MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO:	Commissioners Schlossberg, Brown, Carlson, Barofsky, and McRae
FROM:	Rod Price, Assistant General Manager, Jeannine Parisi, Resiliency Program Manager, Tyler Nice, Electric Division Manager
DATE:	December 7, 2021
SUBJECT:	Updated Draft Wildfire Mitigation Plan Approach and Review
OBJECTIVE:	For Review and Comment

Issue

EWEB currently has many programs and practices in place to help prevent wildfires, though not all of them have this sole purpose in mind. To improve financial reporting, meet our regulatory requirements and keep our commitment to Safety, Staff is developing a focused Wildfire Program that includes a Wildfire Mitigation Plan (WMP). Based on work presented in the May and October work sessions, and latest information, attached is the most recent WMP to meet the Organizational Goal#4. This plan includes practices that EWEB is currently undertaking that reduce wildfire risk and new practices that are in line with industry practices or are that identified as gaps to future compliance.

Background

Wildfires are becoming more frequent and severe as drought conditions have increased throughout the Western U.S. Electric utilities are being impacted, in some cases as potential ignition sources, while in other cases suffering damages to infrastructure. Due to the increased risk and community impacts, the Oregon Public Utility Commission (PUC) is drafting new regulatory requirements that will require EWEB to have an adopted WMP by June of 2022.

Staff continues to improve on the WMP, with the latest draft included as Attachment A. Please note that only Appendix C of the draft plan was included to focus on newly developed materials. To meet evolving regulatory requirements, a WMP containing compliance-based revisions will be presented for Board discussion in May 2022 and approval in June 2022.

Discussion

Staff continues to transition our "organic" and dispersed programs related to wildfire mitigation to a focused Wildfire Program, including a formal WMP. The latest draft includes Board feedback from the October Work Session including:

- Updated Plan Purpose Statement to include coordination with key stakeholders
- Draft metrics based on available date from 2021 including completed mitigation actions with cost estimates
- Additional details about our areas of responsibility for the Stone Creek hydro project
- Updates on legislative requirements and timelines

One piece of feedback that most Board members shared was support for EWEB to exceed the minimum regulatory requirements set by the PUC. Regulatory changes for consumer-owned utilities are still under development, with the PUC taking written comments and a public hearing scheduled in December. EWEB continues to participate and monitor the PUC proceedings to craft our WMP to meet the State and Federal requirements and incorporate best industry practices where prudent to do so.

For consumer-owned utilities, current PUC language prescribes using a risk-based methodology to focus mitigation work on areas of wildfire concern, such as more frequent vegetation management and detailed asset inspections. As such, our consultant (ICF) is reviewing EWEB's initial wildfire risk areas to ensure that our mitigation work is focused on the areas of highest wildfire threat.

ICF has also completed internal subject matter interviews and initial documentation review. They will complete a gap analysis to review programs and practices relevant to wildfire mitigation work and will offer recommendations related to development of a formal Public Safety Power Shut-Off (PSPS) program. This analysis and draft deliverables are expected by the end of January.

The PUC proposed regulations do not prescribe levels of spending or set limits to wildfire mitigation work. We will be working with our stakeholders and consultant to identify programs, projects, and funding sources for various best practice type projects for review with the Board during upcoming Budget seasons.

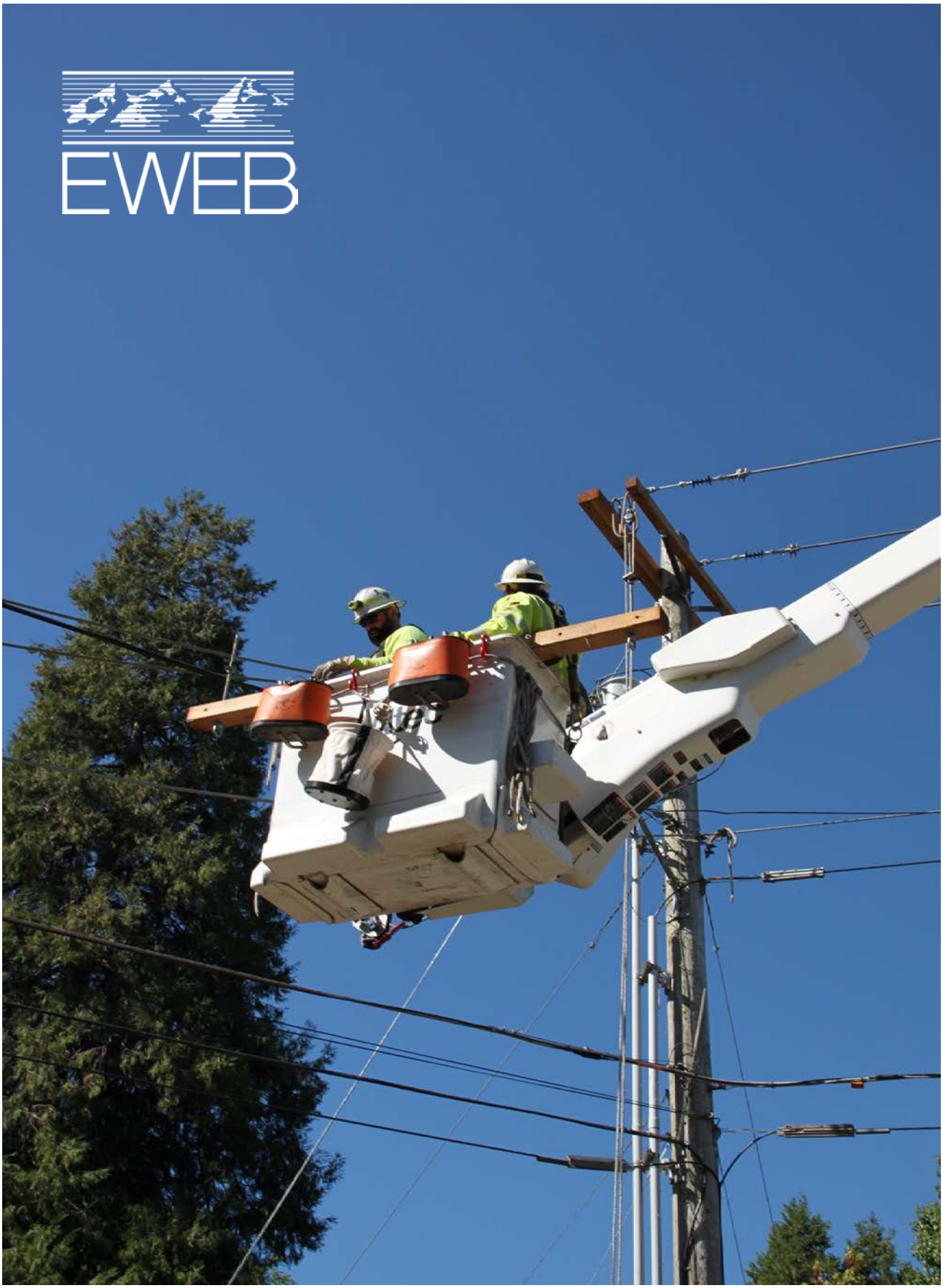
Requested Board Action

No Action is required or requested at this time.

Attachment(s)

Risk-Based Wildfire Mitigation Plan – December 2021

EWEB



EWEB Risk-Based Wildfire Mitigation Plan
December 2021 Draft

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II. Introduction and Background

Utility Background

EWEB is the largest publicly owned electric and water utility in Oregon. The City of Eugene (the City) commenced utility operations in 1908 with the purchase of a privately-owned water system. In 1911, upon completion of the City's first municipal hydroelectric power plant, the City organized the Eugene Water Board to operate the City's electric and water utilities. The name of the Eugene Water Board was changed to the Eugene Water & Electric Board in 1949.

EWEB is chartered by the City to supply electric and water service within the city limits of Eugene and to certain areas outside the city limits, including the lower McKenzie River Valley. Employing about 500 people, EWEB is defined as a political subdivision of the City, a municipal corporation. Per its by-laws, EWEB's principal purpose is to benefit the citizens of Eugene by providing water, electric and other physical energy services to its customers while maintaining cost-based rates. As determined by City Charter, EWEB is governed by a five-member Board of Commissioners (Board) who are elected by voters residing inside the city limits. The Board is responsible for overall utility governance, including annual budget approval and rate-setting.

