

State of Washington
Department of Natural Resources
Wildland Fire Management

State of Washington Wildfire Mitigation Plan (WMP)

Centralia City Light and Yelm Hydroelectric Project

October 22, 2024

Version 1.0

1.0 Executive Summary

The Washington Legislature passed [House Bill 1032](#)¹ in 2023 with an effective date of July 23, 2023. This new law states that it is in the best interest of the state, our citizens, and our natural resources to identify the sources of wildland fires; identify and implement best practices to reduce the prevalence and intensity of those wildland fires; put those practices in place that reduce the risk of wildland fires and damage and losses resulting from those fires.

The Legislature directed the Department of Natural Resources (DNR), in consultation with the Energy Resilience and Emergency Management Office of the Department of Commerce, to contract with an independent consultant with experience in developing electric utility wildfire mitigation plans to develop an electric utility wildfire mitigation plan format and a list of elements to be included in electric utility wildfire mitigation plans. The Wildfire Mitigation Plan (WMP) format below achieves the direction of the Legislature.

By October 31, 2024, and every three years thereafter, each consumer-owned utility and investor-owned utility must review, if appropriate revise, and adopt its wildfire mitigation plan. When reviewing or revising a wildfire mitigation plan, utilities must use the recommended format and elements contained in the WMP format. The plan must be submitted to the utility Wildland Fire Prevention Advisory Committee (Committee) created in RCW 76.04.780 to be posted on their website.

The template and list of elements included were developed in conjunction with the Committee, electric utilities, the State Fire Marshal, the Governor's Office of Indian Affairs, and the public. The WMP format is intended to function as a guide and provide utilities with suggested elements for their plan which are informed by best practices demonstrated to reduce the prevalence and intensity of wildfires and which reduce the risk of wildfire and the resulting damage and losses.

Each section of the WMP format provides suggested topics, language, and guidance for its completion. This cover letter provides additional guidance to assist utilities in filling out the WMP format with relevant information. It is recognized that each utility faces unique geography, terrain, vegetation, and other characteristics that will present a variety of risk levels and result in unique and tailored approaches to address that risk. To that end, the WMP format has been designed to accommodate a broad range of recommended elements. It is not expected that all utilities will have practices or even a need to complete all sections or elements to the same degree. There are no statutory requirements directing what utilities must include in their plans. It is at the discretion of each utility to determine the elements applicable to its own wildfire mitigation efforts and the level of detail necessary to describe each element.

The WMP format was developed in recognition that some utilities may have wildfire mitigation programs that are more robust than others. It is acceptable to note these limitations when completing the WMP. For any section where a program overlaps two or more elements of the plan, it is acceptable to select the most applicable element to describe the program and reference that section where applicable for other areas. It is not necessary to repeat the program description multiple times.

It should be noted that the Iowa State Mesonet site, recommended for Red-Flag Warnings (RFW), has recorded zero RFW's in the Centralia City Light (CCL) service territory in the past 38 years that records were kept, 1986-Present.

¹ HB 1032 Section 4 created a new section for consumer owned utilities in RCW 19.29A.170.

2.0 Wildfire Mitigation Plan Overview

2.1 Purpose of the Wildfire Mitigation Plan

This Wildfire Mitigation Plan (WMP) describes in detail the range of activities that Centralia City Light (CCL) is taking to mitigate the threat of utility involved wildfires, including various programs, policies, and procedures. This plan complies with the requirements of HB1032 (RCW 19.29A.170) for customer-owned electric utilities (COU) to prepare a wildfire mitigation plan by October 31, 2024, and every three years thereafter.

2.2 Description of Where WMP Can be Found Online

The City of Centralia maintains a city website, www.cityofcentralia.com, where the Wildfire Mitigation Plan will be available to the public. Copies will be available upon request at City Light Headquarters at 1100 N. Tower Ave., Centralia, WA 98531.

2.3 Best Practices Cross-Reference Table

Standard or Best Practice Name and Description	Document, page number, or citation
HB 1032 – By October 31, 2024, and every three years thereafter, each Investor-owner and Consumer-owned Utility must review, if appropriate revise, and adopt its wildfire mitigation plan	See attached WMP report.

