PGE

2026-2028 Wildfire Mitigation Plan

Portland General Electric Company

Integrated Resource Planning

121 SW Salmon Street

Portland, Oregon 97204

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1 Executive Summary

This 2026–2028 Wildfire Mitigation Plan (WMP) continues the evolution of Portland General Electric's (PGE) comprehensive and data-driven wildfire mitigation strategy, building on prior WMP successes and learnings. PGE's highest priority is the safety of our communities, customers and employees. To advance this commitment, PGE has continued to build on our first WMP developed in 2019 and is releasing its first three-year action plan. PGE's 2026-2028 WMP results in a plan that efficiently allocates limited resources to mitigations with high-risk reduction benefits. This WMP demonstrates the advances we have made with the input and assistance of multiple partners.

1.1 Growing Threat of Wildfires

Wildfire risk in Oregon continues to grow. During the 2025 fire season, PGE's entire service area experienced drought compared to 54 percent in 2024, and 77 percent of the service area suffered severe drought. Drought's cumulative impacts on vegetation increase the likelihood of a wildfire, underscoring the need for PGE to continue to invest in wildfire mitigation measures.

PGE's service area spans diverse topography and climate zones across northwestern Oregon, from the maritime forests of the Coast Range to the dry ponderosa pine landscapes east of the Cascade Mountains. Across our service area, climate change is amplifying wildfire risk through interconnected fuel and weather mechanisms, rising temperatures, declining humidity, and longer fire seasons. Trends include earlier onset of critical fuel conditions and more frequent east wind events. These factors create conditions for longer and more severe fire seasons for the customers and communities we serve.

1.2 Wildfire Mitigation Strategy

PGE's strategy reflects the following foundational **principles**:

- Develop data-driven risk reduction strategies that balance risk reduction and cost to our customers.
- Engage with communities to understand and limit customer impacts from Public Safety Power Shutoffs (PSPS) and other mitigation efforts.
- Collaborate with local, regional, and national partners to implement mitigations and minimize community impact.
- Demonstrate a commitment to always learning and expanding capabilities.

PGE's mitigation **objectives** reflected in this plan are to:

1. Reduce wildfire risk associated with electrical contact to vegetation or other objects.
2. Reduce wildfire risk associated with equipment failure.
3. Reduce wildfire and mitigation impacts to customers.
4. Increase situational awareness and operational capabilities to manage near-term risk.

PGE's wildfire mitigation strategy encompasses a portfolio of initiatives designed to address evolving wildfire risks across our service area. These initiatives employ diverse mitigations that address short, mid-, and long-term wildfire risk.

Table 1-1: WMP Initiative Categories and Objectives

Category	Summary	Section	Principle	Objective 1 Reduce Wildfire Risk Vegetation / Contact	Objective 2 Reduce Wildfire Risk Equipment Failure	Objective 3 Reduce Customer Impact	Objective 4 Manage Near-Term Risk
Risk Methodology & Assessment (RMA)	Complex modeling that identifies areas of elevated wildfire risk and prioritizes mitigation investments.	4	X				
Wildfire Mitigation Strategy Development (WMSD)	Mitigation selection to achieve objectives, program delivery, data reporting, compliance, program maturity, and continuous improvement.	5	X				
Grid Design and System Hardening (GDSH)	Infrastructure investments to improve resiliency, reduce risk, and provide operational capabilities.	6		X	X	X	X
Inspect and Correct (IC)	Annual inspections and hazard correction to reduce risk.	7		X	X		
Vegetation Management (VM)	Annual patrol, clearance, and hazard mitigation to reduce risk.	8		X			
Situational Awareness and Forecasting (SAF)	Advanced weather & fuels monitoring, seasonal & near-term risk assessment, and enhanced monitoring.	9	X	X	X	X	X
Grid Operations and Protocols (GOP)	Work practices, safety settings, and operational protocols to reduce risk.	10		X	X		X
Emergency Preparedness	Framework, procedures, training, and coordination to enhance incident management.	11	X				X
Public Safety Power Shutoff (PSPS)	De-energization of equipment to reduce near-term risk and associated notifications.	12		X	X	X	X
Community Outreach and Public Awareness (COPA)	Multi-channel effort to engage stakeholders and increase awareness of wildfire and safety issues.	13	X			X	
Industry Engagement	Continuous learning and development of best practices in a rapidly evolving landscape.	14	X				

1.3 Major Changes in the 2026–2028 WMP

Our first multi-year plan discusses all aspects of our wildfire prevention programs. Key changes from prior plans reflect updated risk modeling, industry learnings and peer alignment, OPUC Recommendations, and program improvements:

- Matured underlying environmental risk modeling to reflect low-likelihood, high-consequence events and the potential for fires to penetrate populated areas.
- Smaller High Fire Risk Zones (HFRZ) that enable targeted near-term risk mitigations, leveraging situational awareness investments to address localized weather patterns and limit customer impacts.
- Defined Elevated Fire Risk Zones (EFRZ) that enable PGE to respond to evolving risk conditions and effectively apply seasonal and near-term risk mitigations in areas demonstrating some, but not all, risk indicators typical of an HFRZ.
- Continued refinement of PGE's Risk Spend Efficiency methodology, including increased alignment with peer utilities and OPUC Staff.
- Continued refinement of the vegetation management program to address tree mortality, drought impacts, and the pre-fire season growth season while reducing cost.
- Investment in Information Technology tools to enable effective execution while managing costs in the face of increasing risk and compliance requirements.
- Planned pilots to test and demonstrate the value of new technology or program changes prior to wide-scale deployment.
- Updated climate change modifier that reflects improved modeling techniques, better scenario selection, and high-resolution downscaling to account for socio-economic factors, vegetation dynamics, and territory-specific climate behavior. This results in approximately 10 percent reduction in modeled wildfire risk across service areas in 2026 compared to 2025.

1.4 2026–2028 WMP Risk Reduction Benefits

PGE's current wildfire risk modeling estimates that full implementation of the activities outlined in our 2026-2028 WMP will reduce wildfire risk within the HFRZs and EFRZs by approximately 10 percent by the end of 2028 compared to 2025 baseline. Risk reduction exceeding that amount would come with an escalation in costs largely due to the need for significant investment in capital intensive projects. Based upon PGE's current wildfire risk modeling, full implementation of its plan is projected to deliver significant benefits for customers and stakeholders:

- Capital investments planned for the next three to four years have expected useful lives of 50 years and are estimated to reduce total risk in the HFRZs and EFRZs by approximately 25 percent for the life of the projects.
- Operational programs are estimated to deliver roughly 20 percent reduction in wildfire risk in HFRZs annually through vegetation management, inspection, and correction practices if implemented as outlined.

- Overall, ignition prevention measures in HFRZs and across the service area will result in approximately 135 avoided ignitions annually.
- Deployment of weather stations and AI cameras will enable rapid detection of wildfire hazards.
- Community engagement, customer programs, and continuous PSPS readiness improvements should reduce customer wildfire and PSPS vulnerability.

Based on PGE's current risk modeling, without implementation of additional mitigation measures, wildfire risk is projected to increase approximately 37 percent across the service territory and 35 percent within HFRZs and EFRZs by 2028 compared to 2025 baseline. With full implementation of PGE's 2026-2028 WMP, PGE estimates its capital investments and operational mitigations will offset projected risk increases and result in decreased utility wildfire risk compared to 2025.

1.5 Delivering Customer Value

This WMP reflects activities, investments and programs to address PGE’s modeled wildfire risk, requirements of Oregon Administrative Rules (OARs), new WMP Guidelines, and OPUC Recommendations. While the focus of PGE’s WMP is to mitigate wildfire risk, the investments made through this program deliver wide ranging benefits to PGE customers.

- Meteorologists provide daily weather briefings using weather station data to inform operations year-round, improving PGE’s responsiveness to storms, heat events, and other weather-related incidents.
- Grid hardening investments, vegetation management, and inspections improve reliability throughout the year, particularly during storms.
- System reliability is improved through innovation fueled by PGE’s WMP, including early fault detection, geo-probability modeling, and outage prediction tools.

For investments delivering reliability or wildfire risk reduction benefits, PGE calculates a Risk Spend Efficiency (RSE) score to quantify the benefits compared to costs. To maximize the value to customers, PGE optimizes our wildfire mitigation strategy to maximize the wildfire and reliability risk reduction at the least cost to customers. Additionally, PGE’s wildfire mitigations reduce operating expenses by preventing outages and removing costly overhead assets in high fire risk areas.

- Execution of capital investments from our 2025 WMP Update resulted in approximately $0.5 million in avoided operating expenses and approximately 0.25 million avoided customer outage minutes.
- Execution of our 2026-2028 WMP:
  - Capital investments are estimated to prevent roughly $1.8 million in operating expenses and outage response costs and prevent 9.1 million customer outage minutes
  - Annual vegetation and inspection programs are expected to avoid approximately $0.5 million in outage response costs and 3.2 million customer outage minutes each year.

PGE is committed to customer affordability and developed these WMP actions in a manner that seeks to reasonably balance mitigation costs with the resulting risk reduction. Incumbent in the delivery of these actions is the assumption of likely and timely recovery of costs through the automatic adjustment clause process. Without timely cost recovery, PGE may need to modify the scope or implementation timeline of elements of this WMP. Within such a financially constrained environment, PGE would prioritize compliance with OARs and WMP Guidelines but may need to slow the implementation of OPUC Recommendations that increase cost. For example, the Outage Management System (OMS) cause code upgrade associated with OPUC Recommendation PGE_2501, would be a significant investment. To mitigate wildfire risk without implementation of planned ignition prevention actions, Public Safety Power Shutoffs could be imposed more readily or with greater frequency.

1.6 Implementation of New WMP Guidelines

PGE appreciates the efforts of all stakeholders, most notably OPUC Staff, to standardize WMP formats, glossary of terms, and data reporting. Per OPUC UM 2340 Order 25-326, this multi-year WMP encompasses PGE's full program and plans for the next three years utilizing a format and data tables designed to provide a shared framework for discussion and comparison across utilities. This WMP includes PGE's improved Risk and RSE methodology used to inform 2026 investments as well as components of the standard Risk and RSE methodology in development through the OPUC Staff-led joint utility workshops.

The Commission clarified that they "do not expect standardized risk evaluations across the utilities at this time". However, PGE is committed to maturing our risk evaluation and incorporated into this year's risk modeling several key concepts from the OPUC Staff-led risk workshops. These efforts increased alignment across Oregon's three investor-owned utilities. PGE has also incorporated into this filing the WMP Risk Spend Efficiency Workbook and Guidelines approved by UM 2340 Order 25-436 on October 30, 2025. We provide a comparison of PGE's RSE with the new standard RSE methodology, noting differences and providing suggestions for evolution of the standard RSE methodology. PGE will continue to work collaboratively with OPUC Staff and peer utilities to build out the standard risk methodology.

1.7 Underlying Environmental Risk

As our surrounding environment changes, the challenges of safely operating PGE's electric system escalate. PGE updated its wildfire risk models this year to address the evolving risks in the Pacific Northwest and learnings from observed fires, including the potential for fires to penetrate further into developed areas. Tree health is declining, summers are hotter, droughts are more frequent, and winter storms are more intense. These factors increase risk related to PGE's system; mitigation efforts address risks highlighted in prior plans while adapting to these new and growing impacts.

PGE's 2026-2028 WMP responds to the identified risks based upon the best available science and projections for the future. However, the state of global climate science continues to evolve, and the impacts on Northwest forests remain dynamic. Future WMPs and WMP Updates will reflect further adjustments as our collective understanding of future risk improves.

PGE has identified fire risk zones on the edge of allocated service territories of other utilities, including utilities that do not have wildfire mitigation programs regulated by the OPUC. It is noted that wildfire risk boundaries do not align with utility service area boundaries. While PGE coordinates with these utilities, as noted in Section 3.1, the maturity of PGE's understanding of future risk may help neighboring utilities in their development of more robust wildfire prevention programs. Fires do not respect utility boundaries, increasing the need for bilateral utility coordination to reduce risks that impact PGE customers.

1.8 Conclusion

Customers count on PGE to provide safe and reliable electricity while we create a cleaner and more resilient energy future. Wildfire risk is a societal risk and one that creates a key challenge for PGE as we deliver this future for our customers, and this 2026-2028 WMP reflects a reasonable balance of mitigation cost with wildfire risk reduction, consistent with Commission requirements. That said, this wildfire prevention plan also reflects a comprehensive, data-driven strategy for wildfire risk reduction that is responsive to customer needs and the changing risks across the region.

2 Overview of Wildfire Mitigation Plan

2.1 Goals and Objectives

The **goals** of PGE's 2026-2028 WMP are summarized as follows:

- Prioritize public and employee safety.
- Reduce the risk of wildfire ignitions from PGE assets and operations.
- Reduce customer impacts through system resilience investments.

The following four **objectives** shared in this WMP will enable PGE to achieve these goals:

- **Objective #1:** Reduce wildfire risk associated with electrical contact to vegetation or other objects.
- **Objective #2:** Reduce wildfire risk associated with equipment failure.
- **Objective #3:** Reduce wildfire and mitigation impacts to customers.
- **Objective #4:** Increase situational awareness and operational capabilities to manage near-term risk.

Details on how PGE's initiatives map to each of the WMP objectives are provided in Table 5-1, WMP Objective to Initiative Mapping.

2.1.1 Prior and Projected Expenditures

Table OPUC 2-1 provides historic and forecasted expenditures in thousands of U.S. dollars per year for the activities set forth in PGE's 2026–2028 WMP. The following assumptions were used to inform 2027 and 2028 forecasts:

- Escalating risk as discussed in Section 4, resulting in a three percent annual increase in HFRZ line miles and structures.
- Benefits associated with prior WMP investments such as underground conversions.
- Labor and contract escalation of three percent.

Table OPUC 2-1: Wildfire Mitigation Plan Expenditures in Thousands

	Prior WMP Spend[1] (as of 9/30/2025)		2026 Forecast		2027 Forecast		2028 Forecast		Total	
Initiative Category	Capital ($1,000)	O&M ($1,000)	Capital ($1,000)	O&M ($1,000)	Capital ($1,000)	O&M ($1,000)	Capital ($1,000)	O&M ($1,000)	Capital ($1,000)	O&M ($1,000)
Community Outreach and Public Awareness (COPA)	$0	$905	$0	$708	$0	$729	$0	$762	$0	$3,104
PSPS/Emer-gency Preparedness (PSPS)	$0	$1,154	$435	$1,054	$450	$1,107	$395	$1,246	$1,280	$4,561

Initiative Category	Prior WMP Spend[1] (as of 9/30/2025)		2026 Forecast		2027 Forecast		2028 Forecast		Total	
	Capital ($1,000)	O&M ($1,000)	Capital ($1,000)	O&M ($1,000)	Capital ($1,000)	O&M ($1,000)	Capital ($1,000)	O&M ($1,000)	Capital ($1,000)	O&M ($1,000)
Grid Design and System Hardening (GDSH)	$70,284	$271	$62,393	$353	$77,831	$435	$79,309	$449	$289,817	$1,508
Grid Operations and Protocols (GOP)	$56	$1,036	$111	$1,081	$150	$1,773	$75	$2,041	$392	$5,931
Industry Engagement (IE)	$0	$188	$0	$117	$0	$121	$0	$125	$0	$551
Inspect/ Correct (IC)	$8,286	$7,464	$1,576	$4,294	$1,771	$4,456	$1,188	$4,619	$12,822	$20,832
Overview of the Service Territory (OST)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Risk Methodology and Assessment (RMA)	$176	$3,866	$565	$4,080	$550	$5,393	$500	$5,875	$1,791	$19,214
Situational Awareness and Forecasting (SAF)	$5,389	$2,411	$4,936	$2,194	$3,379	$2,396	$2,280	$2,044	$15,984	$9,045
Vegetation Management (VM)	$65	$62,943	$55	$32,942	$50	$27,907	$25	$29,890	$195	$153,682
Wildfire Mitigation Strategy Development (WMSD)	$47	$3,659	$142	$2,124	$75	$2,264	$15	$2,453	$279	$10,500
Other[1]	$37,649	$67,277	$0	$0	$0	$0	$0	$0	$37,649	$67,277
Total	**$121,952**	**$151,173**	**$70,214**	**$48,947**	**$84,256**	**$46,580**	**$83,788**	**$49,504**	**$360,209**	**$296,204**

Note:

1. Prior WMP Spend includes 2022-2025 actuals through 9/30/2025. 2024 actuals have been remapped to Initiative Categories.

2.2 WMP Grants

There were no grant impacts to project costs and customer rates in 2025 and there are no known expected grants in years 2026–2028.

[1] The "Other" Initiative Category reflects spend that occurred from 2022-2023 and is not mapped to Initiative Categories.

Table OPUC 2-2: WMP Grant Overview

Grant Name	WMP Project/ Initiative	Awarding Agency	Awarded Amount ($1,000)	Timeline	Status	Comment	Report Reference Section
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

2.3 WMP Program Delivery

PGE successfully implemented its 2025 WMP initiatives, accomplishments include:

- Effective execution of AWRR vegetation management, ignition prevention inspections, and corrections reduced risk.
- Advancements in AWRR execution resulting in a 12 percent lower unit cost compared to the previous year. Based on PGE's current risk modeling, this program is estimated to reduce total vegetation risk by 35 percent within the respective HFRZs for the next year.
- Execution of system hardening projects, including conversion of 32 overhead circuit miles to underground, reconductor of 12 circuit miles, and construction of 14 circuit miles of covered conductor yield multi-year risk reductions and decrease PGE ignitions.
- Execution of situational awareness projects, including the addition of one AI camera and seven weather stations, as well as deployment of Early Fault Detection (EFD) sensors on two circuits. EFD helps PGE prevent both ignitions and outages; investments to date are estimated to prevent roughly 35 ignitions annually.
- Installation of 25 distribution automation devices improve grid design and will enable Enhanced Powerline Safety Settings (EPSS) and PSPS execution.
- Implementation of EPSS in HFRZs and expansion to EFRZs during the 2025 fire season. This grid operations protocol mitigated eight Enhanced Fire Risk (EFR) days West of the Cascade Crest and 17 EFR days East of the Cascade Crest.
- Continued improvement of PSPS Readiness, promoting effective decision-making and shorter customer restoration times. While PGE did not execute a PSPS event in 2025, improvements included updated risk thresholds for transmission and detailed planning for non-HFRZ areas.
- Robust community engagement through more than 60 community events and other forums for public engagement, support of vulnerable customers through the Medical Battery Support pilot, and ongoing partnership with Public Safety Partners (PSP).

Table OPUC 2-3, Asset Unit Delivery, details the historical and forecasted annual equipment upgrades by various material mitigation types, including a comparison of projected and actual unit completion amounts by year. Forecasts for 2027 and 2028 are subject to change pending detailed review of updated risk modeling, cost benefit analysis, and 2026 inspection findings.

Table OPUC 2-3: Asset Unit Delivery

Mitigation Asset	2020-2023 Planned	2020-2023 Actual	2024 Planned	2024 Actual	2025 Planned	2025 Actual[1]	2026 Planned	2026 Actual	2027 Planned	2027 Actual	2028 Planned	2028 Actual
Breakaway Service Drop	0	0	0	0	0	0	0	–	PILOT	–	200	–
Covered Conductor	0	0	15	15	15	14	15	–	16	–	19	–
Distribution Pole Replacement	318	324	100	129	100	82	52	–	172	–	170	–
Early Fault Detection (circuits)	1	1	2	9	2	2	2	–	6	–	4	–
Fire Mesh Pole Wraps[2]	1,300	1,300	1,200	1,341	964	965	3,108	–	3,126	–	2,927	–
Fire Safe Fuse (circuits)	2	2	2	2	2	2	2	–	3	–	4	–
Reclosing Devices	90	54	37	36	25	25	50	–	40	–	30	–
Reconductored Overhead	8	11.5	0	0	12	12	5	–	4	–	0	–
Spacer Cable	0	0	0	0	0	0	0	–	PILOT	–	3	–
Transmission Pole Replacement	90	70	30	23	15	3	20	–	51	–	31	–
Undergrounding overhead lines	1.7	1.7	9	11	26	32	26	–	28	–	15	–
Weather Station	53	78	5	5	8	7	10	–	3	–	3	–
Wildfire Detection Camera	12	33	2	4	0	1	1	–	0	–	0	–

Notes:
1. 2025 Actual includes projections through the end of year 2025.
2. Fire Mesh Pole Wrap quantities include programmatic deployment only, not deployment through Fire Safe Design Standards.

2.3.1 WMP Program Delivery Target Updates

The following summarizes program delivery changes from PGE's 2024 WMP or 2025 WMP Update. Any individual projects, within an initiative, that are delayed or have accomplishments, forecasts, or actuals inconsistent with prior plans are discussed in the specific initiative sections of this WMP.

- The Value of Service Study initiative (RMA-05) implementation timeline was delayed, enabling cost sharing between PGE's Distribution System Plan and the WMP per OPUC Staff feedback.
- PGE updated the target for the 2025 Underground (GDSH-02) initiative, adjusting the schedule for two projects with a net increase of six circuit miles of overhead removed.
- PGE reduced the target for the 2025 Weather Station (SAF-03) initiative by one at the request of the land manager; no impact to PGE's wildfire risk reduction goals.
- After several years of ignition prevention inspection and correction, in 2025 PGE identified fewer ignition hazards in legacy HFRZs. Looking ahead to 2026, HFRZ changes may result in additional identified hazards. The following initiative targets will continue to be adjusted accordingly without impact to PGE's risk reduction goals:
  - Distribution Pole Replacements (GDSH-05)
  - Transmission Structure Replacements (GDSH-06)
  - Asset Corrections (IC-03)
  - Ignition Risk Corrections (IC-04)
  - Tree Attachments (IC-05)
- PGE updated the target for AWRR Probable Hazard Mitigation (VM-05) to reflect patrol findings and associated risk assessment with minimal impact to PGE's wildfire risk reduction goals.
- PGE aims to have the same outcomes for less costs; after customer affordability concerns and feedback reflected in OPUC Order 25-204, the following initiatives were updated without significant impact to targets:
  - Medical Battery Support (PSPS-02)
  - Well Water Research (PSPS-03)

Figure 2-1: PGE Vegetation Management Safety Tailboard

3 Overview of Service Territory

3.1 Service Territory

PGE has a service area population of over 1.9 million Oregonians in 51 cities, representing more than 980,000 customers over 4,000 square miles of forested, mountainous, urban, and suburban environments. Much of the eastern and western portions of PGE's service area are forested, particularly in the Mt. Hood corridor along Highway 26, in the foothills of the Coast Range, and south toward Estacada. While most of PGE's service area is located within the most densely populated area of the State, PGE's managed right-of-way (ROW) contains more than 2.2 million trees, with millions more off-ROW trees. In managing off-ROW conditions, PGE must coordinate with multiple neighboring utilities that interconnect to our system, including the Bonneville Power Administration (BPA), Consumers Power, Inc., Forest Grove Light & Power, McMinnville Water and Light, PacifiCorp, Wasco Electric Cooperative, Canby Utility, and West Oregon Electric Cooperative.

Figure 3-1 shows PGE's service area, while Table OPUC 3-1 and Table OPUC 3-2 detail the components and infrastructure.

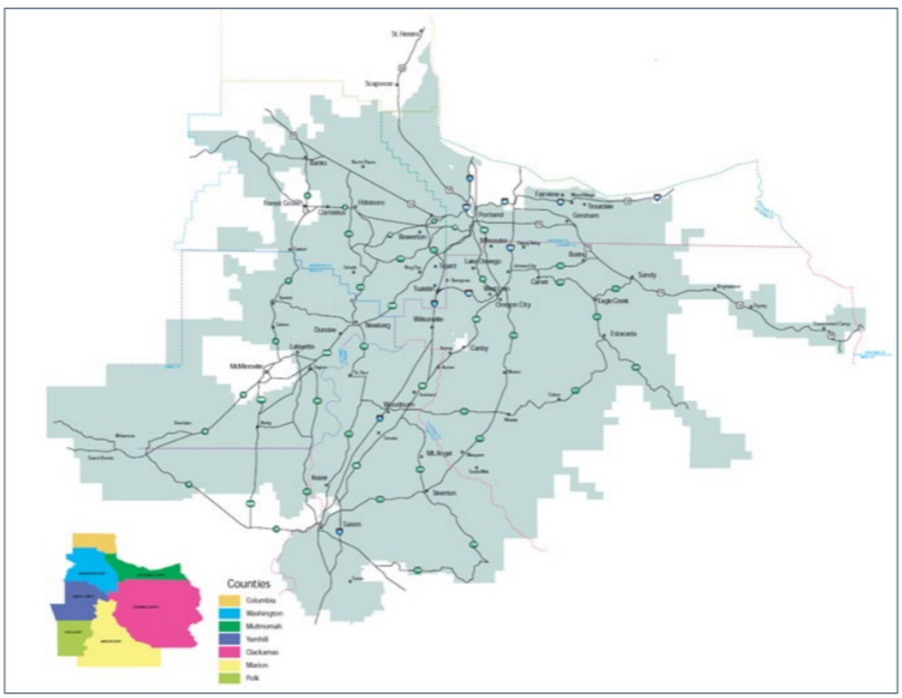

Figure 3-1: PGE Service Area

Table OPUC 3-1: Service Territory Components

Characteristic	HFRZ	Non HFRZ	TOTAL
Area Served (sq mi)	400	3,712	4,112
Number of Customers	27,498	959,901	987,399
Overhead Transmission Circuit Miles	142	1,556	1,698
Overhead Distribution Circuit Miles	1,026	7,081	8,107
Underground Transmission Circuit Miles	12	4	16
Underground Distribution Circuit Miles	867	7,726	8,593
Substations	7	188	195
Poles/Structures[1]	29,611	359,727	389,338

Note:
1. Transmission structures may include multiple poles.

3.2 Electrical Infrastructure

PGE's electrical infrastructure is a mix of overhead and underground transmission and distribution assets. PGE's standard distribution voltage is 13 kilovolts (kV) with legacy 11 kV systems and 34.5 kV utilized in areas with large distribution loads. PGE's standard local transmission voltage is 115 kV with legacy 57 kV systems and 24 kV underground on Mt Hood. PGE's standard regional transmission voltage is 230 kV with 500 kV utilized as required. The system design and protection schemes are tailored for reliability, wildfire risk reduction, and regulatory compliance.

Table OPUC 3-2: Oregon Service Territory Electrical Infrastructure

Asset	Overhead Circuit Miles	Overhead Poles/ Structures[1]	Underground Circuit Miles	Total Circuit Miles	% Overhead Circuit Miles
24.9 kV Transmission	0	0	13	13	0
57 kV Transmission	464	8,249	0	464	100
115 kV Transmission	599	11,148	4	602	99
230 kV Transmission	423	4,061	0	423	100
500 kV Transmission	213	1,018	0	213	100
Total Transmission	1,698	24,476	16	1,715	99
11 kV Distribution	66	2,101	16	83	80
13 kV Distribution	8,031	183,392	8,539	16,570	49
34.5 kV Distribution	0	0	26	26	0
Total Distribution	8,097	185,493	8,581	16,678	49

Note:
1. Overhead pole/structure count may have inaccuracies based on PGE's GIS configuration. For poles holding more than one circuit of differing voltages, the query will pick the first voltage level to avoid duplicate pole counts. Additionally, a transmission structure may include multiple poles.

3.3 Wildfire Environment

PGE's service area spans diverse topography and climate zones across northwestern Oregon, from the maritime forests of the Coast Range to the dry ponderosa pine landscapes east of the Cascade Mountains. These gradients shape distinct wildfire environments, influencing the probability, intensity, and consequences of wildfire near electric infrastructure. Understanding these environmental patterns helps to inform the foundation for PGE's risk-based wildfire mitigation strategy. Fire regime characteristics, historical ignition frequency, and recent climate trends collectively inform critical programs such as PGE's Wildfire Risk Model, System Hardening Prioritization, and PSPS planning.

Figure 3-2: Willamette Falls and Mt. Hood

3.3.1 East Slopes of the Northern Oregon Coast Range

The east slopes of the northern Coast Range are characterized by steep, dissected terrain supporting dense Douglas-fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), and western red cedar (*Thuja plicata*) forests. Annual precipitation commonly exceeds 60 inches; however, the inland-facing slopes experience a modest rain shadow effect, resulting in significant summer drying.

Historically, this zone experienced infrequent, high-severity, stand-replacing fires driven primarily by east wind events during late summer or early fall (Agee, 1993[2]; ODF, 2023[3]). Major events such as the Tillamook Burn series (1933–1951) demonstrate the potential for large-scale, high-intensity fire behavior when strong downslope winds align with dry fuels. Estimated fire return intervals range from 150 to 300 years.

Climate change has increased the likelihood that east wind events coincide with critically low fuel moisture. Modeling and observed data indicate longer fire seasons, higher vapor pressure deficits, and earlier onset of critical burning conditions (Abatzoglou & Williams, 2016[4]; Waring et al., 2023[5]).

3.3.2 Willamette Valley

The Willamette Valley forms the population and infrastructure core of PGE's service area. Historically, this region supported prairie–oak savanna–Douglas-fir woodland ecosystems maintained by frequent, low-intensity surface fires, often ignited by Indigenous land management (Boyd, 1999[6]; ODF, 2023[7]). Historical fire return intervals were typically 3–15 years.

With Euro-American settlement and subsequent fire exclusion, the valley transitioned toward continuous fine fuels dominated by non-native annual grasses (e.g., cheatgrass, false brome) and encroaching Douglas-fir. Modern fire behavior in this zone is characterized by fast-moving grass and interface fires, particularly during east wind events with low humidity and high temperature.

As regional temperatures rise, the Willamette Valley is experiencing longer periods of low fuel moisture, increased ignition frequency, and more rapid-fire spread potential. For PGE, this translates to elevated wildland–urban interface (WUI) risk.

3.3.3 Cascade Mountain Foothills (Western Cascades)

The western foothills and slopes of the Cascade Range are dominated by mixed conifer forests of Douglas-fir, true fir, and hemlock, supporting a mixed- to high-severity fire regime with 100–200-year return intervals (Agee, 1993[2]). Historically, large fires occurred during periods of extended drought followed by strong east wind events.

The 2020 Labor Day fires (Beachie Creek, Riverside, Lionshead) exemplified how extreme weather alignment—record high temperatures, low humidity, and sustained east winds—can produce rapid, large-scale fire spread across steep terrain with heavy fuel loads.

Recent climate trends show earlier snowmelt, declining summer humidity, and increased east wind frequency and intensity during late summer (Mass & Ovens, 2021[8]).

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[2] Agee, J.K. (1993). Fire Ecology of Pacific Northwest Forests.
[3] Pyrologix LLC. (2023). *Pacific Northwest Quantitative Wildfire Risk Assessment 2023 methods*. Oregon Explorer.
[4] Abatzoglou, J.T. & Williams, A.P. (2016). Impact of anthropogenic climate change on wildfire across western U.S.
[5] Waring, A. M., Ghent, D., Perry, M., Anand, J. S., Veal, K. L., & Remedios, J. (2023). Regional climate trend analyses for Aqua MODIS land surface temperatures. *International Journal of Remote Sensing*, *44*(16), 4989–5032.
[6] Boyd, R. (1999). Indians, Fire, and the Land in the Pacific Northwest.
[7] Pyrologix LLC. (2023). *Pacific Northwest Quantitative Wildfire Risk Assessment 2023 methods*. Oregon Explorer.
[8] Mass, C. F., & Hetland, E. (2021). The September 2020 wildfires over the Pacific Northwest. *Weather and Forecasting*, 36(5), 1843-1865.

Figure 3-3: Upgrade System Upgrade in the Wildland-Urban-Interface

3.3.4 East Slope of the Cascades

The east slope transitions to a semi-arid continental climate dominated by ponderosa pine (Pinus ponderosa), Douglas-fir, and juniper (Juniperus occidentalis). Historically, this zone experienced frequent, low- to moderate-severity surface fires every 5–25 years, which maintained open, park-like stand structures (Heyerdahl et al., 2001[9]).

Following more than a century of fire exclusion and selective timber harvest, forest structure has shifted toward denser stands with elevated surface and ladder fuel continuity. Recent drought stress, insect outbreaks, and mortality of overstory trees have further increased fire hazard and potential intensity. Observed trends since the early 2000s show a significant increase in large fire frequency and size across the eastside Cascades (Abatzoglou & Kolden, 2013[10]).

[9] Heyerdahl, E. K., Brubaker, L. B., & Agee, J. K. (2001). Spatial controls of historical fire regimes: A multiscale example from the interior West, USA. *Ecology, 82*(3), 660-678.
[10] Abatzoglou, J. T., & Kolden, C. A. (2013). Relationships between climate and macroscale area burned in the western United States. *International Journal of Wildland Fire, 22*(7), 1003-1020.

3.4 2025 Fire Season Summary

The 2025 fire season within PGE's service territory exhibited elevated ignition activity but demonstrated comparatively moderate wildfire impacts relative to the extreme conditions of 2024. Fire season was officially declared in early June when warming temperatures and rapid drying of fine fuels elevated wildfire risk across portions of western and interior Oregon. Human-caused ignitions remained the primary driver of early-season fire activity. Despite these conditions, most wildfire incidents affecting PGE's service area remained limited in size and duration due to effective initial attack operations, coordinated interagency response efforts, and intermittent periods of weather moderation.

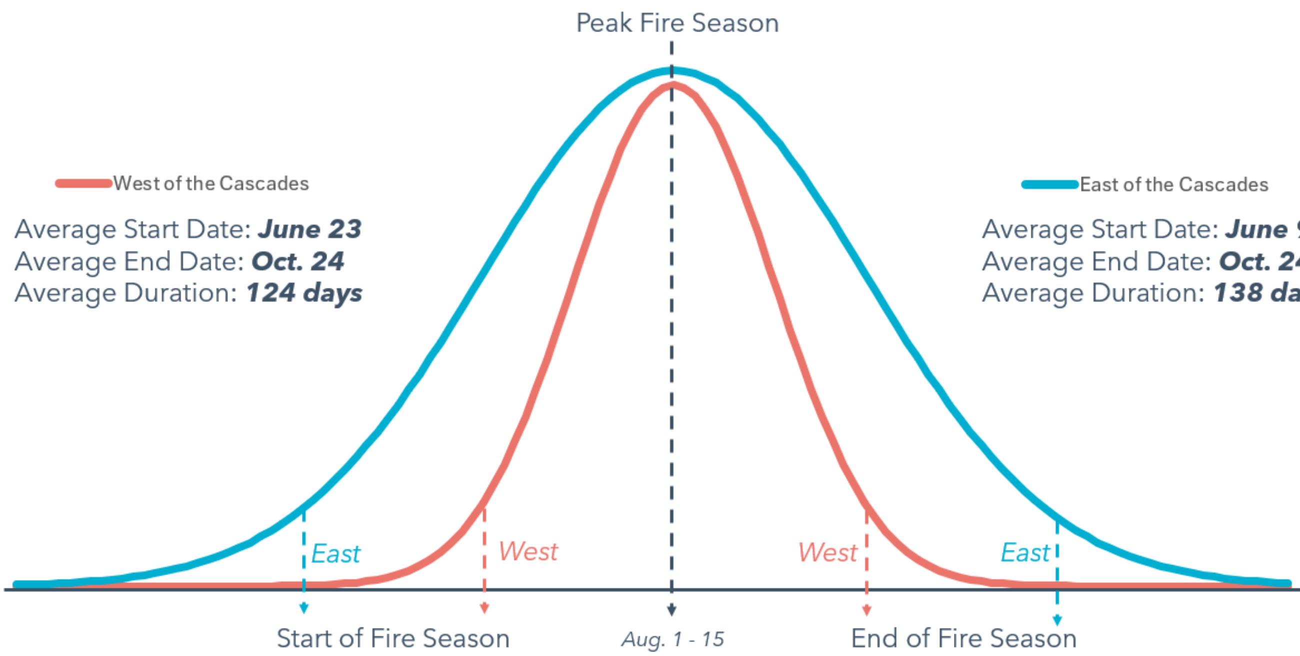

Figure 3-4: PGE Average Fire Season 2020–2025

Fire behavior throughout the season displayed regional variability consistent with PGE's wildfire risk modeling projections. Areas East of the Cascade Crest experienced more persistent fire activity associated with drier fuel conditions and continental climate influences. Western portions of the service area benefited from cooler maritime influences and intermittent precipitation that supported containment operations once suppression resources were engaged. Overall fire spread and duration in 2025 were substantially reduced compared to 2024, which was characterized by extreme drought conditions, prolonged heat events, widespread large-scale fires, and sustained competition for suppression resources.

