevention-and-preparedness>

- Emergency Planning
- Local Emergency Alert Systems
- Right Tree/Right Place

6.2 Restoration of Service

If an outside emergency management/emergency response agency requests a power shutdown, or if MEC elects to de-energize segments of its system due to extreme weather, MEC staff will patrol the affected portions of the system before the system can be re-energized. Suspect equipment or distribution lines that cannot immediately be patrolled will remain de-energized until MEC staff can do so. 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.

6.2.1 Service Restoration Process

After a wide-spread outage, MEC work crews take the following steps before restoring electrical service after a de-energization event. These measures intend to protect the worker, members, the public, and the system's reliability.

- **Utilize our Outage Management System (OMS):** Operations will utilize the Automated Metering Interface (AMI) system and our SCADA system to determine the most likely source of the problem.
- **Patrol:** Crews patrol every de-energized line to ensure no hazards have affected the system during the outage. If an outage is due to wildfire or other natural disasters, as soon as it is deemed safe by the appropriate officials, crews inspect lines and equipment for damage, foreign contacts and estimate equipment needed for repair and restoration. Lines located in remote and rugged terrain with limited access may require additional time for inspection. MEC personnel assist in clearing downed trees and limbs as needed.
- **Assess:** Determine the problem and address it in accordance with our safety rules and practices.
- **Isolate:** Isolate the outage and restore power to areas not affected.
- **Repair:** After the initial assessment, MEC staff meet to plan the needed work. Rebuilding commences as soon as the affected areas become safe. Repair plans prioritize substations and transmission facilities, then distribution circuits serving the most critical infrastructure needs. While the goal to reenergize all areas is as soon as possible, emergency services, medical facilities, and utilities receive first consideration when resources are limited. Additional crew and equipment are dispatched as necessary.
- **Restore:** Periodic customer and media updates of restoration status before full restoration are posted on social media platforms and MEC's website. After repairs are made, power is restored to homes and businesses as quickly as possible. Members, local news, and other agencies receive notification of restored electric service.

7 Performance Metrics and Monitoring

7.1 Plan Accountability

The Midstate Electric Board of Directors is ultimately responsible for the policies and compliance of policies regarding local, state, and federal laws and regulations.

MEC utility staff have the following responsibilities regarding fire prevention, response, and investigation:

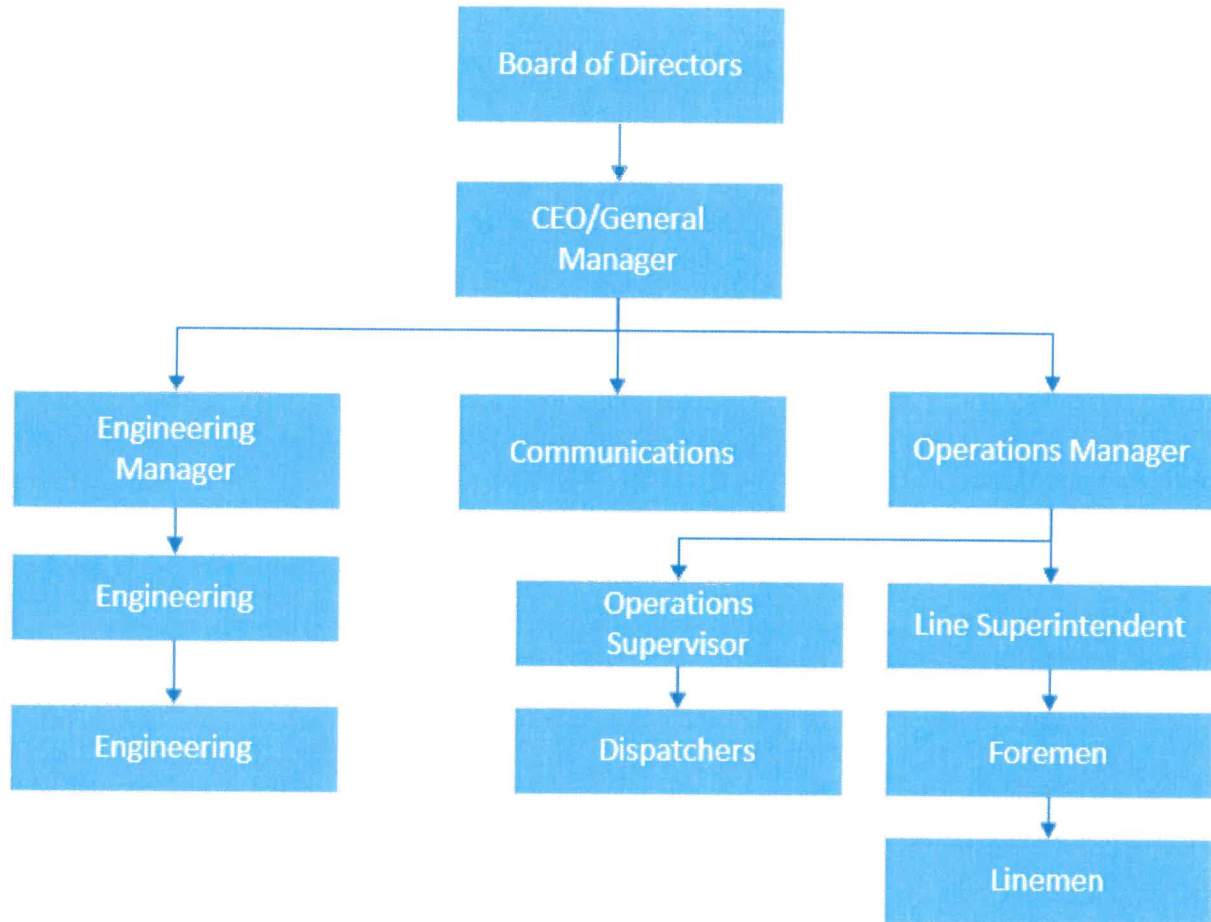
- Conduct work in a manner that will minimize potential fire dangers.
- Take all reasonable and practicable actions to reduce the risk of fires resulting from MEC electric facilities.
- Coordinate with federal, state, and local fire management personnel to ensure that appropriate preventative measures are in place.
- Immediately report fires, pursuant to specified procedures.
- Take corrective action when observing or having been notified that fire protection measures have not been properly installed or maintained.
- Ensure compliance with relevant federal, state, and industry standard requirements.
- Ensure that wildfire data is appropriately collected.
- Maintain adequate training programs for all relevant employees.

7.2 Roles for Implementation and Communications

Staff responsibility for plan implementation and general communications is described below:

- The Board of Directors makes policy decisions relative to the utility – they will be responsible for approving and adopting the Wildfire Mitigation Plan.
- The CEO/General Manager directs management staff responsible for operations, customer service and finance.
- The CEO/General Manager supervises the Engineering Manager and Operations Managers; who supervises the Operations Supervisor and Line Superintendent; who supervises the Working Foremen and Contracted Tree Crew.
- The CEO/General Manager is responsible for the overall execution the WMP. Staff will be directed as to their roles and responsibilities in support of the plan.
- The CEO/General Manager is responsible for communicating with public safety, media outlets, public agencies, first responders, local Office of Emergency Management, and health agencies during an emergency or planned maintenance outages.
- The CEO/General Manager determines when and how to notify outside agencies in cases of wildfire emergency events.
- MEC's CEO/General Manager will be responsible for monitoring and auditing the targets specified in the WMP to confirm that the objectives of the WMP are met, as well as the implementation of the plan in general.

Figure 7. MEC Organization Chart



7.3 Monitoring and Auditing of the WMP

The WMP will be reviewed annually by the General Manager, Engineering Manager, Operations Manager, Line Superintendent, and Communications team for the purpose of updating the plan as needed to reflect knowledge gained and documentation collected in the preceding year and modified accordingly. A more formal review will be done every 3 years in coordination with MEC's business planning.