3.0 Utility Overview

The following sections, provide an overview of CCL, its service area, and general description of the purpose of the Wildfire Mitigation Plan (WMP).

3.1 Utility Description and Context Setting Table

CCL became an electric utility in 1895, one of the first in Western Washington. CCL presently supplies nearly 11,000, mostly urban customers, from six substations, each supplying six circuits, for a total of 36 circuits. Two of the six substations have earthquake resistant designs implemented to support substation survival during the next Cascadia Subduction Zone earthquake. Five of the six substations are in an open urban space. The sixth, Cooks Hill Substation is located on a large city-owned lot shared by the City’s highest water tower reservoir. It is surrounded by trees on two sides, but none that are in close proximity. Table 1 provides the context setting information for Centralia.

Table 1. Context-Setting Information Table

Utility Name	Centralia City Light
Service Territory Size (sq. miles)	16
Service Territory Make-up	% Urban % Agriculture % Barren/Other % Conifer Forest % Conifer Woodland % Desert % Hardwood Forest % Hardwood Woodland % Herbaceous % Shrub % Water [X] NA / Not tracked
Service Territory Wildland Urban Interface (based on total area)	% Wildland Urban Interface % Wildland Urban Intermix [X] NA / Not tracked
Customers Served	Approximately 10,700
Account Demographic	85% Residential 0% Agricultural 15% Commercial/Industrial
Utility Equipment Make-up (circuit miles) The line distances are estimated from the GIS model of the system.	Overhead Distribution: 120.1 mi. Overhead Transmission: 29.7 mi. Underground Distribution: 73.2 mi. Underground Transmission: None
Has developed protocols to pre-emptively shut off electricity in response to elevated wildfire risks?²	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> A summary or description of protocols can be provided in section 7. In summary the Yelm Transmission Line will be de-energized if RFW conditions warrant it.

² For many utilities this will be a reference to a Public Safety Power Shutoff (PSPS) event. These events, whether through a formally defined PSPS program or not, are recognized as a safety measure of last resort initiated by utilities to pre-emptively de-energize specific powerlines during critical fire weather to reduce the risk of the electric system being involved in an ignition. The decision to either have or not have this type of practice is at the operational discretion of the individual utility.

<p>Has previously pre-emptively shut off electricity in response to elevated wildfire risk?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
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4.0 Objectives of the Wildfire Mitigation Plan

The objectives of the WMP and how each objective supports a response and recovery system that is focused on public safety are covered in this section. For any section where a program overlaps two or more elements of the plan, it is acceptable to select the most applicable element to describe the program and reference that section where applicable for other areas. It is not necessary to repeat the program description multiple times.

4.1 *Minimizing Likelihood of Ignition*

Three keys to minimizing the likelihood of ignition are briefly described as follows:

- 4.1.1 Proper Prior Preparation – The development of this plan, the commitment to regular tree trimming, and installation of equipment that is designed to prevent fires when faults occur are important first steps. Equipment purchases will include state-of-the-art electronic relays that will be installed on the 26.25-mile Yelm transmission line to prevent a broken conductor from starting a fire. The relays are capable of de-energizing the line before the broken conductor hits the ground.
- 4.1.2 The Line Crew will be equipped with a special 300-gallon fire-fighting skid that is easy to load by forklift on one of the flatbed trucks available to the Line Crew. This skid can be used during times of elevated fire danger on jobs that are near vegetation that can be easily ignited. Until the skid arrives, each of the line crew trucks are equipped with fire extinguishers and the Line Crew is trained in their use.
- 4.1.3 Establishing policies that will place the system in a safe condition during elevated fire danger conditions and equip CCL and YHP personnel in preventing and, if necessary, fighting small fires before they become wildfires.

4.2 *Transmission Lines*

CCL owns and operates five sections of transmission lines. Presently, all are operated at 69-kV. Some have been constructed with 115-kV insulators to be prepared for BPA’s planned upgrade to 115-kV, when loads reach the transmission system capacity at 69-kV.