The Pacific Northwest experienced the second most lightning-active summer since 2000, underscoring that lightning strikes are frequent ignition events that can become wildfires under certain conditions.

Fire season conditions subsided in mid-October following sustained rainfall, cooler temperatures, shorter day length, and improved fuel moisture levels. These conditions effectively reduced fire behavior and operational demands, supporting the orderly rescission of seasonal restrictions. The contrast between the 2024 and 2025 fire seasons reinforces the importance of maintaining comprehensive mitigation readiness across a wide spectrum of potential operating conditions.

3.5 Climate Change Implications

Across all four environmental zones, climate change is amplifying wildfire risk through interconnected fuel and weather mechanisms. Oregon's average summer temperature has increased by over 2°F since 1900, and the number of days with low relative humidity and high wind alignment has nearly doubled since 1980 (PRISM, 2022[11]; ODF, Fleischman, 2025[12]).

Key observed and projected trends include:

- Earlier onset and later cessation of fire season, lengthening the annual exposure window
- Declining live and dead fuel moisture due to increased vapor pressure deficits
- Greater frequency and severity of east wind events during late summer and early fall
- Increased incidence of high-severity fire behavior in historically low-frequency regions

These trends expand both the geographic extent and temporal duration of wildfire risk across PGE's service area. The convergence of fuel availability, ignition potential, and extreme weather alignment underscores the need for continued investment in grid resilience and wildfire prevention measures.

Rising temperatures, declining humidity, and longer fire seasons are amplifying wildfire risk. Trends include earlier onset of critical fuel conditions and more frequent east wind events. These factors expand both the duration and geographic footprint of wildfire exposure.

As shown in Figure 3-5 (LANDFIRE, 2007[13]), PGE's service area is primarily classified as Fire Regime Groups I, III, and V, with dominant fire severity V (200+ years any severity) in 2021-2025 HFRZs. Less frequent fires, as seen in regime V areas, increase the risk of more intense, damaging, and stand replacing fires. For 2026, the dominant fire regime in HFRZs is Group I, with severity characterized as low and mixed with a return interval of 6-35 years, depending on the biophysical setting and time since last disturbance. For the EFRZs the dominant fire regime remains a Group V.

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[11] PRISM Climate Group. (2025). *PRISM Climate Dataset* [Data set]. Oregon State University.
[12] Fleishman, E., editor. 2025. Seventh Oregon climate assessment. Oregon Climate Change Research Institute, Oregon State University, Corvallis, Oregon.
[13] Monitoring Trends in Burn Severity (Eidenshink et al. 2007), LANDFIRE

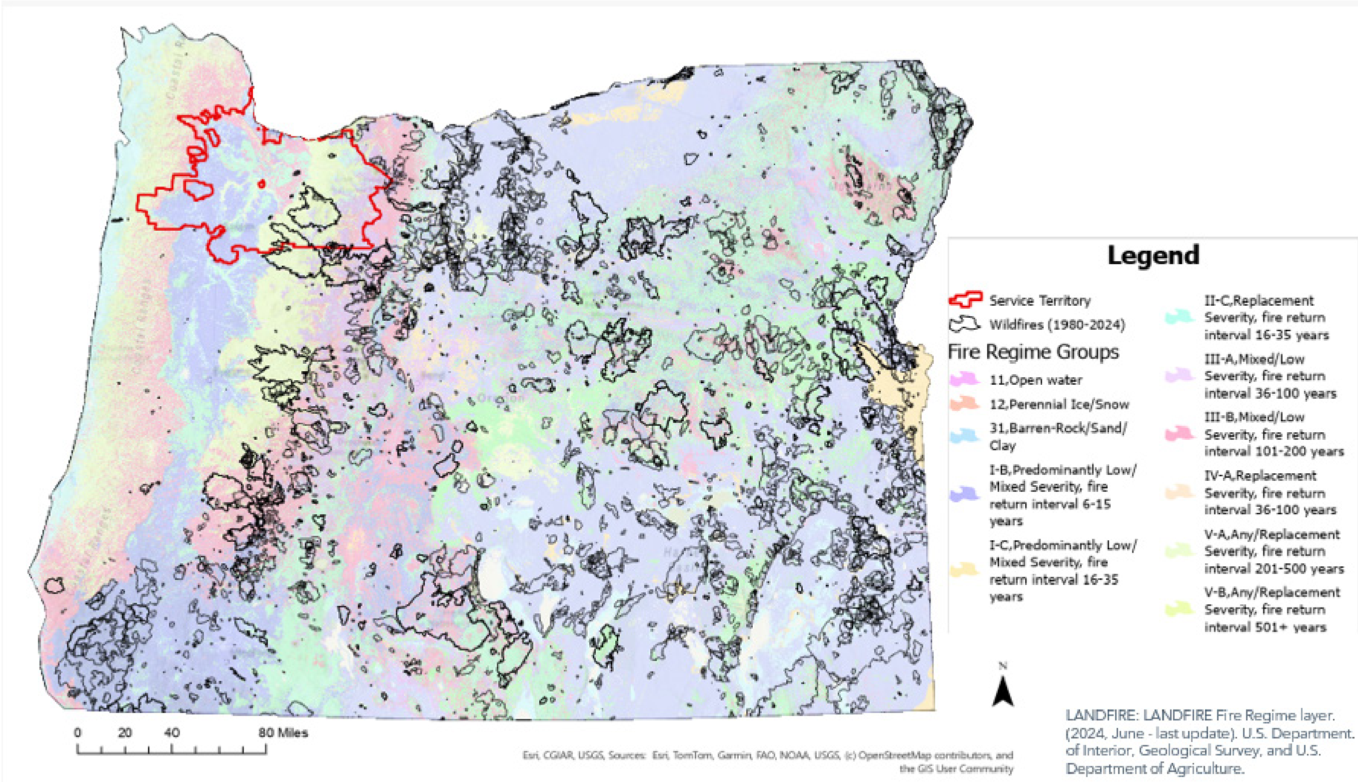

Figure 3-5: Oregon Fire Regimes and Wildfires

3.6 Significant Wildfire Events

The 2020 fire season, particularly the Labor Day fires, had a profound impact on PGE. Infrastructure was damaged, triggering widespread outages and forcing an emergency PSPS for the first time. These events reinforced PGE's commitment to wildfire mitigation, leading to expanded risk modeling, enhanced situational awareness, and accelerated system hardening efforts. PGE has been actively researching and observing fires to refine the wildfire mitigation strategy. Table 3-1 below highlights some of the most significant fires.

Table 3-1: Significant non-PGE Wildfires Informing PGE's WMP

Fire Name	Year	Location	Impact
SW Laurel	2024	Washington County, East Slope of Northern Oregon Coast Range	Fire displayed rapid rates of spread. SW Laurel grew to 90 acres. Local fire response personnel noted that the fire behavior that was observed far exceeded what was anticipated. The event highlighted the need to update the fire behavior models at location specific scales.
Lee Falls	2024	Washington County, East Slope of Northern Oregon Coast Range	Fire displayed rapid rates of spread. Lee Falls was contained to 280 acres. In conversations with local fire response personnel, it was noted that the fire behavior that was observed far exceeded what was anticipated. The event highlighted the need to update the fire behavior models at location specific scales.
Powerline Fire	2020	Washington County, East	PGE Staff participated in an After Action Review (AAR) of this particular fire along with a site visit. Fire

Fire Name	Year	Location	Impact
		Slope of Northern Oregon Coast Range	occurred adjacent to PGE service area (West Oregon Electric territory).
Chehalem Mt.-Bald Peak	2020	Washington and Yamhill County, East Slope of Northern Oregon Coast Range	Used to demonstrate the potential for rapid fire spread under certain weather conditions.
Riverside	2020	Clackamas County, Cascade Mt. Foothills (Western Cascades)	Burned more than 138,000 acres. The fire approached PGE transmission and distribution assets, prompted multiple proactive and reactive grid operations, and required extensive post-event inspection and system restoration. This event highlighted the need for enhanced sectionalization capabilities and expanded vegetation clearance zones.
Santiam Fire Complex	2020	Marion County, Cascade Mt. Foothills (Western Cascades)	Originating during the Labor Day windstorm, this fire complex significantly disrupted energy delivery in Marion County. Although PGE infrastructure was not directly damaged, the incident caused widespread customer outages, emergency coordination efforts, and informed the refinement of PSPS areas.
Eagle Creek	2017	Multnomah County, Western Cascades	This 48,000-acre fire in the Columbia River Gorge region disrupted field operations, highlighted risks to transmission corridors crossing public lands, and informed PGE's remote inspection practices and line access planning.
36 Pit Fire	2014	Clackamas County	A human caused fire that burned approximately 5,524 acres, fueled by a mix of conifer and hardwood forests, logging slash, and chaparral. Weather conditions were hot and dry with strong winds, which, combined with the steep, rugged slopes and canyon topography of the Clackamas River area, allowed for rapid and challenging fire spread.
Scoggins Creek Fire	2014	Washington County	A human-caused incident that consumed 211 acres near Henry Hagg Lake, burned primarily in commercial timberlands and dense brush. Weather was hot with low humidity, but conditions were manageable enough after initial attack to prevent significant spread. Fire was contained to the sloped hillsides and rolling terrain without destroying any structures.
Dollar Lake Fire	2011	Clackamas County	Ignited by a lightning strike in the Mt Hood National Forest. Fire grew to about 5,000 acres, driven by unseasonably strong east winds. The primary fuel was heavy, mature conifer forests with significant lichen fuel loads and a dense understory. The blaze burned intensely in steep, high-elevation terrain near Lolo Pass, presenting a challenge for firefighters.

4 Risk Methodology and Assessment

4.1 Overview

PGE employs a data-driven approach to wildfire risk assessment that forms the foundation of the wildfire mitigation strategy. PGE's risk assessment framework integrates sophisticated environmental modeling, advanced geospatial analytics, detailed infrastructure vulnerability assessments, and consequence evaluations to develop a holistic understanding of wildfire risk. This multi-dimensional approach enables us to identify areas of elevated and high wildfire risk, prioritize mitigation investments, and implement targeted operational protocols to protect communities and infrastructure.

PGE's wildfire risk assessment methodology has evolved significantly in recent years, incorporating new data sources, refining analytical techniques, and expanding spatial coverage to improve risk evaluation across the entire service area.

PGE had the opportunity this year to participate in joint risk workshops with peer utilities and OPUC Staff. As a result of these workshops, PGE updated the RSE Methodology to increase alignment with peer utilities and incorporate Staff feedback. Key updates include:

- Updated High Fire Risk Zones (HFRZs) identification process to address the full-service area, including locations with no existing PGE assets.
- Updated the definition of HFRZ to reflect underlying environmental risk factors that may exist even after assets are converted to underground to avoid inadvertently introducing risk in subsequent years.
- Refined and standardized project scoping to target the highest risk protected sections.
- Improved RSE capabilities to evaluate multiple mitigation options for each circuit segment.

PGE also enhanced HFRZs identification by integrating right tail risk analysis, addressing low-probability, high-consequence events, layering in detection and response time modeling, and incorporating suppression difficulty indices to better reflect the full spectrum of wildfire risk factors.

4.1.1 PGE Risk and RSE Methodology

PGE's risk methodology is comprised of three components:

- A **baseline wildfire risk assessment** resulting in a spatial representation of risk (HFRZ analysis)
- Determination of **utility wildfire risk** associated with PGE assets
- Evaluation of mitigation value through **Risk & Value Spend Efficiency**

The fundamental risk calculation used to estimate risk associated with PGE assets is shown in below. Wildfire risk and reliability risk are inherently coupled together, as failures on the grid may result in both customer outages and ignitions depending upon the surrounding conditions. PGE quantifies both wildfire and reliability risk for each asset and analyzes opportunities to mitigate both risk factors to identify economically prudent customer-focused investments.

Figure 4-1: Fundamental Risk Calculation

4.1.2 Oregon Standard Risk and RSE Methodology

The OPUC Staff is developing a standardized Risk and RSE Methodology along with an associated RSE Workbook to evaluate the cost-effectiveness of wildfire mitigation activities across Oregon's investor-owned utilities (IOUs). This initiative aims to establish a common analytical framework that quantifies wildfire risk reduction relative to investment costs, thereby supporting consistent and transparent reporting on a statewide basis. The standard methodology addresses:

- HFRZ Exposure Modeling
- Outage/Fault Ignition Risk
- Asset Health Risk
- Qualitative Risk Analysis
- Mitigation Cost
- Risk Spend Efficiency Calculation

PGE is committed to advancing statewide consistency in risk evaluation methodologies and has worked collaboratively with the Commission to accomplish this goal. PGE recognizes the value of standardized approaches that enable meaningful comparison of mitigation strategies across utilities while maintaining transparency in regulatory proceedings. PGE acknowledges that the OPUC's RSE framework represents an important step toward achieving these objectives. The table below outlines the key differences identified between the PGE and Standard methodologies.

Table 4-1: Risk and RSE Methodology Comparison

Key Differences	PGE Methodology	Oregon Standard Methodology
Risk Spend Efficiency	▪ Benefit-to-cost calculation used to compare investments across PGE ▪ Used for investment selection, justification and prioritization	▪ Unitless ratio (unitless risk / dollars) ▪ Used for investment selection and prioritization
Aggregate Risk Calculation	Ignition Likelihood * Fire Growth Potential * Vulnerability	Ignition Likelihood + Asset Health + Qualitative + Exposure Risk
Outage and Ignition Likelihood	Based upon modeled probability: ▪ Accounts for non-zero risk on sections with no outage history ▪ Weibull curves used for asset risk ▪ Neural Network model used for geographic risk ▪ Vegetation event likelihood incorporates historical outage data, LiDAR data and wind to account for grow-in; fall-in and over-hang vegetation threat ▪ Exponential smoothing used to weight more recent outage data compared to outages on an older system	Based upon historical outage and ignition data: ▪ Does not address ignition probability on segments with no outage or ignition history ▪ Vegetation outage likelihood does not incorporate LiDAR data ▪ Older outages are weighted the same as more recent outages
Exposure Score	Monetized wildfire risk to support benefit-to-cost calculation	Unitless
Asset Risk Score	Asset condition incorporated in outage probability & ignition probability	Asset Risk added to Ignition likelihood, Qualitative, & Exposure Risk
Qualitative Score	Excluded from RSE calculation, incorporated into Value Spend Efficiency (VSE) calculation	Incorporated into RSE calculation
Co-Benefits	Monetary benefits are added to the RSE numerator to capture incremental value in the benefit-to-cost ratio Benefits include reliability risk mitigated	Monetary benefits are subtracted from the denominator as a reduction in project cost Benefits excluded reliability risk mitigated
Time Period	1 year – 50+ years of risk, Net-Present Value (NPV) view ▪ Addresses escalating risk due to climate change & asset age ▪ Aligns with utility investment standard	1 year of risk; annualized view
Downscaled Risk	Component => Structure => Protected Section ▪ Asset risk calculated at individual component aggregated to structure and protected section ▪ Geographic risk applied to structures and aggregate to protected section	Protected Section
Mitigation Timeline	Dependent on locational risk	Set timeframe tied to depreciation schedule
Mitigation Effectiveness	Mitigation applied to individual component, structure and/or protected section	Mitigation applied to entire protected section

4.2 Framework

4.2.1 Baseline Wildfire Risk Assessment (HFRZ Analysis)

PGE implements a sophisticated baseline wildfire risk assessment methodology to evaluate potential hazards across distribution, transmission, and generation infrastructure. Assessment begins with an infrastructure-independent analysis to establish underlying wildfire likelihood and consequences. This foundational analysis is conducted at 30-meter resolution throughout the service area, within a 1.5-kilometer buffer surrounding assets outside the service area, and a 0.5-kilometer buffer surrounding generation facilities. The resulting analysis produces a wildfire risk score that informs several spatial risk classifications, including HFRZs, through an asset overlay process.

PGE continually evaluates wildfire risk drivers and datasets to optimize the analysis and to identify opportunities for improvement. Data sources informing the baseline wildfire risk assessment are refreshed every three years in support of multi-year WMP development. This update cycle reflects the dynamic nature of the built environment, wildland fuels, and changes to the infrastructure while providing PGE opportunities to improve data quality and methodologies.

Wildfire risk within PGE's service area and infrastructure-adjacent areas is represented spatially through four different classifications derived from wildfire risk scores.

- **Wildfire Risk Area (WRA):** Geographic area within PGE's service area with underlying wildfire risk independent of PGE infrastructure, representing PGE's baseline wildfire risk assessment.
- **High Fire Risk Zone (HFRZ):** Geographic area within PGE's service area that is at higher risk for wildfire and prioritized for wildfire mitigation investments.
- **Outlying Fire Risk Zone (OFRZ):** Geographic area within PGE's right of way for transmission assets or a generation facility located outside of PGE's service area that is at a higher risk of wildfire.
- **Elevated Fire Risk Zone (EFRZ):** Geographic area within PGE's service area with elevated fire risk including some, but not all, risk factors indicative of an HFRZ.

The steps that guide the designation of geographic areas are illustrated in Figure 4-2.

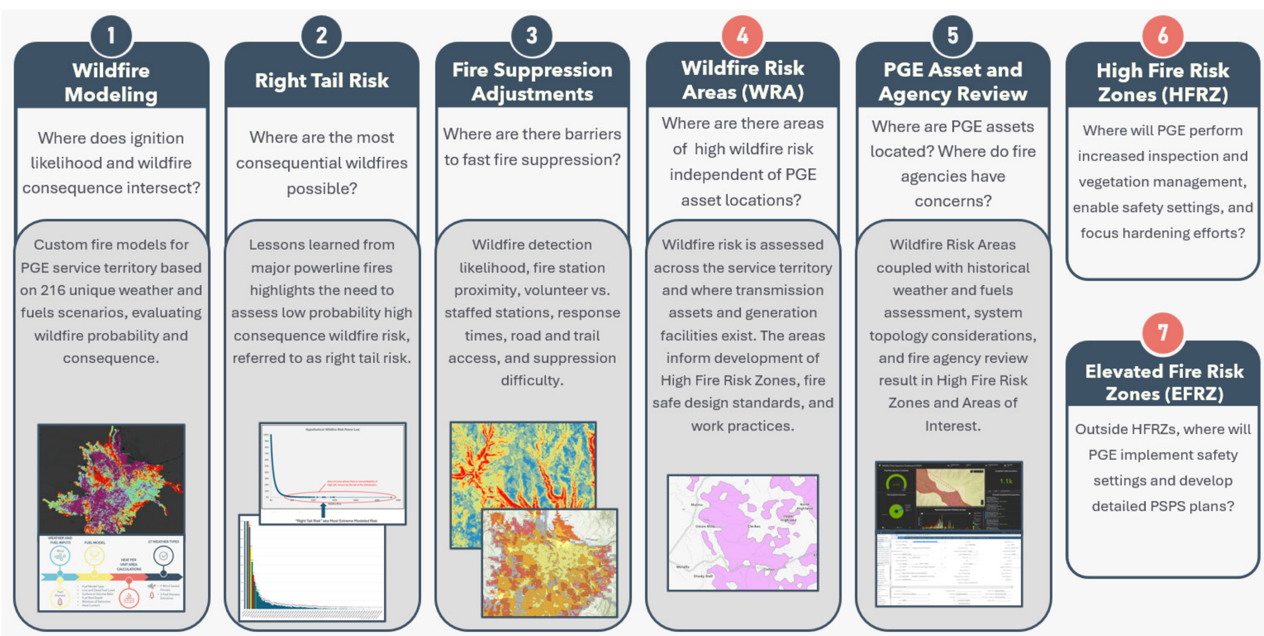

Figure 4-2: Fire Risk Zone Development Process

Recognizing opportunities to derive additional value from the WTI framework for wildfire risk zone mapping, PGE established three enhancement objectives:

- **Spatial Enhancement:** Expand wildfire risk assessment coverage to encompass all electrical infrastructure, generation sites, and the entirety of the PGE service area.
- **Methodological Enhancement:** Refine the WTI formulation to incorporate newly available datasets and reflect advanced understanding of drivers of wildfire risk.
- **Mitigation Precision:** Reduce the size of HFRZs to support more targeted application of wildfire mitigation measures and resource allocation to address localized risk.

4.2.1.1 Wildfire Modeling: Wildfire Threat Index

In 2022, PGE established the Wildfire Threat Index (WTI) as a data-driven foundation for wildfire risk assessment. As shown in Figure 4-3, the WTI incorporates Ignition Potential Index (WTI-IPI) and Conditional Impact (WTI-CI) indices to quantify location-specific risk.

- **Ignition Potential Index (WTI-IPI):** A relative index indicating the potential to produce an ignition as a function of historical climate (wind speed and fuel dryness/ignitability) and fuel loading (resistance to control).
- **Conditional Impact (WTI-CI):** A relative measure of wildfire consequences should one occur, estimated as a function of fire growth potential (simulated fire sizes) and impact to resources.

Figure 4-3: Wildfire Threat Index Components

4.2.1.1.A Ignition Potential Index

The WTI-IPI is a relative measure of the propensity for weather conditions and fuel characteristics at a specific location to result in a utility-related wildfire ignition that escapes initial attack to become a large and potentially damaging fire. As supported by literature and previous utility-wildfire threat assessments, the potential for a wildfire ignition is modeled as a function of wind speed, fuel dryness (both short- and long-term), and heat output in the first hour as a measure of resistance to control – termed fire flux. The IPI model is patterned after the California Public Utilities Commission's Independent Expert Team's electric-utility "IGNITION INDEX" and Utility Threat Index.[14]

The base weather observations for WTI-IPI come from PGE Weather Research and Forecast (WRF) weather data, an hourly weather dataset with spatial data for 2003-2023. Energy Release Component (ERC) values, a measure of longer-term fuel dryness, were extracted from daily gridMET 4-km weather grids (Abatzoglou, 2013[15]) for the large fire probability estimation.

[14] "Mapping Environmental Influences on Utility Fire Threat: A Report to the California Public Utilities Commission Pursuant to R.08-11-005 AND R.15-05-006," Final Report, February 16, 2016.
[15] Abatzoglou, J. T. 2013. Development of gridded surface meteorological data for ecological applications and modelling. Int. J. Climatology. 33: 121–131.

Downscaling algorithms are applied to increase the precision and accuracy to a 120m spatial resolution.

For a given hour and spatial cell in the weather record, WTI-IPI is calculated as the product of wind speed, Schroder's Probability of Ignition, the probability of a large fire, and flux – a measure of the cumulative energy release in the first hour after burning. The formula PGE uses to calculate WTI-IPI is presented in Figure 4-4.

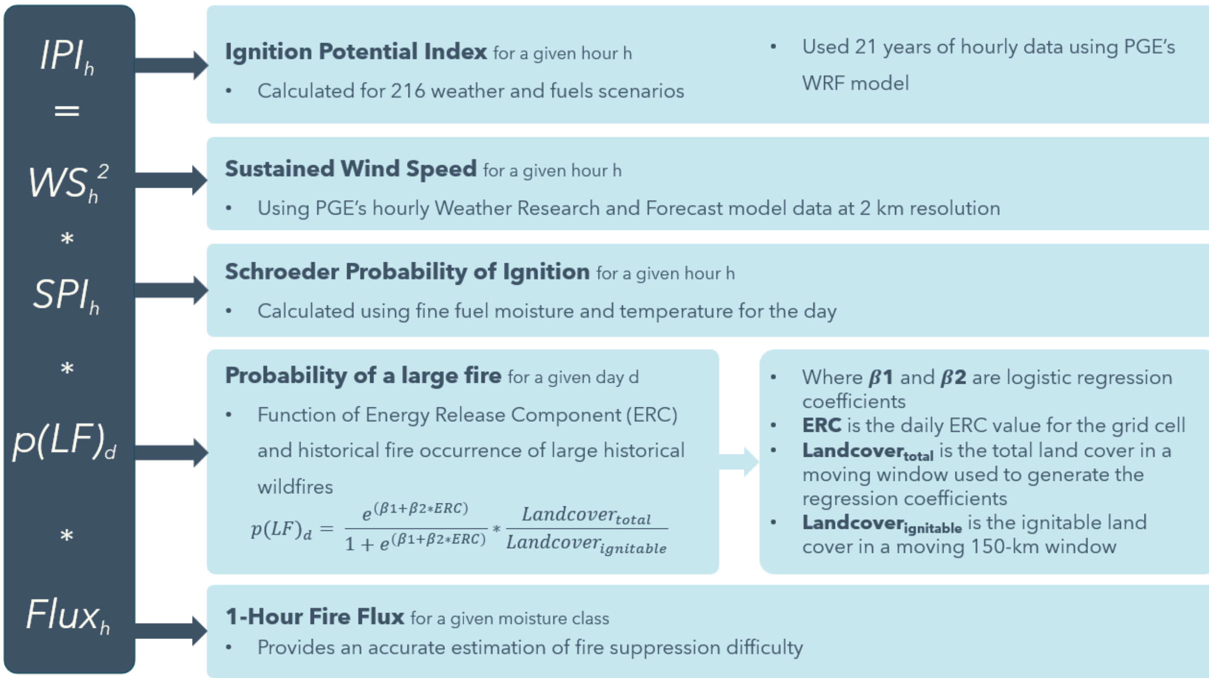

Figure 4-4: WTI Ignition Potential Index Formulation

4.2.1.1.B Weather Type Probabilities

Weather type probabilities (WTP) are a set of weighting factors derived from the WTI-IPI within each weather type relative to the total WTI-IPI for a given data point for all 216 scenarios. The WTPs integrate the relative ignition potential for that weather type and its relative frequency in the observation record. A weather type with high wind speed, high Schroeder's Probability of Ignition, etc. will receive a high weighting according to the larger WTI-IPI value, but weather types with lower WTI-IPI values occurring at high enough frequencies may ultimately receive a larger weighting. PGE uses each weighting to calculate the overall WTI and WTI-CI as well as the conditional expected value for the WTI right tail analysis.

While observed weather is highly weighted, weather variability means that all scenarios are practically possible. PGE analyzes the probability of these scenarios based on the frequency and severity of similar weather scenarios, as estimated using a multi-dimensional similarity measure. In effect, previously unrecorded scenarios that are adjacent (in terms of wind speed, wind direction, and moisture) to scenarios that have been empirically observed receive higher weightings than scenarios that are farther away. However, PGE's analysis considers all weather scenarios to some degree.

4.2.1.1.C Conditional Impact Modeling

Conditional Impact (WTI-CI) is a measure of the relative wildfire impacts (i.e., loss), should a fire occur. WTI-CI is a function of the fire growth potential and vulnerability of assets and resources in the area around potential source locations. Fire growth potential is a function of fuel, weather, and topography.

PGE uses fire growth modeling with specific ignition locations to calculate WTI-CI, then associates spatial data within the final simulated perimeters back to the ignition location. After generating the final fire perimeter event set, PGE overlays each simulated wildfire with spatial data representing the impacts of wildfire—conditional losses associated with High-Value Resources and Assets (HVRA). Burn periods for simulated wildfires range from one to 10 hours, with shorter burn periods simulated for light winds and longer burn periods for strong winds.

To assess the impacts of modeled wildfires, PGE overlays the simulated perimeters on a set of HVRA layers, including property, infrastructure, timber, protected species, and watersheds. PGE then calculates Conditional Net Value Change (cNVC) by comparing modeled fire behavior with exposed HVRA layers and applying response functions and relative weightings to determine impact values.

In 2025, PGE refined the relative weightings of importance among the HVRAs in collaboration with the U.S. Forest Service. PGE calculates the overall Conditional Impact by summing the results from each of the 216 scenarios and weighting each scenario by a weather type probability.

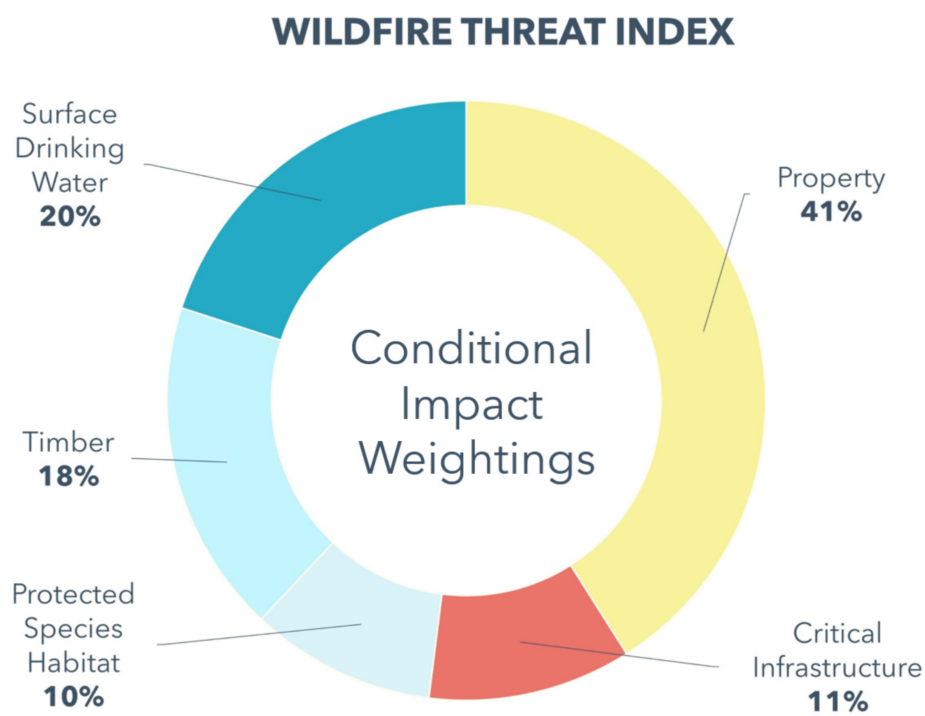

Figure 4-5: WTI Conditional Impact High Value Resources and Assets

4.2.1.1.D Consequence Assessment

The consequence assessment encompasses property valuations, critical infrastructure, protected species habitats, timber resources, watershed integrity, and social vulnerability.

Property HVRA Data

Wildfire has the potential to damage or destroy homes, apartments, other housing units, outbuildings and their contents, and historical places. The Property HVRA represents the spatial distribution and density of housing units and historic structures and buildings. This HVRA data was derived from the housing unit density raster from the USDA Forest Service Wildfire Risk to Communities Project, which estimates housing unit density with 2020 census housing unit data.[16] Additionally, PGE has developed a comprehensive building footprint dataset of Historic Structures and Buildings derived from the National Register of Historic Places (NRHP).[17]

Infrastructure Data

Wildfire has the potential to temporarily or permanently damage infrastructure. Critical infrastructure is defined by the National Institute of Standards and Technology (NIST) as "System and assets, whether physical or virtual, so vital to the U.S. that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters."[18]

The critical infrastructure HVRA data includes hospitals, emergency services, communications devices (e.g., cellular, land mobile, FM/AM transmission, microwave service, broadband radio, internet exchange points), electric transmission lines divided into high and low voltage using a break point of 345 kV, power plants, substations, natural gas pipelines, and oil and natural gas wells. The data was derived from the U.S. Homeland Security's Homeland Infrastructure Foundation Level Data (HIFLD).[19]

Protected Species HVRA Data

Wildfire has the potential to alter or eliminate habitat areas for species in wildland areas. The protected species HVRA included an analysis of habitats for ten sensitive or protected species, including marbled murrelet, Northern Spotted Owl, sage grouse, bull trout, Chinook salmon, coho salmon, steelhead trout, redband trout, coastal cutthroat trout, and Lahonatan cutthroat trout.

Table 4-2: List of Species in the Protected Species HVRA Data

Protected Species	Data Source
Marbled murrelet, Chinook salmon, coho salmon, steelhead trout	U.S. Fish and Wildlife Service, Endangered Species Program, ECOS Joint Development Team
Northern Spotted Owl	Predicted habitat suitability map (Glenn et al., 2017)
Sage grouse habitat	Wildland Fire Decision Support System (WFDSS)–2015 greater sage grouse (GRSG) Land Use Plan (LUPs) Allocations

[16] Wildfire Risk to Communities: Spatial datasets of wildfire risk for populated areas in the United States (2nd Edition, Jaffe et al. 2024)
[17] U.S. Department of the Interior, National Park Service, National Register of Historic Places
[18] NIST Computer Security Resource Center Glossary
[19] Homeland Infrastructure Foundation-Level Data (HIFLD), U.S. Department of Homeland Security, accessed in early 2024

Protected Species	Data Source
Sage Grouse Resistance/Resilience class	USDA – Natural Resources Conservation Service, Index of Relative Ecosystem Resilience and Resistance across Sage-Grouse Management Zones
Bull trout, coastal cutthroat trout and Lahontan cutthroat trout	StreamNet Generalized Fish Distribution, Bull Trout (January 2012)
Redband trout	Non-Anadromous Redband Trout (RBT) Range-wide Database - ODFW

Timber HVRA Data

Tree death and consumption of aboveground woody biomass are some of the most visually obvious impacts of wildland fires. The Potential Timber HVRA represents the possible loss of timber from fire. Timber loss can have meaningful impacts for land managers, loggers, mills, wood-dependent industries, as well as local governments and support sectors.

The timber HVRA data includes the extent of potential timber, defined as areas mapped as forest or woodland in the U.S. Department of Agriculture's dataset: TreeMap 2016: A tree-level model of the forests of the conterminous United States circa 2016.[20] The data characterizes forest structure and composition by imputing Forest Inventory and Analysis plots based on their association with biophysical factors. Protected areas, where harvest is not allowed, were masked from the timber extent. Protected areas data were derived from the USGS Protected Areas Database.[21]

Surface Drinking Water HVRA Data

The surface drinking water HVRA represents the potential for wildfire to impact municipal drinking water systems with surface water sources through the effects of post-fire erosion, sedimentation, and flooding on infrastructure and water quality based on watershed extent, fuel type, and population served.

Surface drinking water source areas data were derived from source water protection areas and associated population served data maintained by the Environmental Protection Agency (EPA) through the Drinking Water Mapping Application to Protect Source Waters online mapping tool. The source water protection areas are polygon representations of the watershed area that can contribute flow to an intake point (e.g., reservoir or diversion) within 24-hours based on EPA modeling. The effects assessment was based on fuel type, slope, and steepness from LANDFIRE (2025).

Social Vulnerability Index

PGE recognizes that social vulnerability significantly influences community-level wildfire impact disparities. In previous years, PGE relied on manual HFRZ boundary adjustments for high social vulnerability areas. PGE's updated methodology incorporates the Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry's Social Vulnerability Index (SVI) into the consequence modeling framework. This integration factors socioeconomic metrics—including income levels, age demographics, disability prevalence, language barriers, and transportation

[20] U.S. Department of Agriculture, TreeMap 2016: A tree-level model of the forests of the conterminous United States circa 2016
[21] U.S. Geological Survey, Protected Areas Database

access limitations—to estimate wildfire consequences for vulnerable populations. The SVI data functions as a community-level consequence multiplier applied following initial cNVC calculations, resulting in appropriately elevated wildfire risk scores for communities exhibiting higher social vulnerability indicators.

4.2.1.1.E Spatial Enhancements

To achieve complete spatial coverage, PGE expanded the WTI analytical footprint to encompass its complete service area, all transmission rights-of-way, and all generation sites beyond the service area boundary. Additionally, we transitioned from the GridMET weather dataset (4 km native resolution) to PGE's proprietary WRF model (2 km resolution), yielding a fourfold increase in spatial resolution, shown in Figure 4-6. These enhancements deliver improved data accuracy and establish an infrastructure-independent wildfire risk assessment framework supporting evaluation of both existing and planned infrastructure.