7.3.1 Identifying Deficiencies in the WMP

The CEO/General Manager will be responsible for ensuring that this WMP meets all public agency guidelines to mitigate the risk of its assets becoming the source or contributing factor of a wildfire. Staff responsible for assigned mitigation areas have the role of vetting current procedures and recommending changes or enhancements to build upon the strategies in the WMP. Either due to unforeseen circumstances, regulatory changes, emerging technologies or other rationales, deficiencies within the WMP will be sought out and reported to the Board of Directors in the form of an updated WMP on a yearly basis.

The CEO/General Manager or their designee will be responsible for spearheading discussions on addressing any plan deficiencies and collaborating on solutions when updating the WMP. At any point in time when deficiencies are identified, the Supervisors or their delegates are responsible for making the appropriate policy adjustments. MEC staff and qualified stakeholders are encouraged to bring any potential deficiencies to the attention of the CEO/General Manager.

The CEO/General Manager, along with the appropriate staff, will evaluate each reported deficiency, and if determined to be valid, shall record the deficiency for further action.

7.4 Performance Metrics

MEC will track metrics to measure the performance of this Wildfire Mitigation Plan including but not limited to: (1) number of fire ignitions, (2) wires down within the service territory; and (3) red flag warnings and weather conditions.

7.4.1 Metric 1: Fire ignitions

For purposes of this metric, a fire ignition is defined as follows:

- MEC facility was associated with the fire.
- The fire was self-propagating and of a material other than electrical and/or communication facilities.
- The resulting fire traveled greater than one linear yard from the ignition point; and
- MEC has knowledge that the fire occurred.

In future Wildfire Mitigation Plans, MEC will provide the number of fires that occurred that were less than 10 acres in size. Any fires greater than 10 acres will be individually described.

7.4.2 Metric 2: Wires Down

The second metric is the number of distribution and transmission wires downed within MEC service territory. For purposes of this metric, a 'wires down' event includes any instance where an electric transmission or primary distribution conductor falls to the ground or on to a foreign object. MEC will categorize the wires down metric into two categories: 1) during fire season and 2) not during fire season.

MEC will not normalize this metric by excluding unusual events, such as severe storms. Instead, MEC will supplement this metric with a qualitative description of any such unusual events.

7.4.3 Metric 3: Red Flag warning & weather conditions

MEC Management and Supervisory Staff monitor weather and warnings issued by the National Weather Service in conjunction with local and state authorities.

- Analyze forecasted vs documented temps, winds
- Add detail

7.5 Programmatic QA/QC processes

7.5.1 Transmission and Distribution System Inspection QC Process

All inspection data as previously described in this plan will be reviewed by the Engineering Manager in coordination with the Operations Manager. Any issues will be addressed based on priority level. All repairs or corrections will be documented and approved as submitted by the Engineering and Operations Managers.

MEC's compliance with OAR and NESC regulations and guidelines ensures that facilities are inspected and repaired in accordance with industry standards. Any issues found impacting safety and reliability are addressed as outlined in those regulations. In addition to the maintenance program, MEC continuously evaluates its facilities while performing other activities such as outage patrols, new business planning, replacements, and related fieldwork.

Monitoring the effectiveness of inspection practices will occur through ongoing tracking and annual review of findings resulting from internal processes. Concerns found during routine field work, equipment and line inspections will be used as a method to assess the effectiveness of inspection procedures.

The review process will take place annually, where inspection records will be reviewed, deficiencies identified, and corrective actions determined. An internal report will be provided to the utility's leadership in the deliberation of future strategies. Related strategies that mitigate wildfire risk will then be identified and proposed within the next iteration of the WMP. The analyzation of aggregated data will guide future decision-making on the direction of wildfire

work. Quality control efforts monitor program effectiveness, overall tree work performance, and determine the adequacy of the VM work schedule. MEC's ROW clearing work is tracked using GIS mapping software.