4.2.1 Yelm Hydroelectric Project (YHP) to May Street Substation (Near CCL Headquarters)

Length of line: 26.25 miles
 Operating Voltage: 69/115-kV
 Transmission Conductor: 4/0 ACSR conductor for the majority of the length.
 Pole Material: Treated Wood
 Wildfire Risk: Medium

Description: The longest section of transmission line connects the YHP 69-kV output to the City of Centralia at the May Street Substation. This line was originally built in 1929-1930; approximately 50% of the line has been rebuilt with new poles and upgraded to 115-

kV capability. This has improved the lines reliability and reduced its susceptibility to causing a wildfire. It transits through heavily tree-covered areas for approximately 80% of its route or approximately 21 miles. The other miles are a combination of open fields and small-city urban environments.

The present plan is to purchase two 411L Schweitzer Relays with Broken Conductor Detection (BCD) programming capability. This special programming is capable of de-energizing the line before the conductor hits the ground, when properly deployed. One of these relays will be placed at each end of the 26.25 mile line.

If the conditions are extreme (Severe Red Flag Warning), then the line will be de-energized and flow restored when the Severe Red Flag Warning is cancelled.

4.2.2 Zimmerman Substation to North Port Substation

Length of line:	1.48 miles
Operating Voltage:	69/115-kV
Transmission Conductor:	477 AAC
Dist. UB Conductor:	477 AAC (Double Circuit)
Pole Material:	Treated Wood
Wildfire Risk:	Low

Description: The second longest section of transmission line connects the Zimmerman Substation to the North Port Substation. The North Port Substation is located near CCL's largest load, the Sierra Pacific lumber mill and other industrial loads in the north part of the Port of Centralia's industrial park. The line traverses through a heavily industrialized route with much of it along a railroad that is adjacent to a large lake. It is believed that this section of line does not pose a high wildfire threat because of very limited vegetation and its proximity to heavy industry areas.

4.2.3 BPA East Loop to Salzer Valley Substation

Length of line:	1.42 miles
Operating Voltage:	69/115-kV
Transmission Conductor:	477 AAC
Distribution Conductor:	477 AAC
Pole Material:	Core-10 Steel
Wildfire Risk:	Low

Description: The use of Core-10 steel poles, 115-kV insulators (that are operated at 69-kV) and the installation of wildlife guards over each of the distribution underbuild 15-kV insulators, make this line highly resistant to starting wildfires. The line also transits a heavily traveled rural road that is mostly located in an open area covered in short grass that is green 9-10 months out of the year. It is unlikely that this relatively new (~5 years old) transmission line poses much of a wildfire ignition threat.

4.2.4 BPA West Loop to Cooks Hill Substation

Length of line:	0.33 miles
Operating Voltage:	69/115-kV
Transmission Conductor:	477 AAC
Distribution Conductor:	None
Pole Material:	Wood Laminate
Wildfire Risk:	Low

Description: The use of laminated wood poles that have no distribution underbuild along this line's short one-third of a mile length minimizes the wildfire ignition threat for this line. The line exits the BPA west transmission loop path and passes by a limited number of trees along local roads that are heavily traveled. The immediate area that the line transits is mostly grass pastureland, but the line is in close proximity to woodlands along the edges of the grass fields. The lack of distribution underbuild means that it will be very difficult to find wildlife of sufficient size to bridge the gaps created by the required phase separation of the 115-kV insulators.

4.2.5 BPA Blakeslee Junction to Zimmerman Substation

Length of line:	0.156 miles
Operating Voltage:	69/115-kV
Transmission Conductor:	477 AAC
Distribution Conductor:	None
Pole Material:	Treated Wood
Wildfire Risk:	Low

Description: The short path between the BPA Blakeslee Junction switching substation and the Zimmerman Substation is along and near a heavily traveled street in an industrial park and cemetery area of the City of Centralia. There is no distribution underbuild along this very short route. This results in a reduced chance that this short section of line would be the source of ignition of a wildfire.