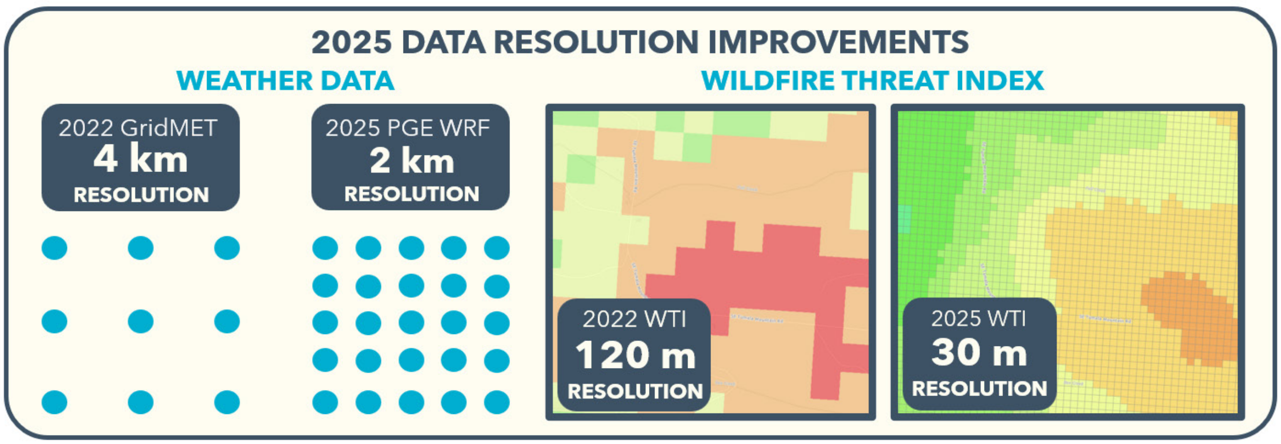

Figure 4-6: 2025 Data Resolution Improvements

To support this spatial expansion, the Conditional Impact wildfire modeling grid was correspondingly enlarged. PGE conducts wildfire simulations using a high-resolution 120 m grid across the entire service area, within 0.5 kilometers of generation sites, and within 1.5 kilometers of transmission lines. This WTI footprint expansion resulted in 87,263 ignition points and 18,848,808 discrete wildfire simulations.

4.2.1.1.F Methodology Enhancements

The WTI-IPI provides a relative measure of the propensity for weather conditions and fuel characteristics at a specific location and its immediate surroundings, resulting in a utility-related wildfire ignition capable of escaping initial attack to become a large, potentially damaging fire. Wildfire ignition potential is modeled as a function of wind speed, fuel dryness (both short- and long-term), and heat output during the initial hour as a measure of resistance to control, an analysis called fire flux.

In 2025, PGE updated the WTI-IPI analysis to replace heat per area with fire flux. Fire flux represents the energy output of the modeled fire within the first hour after ignition. This metric has improved PGE's suppression difficulty predictive capability.

PGE further enhanced WTI-IPI through implementation of hourly data granularity and an expanded historical record. The previous formulation calculated WTI-IPI on a daily timescale using 15 years of historical weather data. PGE's current methodology employs hourly data resolution, higher spatial resolution (i.e., 2-kilometer versus the previous 4-kilometer), and 21 years of historical data, providing greater accuracy and a stronger predictive capability for ignition potential. PGE's formula for calculating WTI-IPI is shown in Figure 4-4.

PGE also updated its WTI-CI wildfire modeling to address observations from the 2025 Eaton Fire, which penetrated the urban environment further than prior urban conflagration fires. This improved understanding of urban conflagration risk led to an increase in the distance modeled wildfires are allowed to travel into the built environment. In 2022, wildfire modeling allowed wildfires to reach distances of 1.5 kilometers into the built environment. In 2025, that distance was increased to 2.4 kilometers to align with the observations from the Eaton Fire.

4.2.1.2 Right Tail Risk

Catastrophic wildfire events, particularly urban conflagrations, represent low-probability yet high-consequence scenarios within wildfire risk assessment frameworks. The Almeda Fire (2020) provided compelling evidence that urban conflagrations remain a viable threat within Oregon's landscape. Recognizing the potential for such events within PGE's service area, we applied sophisticated analytical modeling to WTI data, an analysis specifically designed to capture low-probability, high-consequence wildfire risk—referred to as "right tail risk."

4.2.1.2.A Right Tale Risk Distribution Analysis

To develop a right tail risk assessment framework, PGE conducted statistical distribution analysis of WTI data through histogram visualization techniques. The resulting distribution exhibited characteristics consistent with power law distribution patterns featuring a pronounced heavy right tail. This distribution profile, shown in Figure 4-7, strongly indicates the potential for low-probability, high-consequence wildfire events within PGE's service area.

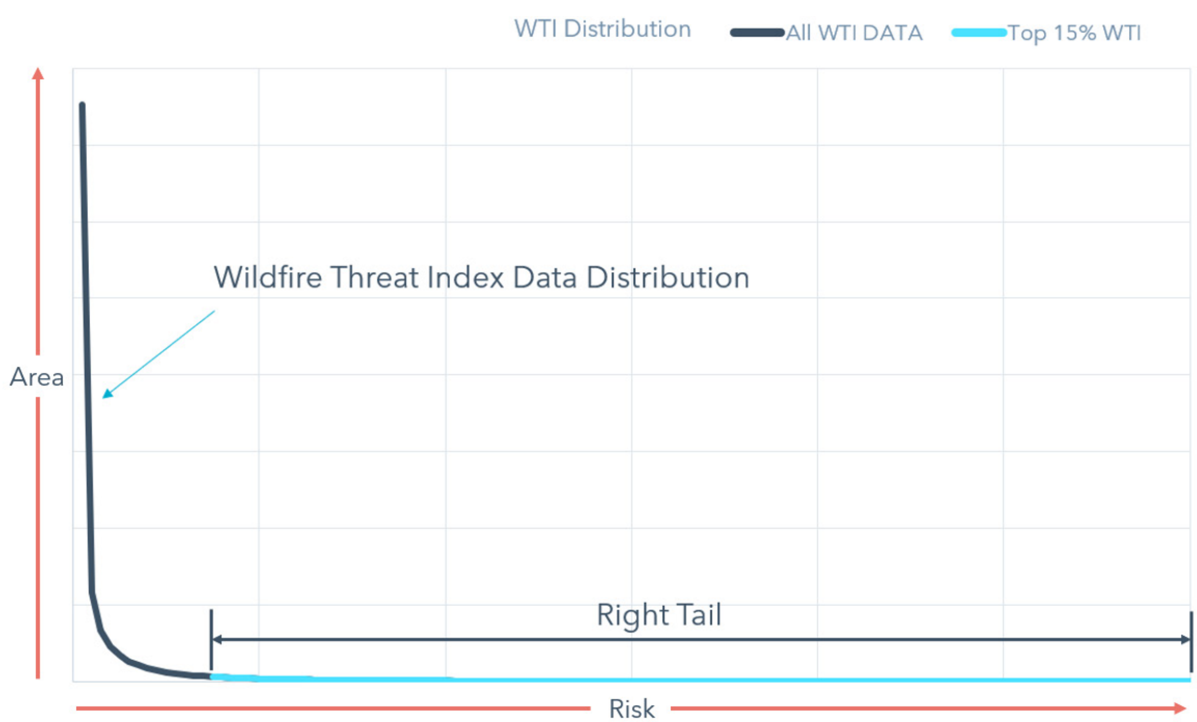

Figure 4-7: WTI Distribution Demonstrating Right Tail Risk

4.2.1.2.B Right Tail Risk Integration

To systematically address right tail risk identified within the WTI dataset, PGE developed a specialized right tail risk factor for incorporation into the composite risk score. The methodology designated the upper 15 percent of probable WTI values as constituting the right tail threshold.

For each 30-meter resolution grid cell, WTI values across all 216 weather and fuels scenarios were ranked in descending order and paired with corresponding occurrence (scenario) probabilities. PGE then computed right tail scores by multiplying each qualifying WTI value by its corresponding scenario probability. PGE then calculated a Conditional Expected Value (CEV) using weighted averaging techniques applied to these right tail scores, as illustrated below in Figure 4-8. The complete dataset was normalized to facilitate integration into composite risk score calculations.

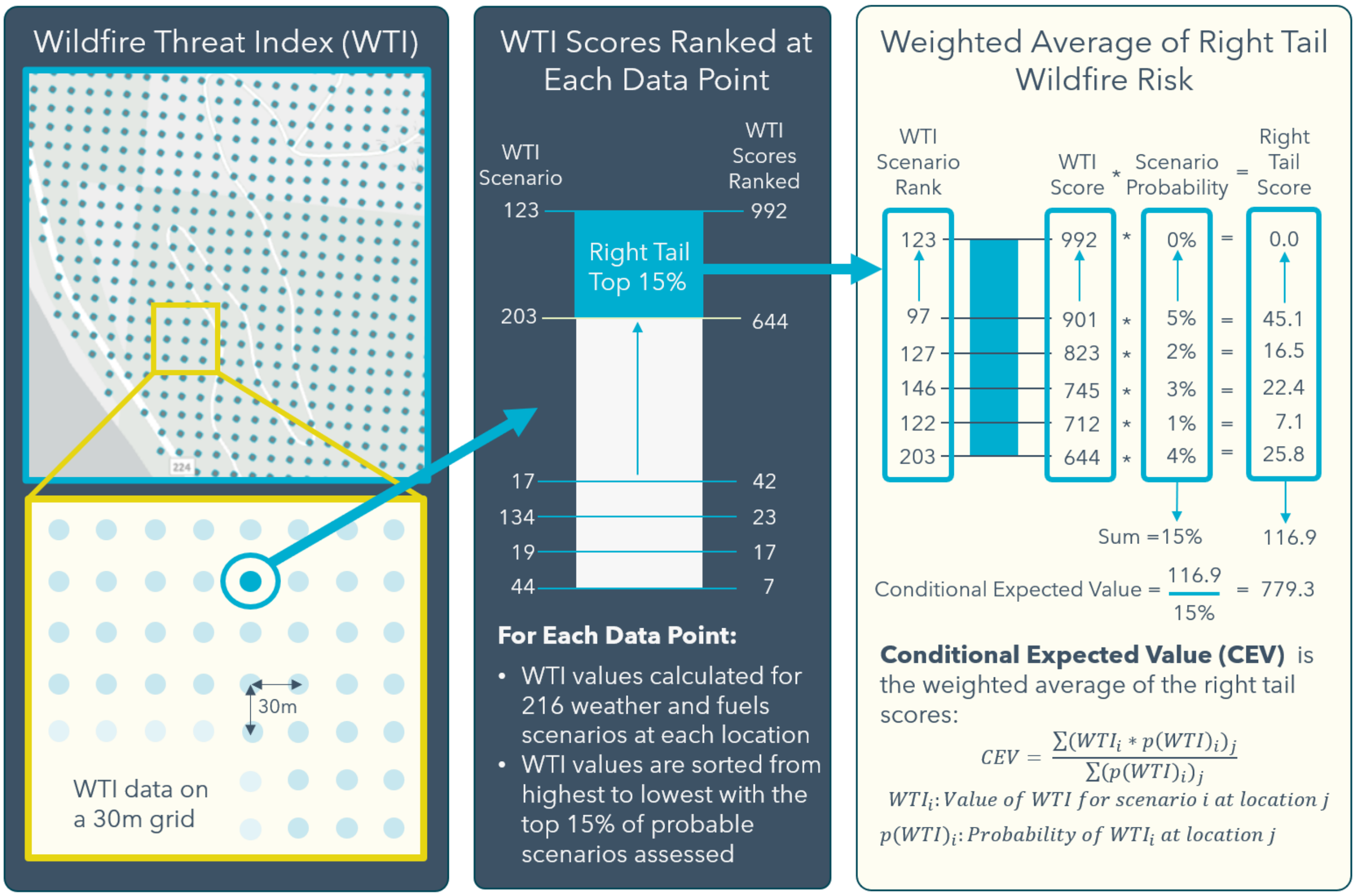

Figure 4-8: Right Tail Risk Identification Process

By incorporating right tail risk considerations, PGE has established a more robust approach to wildfire risk management that addresses not only expected conditions, but also extreme scenarios. This enhanced methodology enables more effective prioritization of investments and mitigation strategies specifically designed to address urban conflagrations and similar high-consequence events that drive the majority of long-term wildfire risk exposure across PGE's service area.

4.2.1.3 Fire Suppression Adjustments

4.2.1.3.A Detection and Response Times

WTI quantifies inherent wildfire risk independent of detection likelihood, response time, or suppression intervention efforts deployed by firefighting organizations to protect communities and highly valued resources and assets. The section below describes the fire suppression adjustments PGE makes to reflect the underlying risk on the service area.

Free Burning Period Analysis. When an ignition occurs in receptive fuel beds, fire progression continues unabated as long as three conditions persist: available fuel continuity, sufficient fuel dryness to support self-propagating combustion, and absence of suppression intervention. This unmitigated growth interval—termed the “free burning period”—spans from ignition occurrence to suppression resource arrival and comprises two critical components: detection time and response time, as illustrated in Figure 4-9.

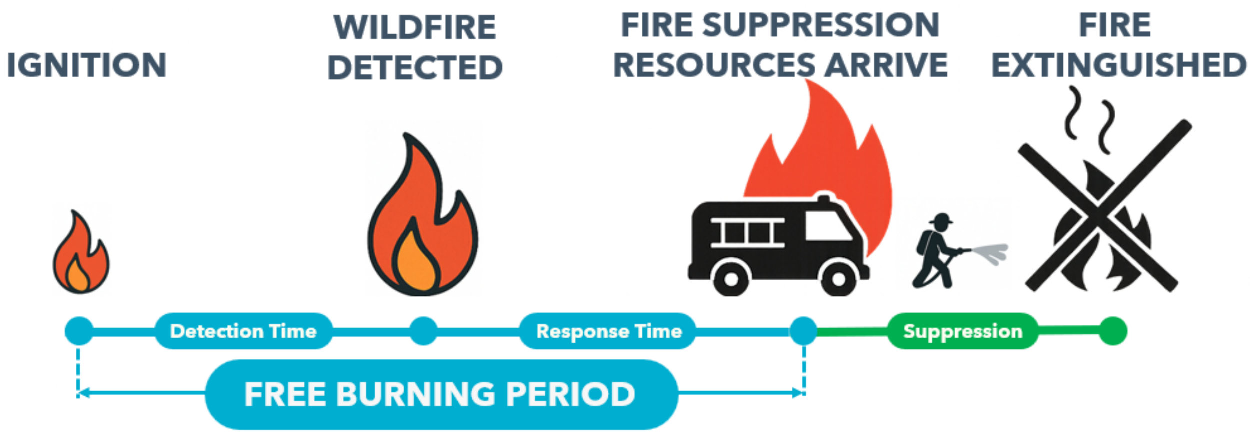

Figure 4-9: Detection and Response Time Impact on Fire Growth Potential

Wildfires exhibit significant potential for expansion and destructive impact if not effectively contained within the initial 12-24 hours of suppression operations—a critical intervention window designated as the “initial attack phase.” Research published by the U.S. Forest Service’s Pacific Northwest Research Station in 2014 emphasized that “A vigorous initial response to a wildfire… can greatly reduce the likelihood of the fire becoming larger and causing substantial damage.”[22]

Temporal Dimensions of Wildfire Risk. Wildfire risk demonstrates a fundamental correlation with temporal fire progression. As the free burning period extends, the probability increases that a wildfire will develop into a large-scale, consequential event. Recognizing the criticality of the initial attack phase in preventing catastrophic wildfire development, PGE evaluates factors influencing the free burning period, including:

- Wildfire detection likelihood—a determinant of detection latency
- Modeled response times from actively staffed fire stations

[22] United States Department of Agriculture, Forest Service, Pacific Northwest Research Station. Efficient Initial Attacks: Analysis of Capacity and Funding Provides Insights to Wildfire Protection Planning. Science Findings, no. 164, Aug. 2014.

For 2025, PGE has implemented significant methodological enhancements for modeling wildfire detection likelihood and fire agency response times. We have substantially increased analytical resolution from township-scale (approximately 160-acres/65-hectare areas) to 30-meter granularity, achieving precise alignment with WTI data resolution parameters.

Detection Likelihood Modeling. PGE utilizes population density as a proxy metric for wildfire detection likelihood, operating under the analytical premise that higher population density correlates with increased probability of human detection and reporting of nascent wildfires. Rapid detection and reporting translate directly to reduced wildfire growth potential through earlier suppression intervention.

PGE calculated population density using the 30-meter wildfire risk score grid, employing a local area search equivalent to township-scale (160 acres). This approach assumes that emerging wildfire smoke plumes would be observable by individuals within this defined local area. To maintain analytical integrity of this local area assumption, population density calculations for each 30-meter grid cell employed a circular sampling area centered on each cell, with an area equivalent to a township, as depicted in the left panel of Figure 4-10. This refined approach yields significantly improved localization of detection likelihood with enhanced spatial resolution that more accurately reflects actual population distribution patterns, as illustrated in the right panel of Figure 4-10.

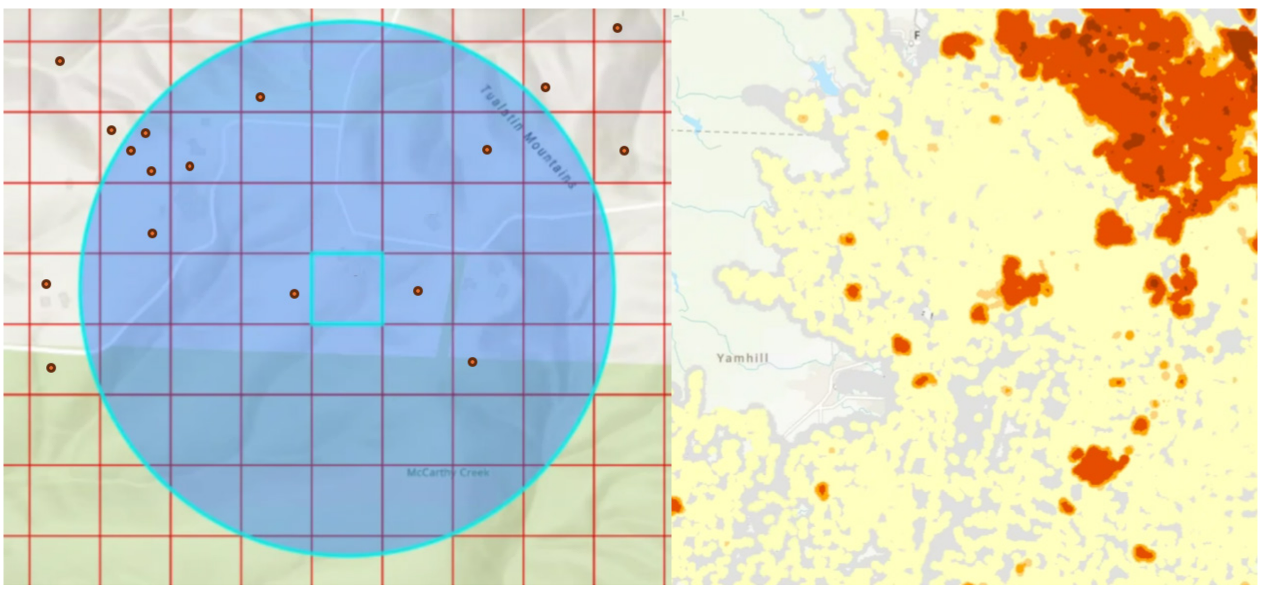

Figure 4-10: Wildfire Detection Likelihood and Population Density

Response Time Analysis. Firefighting resource deployment initiates, when the wildfire is detected, with travel time to the incident location constituting the "response time"—a critical component of the free burning period. Extended response intervals provide additional fire progression opportunity, increasing the probability of a consequential wildfire.

Recognizing response time as a significant risk factor, PGE has developed a response time analysis that models drive times from actively staffed fire stations to all service area locations. This analysis operates on the premise that wildfire risk increases proportionally with response time extension. For 2025, PGE has enhanced this analytical framework by downscaling resolution from township-scale to 30-meter granularity, achieving alignment with WTI resolution and the wildfire risk score grid.

This downscaling process has substantially improved the precision of drive time calculations that are incorporated into the composite risk score, as demonstrated in Figure 4-11.

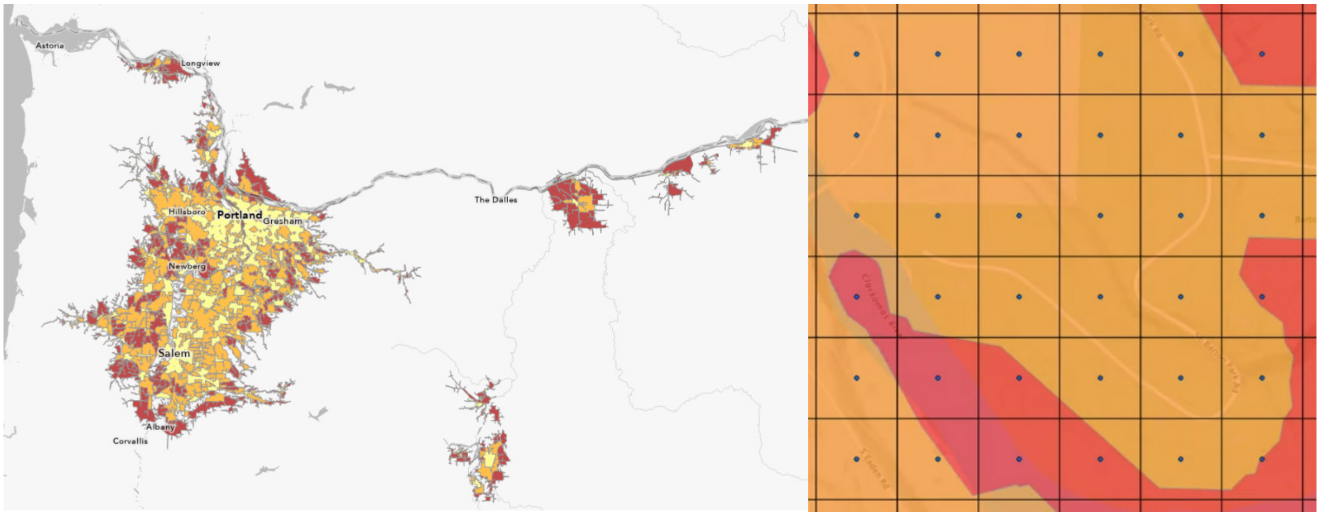

Figure 4-11: Modeled Fire Agency Response Times (minutes) 30 m Grid

4.2.1.3.B Suppression Difficulty Index

The Suppression Difficulty Index (SDI)[23] categorizes terrain according to the relative complexity and hazards associated with fire containment operations. This index incorporates multiple critical variables including topographical features, fuel composition, wind dynamics, anticipated fire behavior characteristics, and accessibility constraints. SDI maps delineate areas of heightened and reduced operational difficulty. These delineated high-difficulty zones serve as indicators of potential accelerated fire progression due to inherent suppression challenges.

The SDI methodology incorporates flame length projections and heat per unit area calculations derived from standardized FlamMap simulations (Finney et al. 2019).[24] SDI values are generated through fire behavior modeling utilizing regionally calibrated percentile fuel moisture parameters combined with uphill wind vector scenarios.

To align with PGE's wildfire risk assessment framework, the 97th percentile SDI values were incorporated into the composite risk score formulation. This percentile selection employs uphill wind vectors to represent worst-case fire propagation scenarios consistent with PSPS thresholds. SDI is mapped at 30-meter spatial resolution, providing precise alignment with the granularity of other composite wildfire risk score components that inform HFRZ delineation.

4.2.1.4 Composite Wildfire Risk Score

PGE established an objective to create a spatially comprehensive wildfire risk dataset that would enable risk assessment independent of asset-specific drivers. This initiative culminated in the development of a sophisticated composite wildfire risk score incorporating four critical parameters:

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[23] Wildfire Suppression Difficulty Index 97th Percentile (2025),
[24] Finney, M.A., Brittain, S., Seli, R.C., McHugh, C.W., and Gangi, L. (2019). FlamMap: Fire Mapping and Analysis System (Version 6.0). USDA Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory.

Weather Threat Index (WTI), wildfire right tail risk quantification, detection and response time analytics, and the Suppression Difficulty Index (SDI). All computational analyses were executed within a GIS environment, producing a high-resolution wildfire risk distribution map at 30-meter spatial granularity.

4.2.1.4.A Normalization Methodology

The constituent risk factors exhibit substantial numerical range variability—the SDI spans from 0 to 318, while the WTI extends from 0 to values in the tens of millions. To facilitate meaningful comparative analysis and enable composite index development, PGE implemented a robust normalization protocol for all factors. This mathematical transformation standardized each parameter to the 0–1 range, thereby establishing a common quantitative foundation. This normalization framework not only enables valid risk comparisons across disparate factors but also provides analytical flexibility for coefficient weighting determinations.

4.2.1.4.B Detection and Response Time Integration

The free burning period component of wildfire risk was captured through an integrated detection and response time assessment. Recognizing the critical interdependency between detection latency and firefighting response intervals—where concurrent prolongation of both metrics exponentially increases fire growth potential—PGE developed a sophisticated two-dimensional classification matrix. This framework minimizes risk scores in areas characterized by high detection probability combined with rapid response capabilities, while maximizing risk values in locations exhibiting both low detection likelihood and extended response intervals. The resultant detection-response integration values used in the calculation of the wildfire risk scores are presented in Table 4-3.

Table 4-3: Wildfire Detection and Response Values

	Response Times		
Customer Meter Count	**15+ Minutes**	**10-15 Minutes**	**0-10 Minutes**
0–25	1.00	1.00	0.69
26–50	1.00	0.81	0.53
51–100	0.96	0.61	0.39
101–200	0.67	0.36	0.19
200+	0.47	0.25	0.13

4.2.1.4.C Suppression Difficulty Index Transformation

The U.S. Forest Service's SDI, originally ranging from 0 to 318 and presented in categorical format, required transformation for incorporation into the composite risk framework. PGE implemented a reclassification protocol to normalize these values using the transformed classification schema detailed in Table 4-4.

Table 4-4: Wildfire Risk Score Values for the Suppression Difficulty Index factor

SDI Value	SDI Score
101+ (Highest Difficulty)	1.0
70–100	0.9
4–70	0.7
20–40	0.5
10–20	0.3
0–10 (Lowest Difficulty)	0.1

4.2.1.4.D Composite Risk Score Calculation

After evaluating multiple mathematical approaches, PGE adopted a nonlinear, interaction-sensitive model for the composite wildfire risk score. This formulation captures the multiplicative compounding relationships inherent in wildfire risk dynamics, reflecting the interdependent nature of contributing factors that must align to create high-risk scenarios. The model incorporates conditional risk attenuation—when any single factor exhibits low risk values, the overall composite risk is appropriately diminished. This approach aligns with empirical wildfire behavior observations: for instance, ignitions proximate to fire stations with minimal response times present reduced overall risk despite potentially challenging suppression conditions or rural settings. PGE's composite wildfire risk score formula is presented in Figure 4-12.

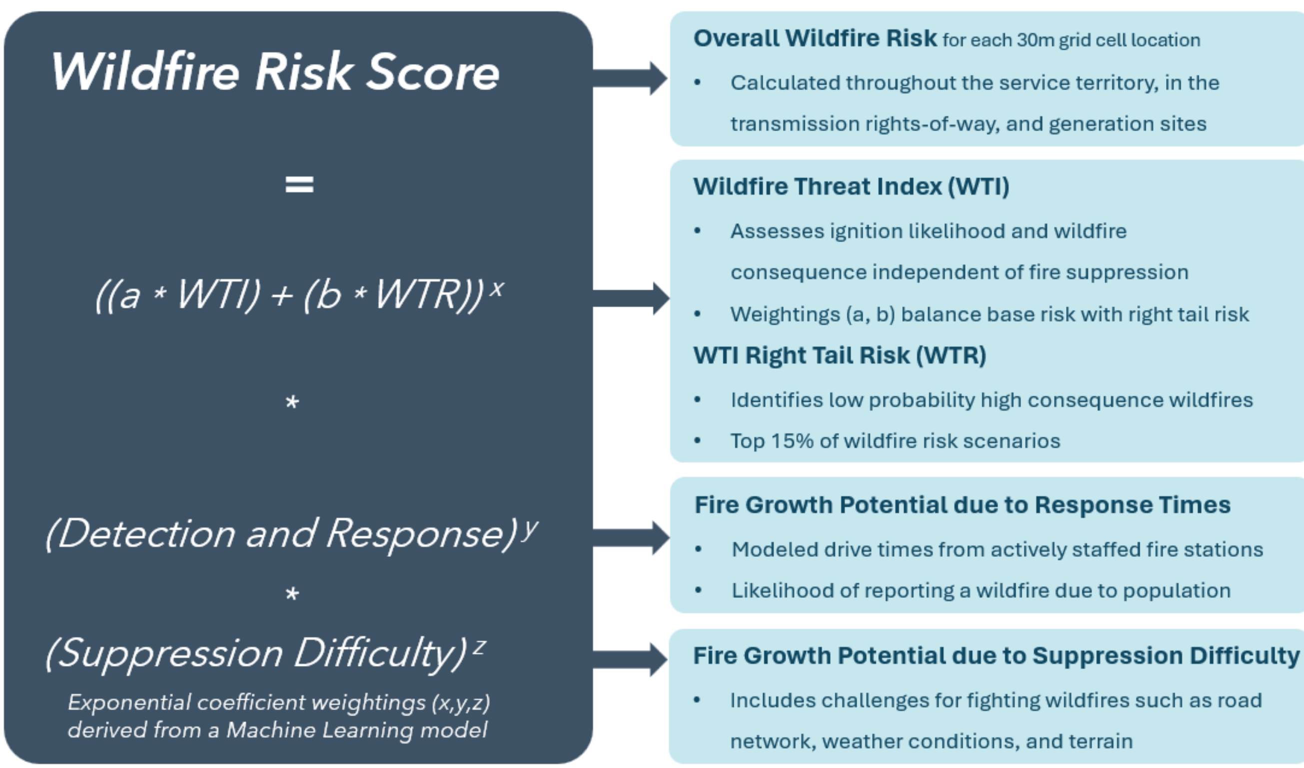


Figure 4-12: Composite Wildfire Risk Score Formula

To establish optimal coefficient weightings for the composite risk formula, PGE deployed a machine learning approach utilizing linear regression techniques calibrated against established PGE HFRZs.

This methodology delivered significant analytical advantages by providing a formulaic mechanism to identify additional areas with analogous risk profiles, while simultaneously incorporating the additional dimensions of wildfire right tail risk and suppression difficulty. The resulting data-driven approach produces a spatially consistent wildfire risk assessment framework with enhanced predictive capabilities.

4.2.1.5 PGE Asset Review

To enable mitigation precision, PGE identified four fire risk classifications, including smaller HFRZs, OFRZs to address risk in outlying areas, EFRZs that receive a limited set of mitigations, and WRAs to address high risk areas with no existing PGE assets.

4.2.1.5.A Wildfire Risk Areas

WRAs are defined purely based on inherent environmental risk factors across PGE's service area, independent of utility infrastructure presence.

PGE's WRA dataset development employed advanced polygon clustering analytics applied to wildfire risk score distributions. After consulting with subject matter experts, PGE established a minimum threshold of 1,000 acres for inclusion in the final WRA designation, based on the determination that smaller areas typically lack the capacity to generate urban conflagration wildfires and therefore have lower wildfire risk. This threshold determination was informed by forensic analysis of significant urban-interface wildfire events, including the Marshall Fire (2021) and Camp Fire (2018). This methodological approach implements a more conservative spatial threshold than PGE's wildfire simulation modeling parameters, which permit urban encroachment scenarios from wildland areas of at least 500 hectares (1,235 acres) adjacent to population centers.

Following the implementation of this size-based filtration criterion to the initial clustering analysis results, PGE applied sophisticated contour optimization algorithms and conducted precision manual boundary refinements to exclude identified low-risk enclaves.

4.2.1.5.B High Fire Risk Zones

PGE leveraged WRAs as the foundational dataset for identifying HFRZs. This process involved the overlay of overhead transmission and distribution infrastructure onto WRA geospatial data, employing sophisticated buffering techniques and boundary optimization algorithms to establish coherent HFRZ boundaries. To enhance the efficacy of critical near-term mitigation strategies, including EFR protocols and PSPS operations, PGE established two primary HFRZ delineation improvements:

- **Climatological Integration:** Develop HFRZs encompassing homogeneous meteorological characteristics and fuel flammability profiles under known fire weather patterns.
- **System Topology Optimization:** Configure boundaries to maintain electrical feeder integrity, with each circuit contained wholly within a single HFRZ or EFRZ.

To achieve climatological integration, PGE's initial phase involved delineating areas likely to experience consistent weather and vegetation fuel conditions during established fire weather scenarios, with particular emphasis on offshore easterly wind events and dry cold frontal passages. The meteorologists applied specialized expertise in fire weather pattern analysis and historical fuel condition assessment to segment the service area into discrete zones with common short-term wildfire risk signatures that would necessitate consistent operational mitigations. The final zonation framework incorporated and refined U.S. Forest Service Fire Danger Rating Areas and National Weather Service (NWS) Fire Forecast Areas, further partitioning these into more precisely targeted operational zones.

For system topology optimization, PGE conducted two technical workshops with subject matter experts responsible for infrastructure architecture, operational protocols, and system protection. These collaborative sessions focused on the guided aggregation of feeders intersecting WRAs that predominantly exist within consistent fire weather and fuel condition areas. This methodological approach prevents electrical circuits from spanning multiple HFRZs, thereby facilitating more accurate forecasting capabilities and streamlined system operations.

By reducing the geographical footprint of each HFRZ, PGE can apply mitigation measures with greater precision to areas facing short-term wildfire risk. The zone size reductions allow target mitigations, potentially limiting the number of customers experiencing a PSPS event. PGE will be able to allocate resources more efficiently and improve response times through a more localized operational focus.

4.2.1.5.C Outlying Fire Risk Zones

PGE has established Outlying Fire Risk Zones (OFRZ) to address areas of high wildfire risk that exist outside the defined service area boundaries. These zones include transmission and distribution powerline rights-of-way and generation facilities that PGE maintains beyond the traditional service area.

OFRZs are methodologically equivalent to HFRZs, employing the same risk assessment framework and composite risk scoring system. The delineation process integrates WTI, right tail risk analysis, detection and response time modeling, and suppression difficulty indices at 30-meter resolution. This approach promotes consistent risk evaluation across all PGE assets regardless of geographical location.

By extending the wildfire risk assessment methodology beyond service area boundaries, PGE maintains a thorough understanding of potential wildfire threats to critical infrastructure. These OFRZ enable implementation of targeted mitigation strategies including enhanced vegetation management, system hardening initiatives, and operational protocols during periods of elevated fire risk.

4.2.1.5.D Elevated Fire Risk Zones

PGE conducted an evaluation of areas previously classified as HFRZs and AOIs. Through geospatial analysis, these legacy boundaries have been superimposed using the updated HFRZ delineation method. Non-overlapping segments that indicate risk but fall outside current HFRZ parameters have been reclassified as EFRZ. PGE applies a limited set of mitigations, including Fire Safe Design & Construction Standards, Grid Operations & Protocols, and PSPS Readiness, to these EFRZ.

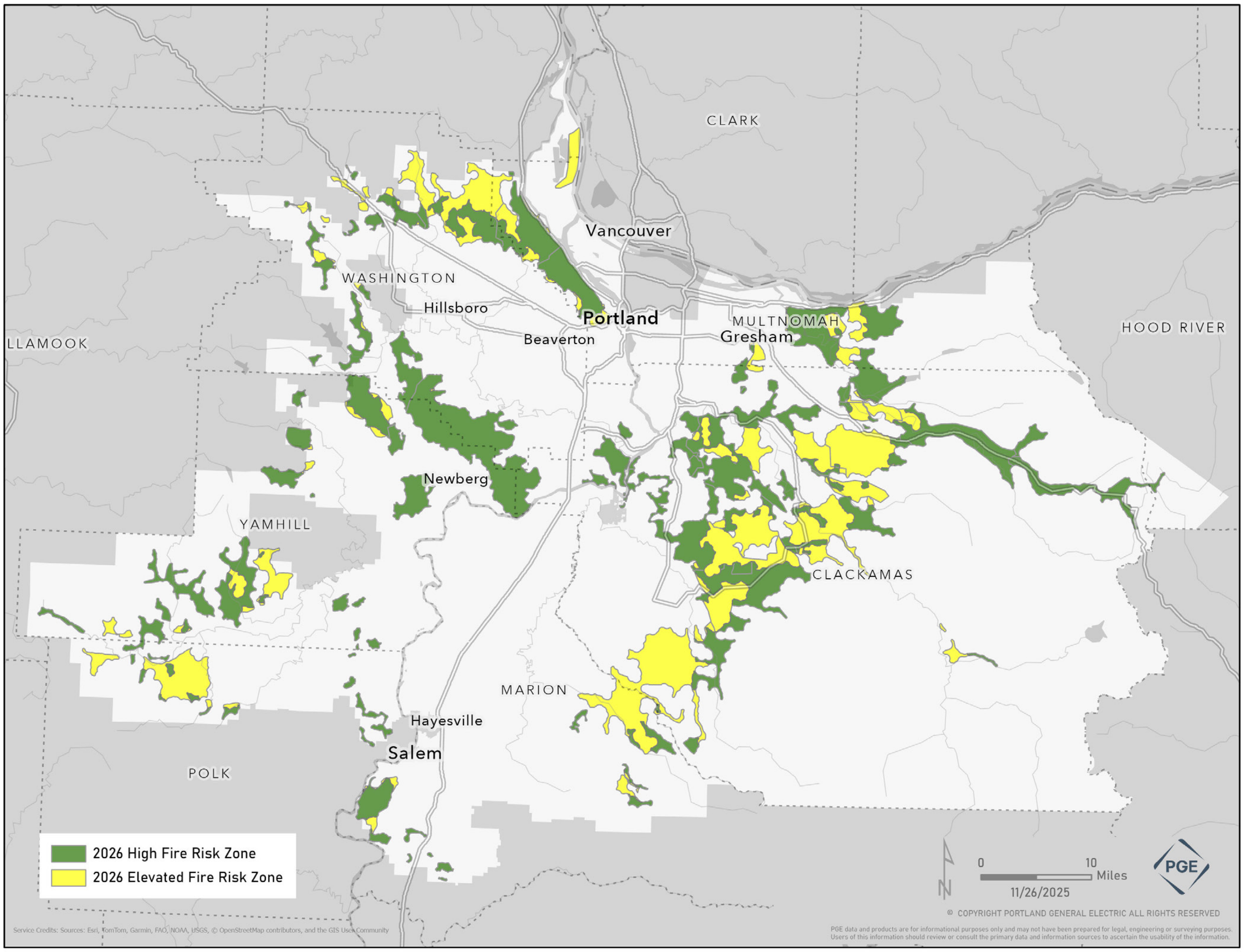


Figure 4-13: 2026 High Fire Risk Zones and Elevated Fire Risk Zones

4.2.1.5.E Asset Vulnerability to Wildfire

PGE acknowledges that power generation and power delivery assets are vulnerable to wildfires. The risk modeling methodology identifies at-risk overhead power lines and substations through an evaluation of asset location relative to designated fire risk zones, including HFRZ, OFRZ, and EFRZ. Assets located within these zones have an increased risk of wildfire exposure.