- Population served: 176,654 (2020 estimate, U.S. Census Bureau)
- Land area served: 236 square miles
- Land area owned: 44.15 square miles

The electric system supplies service to over 96,000 residential, commercial, and industrial customers within the City of Eugene and in more rural areas along the McKenzie River between Walterville and Vida. The approximately 5000 upriver customers are overwhelmingly residential services. EWEB's service territory adjoins the Springfield Utility Board's to the east, the Emerald People's Utility District on the north, the Lane Electric Cooperative system on the south, and Blachly-Lane Electric Cooperative to the west. See Figure 1 for EWEB Service Territory Map.

Power delivered to customers is supplied by Bonneville Power Administration (BPA) contracts, EWEB-owned generation resources, other contracted resources, and purchases from the wholesale energy markets. EWEB's power supply sources are primarily hydro-power, but also include wind, biomass, and solar. The utility operates three hydro-electric facilities along the McKenzie River, with two plants within the service territory (Walterville and Leaburg) and the Carmen Smith plant located 70 miles east of Eugene in unincorporated Linn County.

- Total Electric System Service Area: 236 square miles
- Transmission and distribution lines: 1300 miles
- Substations: 38

- Utility-owned hydroelectric facilities: 4
- 2020 power consumption: 264 aMW with 416 MW 1-hour peak

The electric utility's 2021 operating budget was $217.M, with over $50M budgeted for capital work.

Plan Context

Wildfires play an important role in the ecological health of natural areas. However, a number of complex issues have converged resulting in wildland fire activity that is much more dangerous and destructive than in the past. These factors include increased vegetative fuel loads from decades of fire suppression activities, the presence of non-native species that can act as ladder fuels, more development in the wildland/urban fringe, and frequency of erratic climate patterns such as drought, extreme heat and severe storms.

This convergence of factors was apparent in the 2020 Labor Day fires that burned over a million acres in Oregon, destroyed some 4000 structures, and resulted in several fatalities. While 10% of the state was under evacuation orders, much more of the population was exposed to dangerous air quality conditions. The unprecedented nature of the 2020 wildfire season and its direct impacts to Oregonians was a call to action during the 2021 legislative session, resulting in the passage of Senate Bill 762.

Regulatory Background

The $190 million Omnibus Wildfire Bill (SB 762) is a comprehensive package of new rulemaking efforts and programs to address increased wildfire frequency and impacts. The bill requires development of a statewide map of wildfire risk, supports community recovery from fire damage, and funds numerous fire prevention and adaptation programs. A key legislative component is a new mandate for electric utilities to file risk-based wildfire mitigation and protection plans with the Oregon Public Utility Commission (PUC). For investor-owned utilities, these plans need to be submitted for PUC review by the end of 2021. As a municipal utility, EWEB's wildfire mitigation plan must first be approved by its governing board by June 30, 2022, and then filed with the PUC within 30 days.

The minimum standards described in SB 762 serve as a framework for EWEB's initial plan:

i. A consumer-owned utility must have and operate in compliance with a risk-based Wildfire Mitigation Plan (WMP) 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.
ii. 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.

iii. 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.

iv. 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.

Plan Approach

With the exception of the filing date, PUC rules for wildfire mitigation plans are still in draft form at this time. The EWEB WMP will adhere to final PUC rules for consumer-owned utilities and where prudent and feasible to do so, EWEB may elect to adopt more rigorous standards. Fortunately, EWEB already has a number of programs and policies in place for grid reliability and safety that also aid in wildfire risk mitigation. The utility's first WMP will formalize and consolidate these existing efforts, with particular focus on enhancements to address increased wildfire risks, while ramping up interagency coordination and community engagement efforts.

The plan will be highly adaptive, building on new information as risk assessment analyses are completed and investment needs are further defined. As such, the plan is a work in progress informed by best practices from other electric utilities, PUC rulemaking guidance, outside consultant expertise and EWEB's strategic priorities.

The overall approach to completing the plan for EWEB Board approval in May will be to:

- Complete a gap analysis and updated risk assessment of the electric system to focus mitigation actions to areas with greater wildfire potential;
- Incorporate best practices that reduce wildfire risk and offer other co-benefits to utility customers, such as increased reliability during winter storms; and
- Target community engagement and inter-agency coordination efforts to strengthen wildfire prevention partnerships.

Regular plan updates are crucial to track progress, integrate related work, identify gaps and respond to emerging information and conditions. EWEB Board of Commissioner direction will determine the appropriate level of investment to mitigate wildfire risk, key metrics for progress reporting, frequency of plan updates, and ensuring alignment with Board priorities and community values. The WMP will be reviewed yearly in May, prior to the start of wildfire season and in conjunction with our Capital Improvement Plan (CIP) process.

III. Plan Purpose

EWEB's Wildfire Risk Mitigation plan will meet the legislative intent of SB 762 and related PUC rules to protect public safety, reduce risk to utility customers and promote electric system

resilience to wildfire damage. The risk-based plan, developed in coordination with key stakeholders, will provide a basis for continuous improvement to evolve our operational practices, communication plans and mitigation efforts as best practices and regulations are updated.

IV. EWEB Policy Objectives

While filing an approved plan with the PUC is a compliance requirement, a formal risk-based wildfire mitigation plan aligns with several other EWEB strategic priorities, policy objectives, planning documents and core values.

EWEB's Strategic Plan provides the basis for policies, decisions, and the annual goals established for the utility. 2021 Organizational Goal #4 is to: *Collaborate and align with the Board to develop directional guidelines and decision criteria on issues having long-term strategic and policy-setting impacts, including development and approval of an initial risk-based Wildfire Mitigation Plan (WMP).*

The safety of our workforce and community is our first organizational core value and fundamentally drives how we deliver essential utility services to the public we serve. Our strategic plan identifies decisions supporting community resiliency and disaster recovery as the utility's top priority.

In addition to aligning with EWEB core values and strategic priorities, this initial plan will also build on existing planning documents, programs and practices, such as the 10-year Electric Capital Improvement Plan, our Incident Command Structure, as well as our robust public engagement efforts around emergency preparedness. The WMP also strives to reinforce linkages between other risk mitigation and response plans, such as the Eugene-Springfield Natural Hazard Mitigation Plan and various management plans associated with our hydro-electric facility licenses.

<<Placeholder for Table/List of Related Policies and Plans>>

The primary objective is to develop an action plan that demonstrates the utility's commitment to increase the reliability and safety of our electrical equipment in ways that reduce the potential our equipment is involved in a wildfire's ignition. The WMP is a tool to measure the effectiveness of actions undertaken on an annual basis to adjust strategies and retool practices as necessary to achieve its primary objective.

The Board is responsible for the adoption of the WMP and funding for priority mitigation activities. The General Manager will ensure the plan meets all regulatory compliance thresholds, and the Assistant General Manager and Chief Operating Officer will oversee plan

implementation.

V. Preliminary Wildfire Risk Assessment

EWEB Electric System Risk Analysis

Understanding wildfire risk potential for the electric system at a scale that can inform the location and types of mitigation investments is a cornerstone to an effective WMP. In 2020, Lane County completed its second Community Wildfire Protection Plan. A primary component of this plan was an updated Wildfire Risk Assessment that evaluates the potential loss of lives, property, and essential infrastructure in a wildfire event.

The County's plan broke Lane County into three eco-regions and found that overall wildfire risk[1] for the Willamette Valley Ecoregion was generally low to moderate risk. Areas of high risk for this eco-region include the south hills of Eugene, where there is dense residential development close to and intermixed with forestlands. The Cascades Ecoregion, which includes the McKenzie Valley, was classified as moderate to high risk due to the predominance of forested lands with mountainous topography, frequent lightening events and limited access for firefighting resources. The assessment relied largely on the statewide Oregon Wildfire Risk Explorer tool, supplemented with information from the Oregon Department of Forestry, US Forest Service and other stakeholders.

EWEB's electric system which consists of 126 line-miles of overhead transmission and 689 line-miles of overhead distribution. 425-line miles of distribution circuits are underground. While most electric infrastructure is in urban areas at relatively low risk for wildfire, long portions of the electric system run through heavily forested terrain, and EWEB serves several thousand customers who live in the wildland-urban interface.