4.3 Substations

Centralia City Light owns and operates six substations placed in and around Centralia, WA. The YHP utilizes one step up substation that converts 4.16-kV from generation created by the three hydroelectric turbines and steps it up to 69-kV transmission voltage to deliver the power to the City of Centralia. All the substations are built with galvanized steel and have a weed/grass free area inside the substation fence. The Zimmerman Substation in Centralia and the YHP Substation at the powerhouse do not have sophisticated relaying that can open a circuit switcher to quickly de-energize the substation, but they do have fusing that is located inside the substation. The Zimmerman Substation will have sophisticated relaying and a circuit switcher installed when it is upgraded sometime in the next five to ten years.

Voltages Present:	4.16/12.47/69-kV
Substation Material:	Galvanized Steel
Wildfire Risk:	Low

4.4 Main Feeder Lines Exiting Substations

All substation main feeder lines exit the substations as underground cable in conduit and vaults. The risk of being the source of ignition of a wildfire is virtually zero.

Voltages Present:	7.2/12.47-kV
UG Material:	EPR UG Cable, Schedule 40 PVC conduit, Concrete vaults
Wildfire Risk:	Very Low

4.4.1 Distribution Lines (Overhead Only)

The overhead distribution lines are mostly located along City streets and alleys. The vegetation (mostly trees) located near overhead distribution lines in the City are trimmed on a regular basis, approximately once every three years. This minimizes the possibility that these lines could be the source of a wildfire. But there are a number of squirrels and birds throughout the service territory that are a frequent source of outages. Each of these outages normally involves one or more blown fuses. Normal fuses are an expulsion design that can send hot metal to the ground and be the source of a fire. CCL is looking into non-expulsion fuses that are very resistant to being the source of ignition of a wildfire. Initial indications are that these new fuses are prohibitively expensive. The search for an acceptable substitute continues.

Voltages Present:	7.2/12.47/69-kV
OH Material:	Wood poles and crossarms with metal equipment
Wildfire Risk:	Low in the City and medium on the lines located in the eastern portion of the system that extend into remote wooded areas.

4.4.2 Overhead Transformer Installations

Wildlife resistant polymer covers are being placed on the insulators of overhead distribution transformers (see Figure 1). A total of 600 were ordered initially; over 250 have been deployed in the elevated wildfire risk areas.



Figure 1 - Overhead Transformer Installation

4.4.3 Other Overhead Distribution Equipment Installations

Special polymer wildlife covers have been placed on the underbuild distribution arm conductors at each insulator installation on the Core-10 steel poles that were used in the BPA to Salzer Valley Substation transmission line. Figure 2 is a photo showing wildlife covers. The uncovered conductor in Figure 2 is the neutral wire.



Figure 2 - Wildlife Protective Cover

4.5 Resiliency of the Electric Grid

4.5.1 Centralia City Light is supplied by the Bonneville Power Administration (BPA) via a looped 69-kV transmission system. The system has its origin in the BPA-Chehalis Substation located west of the Napavine area, south of Chehalis near I-5 Exit #72. The six (115x69/12.5-kV) substations presently operate at an input transmission voltage of 69-kV received from BPA and an output voltage of 12.5-kV distribution voltage. There is a future BPA plan to convert the transmission system to 115-kV voltage to meet future load growth. CCL's electric loads are the driver for this planning effort primarily due to new developments and the population growth we are experiencing. The 69-kV transmission line from the YHP is about 50% upgraded to 115-kV capability. The remaining 50% comprises a total of around 200 poles that need to be replaced before BPA converts from 69-kV to 115-kV.

4.5.2 BPA's looped transmission configuration improves grid resiliency by providing the capability to split the line into two radial feeds should a fault (fallen tree, car-pole accident, etc.) occur. Electronic relays are used to detect faults and de-energize the line in emergency situations. Splitting the loop at the BPA-Centralia Substation would allow the east loop to

- *Steep terrain* – There are several hills in the CCL service territory and each is partially occupied with homes. This improves the oversight of this steep terrain and minimizes the response time for emergency services.
- *Lack of early fall rains* – CCL’s territory receives consistent rainfall, normally starting in the month of October. During the month of September, temperatures are consistently less than they are in July and August, during the height of the summer drought period. These lower temperatures aid in reducing fire risks.