7.6 Plan Approval Process

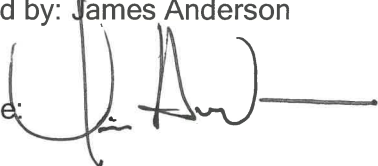
7.6.1 Board Presentation

The WMP is presented to the Board of Directors (BOD) by the Engineering and Operations Managers. The BOD along with corporate council has the opportunity to ask questions and address concerns based upon their representation of Membership. Once the plan has been fully reviewed by the BOD, a motion to accept and majority approval will allow the plan to be approved and implemented. This WMP will be submitted to the OPUC within 30 days of approval per OAR 860-300-0090 requirements.

7.6.2 WMP Approval

Approved by: James Anderson

Signature:

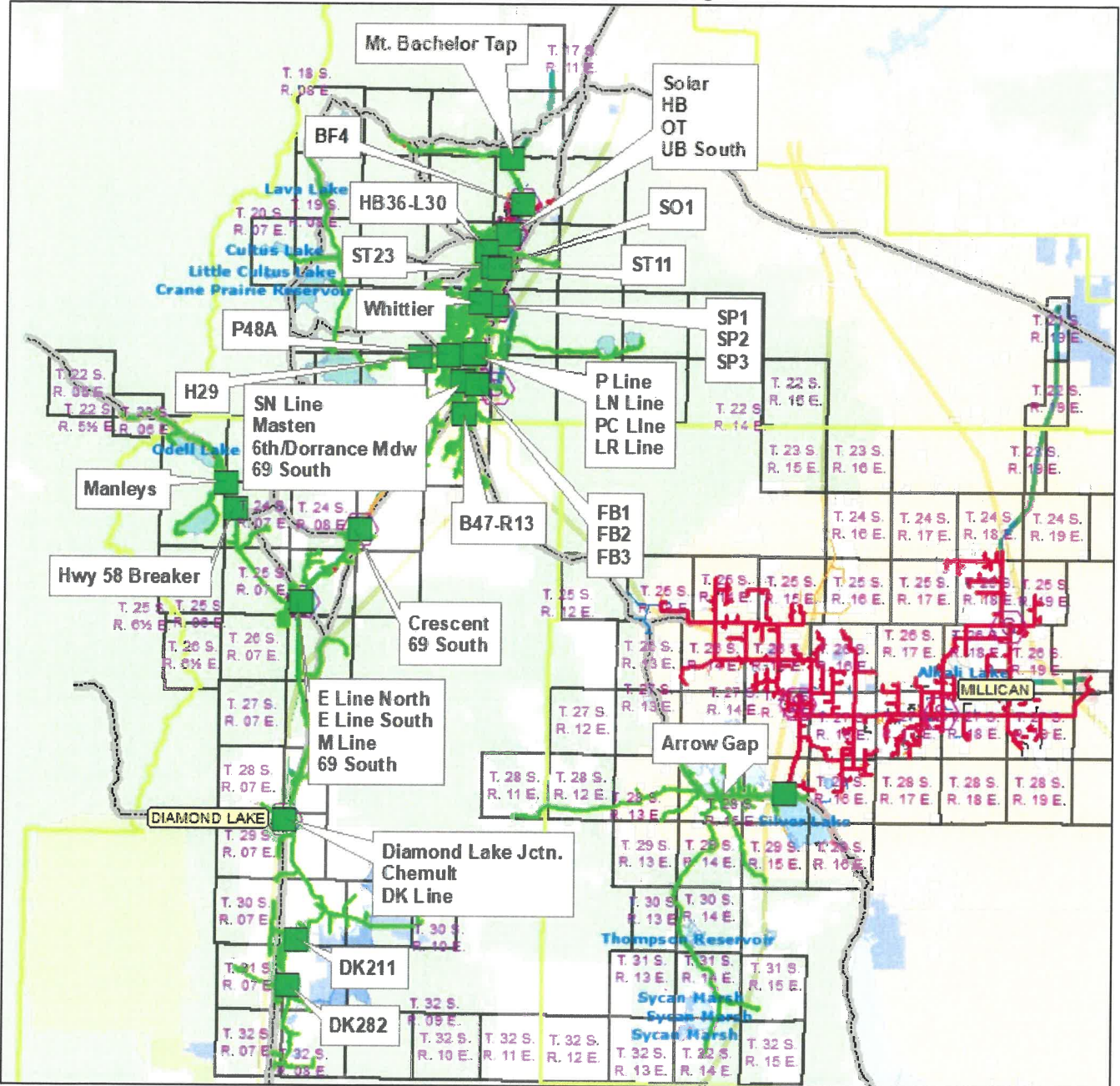
A handwritten signature in black ink, appearing to read 'J. Anderson', with a horizontal line extending to the right.