Based on a review of the Oregon Wildfire Risk Explorer tool, coupled with on-the-ground experience of system operators, the utility has identified a preliminary list of circuits located in terrain considered at higher risk for wildfire. In general, this includes a small area in the southeast hills in Eugene, as well as the McKenzie Valley. Early identification of these circuits is helping to focus the initial wildfire mitigations described in this plan. These areas of higher wildfire risk are also where EWEB may change the operational settings to make the electric system more sensitive to faults during hot, dry and windy conditions, such as Red Flag Warning events.

[1] Overall wildfire risk is the product of the likelihood of a fire greater than 250 acres and consequence of wildfire on all mapped highly valued resources and assets (critical infrastructure, timber, housing unit density, etc.)

Table 1. Higher Risk Distribution Circuits (preliminary analysis)

Substation Name and Circuit ID	Conductor Length (miles)*
Dillard 4734	31
Thurston 2312	39
Walterville 2222	59
Walterville 2224	66
Holden Creek 7124	74
Holden Creek 7134	25
Hayden Bridge 2406	15

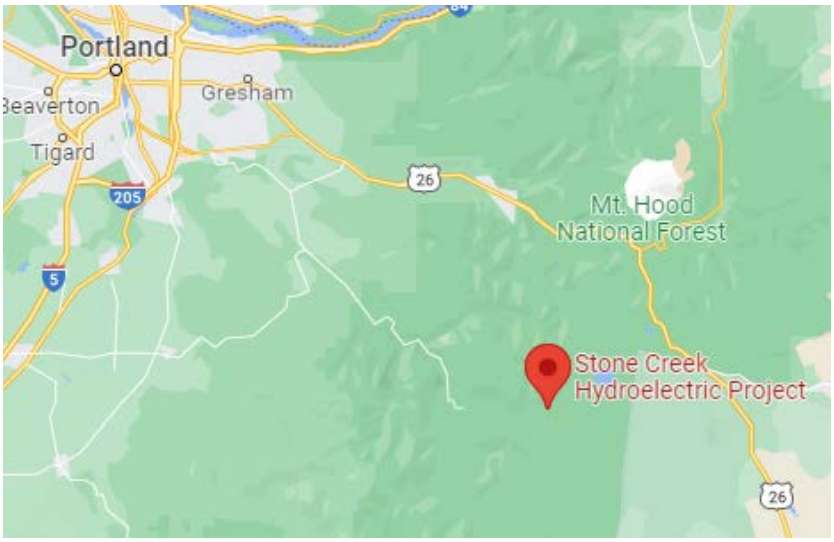
**Conductor mile length represents all primary distribution attached to breaker, not just feeder.*

Proposed PUC rules require public utilities to describe wildfire risk both within their service territories and within the right of way for generation and transmission assets, even if located outside their service territories. Table 2 lists EWEB transmission assets located in higher wildfire risk areas. Note that EWEB operates the 115 kV lines under the supervision of BPA. Therefore, any changes to control setting require BPA permission and coordination. For the Thurston-Carmen line where EWEB controls all the terminals, BPA has agreed that this line can be placed in protective settings mode during periods of high wildfire risk with proper notification. Operational changes to other segments of 115 kV transmission would only occur in emergency situations. See Figure 2 for metro area transmission map.

Table 2. Higher Risk Transmission Lines (preliminary analysis)

Transmission Description	Length (miles)
115 kV Thurston – Carmen Line	18.5 miles EWEB owned 48 miles BPA owned
69 kV Thurston – Walterville Line	5.4 miles
69 kV Walterville – Hayden Bridge Line	6.6 miles
115 kV Currin- Laurel Line	2 miles
115 kV Currin – BPA Alvey Line	5.8 miles
115 kV Dillard Tap	0.7 miles

In addition, EWEB owns the Stone Creek hydropower project on the Clackamas River, 45 miles southeast of Portland. EWEB contracts with Energy Northwest to operate the hydroelectric plan and the 115 kV transmission line running from the plant to EWEB's Harriet Lake Substation. In a second agreement, Portland General Electric (PGE) will operate the 115 kV transmission line that ties the Harriet Substation into PGE's Oak Grove Substation, where the 12 MW of output from the plant ties into the regional grid.



Stone Creek's hydro facilities are located in the Mt. Hood National Forest, an area considered at high risk for wildfire. Portions of both EWEB and PGE -operated transmission lines were damaged by the 140,000- acre Riverside Fire in 2020. Operations and maintenance plans for these assets are discussed later in the WMP.

EWEB has engaged the technical expertise of an experienced WMP consultant, ICF Incorporated, to assist in core facets of the initial WMP. The first phase of this engagement is to review relevant programs and procedures for compliance with upcoming PUC wildfire regulations. This assessment will result in a gaps analysis and recommendations that ensure adherence with newly promulgated rules while also incorporating industry best practices.

ICF will also conduct a thorough review of the potential role of pre-emptive power shut-offs (PSPS) as part of EWEB's wildfire mitigation strategies. This review will determine if PSPS has applicability given the electric system and environmental conditions, and recommend specific PSPS criteria, such as weather conditions, balancing those thresholds with real-world tradeoffs of power outages for residents that are not under mandatory evacuation orders.

The third deliverable is fire behavioral modeling for the high-risk circuits listed above. This analysis is intended to guide and direct mitigation and public notification strategies, including fuels reduction plans, ignition risk potential and to support fire response/evacuation plans.

Enterprise Risk Assessment (Future)

Cost/Benefit Analysis (Future)

VI. Wildfire Risk Mitigation Actions

Experience of California electric utilities shows that utility-caused wildfires are typically associated with faulty equipment or vegetation contacting wires. Under certain weather conditions, this can cause a fast-moving and dangerous wildfire. Thus, WMPs seek to bolster system maintenance and vegetation management activities as the first line of defense, focusing on areas of the electric system with higher wildfire potential. Other common focus areas are grid-hardening investments that enhance the resiliency of the electric system to wildfires,

automation and environmental conditions technology for improved situational awareness, such as local weather stations, and modified operational practices during wildfire season. Finally, a Public Safety Power Shutoff (PSPS) program is developed to support utility response and prepare customers for potential service interruptions during extreme fire conditions.

Likewise, EWEB's initial wildfire mitigation plan contains current and planned actions in each of these categories to enhance public safety and reduce risk. Activities will be informed by the research and recommendations of our consultant, EWEB Board input, and area subject matter experts.

The following outlines initial mitigation actions that are currently underway and/or planned for 2022. Recall that this plan is iterative and will be updated to address applicable regulations when finalized, consultant recommendations, and to include levels of investment planned for the next several years.

Current System Operations & Maintenance

- Enhanced PUC Inspections: As part of normal operations, a portion of the system every year is inspected and maintained for rotten poles and cross arms, clearances and component issues. For areas identified as higher risk for wildfire, crews are visually inspecting the upriver service territory and select circuits in south Eugene more frequently. As a result of this year's inspections, crews are finishing up accelerated replacement of around 100 cross-arms in the upriver service territory that showed signs of degradation. It is anticipated that the frequency and type of inspections for areas identified as higher risk of wildfire will be a PUC requirement and as such, will be more formally addressed in the next draft.

- Targeted Reliability Work: Maintenance activities like the Pole Test and Treatment Program, and conversion to FR3[2] fluid in transformers can have both reliability and fire risk reduction benefits. EWEB will work with its consultant to determine which of EWEB's maintenance activities should be called out in the WMP.

- Reconfiguration: Staff are currently in the planning stages of removing the A/B 69kV line, eliminating over five miles of older aerial equipment from the EWEB system from Walterville to the Thurston substation. With the Holden Creek Substation in service, it will be possible for power to flow from BPA's 115kV circuit that stretches from Thurston Substation to the Carmen Smith Project. In addition to fire-risk reduction, co-benefits of this project include avoidance of replacement costs of lines, poles, cross arms and other components that are near end of life, as well as reduced vegetation management and equipment inspection and repair needs.

[2] FR3 is a natural, vegetable-based product that not only has environmental and operational benefits, is less combustible.