6.2 *Enterprise-wide Safety Risks*

- *Operational* – CCL recently received an American Public Power Association award for excellent reliability. We have an excellent SCADA System. It monitors all the important information available on each of our six substations with their 36 total distribution circuits. The information is gathered via high speed fiber optic cables that are highly reliable. If the control room is manned during a high fire danger situation, then the substation crew will instantly notice any system faults that could be the source of a fire danger and quickly dispatch crews to that area for a rapid assessment. Each of CCL’s nearly 11,000 meters is connected via a Two-Way Automatic Control System (TWACS) to the headquarters office. When the parameters on a meter change, indicating a potential problem, that meter can be communicated with to determine the extent of the problem. There are many times when we identify and fix a potential problem before the customer is even aware it has occurred.
- *Procedural* – During times of elevated fire danger and a job that poses some increased measure of fire risk, CCL will equip that crew with a fire-fighting skid that was ordered in July 2024 and will be delivered in time to be available for the 2025 fire season. The fire-fighting skid is easily placed on the back of a flatbed truck. It contains 300-gallons of water and is equipped with a gasoline powered pump. It gives the crew excellent short-term, job location fire-fighting capability until emergency services arrives.
- *System Sensitivities* – As discussed in Section 6.1.
- *Example risk drivers may include but are not limited to the following:*
 - Contact from Object (i.e., animal, metallic balloon, vegetation, vehicle-pole accident)
 - Equipment / Facility Failure (i.e., Capacitor Bank, Conductor, Crossarm, Fuse, Insulator, Transformer, etc.); Wire-to-Wire Contact

7.0 **Wildfire Preventative Strategies**

7.1 *Weather Monitoring*

See Section 5: Roles and Responsibilities

7.1.1 Current Strategy Overview – List of sites monitored daily

- *United States National Weather Service*
- *United States Forest Service Wildland Fire Assessment System*
- *National Fire Danger Rating System*

- *NOAA*
- *Weather Channel*

7.1.2 Planned Updates to Weather and Wildfire Monitoring Sites

None anticipated or planned, beyond the three-year update requirement.

7.2 *Design and Construction Standards*

7.2.1 Current Strategy Overview

The installation of wildlife protection guards in areas of the system where wildlife have been the source of outages will help harden the system to this type of outage. Each outage can lead to a fire, if the wildlife is severely damaged by the electrical fault it causes. Over 250 guards have been installed on poles where wildlife tend to congregate. There are another 350 in stock that will continue to be applied. More will likely be ordered once the first 600 are installed. Since 2013 CCL has been replacing priority poles and crossarms that have reached the end of their useful life and showed signs of possible future failure. CCL has replaced over 1,000 poles and crossarms to improve system reliability, improve the public and employee safety, and reduce the possibility that a pole might be blown down by the wind and start a fire. These are all industry best practices.

7.2.2 Planned Updates

None anticipated or planned, beyond the three-year update requirement.

7.3 *Fuel and Vegetation Management*

7.3.1 Current Strategy Overview

CCL divides the Centralia service area into thirds using the Skookumchuck River and Interstate-5. Each of these thirds has its trees and vegetation trimmed by an experienced contractor once every four years. The extra year is used to patrol and trim trees and vegetation along the 69-kV transmission line from the YHP to the May Street Substation located near the CCL headquarters.

7.3.2 Planned Updates

CCL is planning to have trees and vegetation trimmed along the Yelm transmission line in 2025.

7.4 *Asset Inspections and Response*

7.4.1 Current Strategy Overview

Prior to and after each year's tree trimming project, the lines are closely inspected and approved by experienced CCL personnel. The standard trimming distance from energized parts at 12.5-kV is 10 feet. This is the standard followed by the experienced contract crews that perform the work.

7.4.2 Planned Updates

None anticipated or planned, beyond the three-year update requirement.