To address identified risks to substations and power lines in fire risk zones, PGE has implemented the following mitigation measures:

- **Fire-Safe Design & Construction Standards:** All new or replaced infrastructure is constructed to meet enhanced fire-safe design standards as detailed in Section 6.2.1.
- **Fire Mesh Pole Wrap:** PGE programmatically installs specialized fire mesh pole wrap as detailed in Section 6.2.8.
- **Substation Design Standards:** PGE has implemented substation design standards that minimize the likelihood that assets will be exposed to a wildfire. Each substation features non-burnable surface materials such as concrete, pavement, and gravel that prevents wildfires from

encroaching into the substation. Additionally, non-burnable area and vegetation setbacks outside the perimeter of the substation prevents direct exposure of wildfire to assets. Additional information about generation sites and wildfire site design mitigation measures is presented in Appendix H.

- **Vegetation Management:** For overhead assets and rights-of-way, PGE maintains vegetation clearances through proactive vegetation management practices as detailed in Section 8.

4.2.1.6 Agency Review

Collaboration with fire agency representatives and land management organizations is an integral component of PGE's wildfire risk assessment approach, allowing PGE to incorporate details about observed fires, detection and response times, as well as other risk factors. In 2025, PGE facilitated or participated in multiple work sessions with fire agencies and land managers to gain insights into potential risk model updates. A summary of the fire agency engagements is presented in Table 4-5.

Table 4-5: 2025 Fire Agency and Land Management Review

Date	Participants	2025 HFRZ	Area of Change	Rationale	Adjustment	Data Validation
8/20/2025	Ashland Emergency Management, City of Ashland Electric Department	All	N/A	N/A	N/A	Fire Agency Response Times
10/21/2025	Silverton Fire District	1, 4, and 5	2 unmanned stations within the district may increase response times in HFRZ 5	Unmanned stations	None, coverage is adequate for amount of calls received	2025 HFRZ map 2026 information
10/21/2025	U.S. Forest Service (USFS) Mt. Hood National Forest	1, 4	N/A	N/A	N/A	2025 HFRZ map and 2025 fire season
10/21/2025	Clackamas Fire District, Clackamas County Fire Defense Board Chief	1, 3, and 4	None	N/A	N/A	2025 HFRZ map and 2025 fire season
10/22/2025	Oregon Department of Forestry	1, 2, 4, 5, 7, 8, 9, and 10	None	N/A	N/A	2025 HFRZ map and 2025 fire season

Date	Participants	2025 HFRZ	Area of Change	Rationale	Adjustment	Data Validation
10/22/2025	McMinnville Fire District	10	Gaps in HFRZ 10 noted	HFRZ 10 surrounding area has similar fuels and topography but it's not all included in HFRZs	Included in 2026 WRA, no existing PGE assets in the HFRZ gaps	2025 HFRZ map and 2025 fire season 2026 risk profile assessment

4.2.1.6.A Expert Consultation on Low-Probability, High-Consequence Wildfire Events

To effectively address low-probability, high-consequence wildfire scenarios and urban conflagration risks, PGE engaged Kelly Burns, City of Ashland Emergency Manager, who served as the initial Incident Commander (IC) and Battalion Chief for Ashland Fire and Rescue during the September 2020 Almeda Fire response. During this consultation, PGE presented its updated methodology as well as underlying detection and response assumptions.

The hard-won insights shared from the Almeda Fire response illuminated numerous operational challenges when combating extreme wildfires, including extraordinary fire behavior characteristics and urban conflagration dynamics. This engagement highlighted the importance of evaluating low-probability, high-consequence wildfire scenarios—a recommendation that directly informed the incorporation of right tail risk into PGE's composite risk score calculation.

4.2.1.6.B Key Stakeholder Feedback and Operational Insights

Several recurring themes emerged across the 2025 agency reviews:

- **AI Camera Network (SAF-02):** Multiple agencies noted the importance of PGE's network of AI-enabled wildfire detection cameras, reporting that they utilize this system as an essential operational resource.
- **Emergency Preparedness:** One agency specifically commended PGE's rapid response during incidents involving power pole compromised by vehicular accidents, noting PGE's effectiveness in securing infrastructure and supporting first responder safety.
- **Observed Fire Behavior:** At least one agency reported an increased frequency of 2–3-acre wildfires compared to historical patterns, providing valuable data points for future risk modeling.
- **Suppression Resources:** Staffing improvements were documented in 2025 HFRZ 1 and 2025 HFRZ 4, with Clackamas County Fire District now maintaining 24/7 operational status at Station 12 (Logan) in HFRZ 4 and Station 74 (Dover) in HFRZ 1 implementing seasonal staffing during peak fire risk periods.
- **Risk Assessment Refinement:** One agency identified a potential risk assessment gap in 2025 HFRZ 10. PGE staff acknowledged this observation, noting that the gap is due to the absence of PGE infrastructure in that specific area.

4.2.2 Fire Risk Zone Results

As indicated in Figure 4-14, PGE's 2026 HFRZs and EFRZs are distributed across diverse landscapes, including areas subject to low likelihood, high consequence events. A total of 35 percent of the HFRZ/EFRZ landscapes are classified as fire regime V, meaning they generally have a long fire return interval (200 years+) between fires with severity ranging from low to total stand replacement. Fire regime I encompasses around 40 percent of the HFRZ/EFRZ areas and is usually accompanied by low to mixed severity fires. The remaining 24 percent of the area consists of mostly fire regime III with a fire return interval between 36 and 200 years resulting in low to mixed severity events. These numbers are all based on the "historic fire return interval". When landscapes miss these intervals a cascade of ecological and social consequences build over time, fundamentally reshaping fuels, vegetation, and fire behavior. Surface fuels build up, ladder fuels accumulate connecting the ground to the canopies. This causes shifts in fire behavior, where historically low to mixed severity fires transition to high severity stand replacing fires. This in turn increases the risk to people and infrastructure and we begin to see more of the low likelihood, high consequence events.

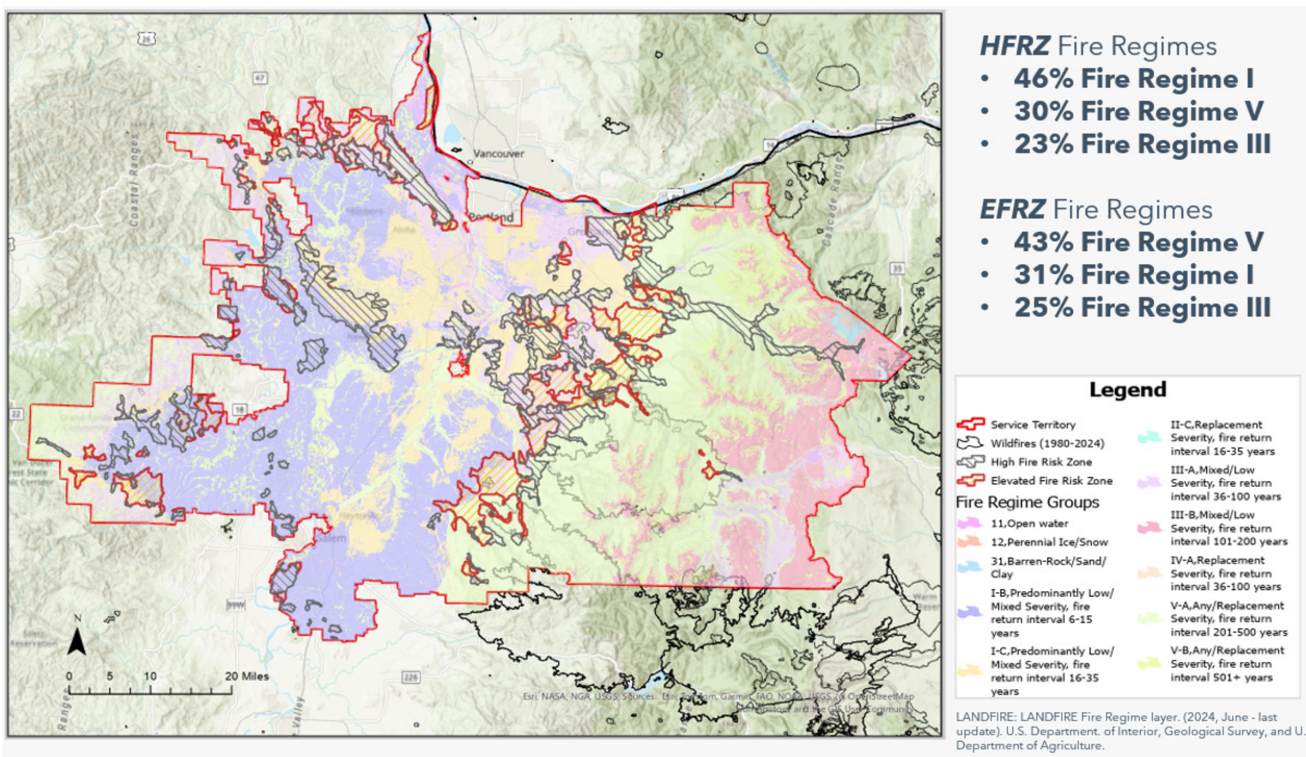


Figure 4-14: Oregon Fire Regimes and PGE Fire Risk Zones

4.2.2.1 Wildfire Risk Areas

PGE uses WRAs internally to inform the application of fire season protocols, Fire-Safe Design Standards, and Fire-Safe Construction Standards.

4.2.2.2 High Fire Risk Zones

PGE's 2026 HFRZs are shown in Figure 4-15. The updated baseline wildfire risk assessment and methodology improvements resulted in an expansion from 12 larger HFRZs to 21 smaller HFRZs as well as a shift towards more heavily developed areas.

- The smaller HFRZs enable PGE to implement more targeted and effective EPSS and PSPS interventions consistent with industry best practices.
- The shift of HFRZs reflects the increased likelihood of a fire penetrating developed areas, reflecting industry learnings from the Eaton fire.

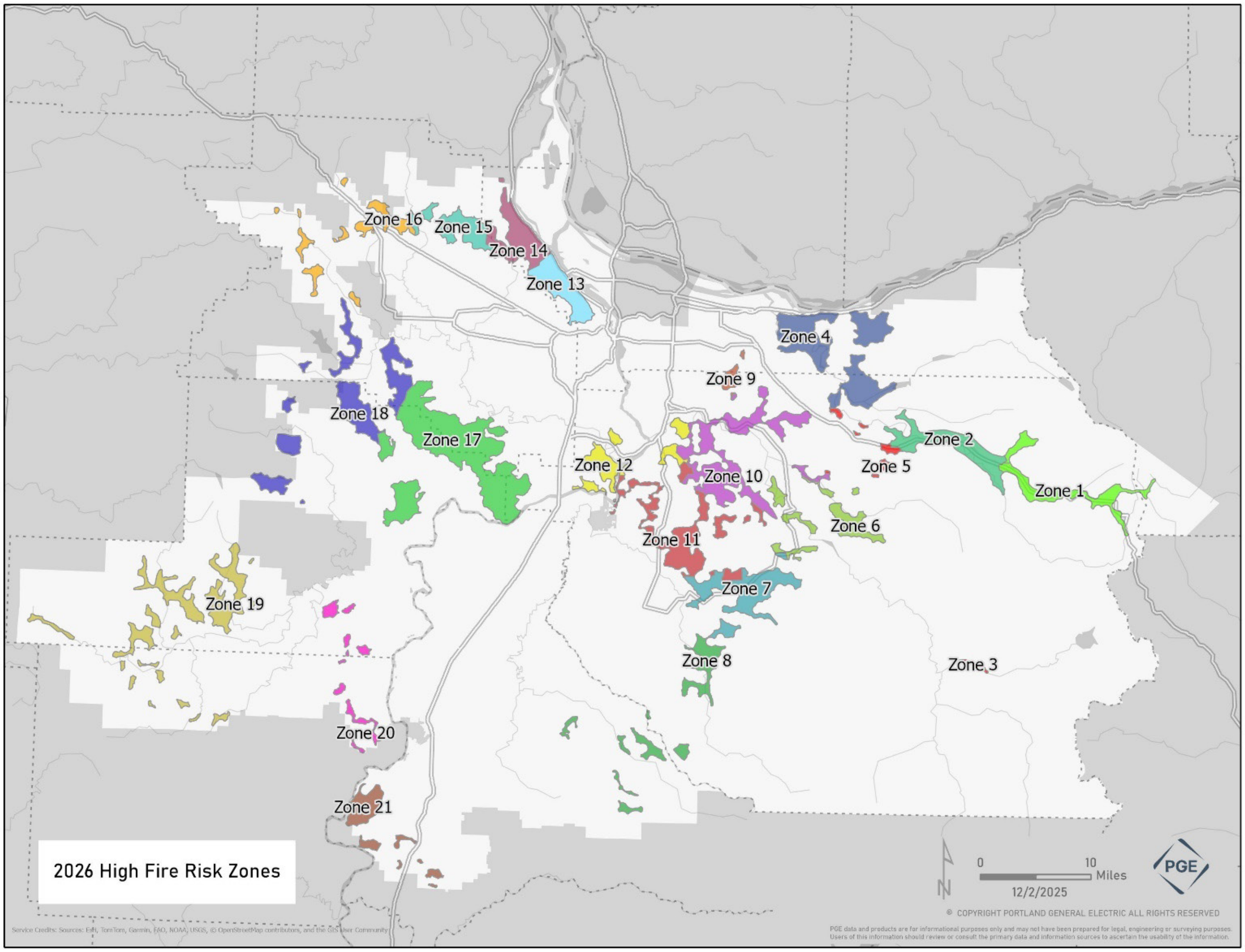


Figure 4-15: 2026 High Fire Risk Zones

PGE calculated spatial statistics for each HFRZ to provide a detailed overview of relevant characteristics. The statistics are provided in Table 4-6 and a comparison to the prior HFRZs is presented in Table 4-7.

Table 4-6: 2026 High Fire Risk Zone Summary

HFRZ	Geographic Names	Mean Risk Score	Transmission Overhead Circuit Miles	Distribution Primary Overhead Circuit Miles	Distribution Primary Underground Circuit Miles	Customers (Meters)
1	Mt. Hood Corridor East	0.41	13.8	49.3	32.3	2,283

HFRZ	Geographic Names	Mean Risk Score	Transmission Overhead Circuit Miles	Distribution Primary Overhead Circuit Miles	Distribution Primary Underground Circuit Miles	Customers (Meters)
2	Mt. Hood Corridor West	0.24	22.6	66.0	51.6	4,003
3	Lake Harriet	0.36	0.0	3.0	0.0	6
4	Columbia River Gorge	0.31	2.6	82.8	76.0	1,951
5	Cascade Foothills	0.25	1.7	9.9	6.0	298
6	Estacada	0.25	9.2	32.5	25.4	528
7	Colton and Molalla	0.28	4.5	66.3	26.1	1,102
8	Scotts Mills	0.31	0.0	41.3	14.6	540
9	Gresham and Damascus	0.27	0.0	7.0	8.7	322
10	Eagle Creek and Boring	0.26	21.7	85.5	79.7	2,717
11	Central Point, Carus, and Mulino	0.27	5.0	67.2	34.7	1,533
12	Oregon City	0.25	16.5	32.0	51.2	1,269
13	Portland West Hills	0.44	6.2	29.2	20.6	1,188
14	Tualatin Mountains	0.30	22.0	36.0	24.1	875
15	North Plains	0.27	0.0	25.1	22.9	490
16	North West Hills	0.25	0.5	31.2	17.0	507
17	Western Willamette Valley	0.26	12.2	157.5	204.7	4,178
18	Central West Hills	0.27	3.6	75.8	63.2	1,397
19	Southern West Hills	0.24	0.0	84.6	45.6	983
20	Eola Hills	0.25	0.0	17.5	19.9	389
21	Salem Hills	0.26	0.0	28.7	40.7	939
TOTAL			**142.0**	**1,028.3**	**865.0**	**27,498**

Table 4-7: Comparison of 2025 and 2026 HFRZs

Year	Transmission Overhead Circuit Miles	Distribution Primary Overhead Circuit Miles	Distribution Primary Underground Circuit Miles	Customers (Meters)
2025	77.9	1,055.5	674.2	25,527
2026	142.0	1,028.3	865.0	27,498

4.2.2.3 Outlying Fire Risk Zones

PGE's 2026 OFRZs are presented in Figure 4-16. These zones encompass assets associated with the interconnection of the following outlying generation and transmission facilities:

- Pelton Round Butte Hydroelectric Project
- Biglow Canyon Wind Farm
- Carty Generation Station
- Wheatridge Renewable Energy Facility
- Port Westward Generating Plant transmission lines
- Grizzly – Malin 500 kV transmission line

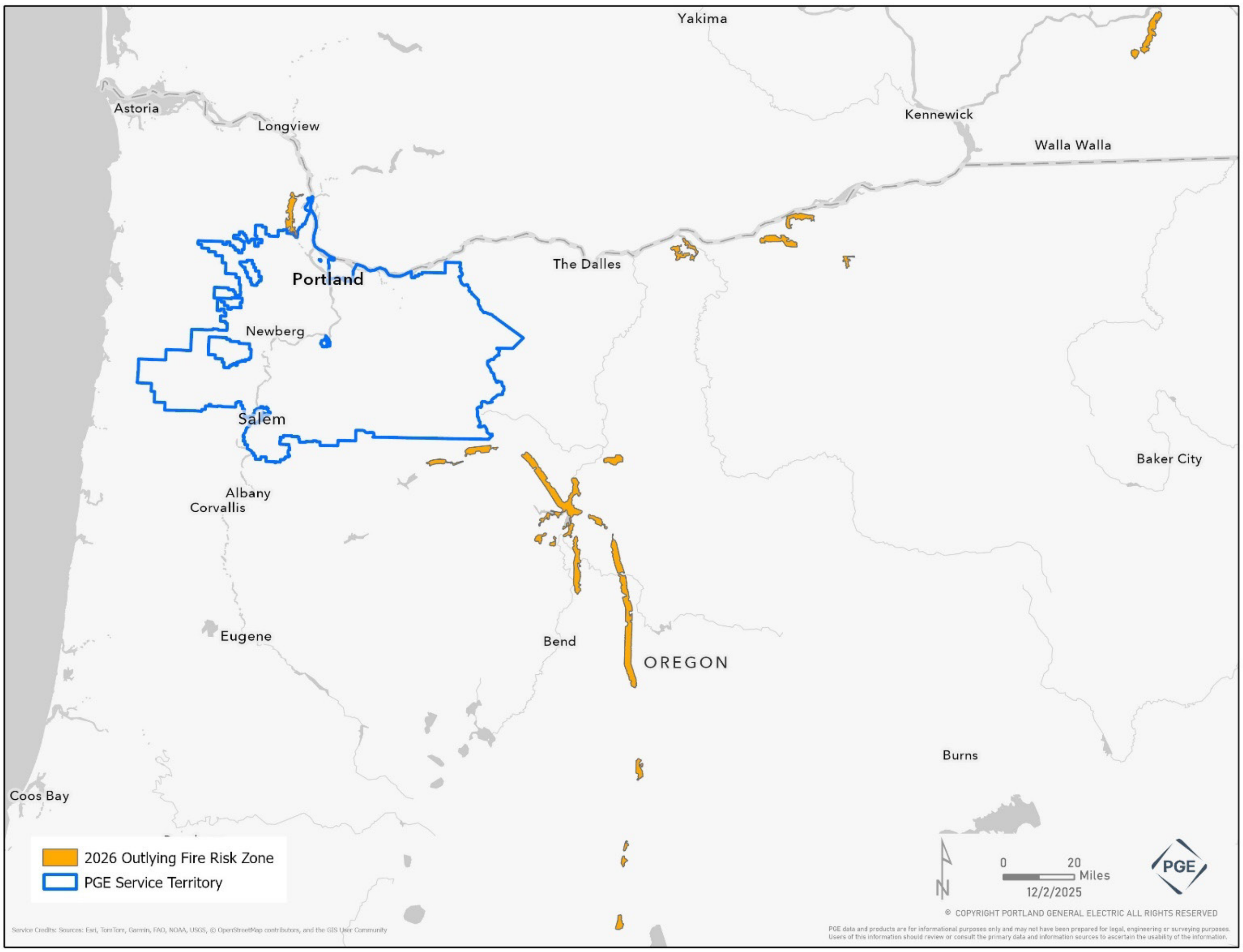


Figure 4-16: PGE Outlying Fire Risk Zones

Table 4-8: Asset data for Outlying Fire Risk Zones.

Transmission Overhead Circuit Miles	Distribution Primary Overhead Circuit Miles	Distribution Primary Underground Circuit Miles	Customers (Meters)
177.3	0.00	0.01	6

4.2.2.4 Elevated Fire Risk Zones

PGE's 2026 EFRZs are shown in Figure 4-17 with relevant statistics presented in Table 4-9.

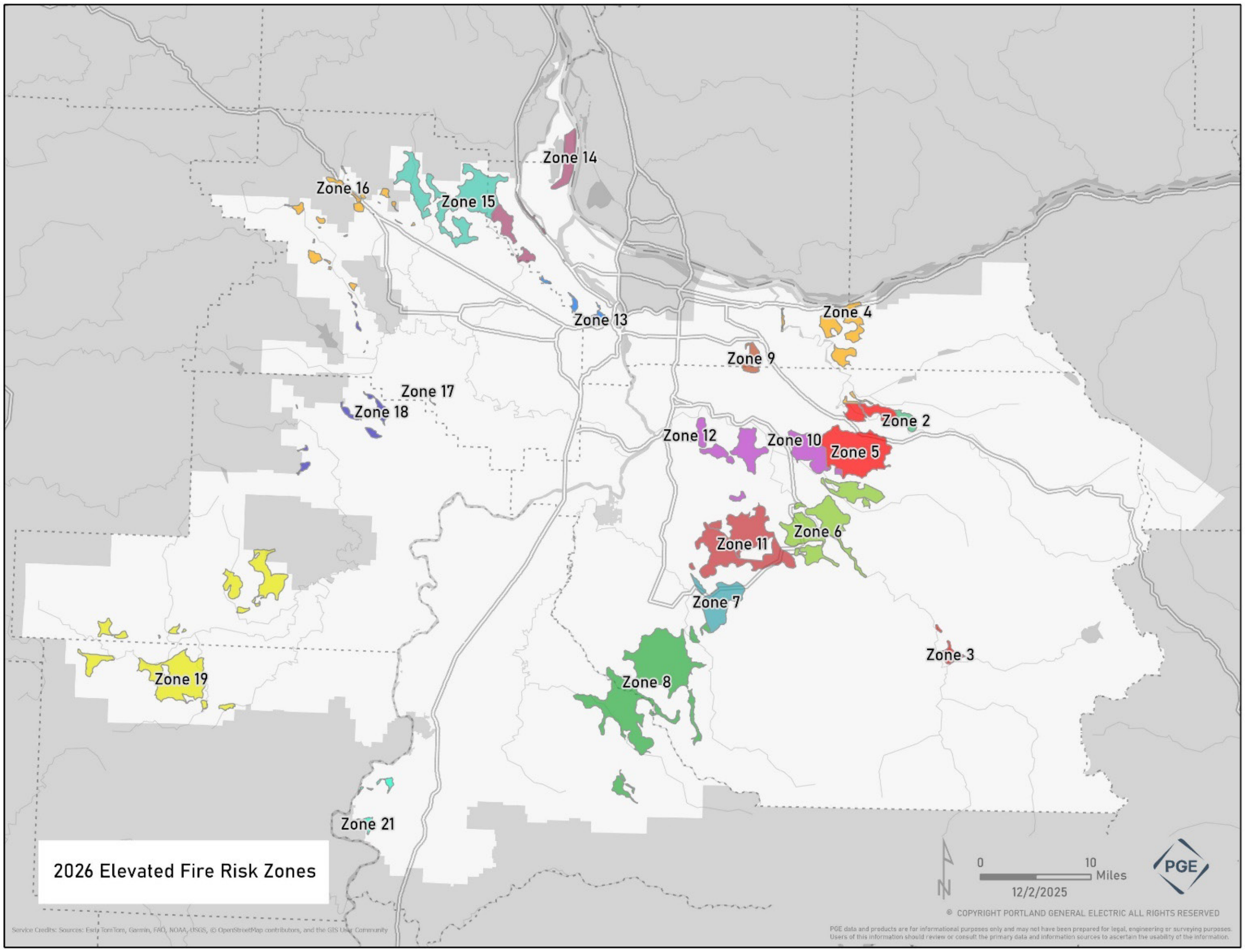


Figure 4-17: PGE Elevated Fire Risk Zones

Table 4-9: 2026 Elevated Fire Risk Zone Summary

EFRZ	EFRZ Name	Transmission Overhead Circuit Miles	Distribution Primary Overhead Circuit Miles	Distribution Primary Underground Circuit Miles	Customers (Meters)
2	Mt. Hood Corridor West	0.6	0.6	0.5	10
3	Lake Harriet	0.7	7.4	0.2	87
4	Columbia River Gorge	1.3	23.2	28.5	644
5	Cascade Foothills	7.2	79.5	62.6	2,772
6	Estacada	18.1	73.4	38.0	1,549
7	Colton and Molalla	4.7	38.9	16.1	1,009

EFRZ	EFRZ Name	Transmission Overhead Circuit Miles	Distribution Primary Overhead Circuit Miles	Distribution Primary Underground Circuit Miles	Customers (Meters)
8	Scotts Mills	0.0	125.9	47.8	1,872
9	Gresham and Damascus	2.2	5.8	25.5	1,252
10	Eagle Creek and Boring	0.0	77.9	47.5	2,547
11	Central Point, Carus, and Mulino	1.9	79.1	33.1	1,531
12	Oregon City	0.0	0.2	0.0	9
13	Portland West Hills	0.7	19.9	17.5	1,948
14	Tualatin Mountains	2.7	25.8	11.3	434
15	North Plains	0.0	64.2	27.2	851
16	North West Hills	0.0	17.1	9.9	279
17	Western Willamette Valley	0.0	0.2	0.6	12
18	Central West Hills	0.5	11.4	5.1	137
19	Southern West Hills	0.0	60.8	48.8	973
21	Salem Hills	0.3	9.9	8.1	529
TOTAL		**40.9**	**721.0**	**428.1**	**18,445**

4.2.3 Utility Wildfire Risk Analysis

PGE calculates wildfire risk associated with its assets in the service area using the step-by-step process shown in Figure 4-18 below.

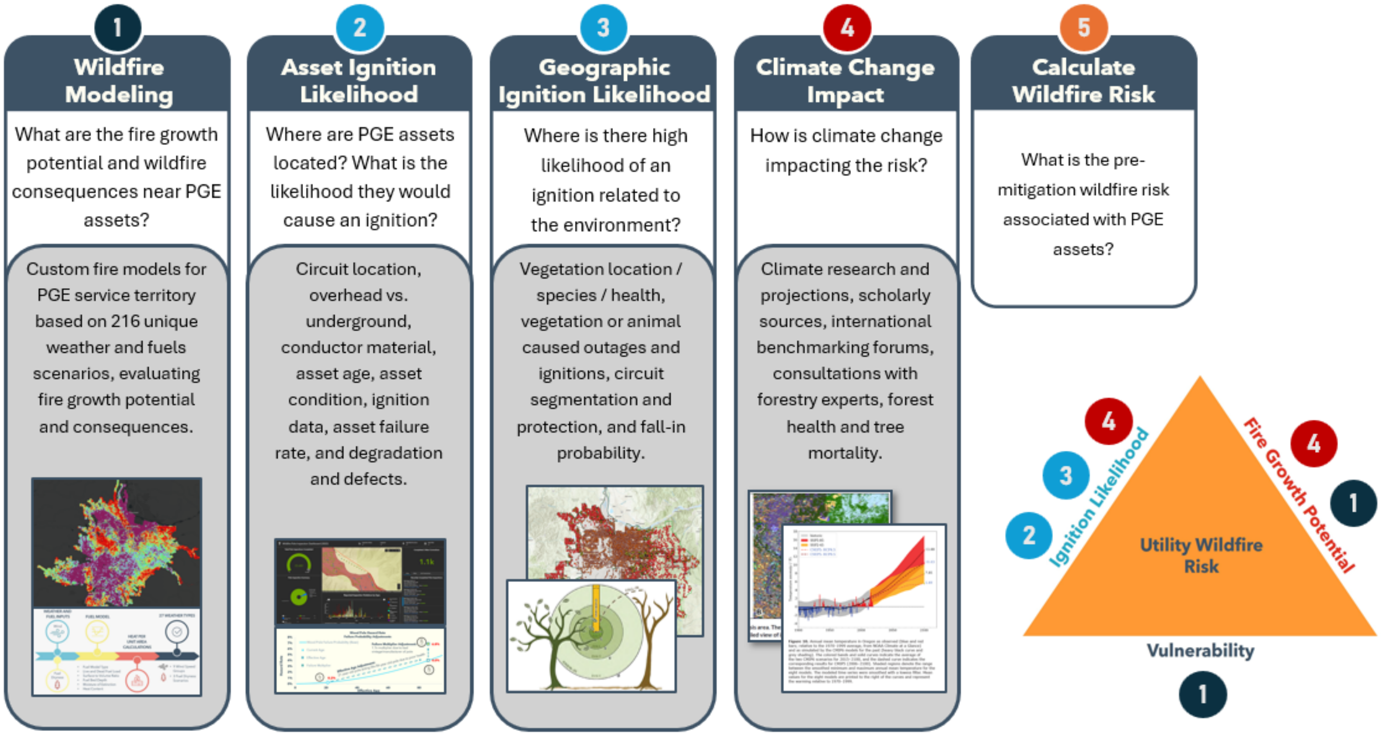


Figure 4-18: PGE Utility Wildfire Risk

4.2.3.1 Fire Growth Potential & Vulnerability

PGE applies four unique variables to quantify the fire growth potential and vulnerability at each respective location.

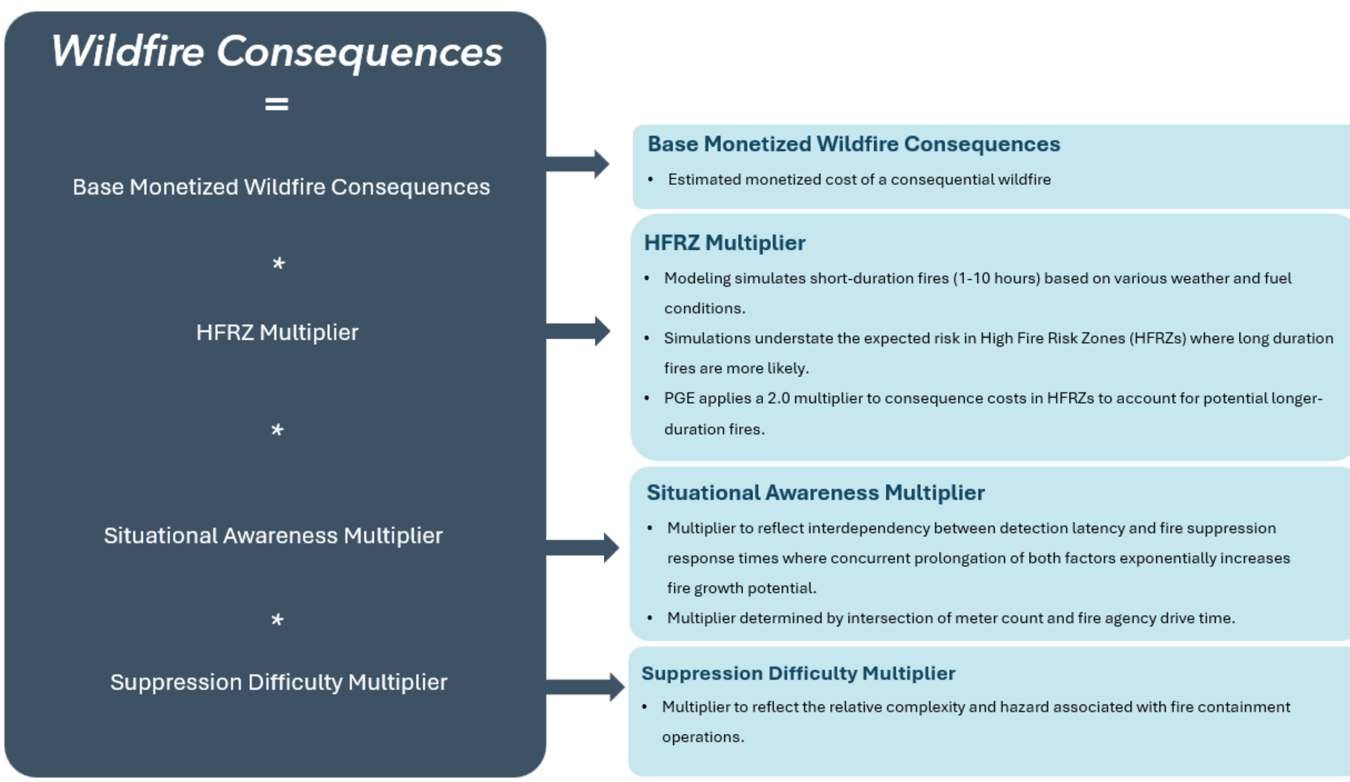


Figure 4-19: Wildfire Consequences

PGE converts wildfire risk modeling results into dollars to support cost benefit analysis through RSE calculations. Monetizing wildfire consequences allows PGE to use RSE to identify solutions that deliver the greatest benefit per dollar, including comparison across different utility investment portfolios.

For the 2025 model improvements, PGE refreshed its monetized estimation of wildfire consequences. Specifically, PGE updated the following consequence categories that are calculated across 216 weather scenarios at 30-meter grid intervals for the WTI Conditional Impact (WTI-CI):

- **Structures Exposed:** Count of all structures within the perimeter of the fire
- **Timber Acres:** Number of acres of timber within the perimeter
- **Total Acres:** Area of the fire perimeter

PGE calculated these consequence categories for eight recent fires in the region (i.e., since 2017 and in Washington, Oregon, or Northern California) that have known perimeters and published estimates of total or insured cost. PGE calibrated its consequence modeling using this targeted set of regionally representative reference fires post-2017. By excluding non-analogous California fires that occurred in vastly different vegetation/wind regimes, PGE's model provides a more accurate tailored view of Oregon's specific wildfire risk profile.

PGE used a maximum likelihood estimator to calculate coefficients for converting consequence categories (i.e., structures exposed, timber acres, total acres) to estimated actual costs. Details of this analysis derived from The True Cost of Wildfire in the Western U.S.[25] are shown in Table 4-10.