Vegetation Management

- Higher Risk Circuit Plans: Routine pruning is critical to maintain clearance from electrical equipment, particularly to avoid limbs contacting wires during high wind events. EWEB's Vegetation Management Plan uses a five-year cycle for completing tree-trimming activities throughout the entire EWEB system. In addition, 250 line-miles are inspected and pruned annually to encompass the higher risk circuits. Frequency and specific clearance requirements in high wildfire risk areas are under development as part of the PUC rulemaking process and will be incorporated into the final WMP.

- Wildfire Circuit Prioritization: Areas identified as higher wildfire risk are prioritized and all wildfire high risk circuits are current for annual inspection and pruning. One tree crew has been dedicated to responding to 'cycle-buster' trees that pose the greatest clearance problems as identified by EWEB foresters.

- New ROW Clearance Methods: As an immediate vegetation clearance measure, helicopter trimming is planned along the transmission corridor from Blue River to the Carmen Smith hydro-electric plant later this year. This will re-establish EWEB's full right-of-Way and reduce future patrol/inspection needs in an area where winter storms and lightening events are more frequent. Helicopter trimming is novel to our utility but is expected to be fraction of the cost to do the same work using ground crews. Trimming this corridor is estimated to take 5 - 7 days compared to an equivalent of three years of groundwork typically needed to reset this right-of-way.

- Green Infrastructure/Floodplain Restoration Projects: EWEB is working with numerous federal, state and non-profit partners to implement large-scale floodplain restoration projects in the middle McKenzie valley. The primary goal of these projects is to protect drinking water quality and to improve ecological function of these complex riparian systems post-Holiday Farm Fire. These projects also create wetland and slow-water habitat that hold more water on the land, even during dry conditions, acting as fire breaks and offering greater protection from wildfire damage.

- Upriver Fire Fuels Reduction Projects (TBD)

System Hardening

- Updated Capital Planning Goals: EWEB's capital improvement plan includes a robust set of investments to replace aging equipment and upgrade infrastructure for increased resiliency. Layering on wildfire risk mitigation to these planned investments may result in use of more fire-resistant equipment as part of these projects. For example, ductile iron poles were installed in place of wooden transmission poles in the Deer Creek area.

- Revised Construction Standards: In addition to transitioning to FR3 transformer fluid across the entire system, EWEB is replacing 12 kV transformers with 7.2kV transformers in the McKenzie Valley. This change cuts the number of energized conductors in half, reducing the chances that falling branches get cradled in the lines, which can cause heating and sparking. Similarly, the utility looks for opportunities to reconfigure 3-phase overhead distribution to single phase. This slim-line format removes cross arms as potential points of failure and substantially reduces the likelihood of vegetation getting caught on energized lines.

- Targeted Primary Underground Conversions: The utility has received FEMA approval to proceed with a hazard mitigation project initially proposed to improve reliability during winter storms. Two overhead conversion projects in the South Hills have already been completed, resulting in a little over a mile of high voltage (12 kV) conductor being placed underground. The Dillard 4724 – Monroe 3722 project consists of both undergrounding portions of these lines as well converting from 3-phase to single phase taps in other areas. This $1.6M project will improve reliability as well as reduce wildfire risk to over 1500 residences in the South Hills of Eugene. The project will be in design in 2022 for construction to be completed by the end of 2023. See Figures 3a and 3b for FEMA grid hardening project maps.

- New Secondary Service Undergrounding Incentive Program: The utility is offering financial assistance to help customers rebuilding their homes after the Holiday Farm Fire underground their electric service. By reimbursing eligible expenses at 100 percent, EWEB is partnering with homeowners to improve the design up our upriver distribution system for enhanced reliability and wildfire resilience.

<u>Situational Awareness</u>

- During wildfire season, EWEB will modify the hours, type and location of field work to limit the potential for equipment-related fire incidents. This includes monitoring and adhering to Industrial Fire Protection Levels, localized weather monitoring, and coordination with public safety partners when crews are working in areas with high fuel loads.

- The utility has equipped vehicles with additional fire suppression equipment. This includes a bed-mounted water tank, additional fire suppression tools and capability for off-road and communications in remote areas. These trucks will be used during wildfire season to allow for wetting down in areas that EWEB's water trailer cannot access, as well as for visual patrols of the upriver system during Red Flag Warnings. Using these vehicles will enable field staff to access the remote areas more quickly and with better maneuverability, while equipping staff to extinguish incipient flames for safety.

- EWEB is pursuing a partnership with the Hazards Lab at the University of Oregon to install an ALERTWildfire camera at the Smith Ridge telecommunications site. This would be the first wildfire camera with public viewing access in the McKenzie Valley.

Future Wildfire Mitigation Projects

Following the completion of the first revision (Phase I) of the WMP in early 2022, EWEB will begin a comprehensive plan update which will include additional elements for consideration in future WMPs. The initial version of the plan will formalize applicable practices, procedures, and analysis to meet PUC requirements. Phase II of this effort will expand the fire modeling to include additional EWEB territory, develop an investment plan around system updates and cooperative weather condition monitoring. New technologies and construction standards will be assessed and applied as feasible to reduce risk of wildfire.

An initial investment of $1 Million will be allotted for wildfire management related activities. This may include activities such as targeted overhead to underground conversions, fire resistant pole and materials replacements, communication, control and protection upgrades, patrol and inspection systems and tools, and remote weather monitoring equipment. Additionally, operations related funding will be included to reduce inspection and maintenance cycles on key equipment such as cross arms, clearance corrections, insulator replacements, and vegetation maintenance.

VII. Public Safety Power ShutOff (PSPS) Program

A PSPS program involves both operational changes to parts of the electric system at higher risk for wildfire events and as importantly, outreach to the community and public safety partners. While PSPS is often associated with proactively de-energizing electric lines, modifying reclosers to increase the sensitivity of electric equipment to irregularities is an additional PSPS program option.

EWEB system operators have the authority to de-energize portions of the distribution system during emergency events when requested by police or fire officials, such as if a car hits a power pole. Operators can also de-energize portions of the electric system if there is an active fire nearby or imminent fire danger in the area. While a pre-emptive power shut off removes a potential ignition source during extreme wildfire conditions, is also introduces other public safety risks. Of notable concern is potential loss of telecommunications, drinking and fire suppression water supplied by electric pumps, and loss of refrigeration and cooling for the medically fragile. As such, coordination and communication with critical infrastructure owners, public safety partners and customers is essential to a fully formed PSPS program. This includes procedures for advance notifications, utility support during the PSPS event, and post-event notifications.

EWEB's PSPS program is in the early stages of development and will be a key focus area moving forward. In the near-term, the utility has adopted protocols to initiate power line protective measures during Red Flag Warning events. This extra level of protection applies to equipment in the McKenzie Valley and a smaller section of the system in the southeast hills in Eugene. Activation of powerline protective settings is triggered by Red Flag Warnings and at the discretion of system operators. Once in place, the protocol requires visual inspection of the power line if it trips off to ensure its safe to re-energize, and confirmation with public safety partners there is no fire in the area. Field staff conducting the visual patrols are responsible for ignition reporting and outfitted with fire-suppression equipment for their own protection and public safety. Enabling protective settings may increase the frequency of outages and extend restoration times, but on balance are less disruptive than pre-emptive power shut offs, so are a valuable alternative under less than extreme fire conditions.

VIII. Community Engagement and Interagency Coordination

PUC proposed rules require public utilities to develop a public engagement strategy as part of the WMP. The engagement strategy should describe the utility's efforts to collaborate with public safety partners and community members "in the preparation of the WMP and identification of related investments and activities." Additionally, the proposal delineates communication requirements prior, during and after a PSPS event.

Recognizing heightened public interest in wildfire risk and the importance of a comprehensive community engagement plan, EWEB prepared its first WMP communications plan for the 2021 wildfire season. The plan includes key messages and outreach tactics for internal audiences, key community stakeholders and our customers at large (see Attachment A). Our communication strategy emphasizes that wildfire risk reduction is a shared responsibility and requires commitment and cooperation of many stakeholders. With numerous stakeholders, consistency in core content of our information campaigns and coordination among partners is important to align messaging and amplify calls to action. The 2021 communication plan will be updated to align with PUC-required outreach and reporting requirements.