Title: CEO and General Manager

Date: June 29, 2022

Appendix A: Modified Settings and Non-Reclose Devices

Red Flag - Hot Line Tags



NON-RECLOSE- ALL CONDITIONS

DATE	TIME	LINEMAN	LOCATION / DEVICE	SYSTEM OP.	BACK TO NORMAL/INITIALS
			Benham Falls Sub		
			BF4		
			Mt. Bachelor Tap - Pole 1		
			Sunriver Sub		
			Solar		
			HB		
			HB36-L30		
			OT		
			ST11-L Tap		
			ST23		
			UB South		
			State Park Sub		
			SP1		
			SP2		
			SP3		
			SO1		
			Whittier Dr.		
			PD80		
			PD80 A & C		
			PD68		
			PD68 A & C		
			PD78-R14		
			Fringle Falls Sub		
			P Line		
			P48A		
			H29 (A & C Phase Only)		
			LN Line		
			PC Line		
			LR Line		
			6th St. Sub		
			SN Line		
			Masten		
			6th - Dorrance Mdw Rd		
			69 South		
			Finley Butte Sub		
			FB1		
			FB2		
			FB3		
			C21		

NON-RECLOSE- ALL CONDITIONS

DATE	TIME	LINEMAN	LOCATION / DEVICE	SYSTEM OP.	BACK TO NORMAL/INITIALS
			*Gilchrist Sub		
			Crescent		
			Gilchrist		
			Hackett		
			Mowich Sub		
			E Line North		
			E Line South		
			M Line		
			Walker Mtn.		
			Hwy 58 Breaker (M168)		
			Manleys (M193-R2A)		
			69 South		
			Diamond Lake Sub		
			Chemult		
			Diamond Lake Jctn.		
			DK Line		
			DK 211		
			DK 282		
			Fort Rock Sub		
			Arrow Gap		
			J183		
			JF6		
			J162-L1		

CRITICAL FIRE LEVEL - HOT LINE TAGS

CRITICAL FIRE LEVEL AS DETERMINED BY MEC

DATE	TIME	LINEMAN	LOCATION / DEVICE	SYSTEM OP.	BACK TO NORMAL/INITIALS
			Benham Falls Sub		
			BF4		
			Mt. Bachelor Tap - Pole 1		
			Pringle Falls Sub		
			P Line at H29 A-C		
			LR Line at T491-L25A OCR 1-Shot - Newberry Est/Paulina Lk.		
			Mowich Sub		
			E Line North		
			E Line South		
			Walker Mtn		
			Hwy 58 Breaker		
			Diamond Lake Sub		
			DK Line		
			DK 211		
			DK 282		
			Fort Rock Sub		
			J183		
			JF6		
			J162-L1		

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Appendix B: Critical Infrastructure