Table 4-10: Regional Fire Consequences

No	Fire Name	Year	State	Damage Estimate
1	2020 Northern California Wildfires	2020	Northern California	$5–9 billion insured loss (estimated)
2	Atlas Fire	2017	Napa County, CA	$3.18 billion insured loss
3	Camp Fire	2018	California	$148.5 billion
4	2020 Labor Day Fires	2020	Oregon	$4–$6 billion
5	North Bay Complex Fires (Combined)	2017	Napa & Sonoma Counties, CA	$13+ billion (combined insured losses for 2017)
6	Klondike/Taylor Creek Fires	2020	Oregon	$1.2–$1.8 billion
7	Thomas Fire	2017	California	>$3 billion
8	Tubbs Fire	2017	Napa & Sonoma Counties, CA	$9.5 billion insured loss

The cost estimation methodology utilizes a best-fit algorithm as illustrated in Figure 4-20. This algorithm applies distinct coefficients to key variables: Ks for Structures Exposed and Ka for Total Area. The sum of these components are then multiplied by a final coefficient, K0, to generate the

[25] Western Forestry Leadership Coalition. *The True Cost of Wildfire in the Western U.S.* 2022 report.

estimated total cost. The K0 coefficient specifically helps differentiate insured costs as a subset of total costs.

In the analysis, PGE identified a high correlation (0.91) between Timber Area and Total Area within the dataset, presenting a statistical challenge for including both variables simultaneously. While PGE evaluated advanced statistical approaches including ridge regression and principal components analysis—methods designed for handling highly correlated independent variables—these techniques did not yield improved model performance.

After thorough evaluation, PGE selected Total Area rather than Timber Acres as the preferred variable so that the model appropriately accounts for significant fire events occurring in non-timbered regions.

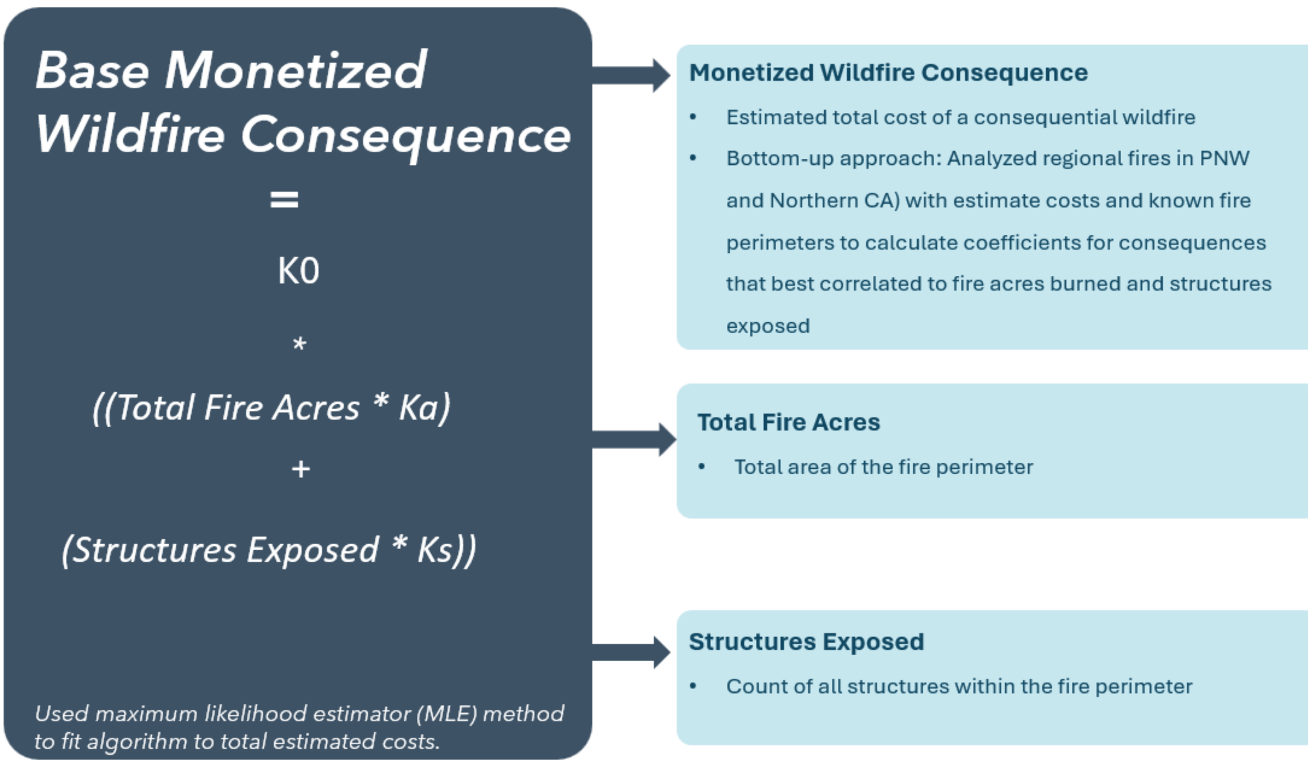


Figure 4-20: Base Monetized Wildfire Consequences Algorithm

PGE assigns the corresponding monetized consequence cost to nearby transmission or distribution structures. If there is a chance of an ignition caused by asset failure, vegetation, weather, or animals, PGE uses this consequence to quantify the expected impact of the fire spread from that specific location.

Consequence costs from structures are not additive. The sum of the consequence cost along a line or section may be many times higher than the wildfire risk because simulated burn patterns often overlap. The consequence of burning a particular location may be attributed to several structures even though the likelihood of any given fire is low.

High Fire Risk Zone Multiplier

The current wildfire risk modeling incorporates simulations of relatively short-duration fires ranging from one to ten hours based on various weather and fuel conditions. PGE acknowledges that these simulations understate the expected risk used in RSE calculations, particularly in HFRZs where longer-duration fires are more probable due to fuel density and suppression challenges.

To address this limitation, PGE has applied a multiplier of 2.0 to consequence costs in HFRZs to reflect the longer burn duration.

4.2.3.1.A Detection and Response Times Multiplier

As discussed in Section 4.2.1.3.A, PGE recognizes the critical interdependency between detection latency and fire suppression response times where concurrent prolongation of both factors exponentially increases fire growth potential. PGE applies the resultant wildfire detection and response multipliers to baseline wildfire risk modeling, which results in the identification of HFRZs (Section 4.2) and asset wildfire risk modeling. These multipliers are applied to both assessments and give equal weight to the underlying dimensions of risk, despite their different scales. The wildfire detection and response multipliers inform the estimated cost of damage at each location.

This framework minimizes risk in areas characterized by high detection probability combined with rapid response capabilities, while maximizing risk in locations exhibiting both low detection likelihood and extended response times.

Table 4-11: Wildfire Detection and Response Multipliers

	Response Times		
Customer Meter Count	15+ Minutes	10-15 Minutes	0-10 Minutes
0–25	4.6	3.5	1.0
26–50	3.9	2.9	1.0
51–100	3.2	2.4	1.0
101–200	2.3	1.7	1.0
200+	1.1	1.1	1.0

4.2.3.1.B Suppression Difficulty Index Multiplier

Leveraging learnings from the joint utility workshops, PGE incorporated an SDI multiplier to reflect the relative complexity and hazard associated with fire containment operations. As discussed in Section 4.2.1.2.B, SDI incorporates multiple critical variables including topographical features, fuel composition, wind dynamics, anticipated fire behavior characteristics, and accessibility constraints. Areas with high suppression difficulty may experience increased wildfire growth due to inherent suppression challenges.

The multipliers shown in Table 4-12 are linear interpolations of the SDI values used for the composite risk score. These multipliers are applied to fire growth potential to reflect the extent of the fire's spread and the resultant estimated cost of damage at each location.

Table 4-12: Suppression Difficulty Index Multiplier

SDI Value	SDI Multiplier
101+ (Highest Difficulty)	6.90
70–100	6.24
40–70	4.93
20–40	3.62
10–20	2.31
0–10 (Lowest Difficulty)	1.0

Figure 4-21 shows a sample calculation of PGE's comprehensive consequence methodology for a specific location. The process begins with the base monetized consequence (WTI-CI converted to dollars) and applies three critical risk multipliers:

- HFRZ multiplier: 2.0
- Situational awareness multiplier: 2.9
- Suppression difficulty multiplier: 3.62

In this example, these combined multipliers increase the estimated risk by a factor of more than 20 times the base value. These multipliers reflect how significantly these factors can compound wildfire consequences in vulnerable locations

Figure 4-21: Wildfire Consequences Example

4.2.3.2 Asset Ignition Likelihood

PGE calculates unique ignition probability values for each asset on the system to develop targeted wildfire mitigation strategies. The figure below describes PGE's asset ignition probability algorithm.

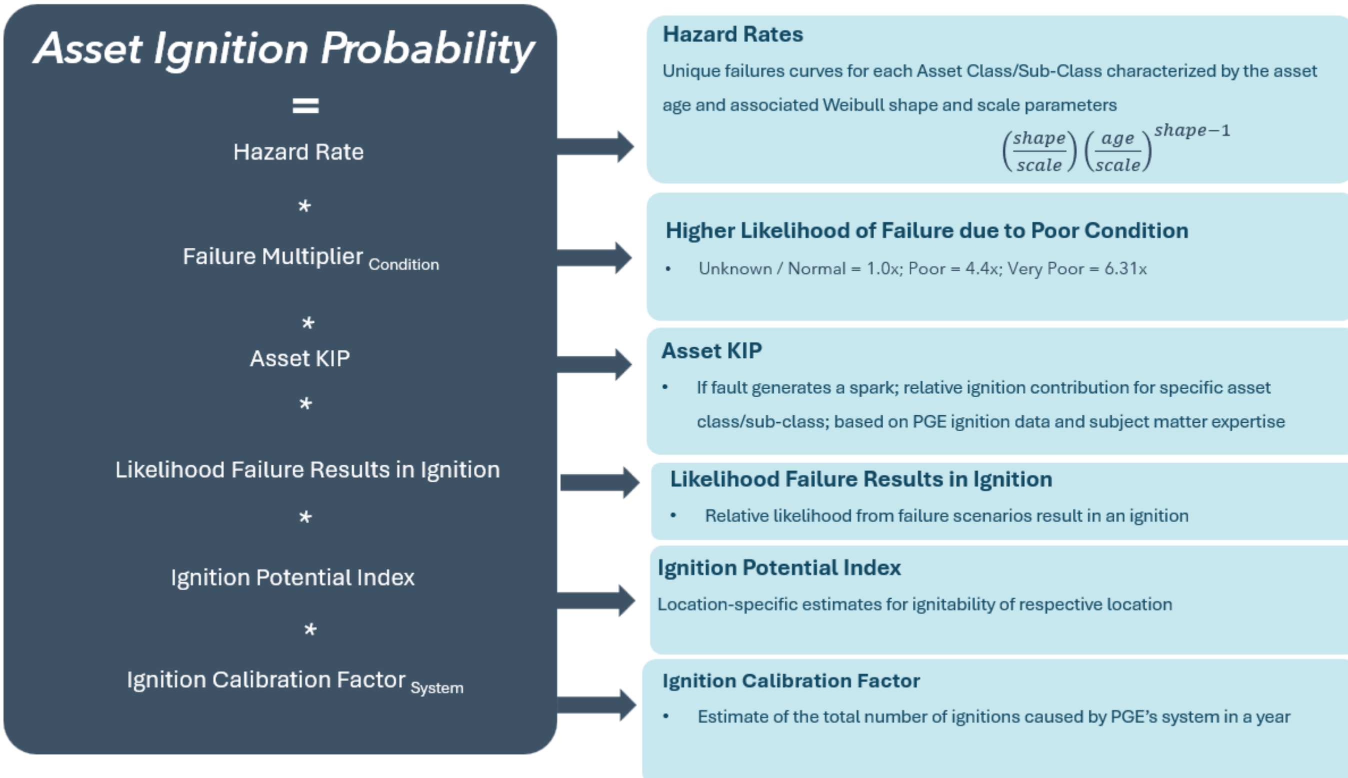


Figure 4-22: Asset Ignition Probability Algorithm

In 2025, PGE made the following updates to its asset ignition probability calculations.

- PGE reviewed inspection and failure data for structures (e.g. pole and the corresponding attachments) to update failure probability Weibull parameters, relative likelihood of outage, and ignition coefficient.
- PGE's asset ignition probability algorithm assigns every asset class or sub-asset class a coefficient of ignition probability (KIP value). PGE improved the data used to derive KIP values and refined its definition as the probability a failure will cause an ignition given that it caused an outage. Previously, KIP measured the probability of an ignition given a failure rather than given a failure and outage. The reason for mediating ignition probability with outage probability is that outages and ignitions are closely related (both involve electrical faults). This change allows PGE to make better use of limited data, leveraging the larger outage history to estimate ignition probability instead of depending solely on the opinions of subject matter experts. PGE estimated KIP values using a Language Learning Model (LLM) analysis of outage records and the results of expert surveys. These sources were weighted based on estimated precision. This approach makes use of all available information and allows PGE to improve estimates as more data become available.
- Likelihood of failure resulting in an outage was updated with refreshed outage data.

- Pyrologix provided updated Ignition Potential Index values to quantify ignition likelihood.
- Ignition calibration factor scales the forecasted number of expected ignitions across the system to match the expected number of consequential wildfires per year.

Asset failure and characteristic data forms the foundation of both reliability risk and wildfire risk calculations. The figures below illustrate an example of how PGE determines pole failure probability using age, material, and condition factors and then determines the corresponding ignition likelihood.

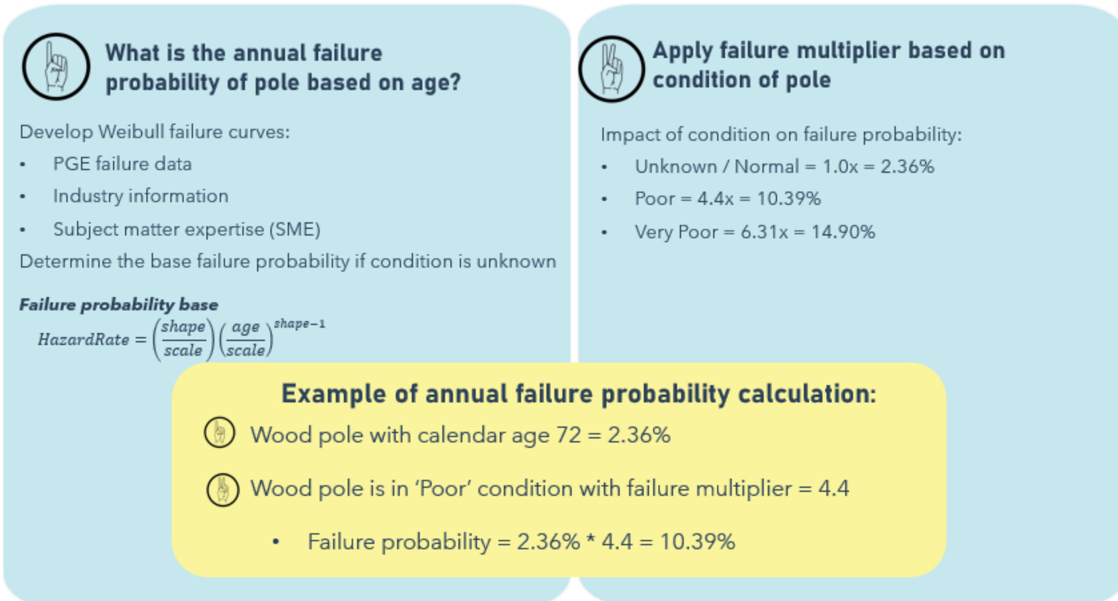


Figure 4-23: Wood Pole Failure Probability Calculation

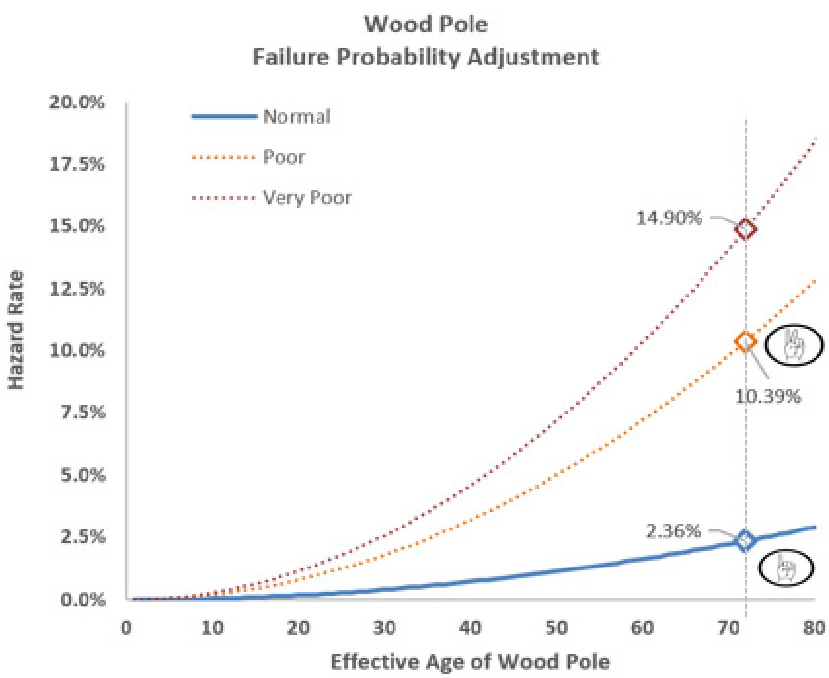


Figure 4-24: Wood Pole Failure Probability Example

PGE categorizes wood pole failures into scenarios based on their operational impact (see Figure4-25 below):

- **Scenario 1 (S1):** Structural degradation that does not result in a service interruption (e.g., damage identified during inspection). There is no potential ignition in this scenario.
- **Scenarios 2-3 (S2, S3):** Structural failure or catastrophic failure that results in an outage and a potential wildfire ignition.
- **Scenario 4 (S4):** Outage extension for radial customers with no additional wildfire ignition likelihood.

Ignition likelihood from a pole failure is the product of the failure probability of the pole, the likelihood failure will result in an outage (i.e., Scenarios 2, 3), the pole's KIP value (i.e., the ratio of outages to ignitions for pole failures, the locational Ignition Potential Index calculated by Pyrologix, and the system-wide Ignition Calibration Factor.

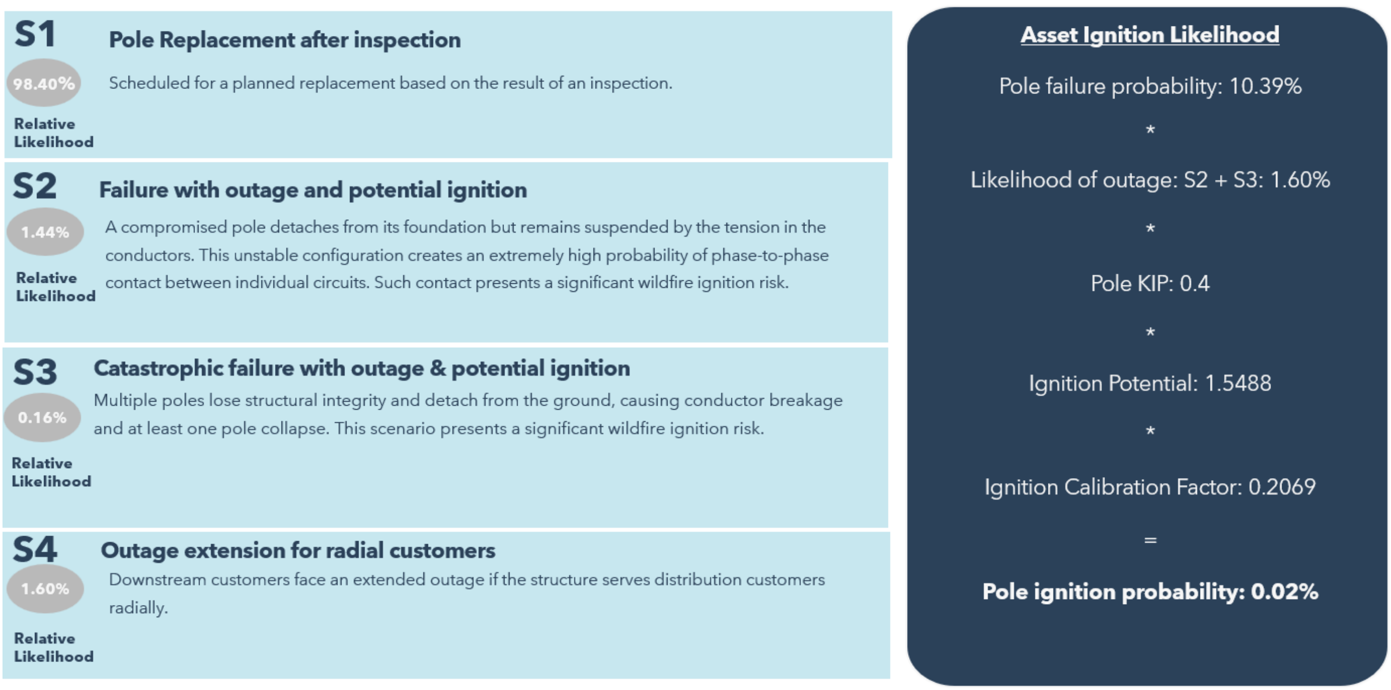


Figure 4-25: Wood Pole Failure Scenario and Resulting Ignition Likelihood

The algorithm described above is based on PGE's definition of an ignition, which is any evidence of fire at the structure location, whether it is sustained or escapes the local region.

4.2.3.3 Geographic Ignition Likelihood

PGE calculates unique ignition probability values for each protected section for a vegetation or animal-related event on the system to develop targeted wildfire mitigation strategies.

PGE's vegetation ignition probability algorithm is detailed in Figure 4-26 below.

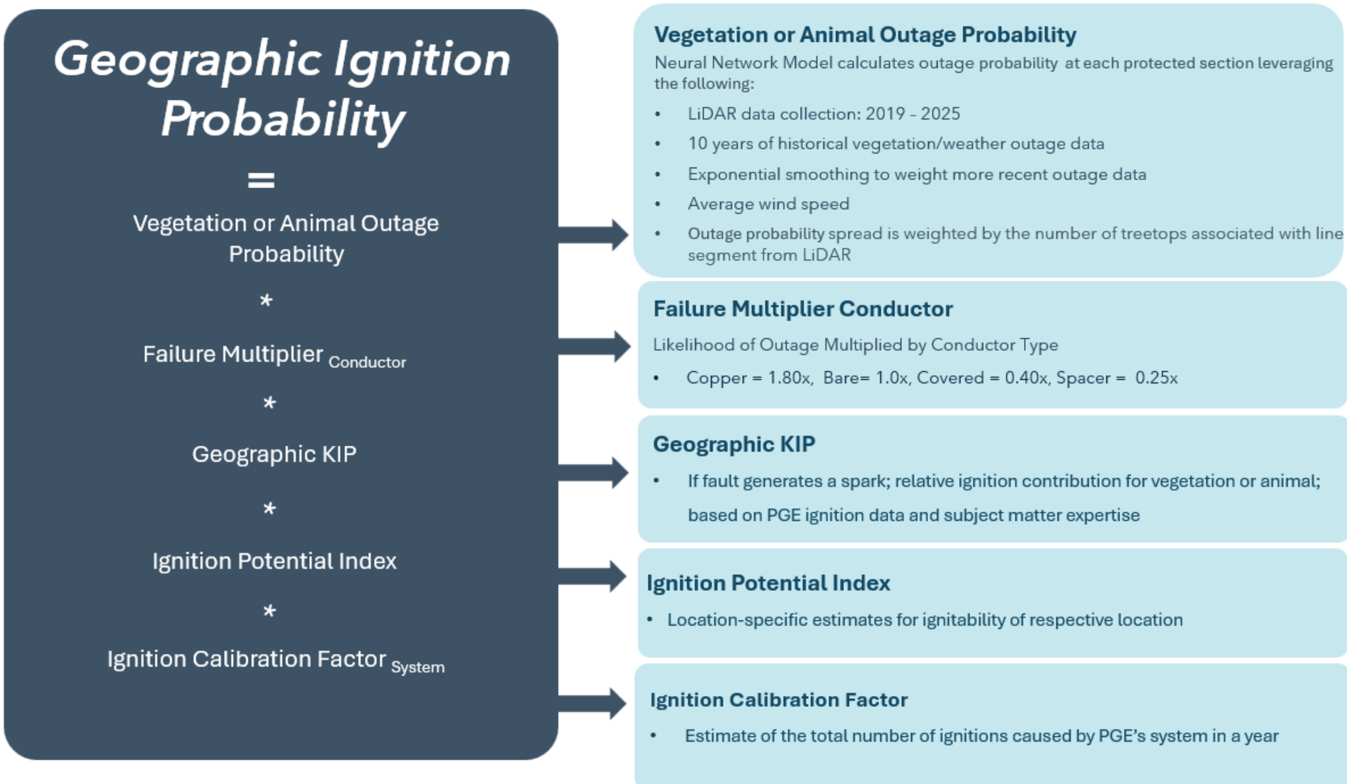


Figure 4-26: Geographic Ignition Probability Algorithm

In 2025, PGE made a multitude of updates to its approach to calculating geographic ignition probability; specifically, vegetation ignition probability.

- PGE refreshed its underlying dataset for calculating vegetation outage probability with updated LiDAR data for certain portions of the service area and expanded its vegetation outage data set to include years of historical data, leveraging exponential smoothing to more heavily weight the recent years.
- PGE worked with subject matter experts to formalize and refresh failure multipliers for various types of conductors, recognizing the ranges in strength to avoid conductor failure and resulting outages.

As it did with its asset ignition probability analysis, PGE refreshed its approach to KIP values:

- Ignition Potential Index values were refreshed with the updated Pyrologix data
- Ignition calibration factor reflects the most recent forecasted number of expected ignitions in relation to the number of consequential wildfires per year

To determine geographic ignition probability, PGE first uses its geographic failure probability algorithm to determine the expected number of vegetation outages on the system. Geo-probability leverages PGE's Neural Network Learning (NNL) model that incorporates vegetation data from LiDAR, orthoimagery, hyper-spectrometry acquisitions, vegetation- and weather-related outage data from PGE's Outage Management System (OMS), and wind speed assumptions. PGE's NNL model was designed to achieve high accuracy and efficiency while minimizing overfitting. Models that overfit learn the training data too well, adjusting too readily to noise and outliers, which can negatively affect model performance when incorporating new, previously unseen data and reduce the accuracy of future predictions.

PGE's NNL model captures vegetation data at the individual tree level. To understand the relationship between vegetation and outage data, PGE determines which trees can cause an outage at each protective device and associated protected section. This enables PGE to understand the relative likelihood of vegetation- and weather-related outages across its entire electrical system. PGE developed a process to assign LiDAR-derived individual tree vegetation data to a span of circuit and the related segment in its connectivity model, and then to aggregate the vegetation data to the protected device/protected section, as shown in Figure 4-27.

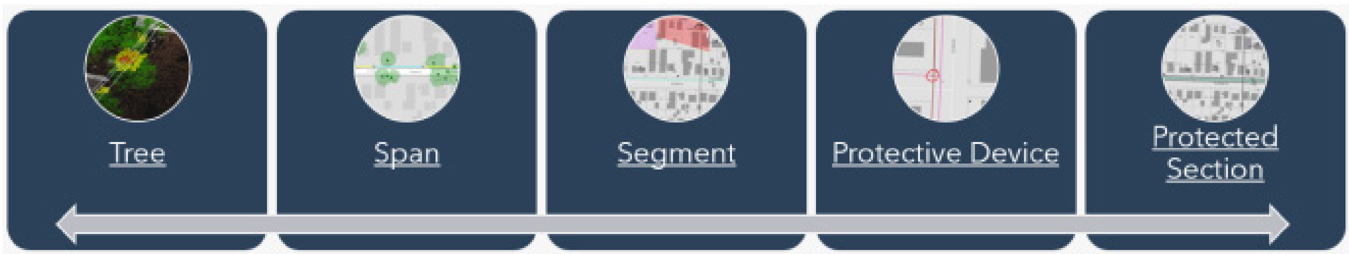


Figure 4-27: Vegetation Data to Protected Section Process

Vegetation inputs in the predictive models include the aggregate number of trees in proximity to each protected section with fall-in, grow-in, and overhang encroachment threat. The threat for each encroachment category is broken into three zones, as illustrated in Figure 4-28.

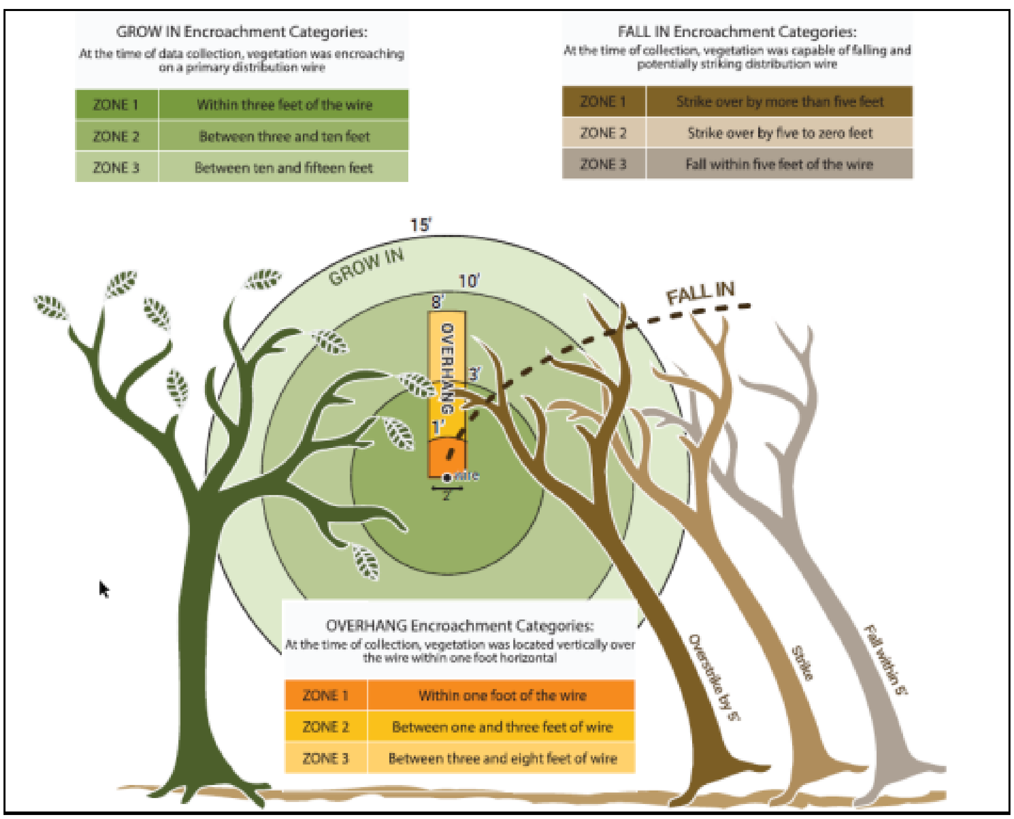
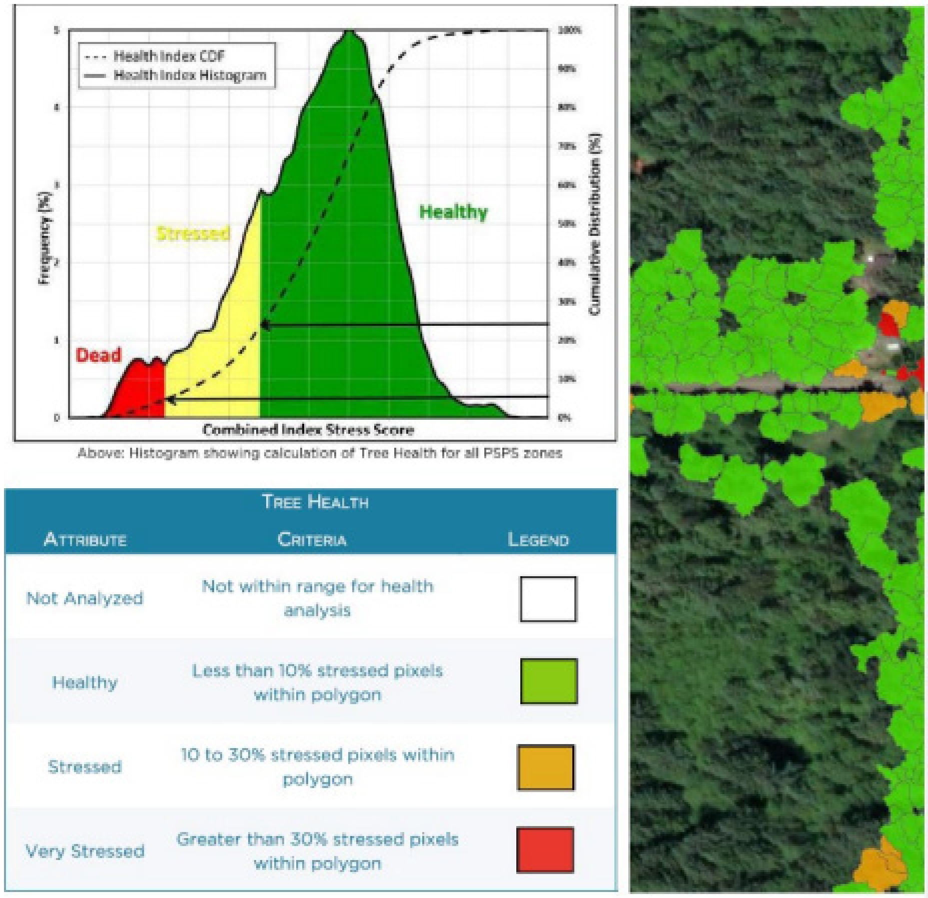


Figure 4-28: Vegetation Encroachment Categories or Threat Zones

Additionally, PGE aggregates the total number of stressed or very stressed (unhealthy) trees per protected section and uses this information as a modeling input, as shown in Figure 4-29.



Tree Health		
Attribute	Criteria	Legend
Not Analyzed	Not within range for health analysis	
Healthy	Less than 10% stressed pixels within polygon	
Stressed	10 to 30% stressed pixels within polygon	
Very Stressed	Greater than 30% stressed pixels within polygon	

Figure 4-29: Tree Health Classifications

Figure 4-30 illustrates how vegetation threat data is factored into each protected section.

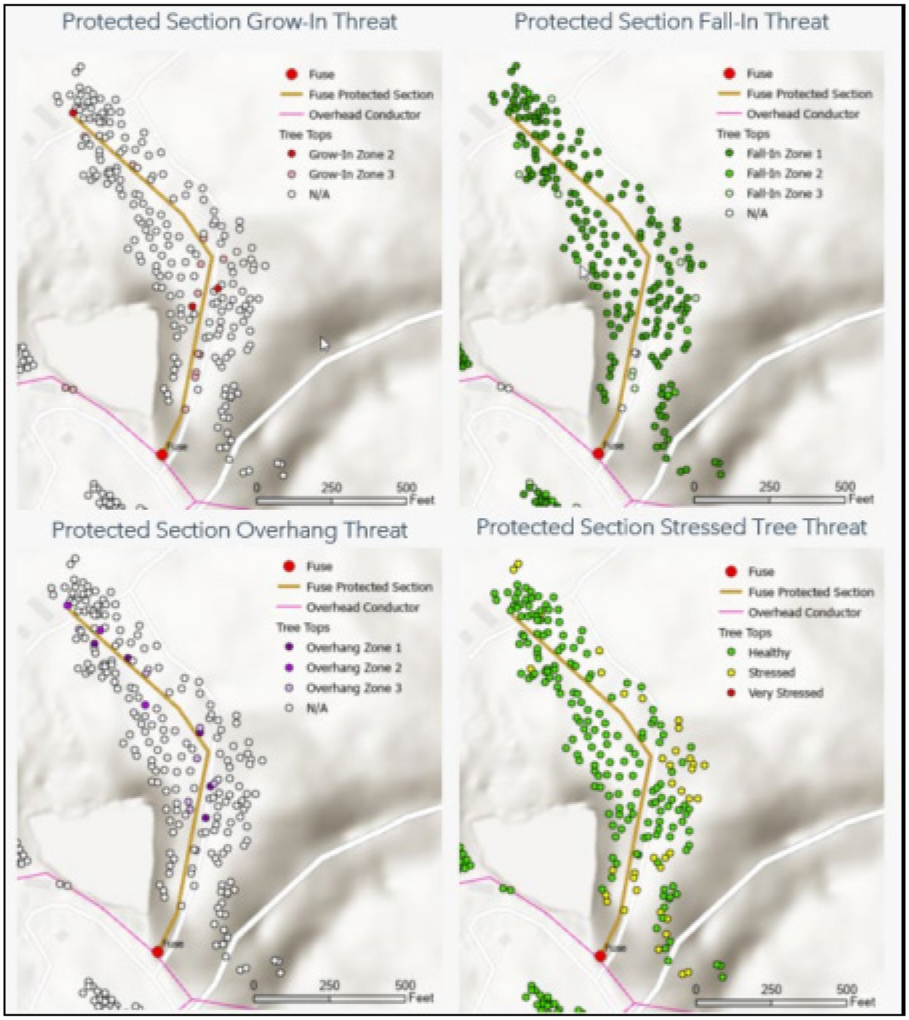


Figure 4-30: Protected Section with Associated Vegetation Threat

PGE tracks outages in its OMS by interrupt location (the protective device upstream from a failure or fault that breaks the circuit). Each protective device outage represents an outage for the associated protected section. PGE used outage data from the previous 10 years to calculate the historical outage count per protected section, filtering the data by protective device, major cause, and sub-cause to select the outages included in the study. Recognizing that the grid and environment has changed over the last decade, PGE applied exponential smoothing to weight the outages from the most recent years more heavily. PGE determined that the outages most likely to cause an ignition are those that occur within a protected section protected by a breaker, recloser, or fuse, and are caused by vegetation or weather.