External Communications Tactics

The current engagement strategy builds on a strong foundation of effective public outreach campaigns on resiliency and emergency preparedness, such as EWEB's Pledge to Prepare and Water Reliability initiatives. A dedicated landing page for wildfire safety is in place on our website and will grow over time as more information and resources are available for public consumption. This summer, the utility launched a wildfire awareness social media campaign to showcase risk mitigation work underway and share fire prevention messages from our partners.

A wildfire safety brochure has been created and is available for download from our website and can be used during community presentations post COVID restrictions (see Attachment B). In the meantime, EWEB plans to share the brochure with customers via our emergency preparation email distribution list as well via selected neighborhood associations, with a focus on customers in south hills of Eugene. As we move towards winter storm season, there will be opportunities to weave key wildfire messages into our multi-channel outage preparation campaign. A related outreach effort in the planning stages is to encourage customers to update their contact information and alert the utility of any life-sustaining medical equipment needs. Preparing the medically fragile for potential loss of power due to wildfire risk will be addressed more directly in future iterations of our WMP.

The utility made significant progress in developing messaging and collateral imagery regarding the use of powerline protective settings during two recent Red Flag Warning events. Social media was the primary channel used for these communications. EWEB's red flag warning post garnered a reach of over 8000 customers each time. This performance is similar to the amount of engagement seen during high profile winter storm outage and restoration posts.

In support of these Red Flag Warning alerts, a "Higher Wildfire Risk Area" map will be published on-line to help customers determine if their residence is within an area where Red Flag or PSPS operational changes may be put in place. This map is preliminary and will be refined as additional risk-assessment information is available. Any outages associated with a proactive de-energization due to wildfire risk will be displayed on the EWEB Power Outage Map.

Interagency Coordination

The utility has also begun wildfire awareness and response coordination with our public safety, area electric utilities, local government agencies and critical infrastructure partners, such as private telecommunications providers. As a result of these conversations, EWEB has a Red Flag Warning notification list that includes about two dozen stakeholders to alert our partners of the potential for electric service disruptions. Furthermore, EWEB is collecting locational data for critical infrastructure to build a GIS map that can be overlayed with the Higher Wildfire Risk Area map. This layer can be used to identify assets like communication towers and pump stations that require back-up sources of power to maintain operability (and/or priority restoration) if impacted by a PSPS event.

EWEB maintains representation with several interagency teams focused on emergency preparedness and hazard mitigation planning. Of note, staff have begun participating in monthly Community Wildfire Protection Plan meetings for information sharing, resource alignment and joint public outreach and education efforts.

<< Placeholder for table of interagency partnership organizations here>>.

EWEB hopes to coordinate wildfire prevention and awareness communications with local utility partners more closely in the future. A kick-off meeting with area General Managers is planned

for later this year. Future stakeholder collaborations include shared weather monitoring technologies for improved situational awareness, coordinated public education and outreach campaigns, and seeking opportunities to leverage resources and/or seek grant funding for mitigation projects.

IX. Plan Metrics, Performance Tracking and Maintenance

Plan metrics and performance measures will be determined by PUC requirements, operational needs and direction from the Board of Commissioners. Key metrics may include:

- Community education and outreach campaign metrics
- Red flag warnings/protective settings incidents/outcomes
- Near miss/ignition events
- Mitigation action projects completed and associated financial investments
- Tracking relevant training on industry best practices and tabletop/functional exercises

The initial WMP will be provided for review and potential approval to EWEB Board in May 2022. This timeframe allows an opportunity for refinements based on Board feedback prior to filing the plan with the PUC in June. For plan maintenance purposes, an annual review in May is recommended so that levels of investment, reflecting contemporary research and current conditions, can be adjusted as part of the utility capital infrastructure planning process.

The following tables include draft metrics for 2021.

Compliance with Relevant PUC Regulations[3]		
Regulation	**Requirement**	**Date**
Division 24 860-024-0005 - Maps and Records	(3) Operators of electric facilities in High Fire Risk Zones shall provide its most current High Fire Risk Zone maps by April 1st of each year in a form satisfactory to the Safety Staff.	Due April 2023
Division 24 860-024-0011 – Inspections of Electric Supply and Communications Facilities	(2) Each Operator of electric supply facilities must: (a) Designate an annual geographic area to be inspected pursuant to subsection (1)(b) of this rule within its service territory. This includes High Risk Fire Zones as identified by Operators of electric supply facilities.	Due June 2022

[3] Proposed PUC rules as of November 2021.

Division 24 860-024-0016 – Minimum Vegetation Clearance Requirements	(3) Each Operator of electric supply facilities must regularly trim or remove vegetation to maintain clearances from electric supply conductors. A minimum three-year trim cycle rate is required, unless the Operator of electric supply facilities submits documentation confirming compliance with the minimum clearances in (5) below utilizing alternate trim cycles and receives confirmation from Safety Staff that an alternate trim cycle is permissible.	Due June 2022
Division 24 860-024-0016 – Minimum Vegetation Clearance Requirements	(7) In determining the extent of trimming or vegetation removal required to maintain the clearances required in section (5) of this rule, the Operator of electric supply facilities must consider at minimum the following factors for each conductor: (f) The amount of trimming or vegetation removal required inside and outside the right-of-way, to minimize Cycle Buster vegetation interference of energized conductors.	Due June 2022
Division 24 860-024-0018 – High Fire Risk Zone Safety Standards	(1) Operators of electric facilities must, in High Fire Risk Zones, de-energize out of service, abandoned and non-critical supply equipment as determined by the Operator during fire season.	Due June 2022
Division 24 860-024-0018 – High Fire Risk Zone Safety Standards	(3) In addition to the requirements set forth in 860-024-0011, Operators of electric facilities in High Fire Risk Zones must: (a) conduct at a minimum, enhanced detailed inspections, including, but are not limited to, in person, onsite visual checks, or practical tests of all facilities, to the extent required to mitigate fire risk and identify violations of Commission Safety Rules.	Due June 2022

	(b) for transmission systems energized at or above 50,001 volts, perform and document, at a minimum, detailed inspections via onsite climbing or high-powered spotting scope to identify structural and conductor defects, as well as violations of Commission Safety Rules.	
OAR 860-300-0010 Consumer-owned Utility Plans	Municipal electric utilities, people's utility districts organized under ORS chapter 261 that sell electricity, and electric cooperatives organized under ORS chapter 62 must file with the Commission a copy of its approved risk-based wildfire mitigation plan or plan update within 30 days of approval from its governing body.	Due June 2022

Public Outreach and Education			
Social Media	22 Posts	Reach: 50,341	Engagements: 3905
Earned Media	Red Flag Warning Issued for Lane & Linn Counties	KVAL News	8/28/2021
	"EWEB Beginning State-mandated Wildfire Mitigation Planning"	Register-Guard	10/20/2021
	"Taking it off the top: EWEB completed aerial trimming of transmission line"	McKenzie River Reflections	11/04/2021
	Aerial Trimming TV reports	KVAL News KEZI News NBC 16	11/04/2021
Targeted Outreach	2 WMP presentations to neighborhood groups WMP brochure e-mailed to 1249 customers Paid placement of WMP brochure in McKenzie River Reflections		

Note that these outreach and education metrics do not include September's National Preparedness Month campaign or employee communications. See Appendix C for a catalogue of social media posts and statistics.

2021 Extreme Weather Event Response		
Event Type	**Number Events/Dates**	**Cause/Details**
Public Safety Power Shutoffs	None	N/A
Emergency De-Energization @ Carmen Transmission	Aug 6 – Aug 17	Per USFS due to Knoll Fire No customer impacts
Protective Settings Events (3)	April 16 August 12 – 13 August 28	Red Flag Warning w/unrelated outage (car hit pole @ Thurston) Red Flag Warning/no outages Red Flag Warning/no outages

2021 Mitigation Actions*		
Project	**Quantity**	**Estimated Cost**
Deer Creek Pole Replacement	11 ductile iron poles	$55,000 (equipment only)
Transformer Upgrades (12 kV to 7.2 kV)	24 transformers replaced	$65,000 (equipment only)
Cross arm Replacements	# TBD	
Heli-Trimming of Carmen Line ($125k)	18 miles ROW	$125,0000
Customer Incentives	3 secondary service UG incentives 9 generator loans (7 @ high risk areas)	$12,000 $27,000

*Data through November.