Water Systems

Owner	M/L	System #	Svc Description/Address	Emergency Contact
City of La Pine	18050	BL5-TJ-1-A-1	Finley Butte	541-948-9358
	18280	YQ-4-A-1	Newberry Pump Station	
	18084	XL-1-A-2	Huntington Meadows, Pump	
Ponderosa Pines	81678	H22A-L2	Sugar Pine L2/W#1 & SLT	541-420-9873 or 541-536-1336
	81924	H25A-L32	Black Pine Way L32/ W#2	
Wild River (Avion Water)	78293	PDW38-W-0-B-1	Pump #1	541-382-5342
	10855	PDW38-W-0-B-6	Pump #2	
Christmas Valley	96608	FRR165-R2A-L2	Well #3	541-576-4080
	100651	KB2A-L9	Well #4	
	100688	KB2A-L26-R1	Well #5	
Crescent	75539	D33-R2	Rosedale Pump House	541-213-6087
	75746	DG9-R3	Main St, 137400	
	74779	D16	Hwy 97 N	
Gilchrist	75895	DG28-R1	Well, School Playground	541-213-6087
	75773	DG16A-NJ-0-A-1	Well, By Lake	
	75776	DG16A-NJ-0-A-1A	Whitechrist Dr, Shop	
	75776	DG16A-NJ-0-A-1A	Whitechrist New Shop	
	10216	DG22A	Hwy 97 & Mtn. View Dr.	
Sunriver (Sunriver Water LLC)	102017	BZ-1-A-1	#4 Well 60 Hp	541-419-6469
	5895	Y-10B1-A-1	125 Hp Pump #2 Well Ni	
	102145	Y-10A-B-1	Booster Pump/Corp Yard	
	102013	Y-5F-A-1	Mink Lane Booster Pump	
	102305	BF2-2-E-1	Mt Baker 60 Hp Pump	
	201314	BF3-1A-C-1	Circle 9 Well	
	102440	PF-0-A-1B	Crosswater Well #12	
	14542	OT379-PB-4-A-1	Crosswater/Waterline/Heat To Reservoir	
	18779	Y-5G-A-A	Three-phase to well	
	22066	BF1-0B6-0-2	Cottonwood Road, 18305	
22066	BF1-0B6-B-1			
Diamond Peaks	74637	M178-L3-L2	Diamond Peaks HOA Well	541-736-6209 or 541-517-9888
	14573	M174A-UC-2G-B-2	Diamond Peaks Dr. Cistern	

Communication Sites and Providers

Communication Site	Provider
Spring Butte	Hwy 31
Sugar Pine Butte	Verizon Wireless
Solomon Butte	AT & T
Walker Mt.	Table Rock
Odell Butte	Welch Butte
Finley Butte	Water Tank Hill
Wampus Butte	Century Link

Appendix C: Definitions

Best Management Practices (BMP): Innovative environmental protection practices applied to help ensure that projects or regular operations are conducted in an environmentally responsible or effective manner.

Burnable fuel: Refers to fuel models that are “ignitable” in the fire modeling. Burnable land cover includes grasses, herbs, shrubs, trees, leaf litter, dead-and-down branchwood, etc.

Circuit Breaker: Distribution circuit breaker providing protection for 24.9/14.4kV Distribution feeder circuit. Located inside substation.

Commission: PUD-elected board of commissioners.

Danger Tree/Hazard 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 MEC distribution system includes 7.2kV and 25kV lines not tied to generation facilities.

Defensible Space: An area around a structure, either natural or manmade, where material capable of causing a fire to spread has been treated, cleared, reduced, or changed to act as a barrier between an advancing wildfire and the structure. In practice, it is defined as an area a minimum of 30 feet around a structure that is cleared of flammable brush or vegetation.