In addition to vegetation and outage data, PGE used characteristics of each protected section as a key input to its statistical modeling. These characteristics include the total circuit segment length of the protected section, the line category (i.e., mainline or tapline), and the protective device type (whether the section is protected by a recloser or breaker). PGE selected model inputs that are likely to be true over longer periods of time (e.g., number of trees rather than volumetric threat and species exclusion) to increase the useful lifespan of its model.

Individual structure geo-probability is derived from its associated protected section divided by the structures on the protected section, yielding results down to the individual asset level. Illustrated below is PGE's approach to calculating geographic ignition probability by scaling outages to the number of ignitions.

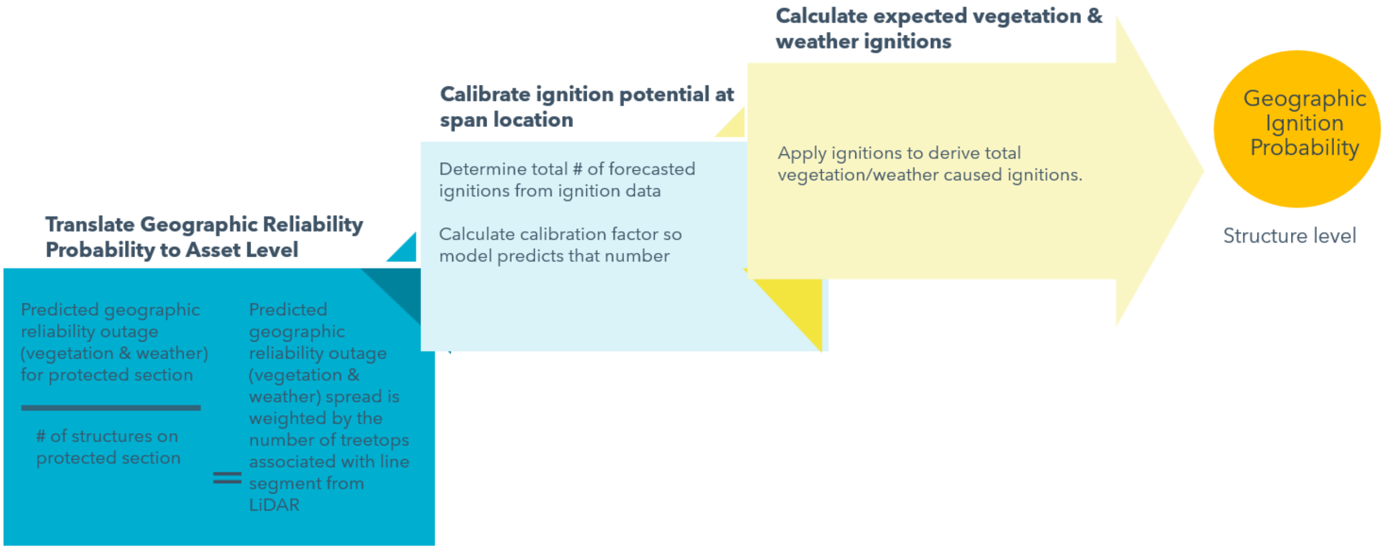


Figure 4-31: Calculating Geographic Ignition Probability

Figure 4-32 illustrates how PGE calculates the annual probability of a vegetation outage based on tree density, historical outage data, and conductor type.

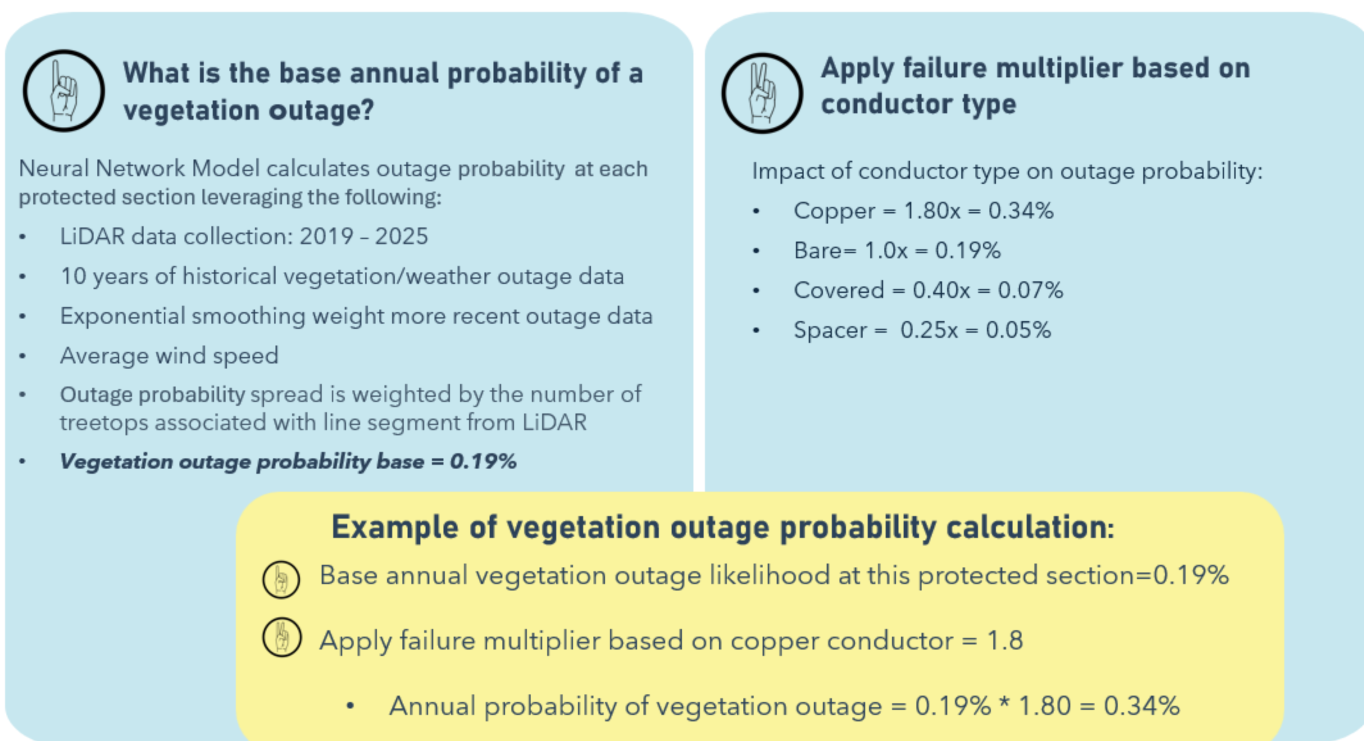


Figure 4-32: Vegetation Outage Probability Calculation

This outage probability serves as the baseline input for determining ignition risk as shown in Figure4-33. PGE applies three multipliers to translate outage probability into ignition probability:

- Ignition potential adjusts for local fuel and weather conditions
- Ignition calibration factor scales the result to align with system wide historical fire frequency
- Vegetation KIP is a coefficient of ignition probability that accounts for the possibility that vegetation outages will generate an ignition.

The product of these three factors along with the outage probability yields the final annual likelihood of a vegetation related ignition at this location.

Vegetation Ignition Probability

Vegetation outage probability 0.34%

*

Ignition Potential: 1.5488

*

Ignition Calibration Factor: 0.2069

*

Vegetation KIP: 1.3

=

Vegetation Ignition Likelihood: **0.1%**

Figure 4-33: Vegetation Ignition Probability Example

4.2.3.4 Climate Change Impacts

PGE's wildfire risk modeling incorporates climate change impacts per OPUC Recommendation 23-221_4.

The steady and escalating effects of climate change have been observed in fire behavior during wildfires within and adjacent to PGE's service area. As the climate continues to change, the challenges of safely operating PGE's electric system escalate. In 2025, PGE reviewed and matured the climate change algorithm to enhance climate change effects in risk modeling.

In June 2025, PGE worked with Dr. Sarah Kapnick, Global Head of Climate Advisory at JPMorgan Chase and the former Chief Scientist at the National Oceanographic and Atmospheric Administration (NOAA), to validate the climate change algorithm used in this WMP. At NOAA, Dr. Kapnick was responsible for guiding the agency's science and technology priorities, including climate prediction, greenhouse gas monitoring, and climate security. Her office currently advises clients regarding climate risk, sustainability, and investment strategies. PGE asked Dr. Kapnick to review its assumption of using the Shared Socioeconomic Pathway (SSP5)-8.5 scenario for investment planning, tying increase in temperature with increase in burn probability. Dr. Kapnick acknowledged that studies consistently show substantial warming across land and ocean systems, major losses in mountain snowpack, and increasing summer and winter temperatures.

PGE further reviewed additional research on temperature, snowpack, tree mortality and burn probability.

- Reduced snowpack directly constrains summer water supply in Oregon and Washington, while forest models project declining conifer resilience, including an estimated 11.4 percent reduction in Douglas-fir carrying capacity by the 2080s.[26]
- Dr. Hammond's research shows that hydraulic failure is a major cause of tree mortality during drought and heat stress. During hydraulic failure, trees experience catastrophic changes preventing recovery to their pre-drought state even after stress removal, reducing forest resilience. This leads to alternative stable states, where ecosystem can persist in more than one stable condition under the same environmental factors, and forests may transition from dense conifer stands to shrubland or grassland. These new states carry higher wildfire risk, lower carbon storage, and reduced biodiversity. As a result, forest ecosystems become less resilient and more vulnerable to future disturbance.[27]
- Regional studies forecast more frequent and intense fires, shorter fire-return intervals, increased burn probability, and an increase in the number of large (>40,000 acre) and plume-dominated events. Some areas may see burn probability increase by more than 400% compared to the period 1992–2020.

Collectively, these findings highlight the compounding effects of warming, fuel aridity, and ecological stress—driving more severe wildfire behavior and carrying major implications for utility infrastructure, vegetation management, and emergency planning. The findings confirm PGE's assumption that increasing temperatures are correlated with burn probability; studies show that a 1 degree C increase leads to a 600 percent increase in burn probability.

To accurately reflect the latest science and regional conditions relevant to the Northwest Coast in climate projections, PGE implemented three major updates:

- Adoption of the Shared Socioeconomic Pathway (SSP5)-8.5 scenario, replacing RCP 8.5
- Use of NOAA Geophysical Fluid Dynamics Laboratory (GFDL) 4th-generation Earth System Model (ESM4)
- High-resolution downscaling tailored to PGE's service area

These updates substantially improve the rigor, spatial accuracy, and relevance of climate inputs used in long-term wildfire risk modeling.

4.2.3.4.A Adoption of the SSP5-8.5 Scenario

PGE adopted the SSP5-8.5 scenario, the modern successor to RCP 8.5 and the closest equivalent in terms of high temperature and other factors used in previous Pacific Northwest studies. This update

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[26] Reyes L, Kramer M, High-elevation snowpack loss during the 2021 Pacific Northwest heat dome amplified by successive spring heatwaves (Climate and Atmospheric Science Dec. 2023).
[27] W. Hammond, What Kills Trees? Drivers, mechanisms, and timing of climate-induced tree mortality (University of Central Oklahoma, 2016)

aligns PGE's analysis with the Coupled Model Intercomparison Project (CMIP6) standards and the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6), which rely on SSPs for future climate assessments.[28]

Unlike the older RCPs, defined only by radiative forcing levels, the SSP framework incorporates socioeconomic pathways describing population, land use, energy systems, technological evolution, and economic development[29]. These elements directly influence emissions trajectories and provide a more realistic basis for evaluating future climate outcomes.

The SSP5-8.5 scenario is widely used across the international climate modeling community, with nearly all major modeling centers contributing simulations to CMIP6 under this pathway.[30] Its broad adoption improves compatibility with peer-reviewed studies and consistency with global scientific practice.

4.2.3.4.B NOAA GFDL 4th-Generation Earth System Model (ESM4)

PGE assessed future climate conditions using advanced Earth system modeling to understand how ongoing climate change shapes long-term risks and system performance. Despite advancements in modeling tools, the scientific conclusion remains unchanged: rising temperatures, altered precipitation patterns, increasing extremes, and accelerating ecological and biogeochemical changes will continue to drive significant impacts across the region. Working with Oregon State University, PGE analyzed 24 ensemble members across Oregon and from this evaluation, GFDL ESM4 was selected due to its scientific rigor, physical realism, biogeochemical sophistication, and stable long-term performance. Compared with other CMIP6 models[31], ESM4 offers:

- High accuracy in key climate and biogeochemical fields, with fully interactive chemistry–carbon–ecosystem processes and realistic land–ocean–atmosphere coupling.
- Credible climate sensitivity, improved CO_2 and atmospheric chemistry representation, and low-drift, stable performance for long simulations
- Strong West Coast skill (SSTs, upwelling, heatwaves, circulation) and extensive validation in U.S. planning applications

These strengths make ESM4 a reliable basis for PGE's climate-risk assessments and long-range planning.[32]

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[28] Eyring et al. (2016). Overview of CMIP6. Geoscientific Model Development
[29] O'Neill et al. (2014). The Shared Socioeconomic Pathways. Climatic Change
[30] Meinshausen et al. (2020). SSP greenhouse gas concentrations for CMIP6. Geoscientific Model Development.
[31] ACCESS-CM2 (CSIRO & Australian Bureau of Meteorology), CNRM-ESM2-1 (Météo-France / CNRS), EC-Earth3 / EC-Earth3-Veg (EC-Earth Consortium), FGOALS-g3 (Chinese Academy of Sciences, LASG/IAP), GFDL-ESM4 (NOAA Geophysical Fluid Dynamics Laboratory), IPSL-CM6A-LR (Institut Pierre-Simon Laplace), MIROC6 (University of Tokyo, NIES, JAMSTEC), and MRI-ESM2-0 (Meteorological Research Institute, Japan)
[32] Dunne et al. (2020). The GFDL Earth System Model Version 4.1 (GFDL-ESM 4.1): Overall model description and simulation characteristics. Journal of Advances in Modeling Earth Systems.

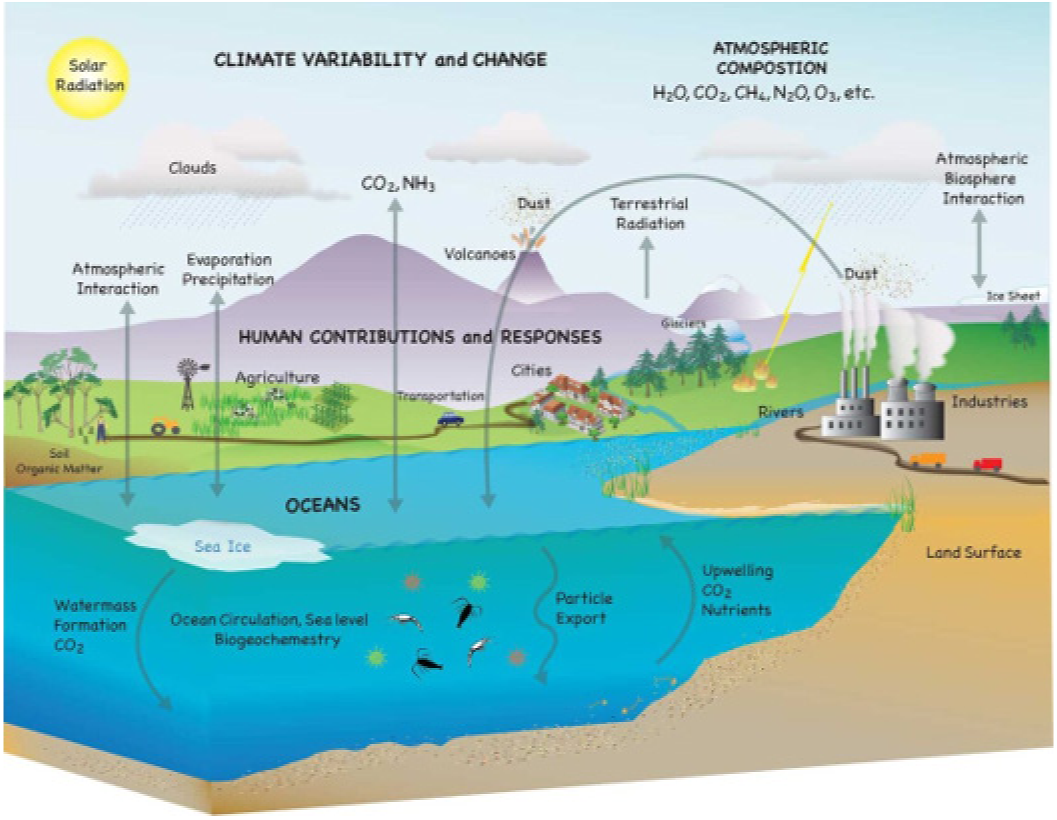


Figure 4-34: Earth System Model (ESM) Framework

4.2.3.4.C High-Resolution, PGE-Tailored Downscaling

While the nine-model ensemble provides global climate trajectories, PGE applied downscaling to these projections using NOAA's GFDL ESM4 high-resolution climate dataset to produce results specific to PGE's service area. This approach provides substantial improvements over previous climate inputs:

- Finer spatial resolution (6 km vs. 10–50 km in prior work)
- Direct alignment with PGE's service area, improving infrastructure, vegetation, and operational risk quantification
- A unified, internally consistent dataset, replacing previously heterogeneous sources

The combination of SSP5-8.5 and high-resolution NOAA GFDL ESM4 downscaling offers a scientifically rigorous foundation for evaluating future wildfire risk, ecological stress, and long-term system resilience. The refined geographic specificity yields more accurate local temperature and precipitation patterns and better representation of extreme heat, drought, and storms dramatically improving operational relevance for PGE. Figure 4-35 illustrates how the temperature projection for Oregon compares to the downscaled projection for PGE's service area.

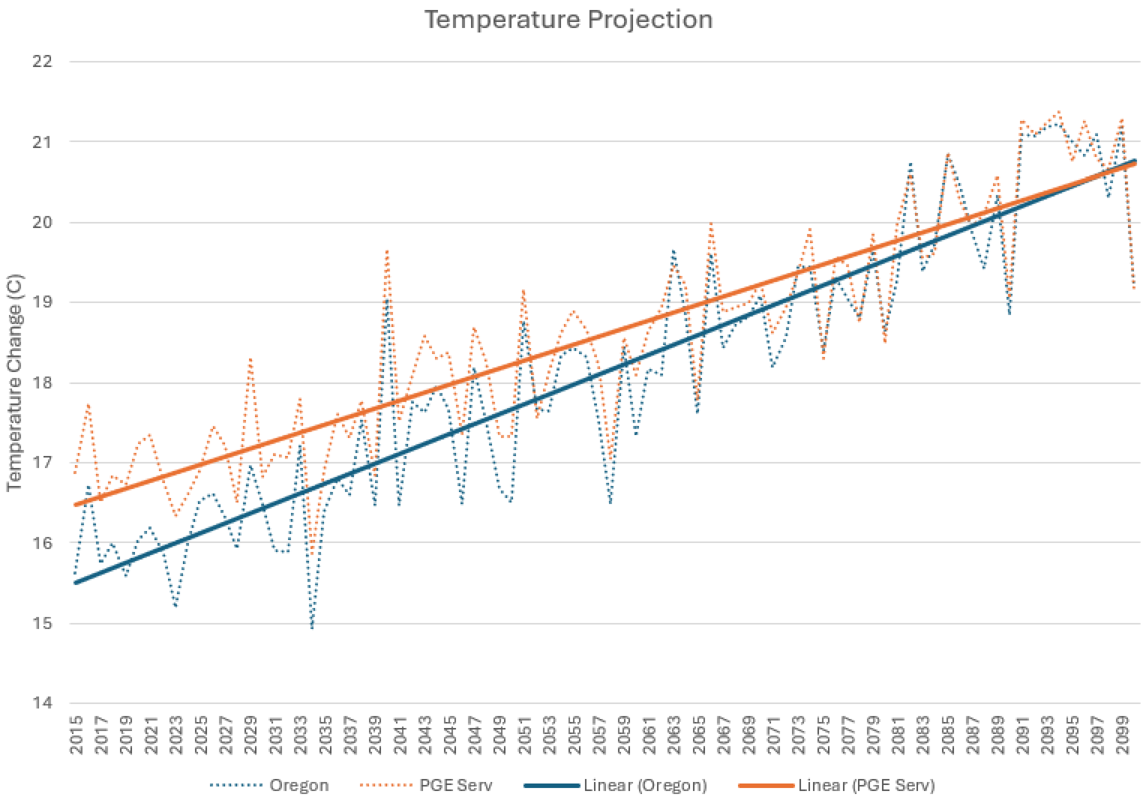


Figure 4-35: Temperature Projection for Oregon and PGE Service Area

4.2.3.4.D Results of the New Modifiers

Improved scenario selection, advanced modeling tools, and high-resolution downscaling enabled PGE to develop an updated climate change modifier that better captures socioeconomic influences, vegetation dynamics, and territory-specific climate behavior.

The revised modifier continues to reflect burn probability and consequence tied to temperature increase, but now incorporates more accurate, regionally temperature calibrated projections based on SSP5-8.5 and GFDL ESM4. As part of this refinement, the modifier has been adjusted from 14 to 8.6, resulting in an estimated 30 percent annual increase in wildfire risk, compared with 45 percent under the previous methodology. This shift reflects improved model fidelity and a more realistic representation of long-term climate pressures.

Figure 4-36 compares the old modifier filed in the 2025 WMP that scales risk by a factor of 14 compared to the new modifier that scales risk by a factor of 8.6 by 2050.

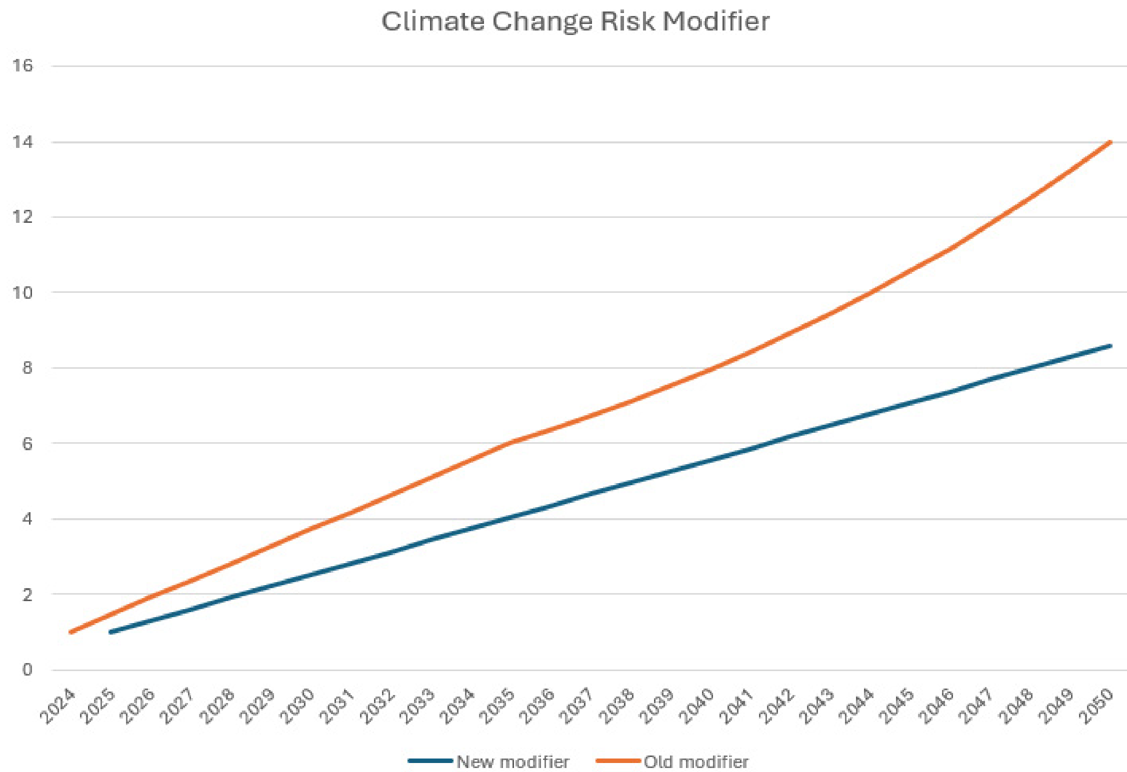


Figure 4-36: 2025 vs 2026 Climate Change Modifiers

After taking all the various inputs into account, PGE calculated total wildfire risk for each asset. Figure 4-37 below demonstrates how we calculate the total wildfire risk for an example wood pole by:

- Determining ignition probability from both asset failure and vegetation contact
- Assessing potential wildfire consequences at this location
- Incorporating climate change factors

This comprehensive calculation combines both asset-related and vegetation-related wildfire risks to produce a complete wildfire risk assessment for the specific pole.

Figure 4-37: Total Wildfire Risk Example

4.2.4 Utility Wildfire Risk Results

Based on PGE's current risk modeling, without implementation of additional mitigation measures, wildfire risk is projected to increase approximately 37 percent by 2028 across the service area compared to 2025 baseline levels. Figure 4-38 illustrates the annual changes in risk, reflecting updates in model methodology and data.

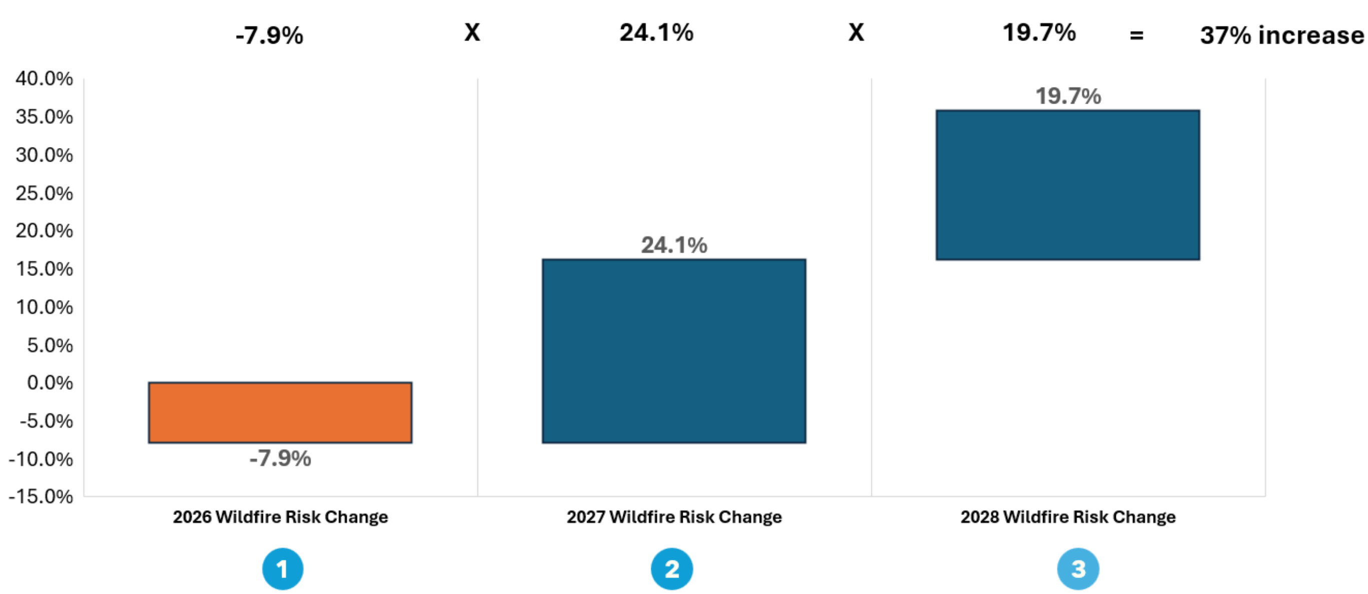


Figure 4-38: Unmitigated Utility Wildfire Risk 2026-2028

Based on PGE's current risk modeling, climate change is the primary factor driving the projected 37 percent increase in wildfire risk across the service area as illustrated in Figure 4-39.

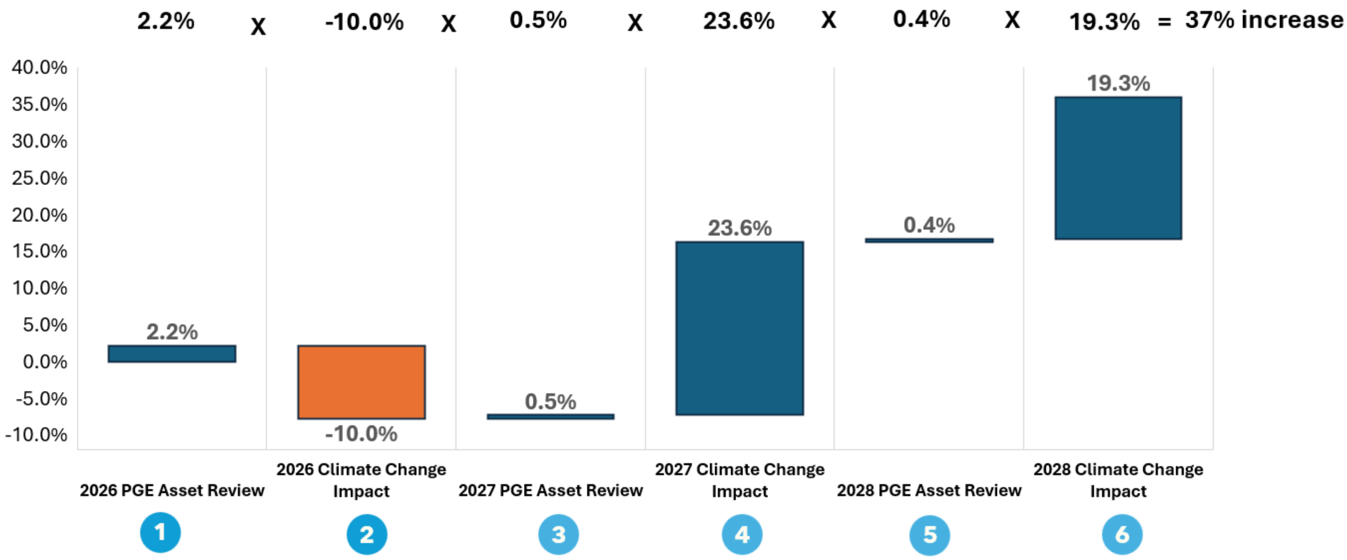


Figure 4-39: Unmitigated Utility Wildfire Risk Drivers 2026–2028

PGE made significant updates to the risk modeling methodology and data as outlined in Section 4.2.1 and Section 4.2.3. A key improvement was the maturation of climate change modeling techniques. The updated approach incorporates downscaled service area data and leverages the NOAA GFDL ESM4 model, resulting in a revised climate change multiplier from 1.45 to 1.3. This climate change factor accounts for approximately 92 percent of the 37 percent increase in wildfire risk compared to 2025.

4.2.4.1 HFRZ/EFRZ Utility Wildfire Risk

Based on PGE's current risk modeling updates, approximately 75 percent of utility wildfire risk is concentrated in HFRZs and EFRZs, compared to 55 percent in PGE's 2025 WMP risk modeling; highlighting the continued need to have targeted mitigations.

Without implementing additional mitigation measures, utility wildfire risk within HFRZs and EFRZs is projected to increase by approximately 35 percent by 2028 compared to 2025 baseline levels. Of the projected increase in utility wildfire risk across PGE's entire service area, approximately 70 percent of that increase is expected to occur in the HFRZs and EFRZs.

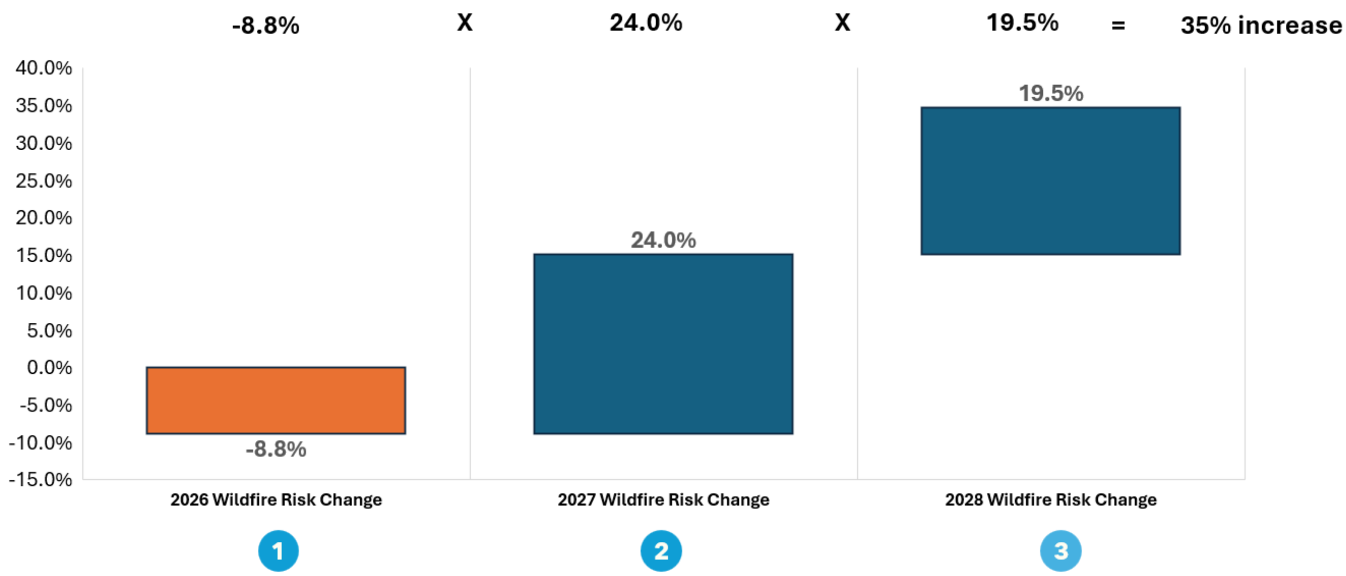


Figure 4-40: Unmitigated HFRZ/EFRZ Utility Wildfire Risk 2026-2028

4.2.4.2 Ignition Drivers

With the updates to asset and geographic ignition probability described in Section 4.2.3.2 and Section 4.2.3.3, PGE's risk modeling resulted in a shift amongst the ignition risk drivers.

2025 baseline values:

- 93 percent of expected ignitions: vegetation and weather-driven
- 7 percent of expected ignitions: asset-driven causes

Updated risk modeling:

- 78 percent of expected ignitions: vegetation and weather-driven
- 21 percent of expected ignitions: asset-driven
- 1 percent of expected ignitions: animal-related

Leveraging PGE's historical ignition data and internal subject matter experts, PGE's projects vegetation and weather events continue to be the predominant ignition sources, but at a reduced percentage. Concurrently, PGE expects an increase in asset-related ignitions and has identified a small percentage of animal-related ignition causes. This update modeling provides a more comprehensive understanding of ignition drivers on PGE's service area.

4.2.4.3 Asset and Geographic Risk

The reduction in vegetation and weather-driven ignitions resulted in a 12 percent decrease in the proportion of utility wildfire risk driven by geographic factors compared to 2025 values in the HFRZs and EFRZs. Geographic risk continues to be the primary driver in wildfire risk, highlighting the continued importance of robust vegetation management. This notable decrease demonstrates the effectiveness of PGE's AWRR program in mitigating vegetation-related wildfire hazards.