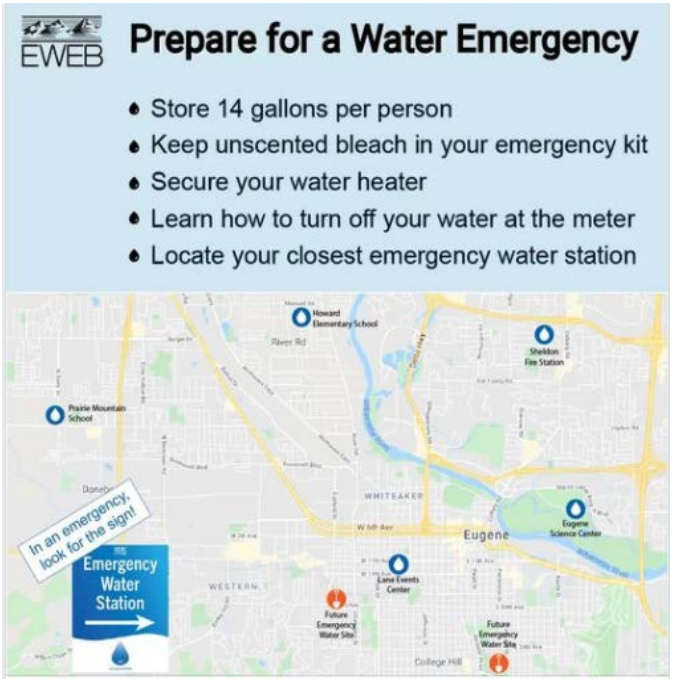
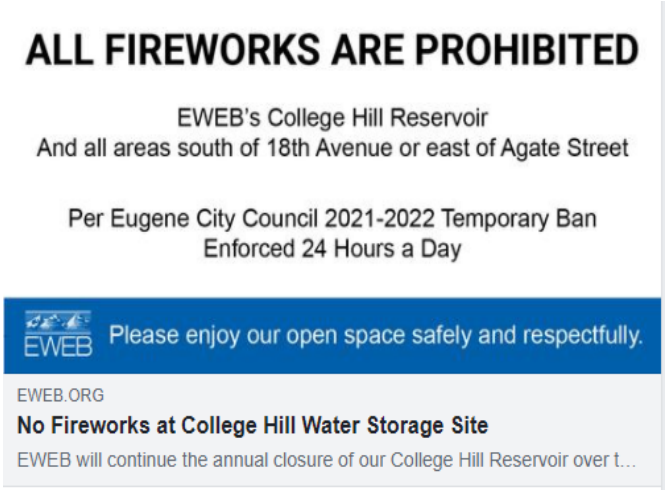
X. List of Figures

XI. List of Appendices (in progress)

A. Wildfire Communications Plan
B. Wildfire Safety and Protection Brochure
C. 2021 Communications Metrics (detailed)
D. Stone Creek Operations and Maintenance Agreement
E. Vegetation Management Plan
F. Red Flag Warning Dispatch Protocols

ATTACHMENT C: 2021 Communications Metrics

Date	Post	Message (edited for space)	Facebook Reach	Engage-ments	Instagram
19-May		Our contract tree crews have been busy this spring. In addition to the regular pruning schedule, crews are on pace to inspect and trim about 125 overhead power line miles in areas that are at higher risk for wildfires.	955	33	N/A
1-Jun		Safety is our Number 1 priority at EWEB. We trim more than 300 overhead power line miles each year, plus an additional 125 miles of line in areas at higher risk for wildfire. This ensures reliability during storm season and mitigates wildfire danger during the dry summers.	936	23	N/A

11-Jun	Eugene Water & Electric Board June 11 · There's always the possibility that a disaster could strike here in the Pacific Northwest and storing emergency water is one of the most important things we all can do to prepare.  	Events like **wildfire**, earthquake or even a bad winter storm can impact our electric and water systems we all rely on. In a severe emergency, some services could be disrupted for weeks or even months. Just as your household invests in an emergency kit, EWEB is making investments to prepare, replace and maintain our community's water system. We're developing permanent water distribution sites throughout the community.	1236	36	431
30-Jun	Eugene Water & Electric Board June 30 ·  EWEB.ORG **No Fireworks at College Hill Water Storage Site** EWEB will continue the annual closure of our College Hill Reservoir over t…	EWEB will continue the annual closure of our College Hill Reservoir over the Fourth of July holiday and prohibit fireworks on the property grounds. This year, the City of Eugene passed an ordinance banning the use of fireworks in a segment of south Eugene due to the area's drought conditions and the potential for wildfires. We invite the public to enjoy the ungated public space respectfully.	2101	142	

8-Jul		Please read this article about Colorado's 2020 Cameron Peak Fire and the fire's compounding effects on the South Fork of the Cache la Poudre River. Like the McKenzie River Watershed, the forests surrounding the Poudre were severely burned, and now crews of foresters, hydrologists, engineers and volunteers are working non-stop to set up erosion containment mechanisms ahead of Colorado's summer monsoons. Our rainy season starts in October and we are working all summer long to enact similar measures.	634	6	N/A
21-Jul		With wildfires burning to the north and south of us, please take a few minutes to become #WildfireAware. For more information on how we maintain or electric system year-round as part of our wildfire prevention program: http://www.eweb.org/outages-and-safety/wildfire-safety-and-prevention	864	9	N/A

26-Jul		We are proud of and thankful for our partners' work to restore the McKenzie watershed throughout its reach! https://www.thefreshwatertrust.org/streamside-restoration-continues-in-mckenzie-after-wildfire/	807	18	N/A
30-Jul		Thanks to the @coastfork Willamette Watershed Council's Youth Conservation Crew for helping reduce fire risk by removing invasive species from our E 40th and Patterson site!	1897	195	153

Watershed Council's Youth Conservation Crew ... more

10-Aug		1388	84	N/A

Eugene Water & Electric Board
August 10 ·

During wildfire season and year-round, registering to receive emergency alerts is an important step in personal preparedness. Alerts and notifications help you monitor conditions and receive instructions from local officials, even during a power outage.

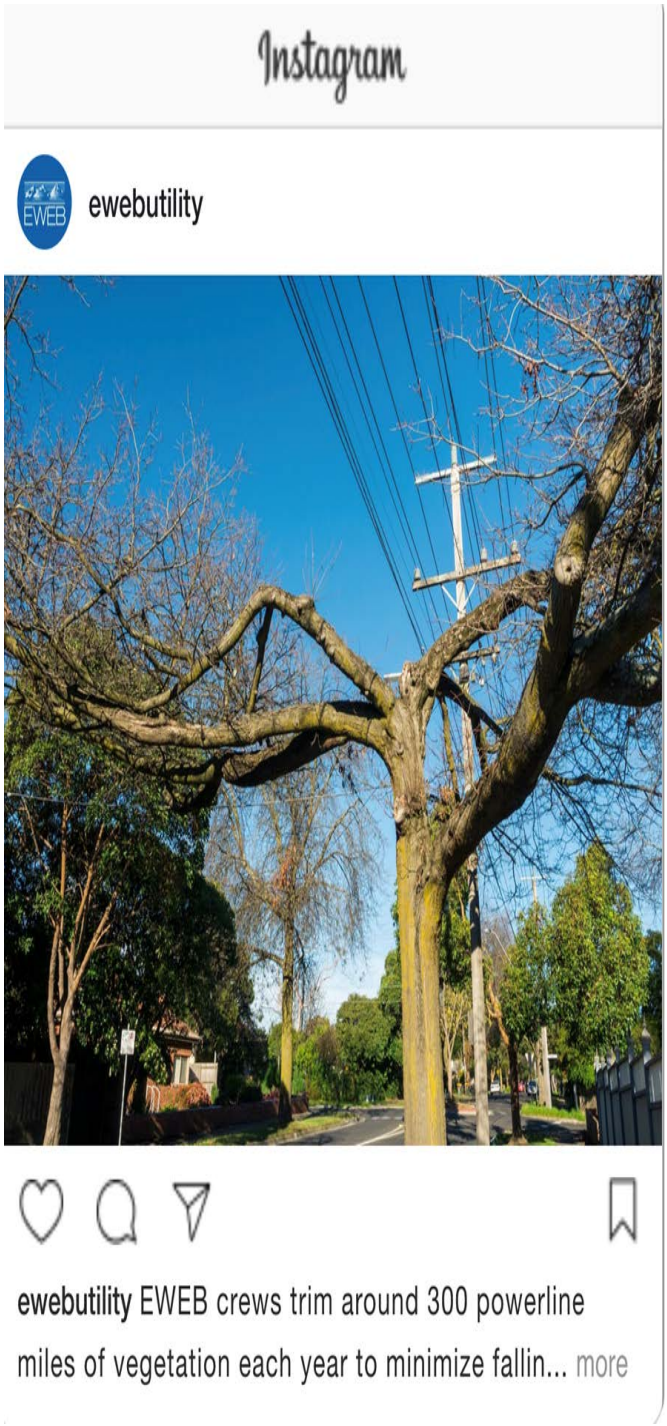
Lane County Government
August 10

Multiple wildfires in east and south Lane County should prompt all Lane County residents and visitors to monitor the situation and review their individual preparedness plans.