Electric Utilities Wildland Fire Prevention Task Force: The tasks assigned to the Task Force by the legislature are to advise the department on the following issues:

- a) Developing, for consideration by the department and individual electric utilities, a model agreement for managing danger trees and other vegetation that pose a risk of wildland fire and associated utility liability due to the proximity to electrical transmission wires and other utility equipment;
- b) Assist the department with the distribution of the model danger tree management agreement developed in (a) to utilities for their consideration for execution with the department;
- c) Developing communication protocols and educational exchanges between the department and electric utilities for identifying and addressing issues relating to utility infrastructure to reduce the risks of wildland fires;

- d) Developing protocols, including thresholds, for implementing the relevant provisions of RCW 76.04.015 when the department's investigation involves electric utility infrastructure or potential electric utility liability;
- e) Creating rosters of certified wildland fire investigation firms or persons and third-party qualified utility operations personnel who may be called upon by the parties as appropriate; and
- f) Other issues brought forward by Task Force members.

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 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 BMLM or Forest Service. 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.

Public Utility District: Public Utility Districts are not-for-profit, locally regulated utilities that are created by a vote of the people. They were authorized in 1930 by a voter-approved initiative. Their charter under state law is to "conserve the water and power resources of the State of Washington for the benefit of the people thereof, and to supply public utility service, including water and electricity for all uses."

Raster: An array or regular grid of square cells used to store data.

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)¹⁵: 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 percent and
- A temperature of greater than 75 degrees F

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

Remote Automatic Weather Station (RAWS): an apparatus that automatically acquires, processes, and stores local weather data for later transmission to the GOES Satellite, from which that data is retransmitted to an earth-receiving station for use in the national Fire Danger Rating System.

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

¹⁵ Source: <https://w1.weather.gov/glossary/index.php?word=Red%20Flag%20Warning>

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

SCADA: SCADA is an acronym for Supervisory Control and Data Acquisition. SCADA generally refers to an industrial computer system that monitors and controls a process. In the case of the transmission and distribution elements of electrical utilities, SCADA will monitor substations, transformers, and other electrical assets. It is possible to control or reset equipment remotely using SCADA.

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.

Transmission System: The bulk delivery of electrical energy from a generating site to an electrical substation. At MEC, for line maintenance purposes, the transmission system is comprised of 69kV and 115kV, structures, and switches.

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.

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Appendix D: Acronym Glossary

ANSI	American National Standards Institute
BIA	Bureau of Indian Affairs
BMP	Best Management Practices
BOF	Board of Forestry
BPA	Bonneville Power Administration
CEO	Chief Executive Officer
DBH	Diameter at Breast Height
DLI	Detailed Line Inspections
EAM	Enterprise Asset Management
EOC	Emergency Operation Center
EM	Emergency Manager
FD	Fire Department
GF	General Foreman
GM	General Manager
HFTA	High Fire Threat Area
ICS	Incident Command System
IFPL	Industrial Fire Protection Level
IHC	Interagency Hotshot Crew
KV	Kilovolt
KWH	Kilowatt Hours
MSA	Member Services Administrator
MO	Manager of Operations
MW	Megawatts
NESC	National Electric Safety Code
NFDRS	National Fire Danger Rating System
NF	National Forest
NWS	National Weather Service

OAR	Oregon Administrative Rules
OH	Overhead
OES	Office of Emergency Services
OEM	Office of Emergency Management
ODF	Oregon Department of Forestry
OM	Operations Manager
OPUC	Oregon Public Utility Commission
OR	Oregon
PRC	Public Resources Code
PSPS	Public Safety Power Shutoff
PUC	Public Utilities Commission
QA	Quality Assurance
QC	Quality Control
RFW	Red Flag Warning
ROW	Right of Way
SB	Senate Bill
SEMS	Standardized Emergency Management System
SCADA	Supervisory Control and Data Acquisition
T&D	Transmission and Distribution
UG	Underground
USFS	United States Forest Service
VM	Vegetation Management
WFAS	Wildland Fire Assessment System
WHP	Wildfire Hazard Potential
WMP	Wildfire Mitigation Plan
WUI	Wildland Urban Interface