4.2.4.4 Risk Mitigation

With full implementation of PGE's 2026-2028 WMP, PGE estimates its capital investments and operational mitigations are expected to fully mitigate the projected 35 percent increase in wildfire risk by 2028.

Capital Investments (18% Risk Reduction)

- Grid Hardening initiatives: 11% risk reduction
- Situational Awareness technologies: 7% risk reduction

Operational Programs (27% Risk Reduction)

- AWRR program
- Ignition Prevention Inspection initiatives

These combined mitigations fully counteract the projected 35% risk increase and deliver an additional 10% risk reduction below 2025 baseline levels.

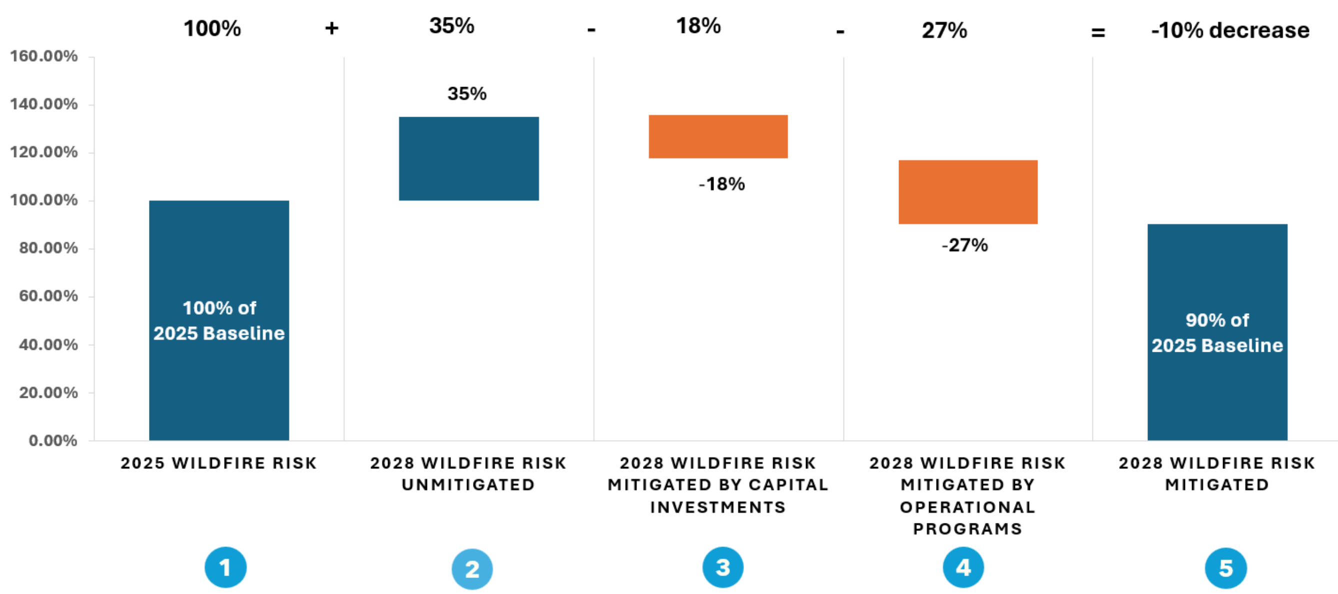


Figure 4-41: Mitigated HFRZ/EFRZ Utility Wildfire Risk 2026-2028

Table 4-13 below details PGE's distribution protected sections with the highest modeled wildfire risk.

Table 4-13: PGE Circuit Segment Risk Results

Rank	Protected Section ID	Feeder	HFRZ	OH Circuit Miles	Asset Wildfire Risk	Geographic Wildfire Risk	Total Wildfire Risk	Project Under-way
1	A1534B-275:53509	ORIENT-OXBOW	4	1.89	$0.3M	$25.1M	$25.5M	✓
2	SUMMIT R106	Summit-Meadows	1	2.05	$7.5M	$8.9M	$16.4M	✓

Rank	Protected Section ID	Feeder	HFRZ	OH Circuit Miles	Asset Wildfire Risk	Geographic Wildfire Risk	Total Wildfire Risk	Project Under-way
3	3171	SUMMIT-SUMMIT 13	1	1.40	$11.0M	$4.3M	$15.3M	✓
4	A1132A-91:31422	E-13144	13	0.89	$0.3M	$11.9M	$12.2M	Under-Review
5	A1431C-526:14741985	HOGAN NORTH-LINKS	4	0.65	$0.4M	$10.2M	$10.5M	Under-Review
6	A1529C-24:53606	HOGAN NORTH-LINKS	4	0.73	$0.4M	$9.3M	$9.7M	Under-Review
7	A1535C-386:53506	ORIENT-OXBOW	4	0.46	$0.3M	$8.5M	$8.9M	✓
8	1655	SUMMIT-SUMMIT 13	1	1.92	$4.0M	$4.7M	$8.7M	✓
9	C3205C-1040:13499	NEWBERG-NORTH COLLEGE	17	0.87	$0.6M	$8.1M	$8.7M	Under-Review
10	C3119D-663:24598	SIX CORNERS-13359	17	1.27	$0.2M	$6.5M	$6.6M	Under-Review

4.2.5 Risk and Value Spend Efficiency Analysis

PGE’s approach to Asset Management maximizes customer value by cost-effectively mitigating risk. Its Asset Management program includes risk-based economic lifecycle models to prioritize long-term capital investments and optimize maintenance programs. These models assess system reliability and wildfire risks by considering asset-specific conditions as well as geographic factors such as vegetation and weather. By aggregating annual risk projections with maintenance expenses and levelized capital costs, PGE calculates the cost of ownership for each asset on the grid in terms of Net Present Value (NPV). The lowest cost of ownership determines the optimal timing for proactively replacing an asset or intervening to mitigate risks in another manner. This value strikes a balance between maintenance costs, operational risks, and intervention expenditures. The Risk and RSE Methodology outputs inform mitigation selection, program design, and project development.

For every investment claiming reliability and/or wildfire risk reduction benefits, PGE calculates an RSE, or benefit cost ratio. Investment benefits include reduction in expected wildfire and reliability risk as well as reduction in maintenance and inspection costs over the asset’s economic lifecycle, including those of future lifecycles. This benefit analysis determines the cost of ownership (COO), comparing the current state (Base Case) to the post-investment state (Option). The investment cost reflects the total capital, operations, and maintenance costs of the mitigation option. This methodology allows for consistent evaluation of different alternatives while accounting for both immediate capital requirements and long-term risk and maintenance impacts.

$$RSE = \frac{COO_{BaseCase} - COO_{Option}}{Cost_{Option}}$$

PGE's RSE and Value Spend Efficiency (VSE) methodology can be utilized to measure the effectiveness of various wildfire risk mitigation projects and programs in balancing risk mitigation benefits with customer cost.

To calculate RSE, PGE evaluates investments on the following key factors:

- **Wildfire Risk Reduction:** How effectively the mitigation decreases risk through:
  - Ignition likelihood reduction
  - Fire Growth Potential reduction
  - Wildfire vulnerability reduction for communities and systems, including PGE assets
- **Operational Impact Reduction:** Additional capabilities that enable effective wildfire risk mitigation while minimizing impacts to customers
- **Other Benefits:** Additional co-benefits resulting from wildfire risk mitigation investments that reduce costs, avoid outages, or provide other societal benefits

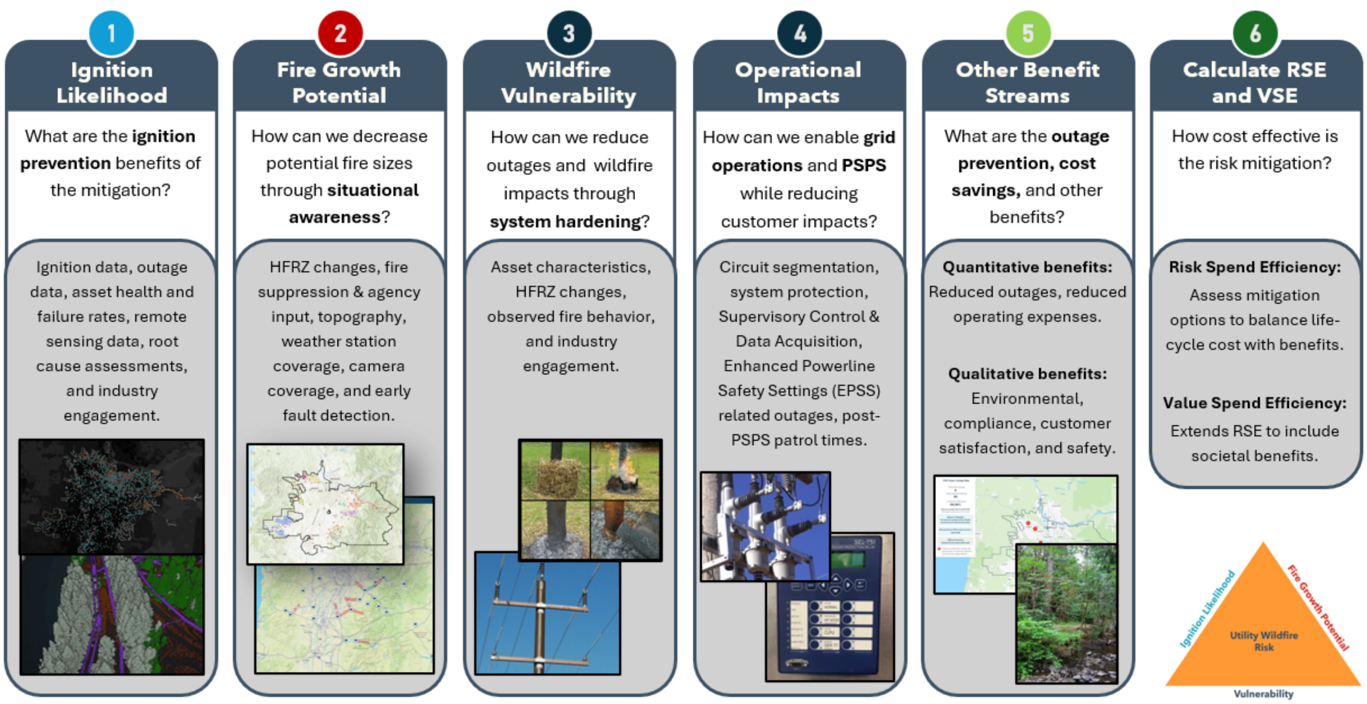


Figure 4-42: Risk Spend Efficiency Process

4.2.5.1 Ignition Likelihood Reduction

The most immediate way to mitigate wildfire risk on the system is to reduce the likelihood of an ignition, which is the primary driver for many of PGE's investment and operating programs. As described above, PGE's wildfire risk modeling begins with assigning ignition likelihood values to each overhead asset based on potential causes such as equipment failure, vegetation/weather contact, and animal interference. This enables PGE to quantify a baseline expected number of ignitions on the system.

When evaluating projects or programs, PGE applies a mitigation effectiveness value to the proposed project area at the individual asset and corresponding protected section levels to calculate the expected number ignitions reduced in the project area. The change in risk as a result of reduction in ignition likelihood is reflected in the numerator of the RSE equation. The duration of the ignition reductions is dependent on the specific project. For example, overhead to underground conversions may last for over 50 years; inspection/maintenance programs assume a benefit duration of approximately one year, while the ignition reduction benefits of a PSPS persist only within the frame of the de-energization period itself.

The ignition prevention benefits for each ignition prevention investment is reflected in the following equation:

*Wildfire Risk Mitigated = Ignition Likelihood * **Ignition Prevention Effectiveness** * Fire Growth Potential * Vulnerability*

4.2.5.2 Fire Growth Potential Reduction

In addition to mitigations designed to prevent ignitions, PGE reduces wildfire risk by deploying technologies that limit potential fire size. PGE has invested in a variety of technologies to support and improve situational awareness, and early fault detection, including wildfire detection camera systems, and weather stations. PGE performs RSE calculations for all situational awareness investments including technologies like early fault detection. PGE applies a mitigation effectiveness value to fire growth potential to calculate the estimated decrease in fire size due to new technologies that can alert and deploy crews and responders to the location before an ignition can become a wildfire.

The potential fire growth inhibition benefits of situational awareness investments can be estimated using the following equation:

*Wildfire Risk Mitigated = Ignition Likelihood * Fire Growth Potential * **Detection Effectiveness** * Vulnerability*

4.2.5.3 Wildfire Vulnerability Reduction

In addition to avoiding ignitions and reducing fire size potential, PGE reduces wildfire risk by decreasing the vulnerability of PGE assets to wildfires. Investments in ductile iron poles, fire mesh wraps, and other measures help PGE assets withstand the impacts of a wildfire and reduce customer outages if these assets were destroyed in a fire. These investments enable a more resilient grid. To calculate the risk mitigation benefits attributable to these investments, PGE applies a mitigation effectiveness value to vulnerability to estimate the avoided loss in PGE infrastructure.

The wildfire vulnerability benefits of system hardening investments can be estimated using the following equation:

*Wildfire Risk Mitigated = Ignition Likelihood * Fire Growth Potential * Vulnerability * **Asset Protection Effectiveness***

4.2.5.4 Operational Capabilities

PGE evaluates how investments might increase operational capabilities that enable near-term risk mitigation and minimize wildfire mitigation impacts to customers. While operational capabilities such as enhanced situational awareness, protection and control, and grid design might not deliver direct risk reduction benefits, they enable effective execution of critical Grid Operations and PSPS near-term risk mitigations.

4.2.5.5 Other Benefit Streams

PGE takes a comprehensive approach to wildfire mitigation projects, evaluating each project not only for its primary purpose of reducing wildfire risk but also for additional benefits it may provide to customers. These include:

- Reliability impacts
- Reduced operating expenses
- Improved safety, environmental, compliance, and customer satisfaction performance

This holistic evaluation process allows PGE to identify wildfire mitigation investments that deliver multiple layers of value to customers beyond wildfire risk reduction alone.

4.2.5.5.A Reliability Impacts

PGE uses the asset ignition probability and geographic ignition probability calculations described in Section 4.2.3.2 and Section 4.2.3.3, to quantify the likelihood of an outage event that impacts customers. PGE extends that analysis to calculate the corresponding consequence of failure from the outage event.

PGE uses a weighted average approach to quantify the reliability impact, leveraging subject matter expertise and failure data to build out failure scenarios ranging from minor to catastrophic. Each scenario is assigned its own relative likelihood and corresponding cost of failure.

$$\mathbf{y} = (\boldsymbol{RL} * \boldsymbol{S1}) + (\boldsymbol{RL} * \boldsymbol{S2}) + (\boldsymbol{RL} * \boldsymbol{S3}) + (\boldsymbol{RL} * \boldsymbol{S4})$$

y = Weighted Outage Consequence Cost or Customer Minutes Interrupted (CMI)

RL = relative likelihood

$S1 - S4$ **:** pole failure consequence scenario

The example below shows how this algorithm is applied to a representative wood pole within PGE's service area.

S1 **Replacement after inspection** Reliability: Scenario Cost $2,356

98.40% Relative Likelihood

Direct impact: Emergency premium $2,394

S2 **Failure with outage and potential ignition** Reliability: Scenario Cost $96

1.44% Relative Likelihood

Outage Duration 8 hours

Customer impact: Associated; 37 customer; Load: residential 44.4kW; commercial 2.5kW

Customer Outage Impact: $6,675 = (44.4kW * $13.33) +(2.5kW * $58.79) + (44.4kW*$6.99*8 hours)+ (2.5kW * $169.52 *8 hours)

Expected CMI: 17,760 = 37 customers * 60 minutes * 8 hours

S3 **Catastrophic failure with outage & potential ignition** Reliability: Scenario Cost $176

0.16% Relative Likelihood

Outage Duration 12 hours

Direct impact: Associated Damages $100,802

Customer impact: Associated; 37 customers; Load: residential 44.4kW; commercial 2.5kW

Customer Outage Impact: $9,654 = (44.4kW * $13.33) +(2.5kW * $58.79) + (44.4kW*$6.99*12 hours)+ (2.5kW * $169.52 *12 hours)

Expected CMI: 26,640= 37 customers * 60 minutes * 12 hours

S4 **Outage extension for radial customers** Reliability: Scenario Cost $6

1.60% Relative Likelihood

Outage Duration 10 hours

Customer impact: Downstream; 3 customers; Load: residential 3.2kW; commercial 0.2kW

Customer Outage Impact: $396 = (2.9kW*$6.99*10 hours)+ (0.1kW * $169.52 *10 hours)

Expected CMI: 1,800 = 3 customers* 60 minutes * 10 hours

Figure 4-43: Reliability Impact Scenarios

To calculate the appropriate relative likelihood of each failure scenario, PGE reviews existing asset class failure data to identify the frequency and severity of the failure impact to customers and PGE. This ranges from "Replacement after Inspection" to "Catastrophic failure with duration outage." PGE reviews the respective annual failure curves annually, including the relative likelihood assigned to each consequence scenario, to drive consistency in the definition and probability of failure.

With each asset failure scenario, PGE quantifies the load impacted differentiated by customer class, feeder configuration, and feeder class (urban, rural, or remote).

- Feeder class impacts the customer outage duration assumptions in the consequence scenarios
- Feeder configuration identifies whether an asset serving distribution customers is radial or looped and the duration associated with the outage. Customers in a looped configuration may

be restored more quickly through switching, while radial customers will be without power until repairs are completed, resulting in a longer average outage duration for downstream customers.

The customer outage impact assigns a Value of Service (VOS) on a per-kilowatt and kilowatt-per hour basis, differentiated by customer class, to derive respective reliability impacts for each asset failure scenario.

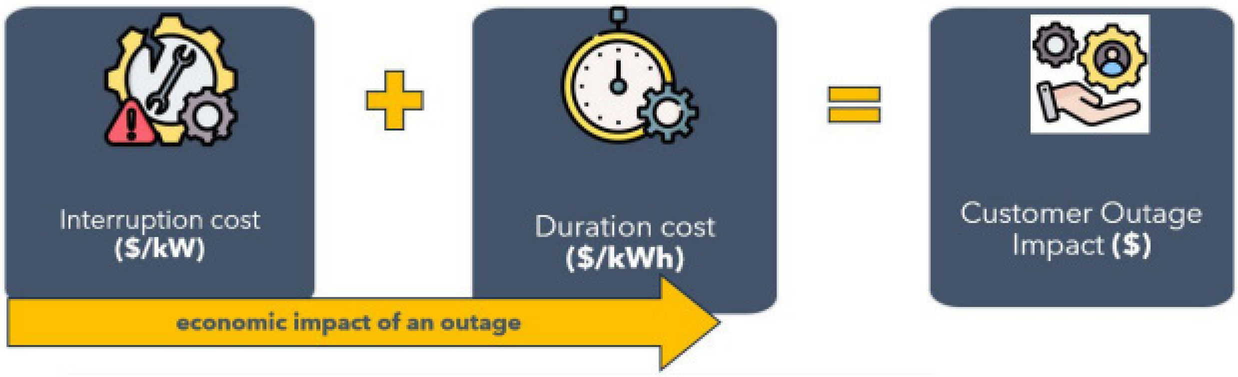


Figure 4-44: Customer Outage Impact Methodology

VOS is an industry-standard metric leveraged by tools such as the Interruption Cost Estimate (ICE) Calculator, used by utilities, regulators, and other stakeholders to estimate interruption costs and the benefits attributable to reliability improvements. These VOS values are primary drivers to quantifying customer outage impact cost, a key input in reliability risk modeling. Additionally, PGE uses VOS to quantify the benefits of avoided PSPS events in evaluating proposed projects to understand the full customer impact, as shown in the calculation below.

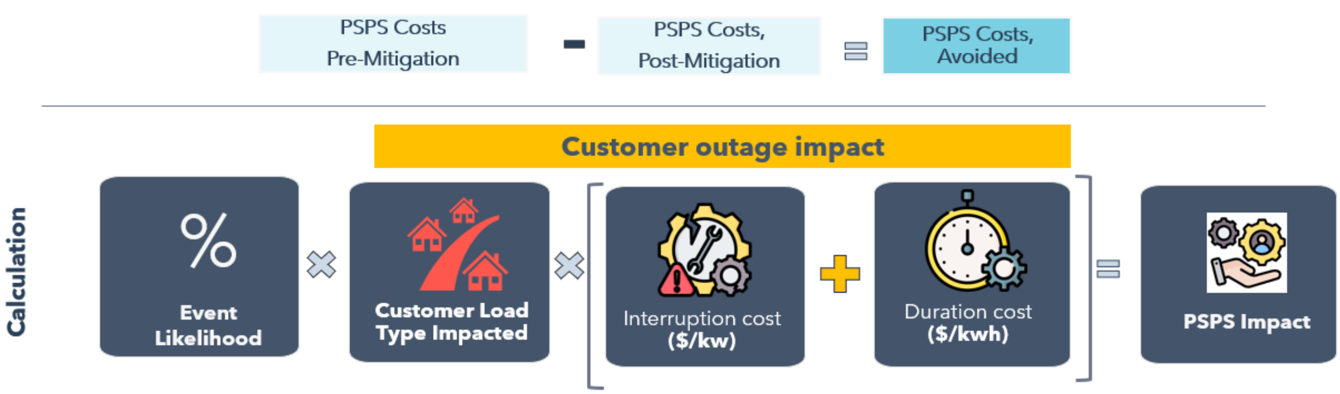


Figure 4-45: Customer Outage Impact Calculation

PGE's current VOS values are derived from Pacific Gas & Electric's 2012 VOS study (updated to reflect 2026 dollars), approved by the California Public Utility Commission. PGE leveraged PG&E's VOS study because the publicly available ICE calculator did not exist at the time. PGE continues to use PG&E's study because PGE believes it more accurately reflects the economic impact of outages for its customers.

- The ICE calculator used publicly available interruption cost estimates from across the country, some dating back to the 1980s. PGE's models are structured using different customer classes than those found in the ICE calculator.
- The VOS values attributed to the residential customer class in the ICE calculator were unrealistically low compared to PGE's VOS values. PGE is exploring participation in the ICE calculator 2.0 project, see Section 4.7.2.4 for details on this initiative.

PGE response cost calculation is an incremental cost adder on top of the cost to repair or replace the asset, intended to capture additional costs associated with reactive, unplanned failure (compared to the cost of programmatic or proactive asset replacement). These values were obtained from outage costs data and subject matter experts during modeling assumptions development and typically reflect a 25 percent cost adder. The 25 percent adder was a high-level cost applied across all substation, transmission, and distribution models when PGE reviewed the reactive v. proactive cost differentials.

As illustrated above, reliability consequence cost of failure calculation includes both customer outage impacts and PGE response costs.

4.2.5.5.B Operating Expense Reduction

In addition to risk reduction, PGE evaluates avoided costs and hard dollar savings resulting from proposed investments. This may include cost savings through avoided inspections, vegetation management, and outage response.

Figure 4-46: Operating Expense Reduction Calculation

4.2.5.5.C Qualitative Impacts: Value Spend Efficiency (VSE)

PGE incorporates qualitative impacts that cannot easily be quantified by converting RSE values to Value Spend Efficiency (VSE) values. This methodology allows PGE to consider additional societal benefits of investments, including the reduction of potential wildfire impacts to the following:

- Employee and public safety
- Environmental impacts (e.g. protected habitat, watersheds, cultural resources, Tribal lands)

- Customer satisfaction on PGE commitments
- Compliance implications
- Reliability impacts to customer

Each risk dimension is evaluated on a probability scale ranging from one to five and a consequence scale ranging from one to five to calculate the Risk Impact Score of 1-25.

Table 4-14: VSE Risk Impact Scoring

Score	Probability	Consequences
5	Expected	Severe
4	Likely	Major
3	Possible	Serious
2	Unlikely	Moderate
1	Remote	Minor

Each Risk Impact Score is used to modify the mitigation RSE as shown in Figure 4-47. Wildfire Mitigation projects typically include qualitative Risk Impact Score adders to account for Safety, Environmental, and Compliance impacts that are not quantifiable.

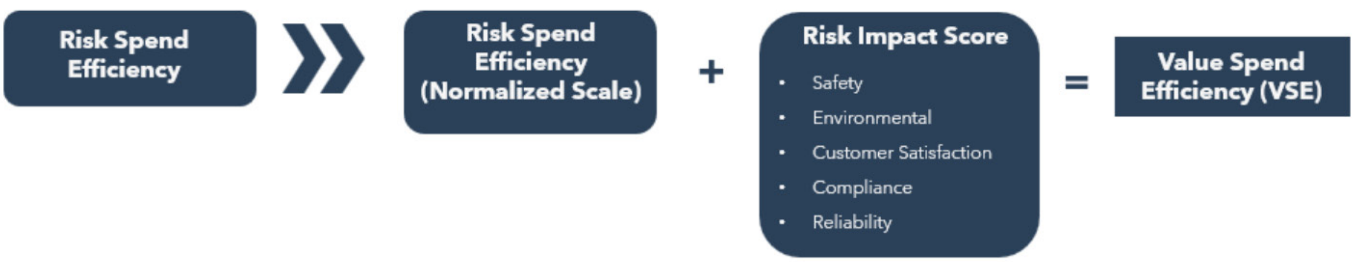


Figure 4-47: Value Spend Efficiency Methodology

4.2.5.6 Benefit Cost Calculation

For every investment claiming reliability or wildfire risk reduction benefits, PGE calculates an RSE, or benefit to cost ratio. Investment benefits include reduction in expected wildfire and reliability risk as well as reduction in maintenance and inspection costs over the asset's economic lifecycle, including those of future lifecycles. This benefit analysis determines the cost of ownership (COO), comparing the current state (Base Case) to the post-investment state (Option). The investment cost reflects the total capital, operations, and maintenance costs of the mitigation option. This methodology allows for consistent evaluation of different alternatives while accounting for both immediate capital requirements and long-term risk and maintenance impacts.

$$RSE = \frac{COO_{BaseCase} - COO_{Option}}{Cost_{Option}}$$

4.2.6 Risk and Value Spend Efficiency Results

Table 4-15: Mitigation Risk and Value Spend Efficiency

Initiative	Project	RSE	RSE Normalized	+	Risk Impact Score	=	VSE	Annual Avoided Costs ($1,000)	Annual Avoided CMI	Annual Avoided Ignitions
VM-01-05+07	AWRR 2026	5.2	80	+	15	=	95	$475	2,843,728	**52**
VM-01-05+07	AWRR 2027	7.1	80	+	15	=	95	$475	2,843,728	**52**
VM-01-05+07	AWRR 2028	7.9	80	+	15	=	95	$475	2,843,728	**52**
GDSH-05	Distribution Pole Replacements 2026	1.8	50	+	19	=	69	$1	7,720	**<1**
GDSH-05	Distribution Pole Replacements 2027	1.9	50	+	4	=	54	$2	62,550	**<1**
GDSH-05	Distribution Pole Replacements 2028	1.8	50	+	5	=	55	$4	13,687	**<1**
SAF-04	Early Fault Detection 2026	135.4	100	+	15	=	115	$113	1,894,657	**5**
SAF-04	Early Fault Detection 2027	1,379.2	100	+	15	=	115	$222	3,683,802	**25**
SAF-04	Early Fault Detection 2028	401.6	100	+	10	=	110	$112	1,164,854	**9**
GDSH-10	EPSS Breaker and Relay Replacement 2026	12.5	90	+	2	=	92	$39	31,908	**<1**
GDSH-02	Estacada-North Fork Project Area 1 UG	3.3	70	+	62	=	132	$64	24,889	**1**
GDSH-02	Estacada-North Fork Project Area 2 UG	0.9	35	+	48	=	83	$82	95,102	**7**
GDSH-04	Estacada-North Fork Project Area 1 OH	2.2	60	+	29	=	89	$27	429,472	**1**
GDSH-02	Estacada-North Fork Project Area 3	3.7	70	+	67	=	137	$412	332,693	**11**
GDSH-08	Fire Safe Fuses 2026	155.5	100	+	2	=	102	$29	295,185	**1**
GDSH-08	Fire Safe Fuses 2027	88.4	90	+	3	=	93	$2	40,087	**5**
GDSH-08	Fire Safe Fuses 2028	40.1	90	+	3	=	93	$2	41,335	**3**
GDSH-02	Grand Ronde-Agency UG	4.9	70	+	53	=	123	$162	10,257	**<1**
IC-01-03	Ignition Prevention Inspections 2026	5.9	80	+	2	=	82	$16	316,229	**1**
IC-01-03	Ignition Prevention Inspections 2027	6.3	80	+	2	=	82	$16	316,229	**1**
IC-01-03	Ignition Prevention Inspections 2028	6.8	80	+	2	=	82	$16	316,229	**1**
GDSH-04	Leland-Carus	5.3	80	+	10	=	90	$51	666,421	**3**
GDSH-03	North Plains-Mason Hill	15.2	90	+	10	=	100	$21	136,255	**3**
GDSH-02	Orient-Oxbow	139.0	100	+	139	=	239	$447	274,492	**6**

Initiative	Project	RSE	RSE Normalized	+	Risk Impact Score	=	VSE	Annual Avoided Costs ($1,000)	Annual Avoided CMI	Annual Avoided Ignitions
GDSH-03	Rock Creek-Newberry	2.8	70	+	3	=	73	$1	14,832	**<1**
GDSH-02	Summit-13	51.3	90	+	43	=	133	$172	113,603	**3**
GDSH-02	Summit-Meadows	41.0	90	+	76	=	166	$114	9,691	**2**
GDSH-06	Transmission Pole Replacements 2026	2.2	60	+	2	=	62	$0	40,115	**<1**
GDSH-06	Transmission Pole Replacements 2027	2.2	60	+	3	=	63	$1	102,294	**<1**
GDSH-06	Transmission Pole Replacements 2028	2.2	60	+	5	=	65	$1	62,179	**<1**
IC-05	Tree Attachments	0.4	25	+	5	=	30	$0	0	**<1**
GDSH-07	Wildfire Reclosers 2026-2028	158.4	100	+	76	=	176	$0	5,250,000	**8**
GDSH-02	Willamina-Buell	2.6	70	+	91	=	161	$197	90,043	**2**

4.3 Outage Risk Driver Analysis and Results

PGE leverages historical outage data to understand outage risk drivers. Internally, PGE categorizes outages using informative combinations of major cause codes and cause descriptions to understand outage risk drivers. In alignment with OPUC reporting requirements, PGE has developed mapping to establish relationships between OMS data and outage risk event type and driver categorizations using these cause codes as shown in Figure 4-48 below. This mapping also serves to categorize outages into RSE Workbook Ignition Risk Groupings, excluding the "Fire" and "Customer Request" risk/ignition event types.

PGE collects observed ignition event data through reporting by field personnel, including internal ignition cause category information related to each ignition event. In alignment with IEEE 1782-2022 ignition event categories, types, and drivers, PGE has developed mapping to establish relationships between field-reported ignitions event data and ignition event types and drivers. Further, PGE is evolving its ignition data collection processes to include additional data elements to support these categorizations as discussed in Section 4.8.3.

To evaluate connections between historical outage data and ignition risk drivers, PGE developed a Large Language Model (LLM) to classify outage events as potential ignition events. This approach automates the interpretation of thousands of outage events to find possible ignitions, which provides detailed insights into the relationship between outage and ignition risk event types and drivers. Specifically, the LLM identifies evidence of burning, charring, fire, and related descriptors within available outage notes to identify potential ignition events. The LLM is trained using subject matter expertise. Model outputs are validated through an iterative training/testing process. Based on the ignition events identified by the LLM, PGE determines relative ignition risks for each outage and ignition risk event type and driver.

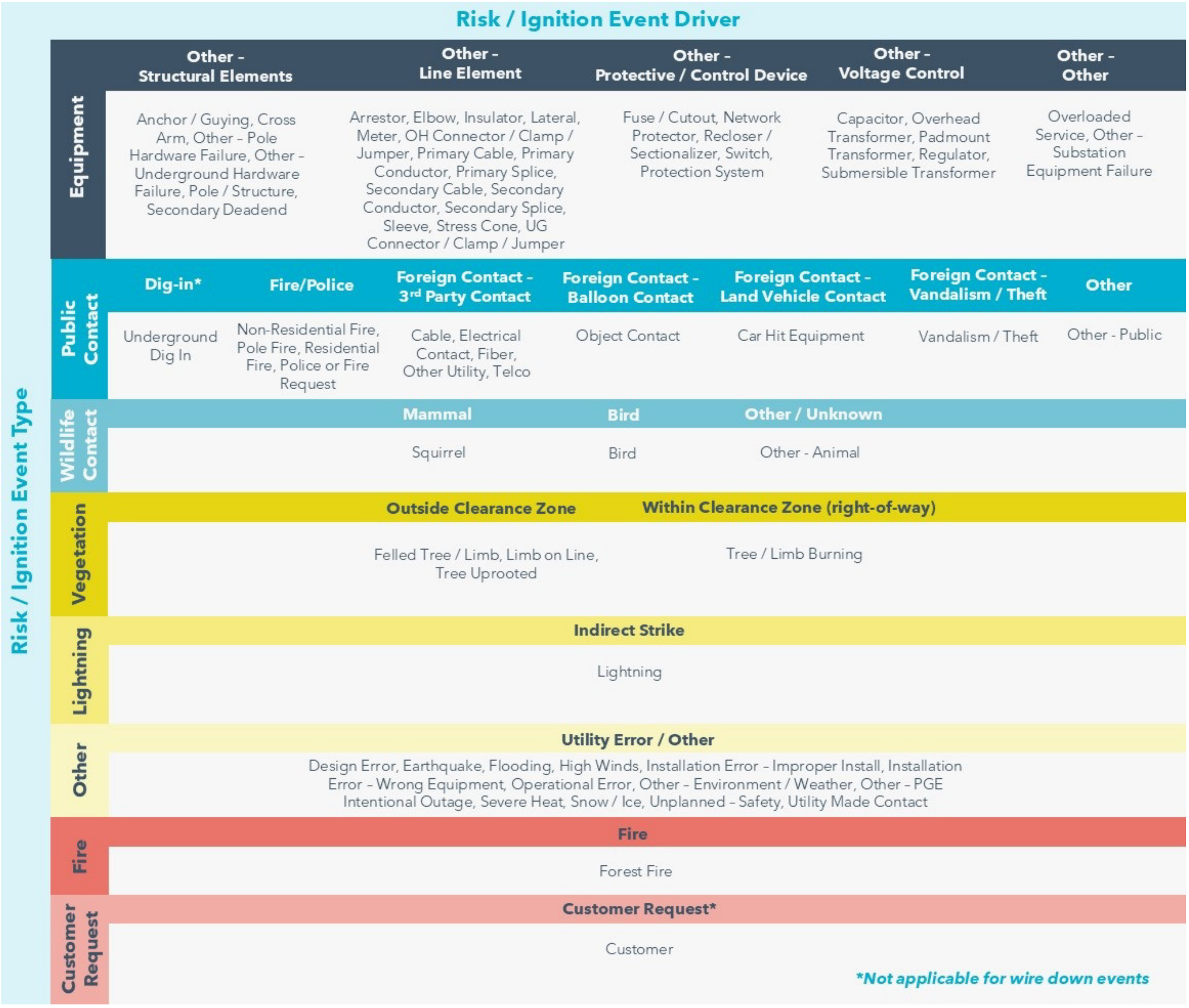


Figure 4-48: OMS Cause Category Mapping

4.4 Asset Risk Driver Analysis and Results

PGE incorporates asset risk into its total wildfire risk modeling to reflect the relationship between asset characteristics and outage or ignition likelihood. PGE incorporates asset health into the risk assessment through ignition probability modeling as described in Section 4.2.3.2. The asset risk driver analysis quantifies how critical asset characteristics, including asset performance, age, condition, and failure rates, contribute to potential ignition risk. This process also incorporates asset inspection findings collected via one of PGE's inspection methodologies detailed in Section 7.2.2.

The results of PGE's Asset Ignition Likelihood analysis are reflected in the "Asset Wildfire Risk" column of Table 4-13. Further, PGE continues to improve its ignition probability modeling capabilities for specific assets by better incorporating specific equipment data, as described in Section 4.7.3.1.

4.5 Qualitative Analysis and Results

PGE recognizes that effective risk assessment must capture both quantifiable metrics and contextual risk factors that may not be readily modeled through purely quantitative approaches. These qualitative risk factors encompass critical considerations such as community vulnerability, emergency access constraints, and specific land use characteristics that could significantly impact wildfire risk.