- Bookmark the Middle Fork Complex Fire Inciweb page at inciweb.nwcg.gov/incident/7745/.
- Follow the Middle Fork Complex Fire response team on Facebook at www.facebook.com/MiddleForkComplex.
- Bookmark the Knoll Fire Inciweb page at inciweb.nwcg.gov/incident/7790/.
- Follow the Knoll Fire response team on Facebook at www.facebook.com/KnollFire.
- Register for emergency alerts at public.alertsense.com/SignUp/.
- Bookmark the County's wildfire evacuation and resources webpage at www.LaneCountyOR.gov/MiddleForkComplex.
- Bookmark the County's evacuation map at bit.ly/2021EvacMap.
- Review information about evacuation levels and emergency alerts at www.LaneCountyOR.gov/prepare.
- Double-check your plan for evacuating large animals and livestock at www.LaneCountyOR.gov/LCAID.

During wildfire season and year-round, registering to receive emergency alerts is an important step in personal preparedness. Alerts and notifications help you monitor conditions and receive instructions from local officials, even during a power outage.

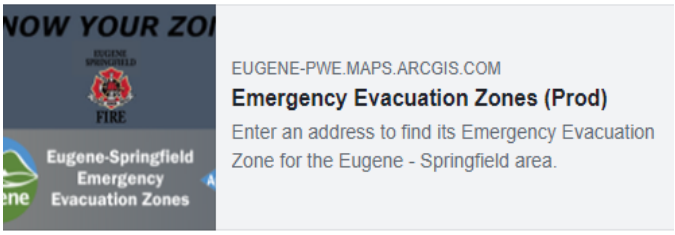
10-Aug		EWEB crews are ready to deal with the stress that extreme heat may place on our electric system. While we hope to avoid power outages and will resolve any outages that do occur as quickly and safety as possible, we encourage customers to plan ahead for staying cool, fed and hydranted in the event the power goes out. Have alternate plans for refrigerating medicines or using power-dependent medical	1514	51	121

11-Aug		EWEB crews trim around 300 powerline miles of vegetation each year to minimize falling trees and branches from causing safety, electric reliability, and maintenance issues. This on-going program helps prevent outages during winter snow and ice storms adn also reduces wildfire risk. Crews inspect and prune an additional 250 line miles in higher wildfire risk areas, such as the South Eugene hills adn teh McKenzie Valley. eweb.org/trees	1358	43	171

12-Aug	The National Weather Service has issued a "Red Flag Warning" starting at 11 a.m. Thursday to 10 p.m. Friday for part of our electric service territory. High winds are especially problematic in that they create more vegetation contacts with our electric wires, increasing spark potential, and they cause fires to spread faster than they can be contained. To reduce the risk that EWEB powerlines become a potential ignition point, we are changing the protective settings on our equipment. *We do not plan to proactively de-energize lines during this red flag event.*	8539	953	240

Wildfire safety information, including emergency plan checklists are available at eweb.org/wildfire.

28-Aug	Eugene Water & Electric Board August 28 · The National Weather Service has issued a "Red Flag Warning" starting at 1 p.m. Saturday to 8 p.m. this evening for all of our service territory. The warning includes Lane and Linn counties. This means low relative humidity and erratic, gusting winds increase the risk of a wildfire starting and quickly spreading.  	The National Weather Service has issued a "Red Flag Warning" starting at 11 a.m. Thursday to 10 p.m. Friday for part of our electric service territory. High winds are especially problematic in that they create more vegetation contacts with our electric wires, increasing spark potential, and they cause fires to spread faster than they can be contained. To reduce the risk that EWEB powerlines become a potential ignition point, we are changing the protective settings on our equipment. *We do not plan to proactively de-energize lines during this red flag event.*	18676	2142	N/A

31-Aug	**Eugene Water & Electric Board** August 31 · When the National Weather Service issued a Red Flag Warning for our area this past Saturday, we changed the protective settings on electric equipment in the McKenzie Valley and in the south Eugene hills to reduce wildfire risk. While the red flag warning is now over, preparedness is a year-round effort. As part of your personal emergency preparation plans, you should "Know Your Zone" and where to go if a crisis that requires evacuation occurs. Eugene Springfield Fire has put together an interactive map so you can type in your address and learn your zone number. #WildfireAware #Oregon #WildfirePrevention #itonlytakesaspark https://eugene-pwe.maps.arcgis.com/…/webappview…/index.html… More info: eweb.org/wildfire  	When the National Weather Service issued a Red Flag Warning this past Saturday, we changed the protective settings on selected electric equipment to reduce wildfire risk. While the red flag warning is now over, preparedness is a year-round effort. As part of your personal emergency preparation plans, you should "Know Your Zone" and where to go if a crisis that requires evacuation occurs. Eugene Springfield Fire has put together an interactive map so you can type in your address and learn your zone number. #WildfireAware #WildfirePrevention	950	29	N/A

3-Sep		1090	10	N/A

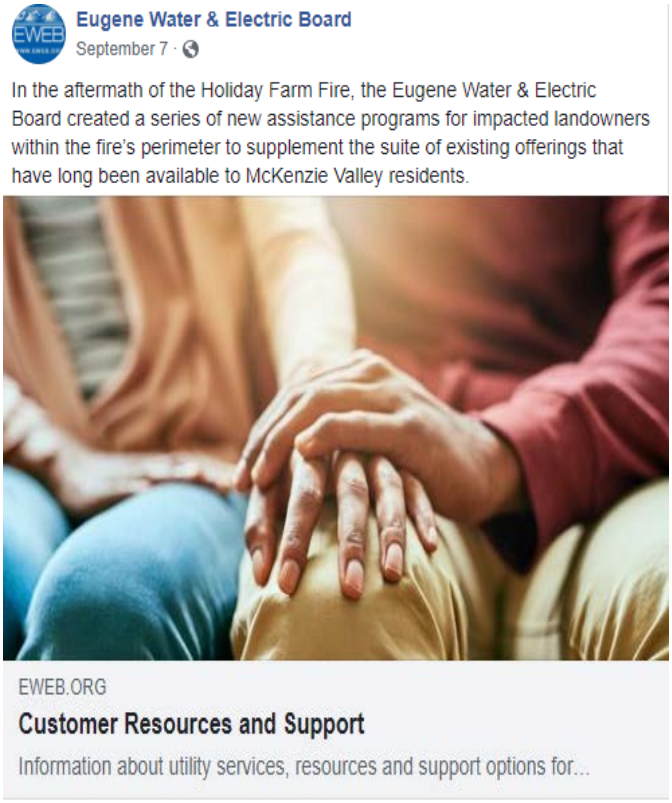
Eugene Water & Electric Board
September 3 ·

These cooler temperatures at night are great! But, keep in mind we are still seeing elevated fire danger across the state. Do your part as we head into the Labor Day weekend to avoid sparking a wildfire. Follow all burn bans and restrictions put in place.