Appendix E: Plan and Mapping Disclaimers

WILDFIRE MITIGATION PLAN DISCLAIMER

The information provided in this report was developed by MEC staff and is intended for MEC's internal planning purposes only. MEC does not warrant the accuracy, reliability, or timeliness of any information in this report, and assumes no liability for any errors, omissions, or inaccuracies in the information provided. MEC shall not be held liable for losses caused by using this information. Portions of the data may not reflect current conditions. Any person or entity who relies on any information obtained from this report, does so at their own risk. This report is presented solely for internal use AS-IS by MEC staff. MEC make no representations or guarantees expressed or implied regarding the accuracy or completeness of the report.

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Maps in this report were created from multiple datasets from various, public, and private sector sources and may include utility Geographic Information System (GIS) data. The geographic information contained in the map(s) is not to be used as a "legal description" or for any purpose other than general planning and reference. Every effort has been made to ensure the accuracy of the map(s), but errors in source documents do occur and inherent mapping ambiguities are not shown.

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Appendix F: Public Safety Power Shutoff Policy (#310)

Policy #310

SUBJECT: WILDFIRE PREVENTION STRATEGY AND PROGRAMS
RESPONSIBILITY: GENERAL MANAGER AND DELEGATED MANAGEMENT STAFF

PURPOSE:

To provide safe and reliable service, the following policy establishes the best transmission and distribution system operational practices in the event of a Public Safety Power Shutoff.

POLICY:

The Cooperative will maintain liability insurance for damage to consumer and public property caused by negligence or improper acts on the part of the Cooperative or its employees.

The Cooperative will follow the Provisions set forth below under certain events of high fire risk on or near the Cooperative's distribution and transmission system.

PROVISIONS:

The Cooperative adopts the following procedures and conditions, (i) which it will consider in the Cooperative's decision to implement, or not, a Public Safety Power Shutoff and, (ii) also the Cooperative's Reclosure Operational Practices:

DE-ENERGIZATION – PUBLIC SAFETY POWER SHUTOFF

1. 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, Midstate Electric Cooperative, Inc (MEC) examines the impacts on fire response, water supply, public safety, and emergency communications. MEC considers the external risks and potential consequences of de-energization while striving to meet its main priority of protecting the communities and members we serve. They include:
 - a. Potential loss of water supply to fight wildfires due to loss of production wells and pumping facilities.
 - b. Negative impacts to emergency response and public safety due to disruptions to the internet and mobile phone service during periods of extended power outages.
 - c. Loss of key community infrastructure and operational efficiency that occurs during power outages.

- d. 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.
 - e. Negative impacts on medical facilities.
 - f. Traffic congestion resulting from the public evacuation in de-energized areas can lengthen response times for emergency responders.
 - g. Negative economic impacts from local businesses forced to close during an outage.
 - h. The inability to open garage doors or motorized gates during a wildfire event can lead to injuries and fatalities.
2. The risks and potential consequences of initiating a PSPS are significant and extremely complex. Based on the above considerations, MEC reserves the option of implementing a PSPS when conditions dictate. The PSPS provides a last resort tool and another mitigation option in a potential crisis.
 3. On a case-by-case basis, MEC will consider de-energizing a portion of its system in response to a known public safety issue or response to a request from an outside emergency management/response agency. Any de-energization decision will be based on multiple factors as well as the unique understanding of the MEC system. No single element is determinative.
 4. While de-energizing of the lines is performed in coordination with key local partner agencies, the final determination is made by MEC.

RECLOSER OPERATIONAL PRACTICES

MEC has identified circuits that are at higher risk of fire due to proximity of the circuit and the wildland urban interface. During high fire risk events, protective reclosers on these circuits are placed in a non-reclose setting. Manual closing of the recloser will only occur after a patrol of the circuit and any hazards identified have been isolated.

Approved: 

Date: 6/27/2022

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