7.5 *Workforce training*

7.5.1 Current Strategy Overview

Operation of the 300-gallon fire-fighting skid (see Figure 4, Page 15, Section 5.3.1) will be practiced when it arrives. The crews have received fire extinguisher training. Each truck is equipped with at least one fire extinguisher that can be used to prevent small fires from becoming large fires.

7.5.2 Planned Updates

None anticipated or planned, beyond the three-year update requirement.

7.6 *Relay and Recloser Practices*

7.6.1 Current Strategy Overview

CCL electronic reclosers, Vacuum Fault Interrupter (VFI) switch cabinets, and Fused Switch (FS) cabinets that provide protection for distribution feeder circuits. Relays are designed to protect the distribution in cases where a fault is present. The use of this equipment is described below.

- Overhead Distribution: CCL has deployed electronic reclosers to de-energize circuits experiencing faults. These reclosers are equipped with electronic Schweitzer relays. They are set to sense a fault then open the recloser and close it back in three times. These units are designed to evaluate if the fault is permanent or temporary. If the fault is considered permanent, the recloser will remain open until a line crew can assess the outage and make repairs. The City has two of these units in place where one of them protects the Seminary Hill area and the other protects the north Pearl area.
- Underground Distribution: The City has separated its main distribution underground (600A) feeders from its load serving (200A) underground systems. These systems are only connected via pad-mounted switch cabinets. These cabinets typically have 600A switches and either VFI or FS on the 200A side. Each one of the 200A load carrying circuits is protected by either a VFI or a FS. The VFI has electronic settings that are used to detect faults in the system and open the circuit should a fault exist. The FS utilizes a fuse to detect faults. If the fault current exceeds the capacity of the fuse, the circuit will open.
- CCL utilizes electronic reclosers that will open a faulted circuit when it senses a fault. Circuits that are predominately overhead are set to two or three shots before the circuit is locked out. During a declared Red-Flag Warning (RFWD) day, CCL will change the settings on the distribution relays to lock open after the first shot. This will minimize the possibility that a line could close back in and start a fire.

7.6.2 Planned Updates

None anticipated or planned, beyond the three-year update requirement.

7.7 *De-energization / Public Safety Power Shutoff*

7.7.1 Current Strategy Overview

The YHP was built in 1929-1930 and is still providing green-hydroelectric power today. It offsets the power purchased from BPA. The 69-kV transmission line that transmits power to the May Street Substation travels 26.25 miles, much of it through wooded areas. If a RFW is forecast for a period of time, the power from the Yelm Hydro Project will be curtailed to eliminate the possibility it could start a fire along its 26.25-mile length. There are no plans to shut off power to the 36 distribution circuits.

7.7.2 Planned Updates

None anticipated or planned, beyond the three-year update requirement.

8.0 **Community Outreach and Public Awareness**

8.1 *Current Community Outreach and Public Awareness Program*

Lewis County has just completed a 2024 update to the Lewis County Multi-Jurisdictional Hazard Mitigation Plan (LCMJHMP). The eighth and last hazard listed in this new report is Wildfire. It is the county-wide document that all entities (cities, towns, first responders, etc.) must follow. There are no separate meetings planned by CCL with our customers, but the report will be brought before the City Council and public for their questions and responses. The Council will be asked to pass a resolution in support of the WMP.

8.2 *Planned Updates*

None anticipated or planned, beyond the three-year update requirement.

9.0 **Restoration of Service**

The existing restoration precedent, with one exception, will continue to govern this restoral process. The line will be patrolled both before and after the restoration to insure that no fire was started when the line was re-energized.

10.0 **Evaluating the Plan**

The information to answer this question is not available yet. It should be noted that the Iowa State Mesonet site, recommended for Red Flag Warnings, has recorded 0 (Zero) Red Flag Warnings for the Centralia service territory in the past 38 years that records were kept. (1986-Present).

<https://mesonet.agron.iastate.edu/vtec/search.php>

Appendix B.

Supporting documentation. Notice of Public Hearing and City Council approved Resolution 2809.