Oregon Office of State Fire Marshal
August 27

This weekend is calling for warmer temperatures. Across the state of Oregon, the landscape remains very dry. Please take the necessary precautions we've been talking about all summer to avoid sparking a fire. #WildfireAware #Oregon #WildfirePrevention #ItOnlyTakesASpark

These cooler temperatures at night are great! But, keep in mind we are still seeing elevated fire danger across the state. Do your part as we head into the Labor Day weekend to avoid sparking a wildfire. Follow all burn bans and restrictions put in place.

7-Sep		EWEB intends to invest in underground service lines wherever practical for customers rebuilding within the fire's perimeter who require substantial repair or replacement of the service line. The goal is to enhance and improve the design of the upriver electric system to increase reliability and outage response and simplify the rebuilding process.	704	4	N/A
9-Sep		EWEB serves thousands of homes and businesses in heavily forested areas that are at increased risk of wildfire, including the South Hills of Eugene and the McKenzie River Valley. In addition, wildfires can cause direct physical damage to utility infrastructure such as power lines, substations and our hydro generation projects in the McKenzie Valley. Learn how we are investing in wildfire prevention and mitigation.	366	4	N/A

10-Sep		544	2	N/A

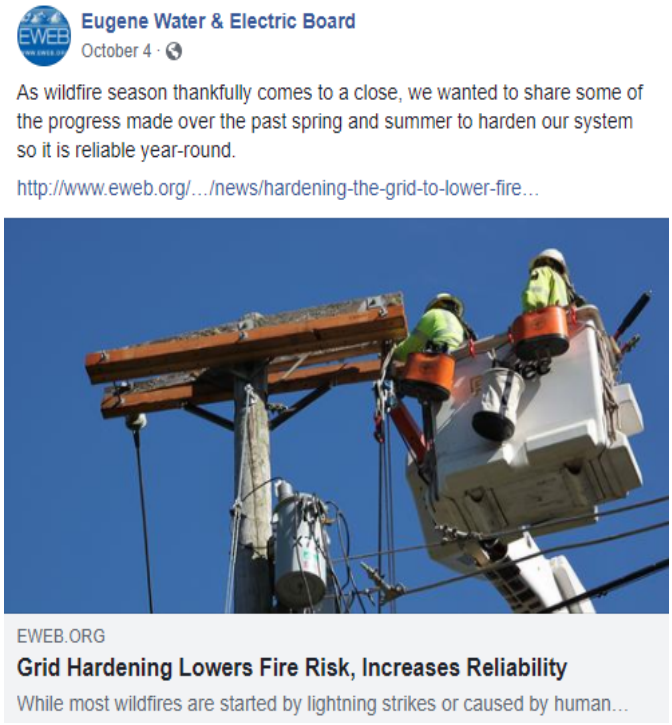
Eugene Water & Electric Board
September 10 ·

Please consider these tips from FEMA, for #NationalPreparednessMonth, as we continue our vigilance through the end of the wildfire season.

10-Sep		690	4	111

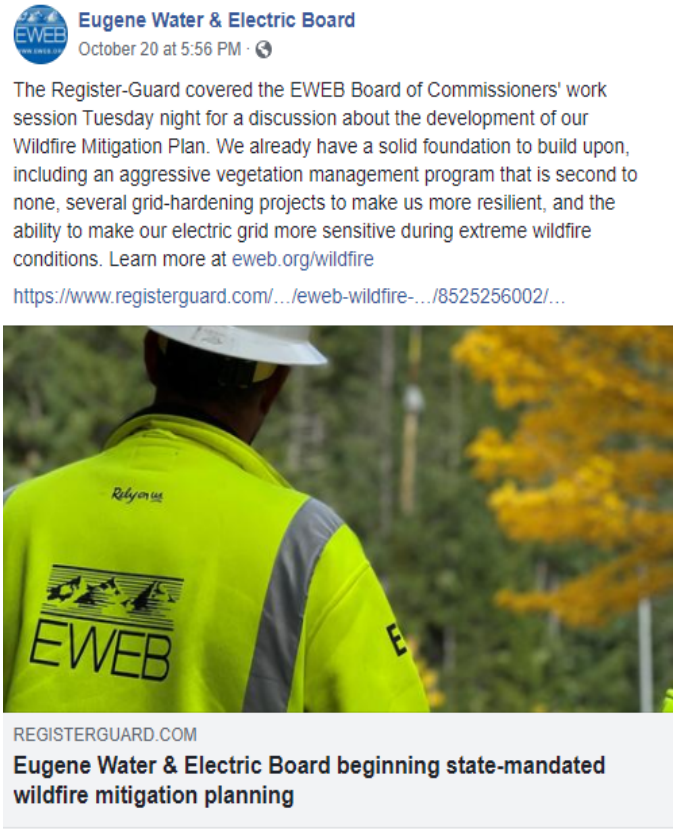
Eugene Water & Electric Board
September 10 ·

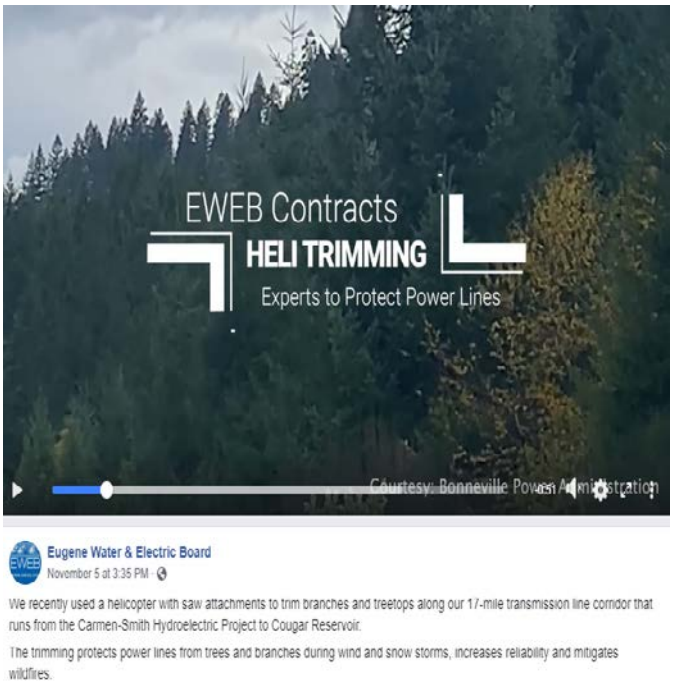
Wildfires are part of our lives more than we could ever have anticipated. Many survivors of the Holiday Farm Fire share that they were surprised by how quickly the fire came, and that they wish they could have been more prepared. Please take a moment to talk with your family about how your household could #BeReady in case a wildfire strikes nearby.

4-Oct		1604	80	N/A
5-Oct		721	6	N/A

As wildfire season thankfully comes to a close, we wanted to share some of the progress made over the past spring and summer to harden our system so it is reliable year-round. http://www.eweb.org/about-us/news/hardening-the-grid-to-lower-fire-risk

During September's #NationalPreparedness Month, we published a series of stories and information on how EWEB is preparing for future emergencies and how you can prepare at home, including:
* Electric grid hardening measures
* Wildfire recovery in the watershed
* How to get a zero interest loan on a generator
* Where to find the emergency water station closest to you

21-Oct		If you missed it, check out a recap in our recent Emergency Preparedness e-Newsletter: https://conta.cc/3Bckko7 The Register-Guard covered the EWEB Board work session about the development of our Wildfire Mitigation Plan. We already have a solid foundation to build upon, including an aggressive vegetation management program that is second to none, several grid-hardening projects to make us more resilient, and the ability to make our electric grid more sensitive during extreme wildfire conditions. Learn more at eweb.org/wildfire	786	23	N/A

5-Nov	 Eugene Water & Electric Board November 5 at 3:35 PM We recently used a helicopter with saw attachments to trim branches and treetops along our 17-mile transmission line corridor that runs from the Carmen-Smith Hydroelectric Project to Cougar Reservoir. The trimming protects power lines from trees and branches during wind and snow storms, increases reliability and mitigates wildfires.	By using a helicopter, EWEB was able to limit ground disturbances in forested areas. Aerial trimming provides easier access to trees in remote, mountainous terrain that is difficult for tree crews and their equipment to traverse. With climate change bringing hotter, drier summers and more intense wildfire seasons that limit when ground crews can prune, aerial trimming will become more popular.	754	8	N/A