PGE does not incorporate qualitative scores into the Baseline Wildfire Risk Assessment, Utility Wildfire Risk Analysis, or RSE Analysis. Ignition likelihood and fire growth potential calculations are based upon quantitative measures. Qualitative risk impact scoring is only used to augment wildfire vulnerability calculations through the VSE methodology detailed in Section 4.2.5.5.C. The risk adjustment factors identified below are incorporated into the Safety and Environmental Risk Impact Scores.

- Safety Risk Impact Dimension: Employee and Public safety
- Environmental Risk Impact Dimension:
  - Protected Habitat
  - Watershed
  - Cultural Resources
  - Tribal Lands

Table OPUC 4-1: Qualitative Risk Adjustments

Risk Adjustment	Applicable Situations	Initial Scoring	Adjustment Factor	Final Scoring
Safety	Variable impact to employee and/or public safety	RSE	Risk Impact Score (1-25)	RSE + RIS
Environmental	Variable impact to protected habitats, watershed, cultural resources, or Tribal lands	RSE	Risk Impact Score (1-25)	RSE + RIS

4.6 Circuit Segment Risk Results

Recognizing that the OPUC's RSE framework is in development, PGE has completed all data entry fields while updating OPUC suggested metrics where applicable to determine circuit segment risk results. Specifically, PGE has incorporated data-driven calibrations and metrics where available to most closely align RSE Workbook results with PGE internal RSE quantifications as described in Section 4.2.4. A summary of ten high risk circuit segments identified using PGE's modified OPUC RSE Workbook is provided in Table OPUC 4-2. The table reflects a unitless HFRZ score for each circuit segment and PGE's ignition likelihood values from its risk modeling.

The framework produces a combined risk score by considering individual risk components including environmental exposure, ignition risk, asset health, and qualitative factors. While PGE remains committed to collaborating with the OPUC and stakeholders as the standard RSE framework evolves, PGE's current mitigation investment prioritization was developed using PGE's established RSE methodology as described in Section 4.2.4.

Table OPUC 4-2: Riskiest Circuit Segment Scores

Circuit Segment ID	Geographical Designated Area (ID and Name)	HFRZ Score	Ignition Risk Driver Score	Asset Risk Driver Score	Qualitative Risk Score	Combined Risk Score
A1534B-275:53509	ORIENT-OXBOW-A1534B-275:53509	1.11020	1.65	Under Development	Under Development	1.65
A1431C-526:14741985	HOGAN NORTH-LINKS-A1431C-526:14741985	3.03269	0.25	Under Development	Under Development	0.25
9881	SYLVAN-BARNES-9881	1.23198	0.46	Under Development	Under Development	0.46
A1535C-386:53506	ORIENT-OXBOW-A1535C-386:53506	6.20988	0.2	Under Development	Under Development	0.20
B1136C-1320:34250	SYLVAN-BARNES-B1136C-1320:34250	0.41004	0.09	Under Development	Under Development	0.09
A1527D-450:53507	ORIENT-OXBOW-A1527D-450:53507	1.76779	0.53	Under Development	Under Development	0.53
C1101B-211:32113	SYLVAN-BARNES-C1101B-211:32113	0.28965	0.09	Under Development	Under Development	0.09
884:52890	ORIENT-OXBOW-D1504A-884:52890	16.64590	0.5	Under Development	Under Development	0.50
9438	SYLVAN-BARNES-9438	0.30036	0.58	Under Development	Under Development	0.58
7348	HOGAN NORTH-LINKS-7348	11.25175	0.77	Under Development	Under Development	0.77

4.7 Initiatives and Targets

PGE's Risk Methodology and Assessment category includes initiatives designed to track costs associated with advanced risk modeling, enhanced data collection methodologies, innovative remote sensing technologies, and industry standard ignition management practices.

4.7.1 Initiative Summary Table

Table OPUC 4-3: Risk Methodology Initiative Cost Summary in Thousands

Initiative Activity	Tracking ID	Target Unit	2026 Target	2026 Forecast ($1,000)	2027 Target	2027 Forecast ($1,000)	2028 Target	2028 Forecast ($1,000)	Three-Year Forecasted Total ($1,000)	Section
Wildfire Risk Modeling and Planning	RMA-01	# annual wildfire risk analysis	1	$1,395	1	$2,209	1	$2,524	$6,128	4.7.2.1

Initiative Activity	Tracking ID	Target Unit	2026 Target	2026 Forecast ($1,000)	2027 Target	2027 Forecast ($1,000)	2028 Target	2028 Forecast ($1,000)	Three-Year Forecasted Total ($1,000)	Section
Ignition Management	RMA-02	N/A	N/A	$164	N/A	$170	N/A	$175	$509	4.7.2.2
Remote Sensing	RMA-04	Portion of service area	1/3	$2,000	1/3	$1,893	1/3	$2,289	$6,182	4.7.2.3
Value of Service Study	RMA-05	N/A	N/A	$150	N/A	$100	N/A	$50	$300	4.7.2.4
Risk Modeling IT	RMA-06	N/A	N/A	$926	N/A	$1,071	N/A	$1,038	$3,035	4.7.3
Outage Management System Cause Codes	RMA-07	N/A	N/A	$10	N/A	$500	N/A	$300	$810	4.7.4.1

Notes:
1. Forecasts and Three-Year Totals provided in $/thousands.
2. All initiative Forecasts and Three-Year Totals include capital cost and operations and maintenance expense.

4.7.2 Initiative Details

4.7.2.1 Wildfire Risk Modeling and Planning (RMA-01)

PGE performs an annual update of non-WTI components of the Baseline wildfire risk assessment, utility wildfire risk analysis, and recalculation of the mitigation RSE and VSE. This allows PGE to incorporate infrastructure changes, customer loading, mitigation & response costs and benefits, ignition and outage data to inform probability modeling, fire season observations, agency input, and other learnings.

PGE will refresh its WTI dataset in 2028 to inform detailed updates to HFRZ delineations. This data refresh will incorporate the most current meteorological data, updated fuel condition assessments, updated infrastructure data, and refined infrastructure vulnerability analyses to align risk mapping with evolving environmental conditions across PGE's service area.

In parallel with this data refresh, PGE will actively explore opportunities to enhance WTI formulation methodologies based on emerging wildfire science and lessons learned from significant wildfire events occurring during 2026 and 2027. PGE will evaluate new research findings and conduct post-incident analyses of consequential wildfires to identify potential refinements to the risk assessment framework.

4.7.2.2 Ignition Management (RMA-02)

The goal of PGE's ignition management initiative is to investigate and analyze ignitions to inform PGE's wildfire risk modeling and mitigation efforts. Through systematic collection, tracking, and analysis of ignition data, coupled with thorough investigations, PGE identifies critical ignition drivers, contributing factors, and root causes to inform the wildfire mitigation approach. See Section 4.8.3 for additional details about this continuous improvement program.

4.7.2.3 Remote Sensing (RMA-04)

PGE employs a suite of remote sensing technologies, including Light Detection and Ranging (LiDAR), satellite imagery, aerial photography (captured via aircraft and drones), and hyperspectral imagery. LiDAR technology enables detailed analysis of vegetation encroachment, equipment condition, and terrain characteristics critical to wildfire risk assessment. Remote sensing data and analysis delivers multiple benefits for PGE:

- Enhanced reliability, reduced ignition risk, improved cost management, and strengthened emergency preparedness
- Advanced risk assessment and vegetation management modeling to optimize mitigation programs and operationalize vegetation insights in the growing season
- Documented evidence of compliance and prudency to support cost recovery initiatives
- Streamlined design and engineering processes

Beginning in January 2026, PGE will enhance its LiDAR acquisition strategy to cover one-third of its service area annually. This modification from the previous approach of collecting LiDAR only in HFRZs will enable complete system analysis on a three-year interval without increasing costs.

The full system LiDAR collection and analysis achieved over a three-year period will enable PGE to evaluate wildfire risk across PGE's entire system, improving proactive risk identification and prevention capabilities for customers and communities. To maintain awareness for areas not included in each year's LiDAR collection, satellite imagery acquisitions and analysis will be conducted on an annual basis to supplement LiDAR data collection. This approach allows PGE to maintain continuous system monitoring and proactive risk identification while managing costs effectively.

4.7.2.4 Value of Service Study (RMA-05)

This initiative, originally named ICE Calculator 2.0, captures costs associated with updating the Value of Service Study (VOS) used in PGE's customer outage impact modeling. This effort will improve the accuracy of calculated project benefits related to improved reliability and reduced PSPS exposure.

PGE has been exploring participation in Lawerence Berkley National Laboratory's (LBNL) National Power Interruption Cost Survey to improve risk model accuracy by updating Value of Service (VOS) which quantify customer consequences. The goal of this project is to update LBNL's ICE Calculator with new information collected from representative statistical samples of U.S. electricity customers on the economic costs they experience when electric service is interrupted. This project is being conducted through a series of contracts with individual U.S. electric utilities, and PGE would be one of the only Pacific Northwest utilities to participate in the study.

The values identified from PGE's survey would also be used to update and improve the accuracy of LBNL's ICE 2.0 calculator, delivering broad value across the industry. PGE's preference is to participate in the development of industry best practices such as LBNL's VOS study, which will provide a nationally recognized baseline. However, PGE is also exploring more cost-effective options for updating VOS values, including self-performing or directly hiring a third-party survey company.

PGE plans to commence the survey engagement in 2026. This initiative will have a delayed implementation compared to the delivery date shared in PGE's 2025 WMP Update. The original plan forecasted that funding would be wholly through the WMP, and engagement and associated cost would have begun in 2025. The revised approach to this initiative splits the funding evenly between PGE's current base rates as established in PGE's last General Rate Case (GRC) and PGE's wildfire recovery mechanism to reflect the VOS data will benefit both the Distribution System Plan and the WMP.

4.7.3 Risk Methodology & Assessment IT (RMA-06)

This initiative was created in 2025 to track information technology (IT) investments that enable Risk Methodology & Assessment initiatives.

4.7.3.1 Ignition Probability Model Enhancements

PGE's risk-based ignition prevention program leverages historical ignition data, enhanced field data collection, and advanced analytics to predict and prevent ignitions before they occur. PGE will update current ignition risk assessments that rely on static coefficient values to reflect actual equipment- and location-specific ignition probabilities. The following data flow improvements will enable data-driven ignition probability models that correlate ignitions to specific assets, environmental conditions, and equipment characteristics:

- **Data Collection/Procurement:** Enhanced field data capture through improved ignition reporting forms, enabling granular documentation of ignition findings, asset conditions, and correction activities.
- **Data Integration/Conditioning:** Centralization of ignition data, correlation of ignitions to asset structure and correction dates, and integration with historical ignition events. PGE has also implemented an LLM model to scan the Outage Management System (OMS) fand other internal systems for evidence of ignition events.
- **Data Analysis:** Refinement of equipment-specific KIP values, which are coefficients of ignition probability and KIP is defined as probability a failure will cause an ignition given it caused an outage. Additional improvements include identification of ignition hotspots and geographic trends, and improvement of device-level spatial and temporal resolution.
- **Delivery and Work Management:** Integration of updated probabilities into risk scoring systems, visualization of ignition trends, and decision support for risk-based mitigation planning.

Progress across these stages is tracked annually with specific deliverables for each year of the 2026 2028 WMP cycle. Table 4-16 shows planned Ignition probability modeling developments through 2028.

Table 4-16: Ignition Probability Modeling for 2026-2028

Data Flow Stage	2026 Deliverable	2027 Deliverable	2028 Deliverable
Collection	▪ IQGeo field inspection and ignition reporting intake form enhancement ▪ Complete field crew training ▪ Enhanced data fields operational	▪ Data Quality improvement: reduction in errors vs 2025 baseline ▪ Field process refinement based on operational learnings	▪ Continuous optimization; ▪ Live Fuel Moisture Monitoring Devices
Integration	▪ Snowflake data model improved; Initial data pipeline operation; Historical data integration initiated	▪ Historical data 100% integrated ▪ Asset-to-ignition correlation operational ▪ Correlation accuracy	
Analysis	▪ Priority equipment KIP refinement ▪ Baseline spatial/temporal resolution established	▪ All equipment KIP values updated ▪ Device-level spatial resolution achieved ▪ Model accuracy improvement vs 2026 baseline	▪ Technologies targeted at shortening the time between fire identification & suppression
Delivery	▪ Technical design complete; Risk scoring integration architecture finalized	▪ Updated probabilities integrated into risk scoring. ▪ Annual metrics report published; risk-based decisions supported	

4.7.3.2 Climate Change Impacts

In 2024, PGE incorporated a service area-wide climate modifier into its wildfire risk modeling. In 2025, PGE collaborated with university researchers, as discussed in Section 4.2.3.4.B, to compare climate models best suited for PGE's service area and modify the algorithm to fit PGE's service area.

In 2027-2028, PGE will use its validated climate models to improve wildfire risk modeling calculations by integrating granular fuel characteristics that vary with both asset characteristics and environmental conditions. By incorporating these climate-informed parameters into wildfire risk modeling analysis, the 2027-2028 enhancement will provide more accurate risk assessments that account for accelerating climate change impacts on wildfire behavior across all 21 HFRZs. This will be accomplished through the following data flow improvements:

- **Data Collection/Procurement:** Enhanced data collection of fuel characteristics (pole age, climate zone mapping) and climate model projections; application of validated climate models from 2025 university partnership.
- **Data Integration/Conditioning:** Integration of granular fuel datasets with existing climate modifier; incorporation of climate-informed parameters into existing burning probability framework; data architecture updates in risk modeling.

- **Data Analysis:** Refinement of climate change multiplier algorithm incorporating asset characteristic and climate zone effects; integration of climate trend projections with burning probability calculations; validation of enhanced algorithm accuracy.
- **Delivery & Work Management:** Deployment of climate-adjusted risk scored across all 21 HFRZs; integration of enhanced burn probability into production risk model; improvements to documentation and systems of record to facilitate increases to the level of reporting that is automated.

4.7.4 Incremental Initiatives

PGE will commence work on incremental initiatives contingent upon likely and timely recovery of costs.

4.7.4.1 Outage Management System Cause Codes (RMA-07)

In response to OPUC Recommendation 25-234 PGE_2501, PGE has scoped transition of OMS outage cause codes from legacy codes to the standardized IEEE 1782-2022 codes. This initiative, with potential completion by the end of 2028, would represent a significant advancement in PGE's outage management capabilities and wildfire risk mitigation efforts. See Section C.19 for additional information.

Investing in this transition would establish a standardized framework to enhance PGE's ability to benchmark reliability metrics, support data-driven reliability improvements, and strengthen regulatory compliance. This investment directly responds to the OPUC Recommendation that directs PGE to address outage data quality limitations and transition to IEEE 1782 reporting standards without post-processing of outage data. This initiative would deliver value to customers and PGE through:

- Improved service restoration through more precise identification of outage causes
- Enhanced transparency in outage communications, building customer trust and satisfaction
- Improved wildfire and reliability risk modeling
- Strategic investment and resource allocation based on standardized, high-quality data
- Improved benchmarking and performance management to meet regulatory requirements

4.8 Continuous Improvement

4.8.1 Program Maturity

From 2022 to 2025, PGE saw significant maturation (37 percent increase) in Risk Methodology and Assessment based on corresponding category scores to the IWRMC Maturity Model. Building on insights from the IWRMC assessment, PGE will leverage investments in technology to strengthen models allowing for a more data informed approach to determining appropriate mitigations for new capital projects, vegetation treatments, investment evaluations, and operational decisions. PGE will assess ways to strengthen validation of methodologies, benchmarking with peers, and governance through formal review cycles, ensuring defensible, data-driven decision-making.

4.8.2 Wildfire Risk Modeling and Planning

PGE is committed to enhancing its baseline wildfire risk assessment methodologies and mapping processes through a refinement initiative. Key strategic efforts will encompass fire agency collaborative engagements for HFRZ map validation, evaluation of mapping methodologies, boundary refinement protocols, WTI formulation assessment and tail risk exposure. The refinement initiative will include external stakeholder collaboration, internal operational integration, methodological advancement, and analytical formula refinement in the following facets of the wildfire risk modeling process:

- **Agency Collaboration:** To strengthen its risk mapping process, PGE has implemented a structured engagement framework with fire agencies and land managers across the PGE service area to facilitate critical review of new HFRZ delineations. Planned consultation sessions with fire agency representatives provide a collaborative platform for risk map evaluation. These engagements capture input regarding areas exhibiting wildfire vulnerability characteristics or specific firefighting operational challenges, informing targeted HFRZ boundary modifications. Additionally, participating agencies have opportunities to evaluate foundational risk assessment methodologies and constituent datasets, providing valuable external validation of analytical processes.
- **Utility Collaboration:** To drive a consistent and shared understanding of wildfire risk, PGE collaborates with utility partners that share a geographic boundary when updating wildfire risk zone mapping. Consultations include sessions with utility representatives that provide an opportunity to review and critically evaluate wildfire maps, mapping methodologies and supporting datasets. Collaboration efforts also include non-service area utility partners for transmission assets in shared rights-of-way.
- **Internal Operational Integration:** PGE will continue to leverage internal operational expertise through engagement with field-oriented programs to evaluate and refine HFRZ boundaries and methodologies. Programs with substantial field presence—particularly inspections and vegetation management—will contribute ground-truth verification of mapped boundaries and identify service area transformations not captured in remote sensing datasets. This verification process will facilitate fine-scale boundary adjustments, resulting in enhanced mapping accuracy that simultaneously improves operational efficiency and optimizes cost structures.
- **Methodological Advancement:** The HFRZ mapping framework incorporates innovative analytical elements including risk score formulation, hotspot clustering algorithms, polygon smoothing techniques, and precision boundary adjustments. PGE conducts methodological reviews through wide-ranging engagement with industry partners and peer utilities. This collaborative approach facilitates identification and implementation of mapping best practices while refining GIS processes to enhance overall mapping precision.
- **Analytical Formula Refinement:** PGE will collaborate with the WTI vendor to conduct evaluations of core analytical formulations, including the Ignition Potential Index, Conditional Impacts modeling framework, and Weather Type Probability calculations. PGE will continuously evaluate emerging wildfire research and integrate lessons from significant wildfire events to identify opportunities for formula enhancement and methodological improvement.

- **Uncertainty and Tail Risk Modeling:** PGE will enhance its risk modeling capabilities to better quantify extreme events and their uncertainty ranges, enabling more accurate assessment of rare but severe occurrences. By collaborating with utility partners, PGE will learn approaches for calculating exposure to high-impact-low-frequency events. These improvements will enable a better understanding of the value-of-information, benefit analysis, insurance requirements, and input sensitivity, ultimately supporting more robust risk management decisions

4.8.3 Ignition Management

4.8.3.1 Investigation and Reporting

PGE's thorough analysis of ignition event drivers supports continuous improvement of risk analysis and fulfills OAR 860-024-0050 reporting requirements. PGE's approach focuses on directing risk mitigation efforts through a data-driven analysis of ignition risk factors.

When field personnel report ignition events, they capture essential primary information—including suspected cause, environmental conditions, and associated facilities—through PGE's field intake form. This initial data collection provides the foundation for PGE's analytical process.

To enhance risk assessment capabilities and identify opportunities for targeted mitigation, PGE supplements this field-reported information with thorough investigative findings developed through a structured review process:

- **Initial Assessment:** PGE evaluates reported event data to determine appropriate investigative pathways for each incident, focusing on reportability requirements as well as specific risk factors that inform risk modeling and inspection criteria. PGE's reporting decision tree is illustrated in Figure 4-49.
- **Investigative Escalation:** Events with inconclusive field information are flagged for detailed investigation and/or review by PGE's Ignition Task Force. These investigations may include:
  - On-site field assessments
  - Interviews with field personnel, first responders, and/or area residents
  - Review of documentary and photographic evidence
- **Collaborative Expert Analysis:** Complex ignition events are elevated to the Ignition Task Force, comprising subject matter experts, engineers, and operations personnel, who meet monthly to identify ignition causes, contributing factors, and future mitigation opportunities. During these sessions, the task force members review all available event information, including photographs and investigative findings.

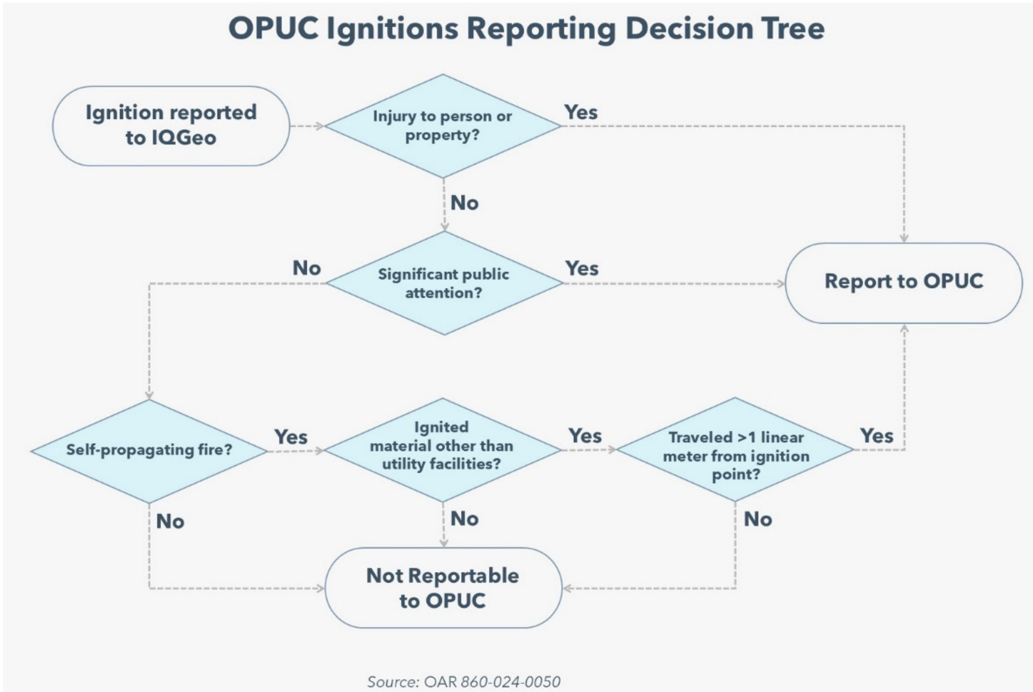


Figure 4-49: OPUC Ignitions Reporting Decision Tree

4.8.3.2 Root Cause Assessment

PGE conducts thorough root cause assessments for ignition events through systematic analysis of field-reported data, capturing critical information, including suspected ignition causes, foreign object contacts, equipment failures, and supporting documentation such as notes and photographs. When field data is inadequate to allow a conclusive root cause determination, PGE implements a more thorough investigatory process and engages the Ignition Task Force for detailed review, as outlined in Section 4.8.3.1.

PGE maintains its ignition root cause assessment data in a dedicated ignition database, enabling identification of trends and patterns while supporting risk modeling efforts. Additionally, an Ignition Tracker dashboard is used to enhance awareness and provide greater visibility into broader root cause trends across the PGE system.

PGE analyzes and classifies ignition data using internal cause categories derived from field reporting and investigative findings. These classifications align with both risk modeling methodology and OAR 860-024-0050 reporting requirements. Ignition events are further classified based on asset type and HFRZ designation to support targeted mitigation planning. To enhance alignment between internal classifications and IEEE 1782-2022 cause categories, PGE utilizes a mapping framework.

Figure 4-50 illustrates the annual proportions of reportable ignition events, classified by event type. Proportions reported for 2025 include data from Q1-Q3. While the cause classification system includes additional categories such as contamination, lightning, protective device operation, and other utility errors, PGE has not recorded ignition events in these categories—likely due to their relative rarity.

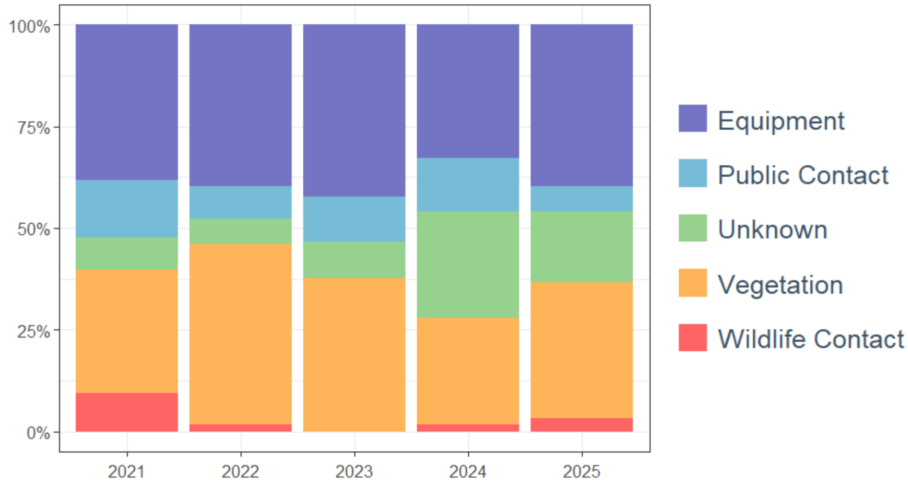


Figure 4-50: PGE Reportable Ignition Event Type Distribution

For each ignition event type, events are further classified into ignition event drivers, which are shown for reportable ignition events in Figure 4-51. Ignition events reported for 2025 include data from Q1-Q3. PGE continues to enhance field data capture processes, which will allow for more granular documentation of ignition event drivers.

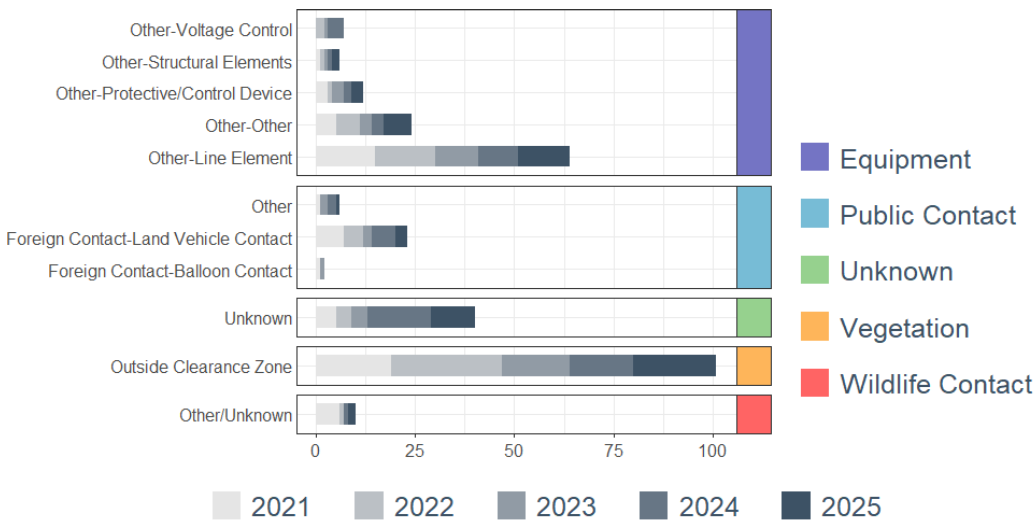


Figure 4-51: PGE Reportable Ignition Event Driver Counts

4.8.3.3 Non-PGE Ignition Analysis

Beyond internal data collection and analysis, PGE actively incorporates lessons learned from significant national fire events to enhance understanding of risk drivers and inform future mitigation strategies. PGE analyzed several recent major fires, including two in 2025, to gain insights into utility asset ignition risks and verify inspection criteria. Table 4-17: demonstrates the alignment between major fire root causes and PGE's inspection codes.

Table 4-17: U.S. Fires Associated with Inspection Codes

Inspection		Nationwide Fires			
Code	**Condition**	**Year**	**Fire Name**	**Fire Extent**	**Region and/or Assoc. Utility**
AB	Abandon Equipment	2025	Eaton Fire	14,000 acres	California/SCE
MH	Midspan Horizontal	2025	Hurst Fire	799 acres	California/SCE
BO	Bad Order Pole	2024	Smokehouse Creek Fire	1.06 million Acres. Largest wildfire on TX state record.	Texas/Xcel Energy
XA	Crossarm Split/Broken	2024	Valley Fire	10,000 acres.	Idaho/Idaho Power
GI	Guy Insulated Requires Grounding	2018	Woolsey Fire	96,949 acres.	California/SCE
DB	Damaged/Broken Equipment/Hardware	2018	Camp Fire	153,336 acres. Deadliest fire in CA state history.	California/ PG&E
GB	Broken Guy	2017	Rye Fire	6,049 acres.	California/SCE

4.8.3.4 Corrective and Preventive Actions

PGE reviews investigation and RCA findings collectively with subject matter experts from across PGE to mitigate identified ignition hazards and prevent future recurrence. Corrective and preventive actions identified through this process can range from additional analysis, training, or new standards to singular or programmatic asset replacement requirements. PGE also uses the results of these analyses to inform inspection criteria and corrective actions.

- **Preventive actions** typically include updates to the following:
  - Fire Safe Design and Construction Standards such as more specific criteria for ductile iron pole placement as discussed in Section 6.3.1
  - Ignition Prevention Inspection criteria
  - Risk modeling parameters such as equipment failure or ignition likelihood
- **Corrective actions** typically include the following:
  - Correction of installation inconsistencies
  - Programmatic replacement of equipment such as the replacement of automatic dead-ends in reduced tension spans
  - Correction of specific risks such as the 500 kV static segmentation work discussed in Section 7.3.2

4.8.3.5 Resulting Program Update

Future improvements to PGE's ignition reporting, assessment, and investigatory processes will focus on enhanced ignition data collection and increased data granularity. Following OPUC reporting recommendations and requirements, PGE is aiming to provide finer-resolution classifications of ignition event types and drivers, which will inform subsequent risk models.

In alignment with OPUC docket UM 2340, methods for determining ignition risk probability by outage cause, PGE is working to adopt a consistent mapping for ignition risk drivers based on LLM outage analysis and future data collection improvements. As described in Section 4.3, PGE is continuing to leverage artificial intelligence tools such as LLMs to analyze outage data and quantify ignition probabilities for specific risk drivers. Preliminary outage to ignition mapping results are shown in Figure 4-52. Reported percentages reflect the estimated percentage of outage events associated with an ignition event. Relative circle sizes are proportional to total ignition event counts. As future LLM improvements allow for more specific ignition risk driver classifications, outage to ignition mappings will provide further insight into areas of targeted risk-based ignition mitigation.

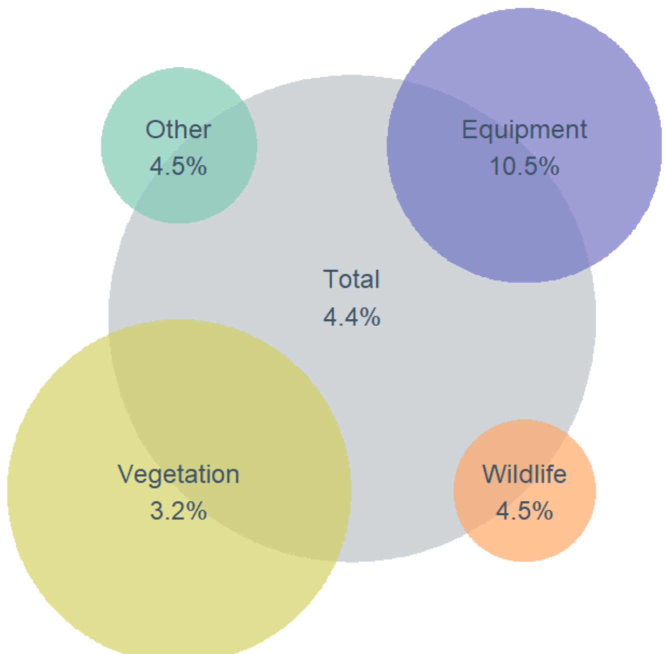


Figure 4-52: Outage to Ignition Mapping Based on LLM

As outlined in Section 7, PGE conducts Ignition Prevention Inspections (and corrections) within its HFRZs. Data collected through the program identify asset conditions associated with ignition risk, and future ignition risk quantification and risk-based mitigation efforts aim to integrate identified asset conditions with current and historical ignitions data to develop targeted mitigations. By identifying correlations between identified inspection conditions and observed ignition events, PGE can better identify potential risk drivers and plan programs to mitigate risks. PGE is aligning field reporting data collection processes with Ignition Prevention Inspection condition data to provide data-driven understanding of correlations between asset conditions and ignition risk.

4.8.4 Asset Risk Management System (Neara)

Central to the ongoing maturation of PGE's risk modeling is an investment in Neara, a sophisticated physics-based digital twin platform for PGE assets that represents a significant advancement in risk modeling capabilities. This technology enables more dynamic visualization of system, risk, and inspection data; facilitates precise calculation of baseline and monetized asset risk; and dramatically increases processing speed while reducing potential human performance errors.

Neara offers a holistic enterprise solution that directly connects risk mitigation planning with operational execution to support risk-informed decision. The application will build upon and scale PGE's existing wildfire and reliability risk methodologies, while controlling costs and enabling transparent conversations with internal and external stakeholders to support next-generation risk management practices. Neara provides PGE a unique opportunity to improve both PGE's data and overhaul its processes to enable efficient and holistic decision making.

This project will address the following use-cases:

- **Asset and Wildfire Risk Modeling:** Streamline PGE's current processes and planning times from approximately 15 disparate Excel-based models to a single software-driven model that integrates existing methodology into the product. The system will support PGE's annual baseline risk modeling as well as near-term risk modeling to support PSPS and storm decision making. Neara will enable PGE to efficiently scale and operationalize its standardized project scoping to target the highest risk protected sections and to evaluate multiple mitigation options for each circuit segment.
- **LiDAR Processing:** Neara will enable PGE to perform LiDAR processing in-house, reducing processing time from four or five months to less than a week while cutting software costs, maintaining flat acquisition expenses, and expanding coverage to one-third of the service area at the same price as one-tenth of the service area. The LiDAR acquisition enables PGE to regularly validate asset data, provide more accurate descriptions of vegetation conditions, and inform pole loading models.
- **Vegetation Management:** PGE will be able to optimize the risk-based program by leveraging LiDAR and satellite imagery to inform mitigation decisions. This will support wildfire mitigation and enable SAIDI and vegetation-related outage improvements. The software application will support the requirements for both the risk modeling and operational crews by having completed work automatically update the risk model, enabling a direct tie back to risk buy-down.
- **Pole Loading & Design:** Digital twin capabilities will enable pole loading analysis, streamlining pole replacements and delivering efficiencies on complex projects while integrating with outage prediction models to identify risk failures and ignition points. This technology will strengthen resilience modeling for cascading pole failures and allow for strategic crew staging during storms, resulting in faster emergency response times across the system.
- **Asset Inspection:** Inspection findings will be uploaded directly into Neara, providing historical data on pole conditions and corrections. With Neara being the foundation of PGE's risk modeling, PGE will more effectively provide risk-based correction prioritization, correlating violations to unique failure and ignition probabilities. Additionally, PGE will be employing AI-

powered violation identification, streamlining work order creation process, and identifying unauthorized attachments while avoiding additional software purchases.

- **Centralized Image Repository:** Neara will serve as a single platform to store and share inspection images, making findings visible across all PGE functions. This image repository will serve as the foundation for machine learning models that improve asset accuracy and identify hazards, reducing legal risk by ensuring violations are documented and accessible. PGE will incorporate lessons learned from PGE's 2024 Thread Imagery Platform proof of concept (RMA-03), which demonstrated how drone-based imagery and digital workflows enhance efficiency for Ignition Prevention Inspections. In that pilot, Thread was used to manage data, automate processes, annotate imagery, and generate reports for 500 structures in an HFRZ. These best practices will guide PGE's approach to building a scalable solution that supports ignition prevention and operational excellence. This use-case integrates imagery, automation, and analytics to deliver safer, more efficient inspections.

5 Wildfire Mitigation Strategy Development

5.1 Overview

To achieve PGE's 2026-2028 WMP goals and objectives shared in Section 2.1, PGE leverages the Wildfire Mitigation Strategy Development Initiative Category to include mitigation selection, WMP development, program delivery, data reporting, compliance, program maturity assessment, and continuous improvement.

PGE's wildfire prevention strategy employs diverse mitigations that address short, mid-, and long-term risk as shown in Figure 5-1. As noted above, burn probability was initially a central component of PGE's wildfire mitigation strategy. Moving forward, burn probability will not be evaluated as a standalone assessment unless new ignition or environmental risk drivers are identified. Instead, it will continue to serve as a data input for calculating risk and determining highest-risk circuit segments.

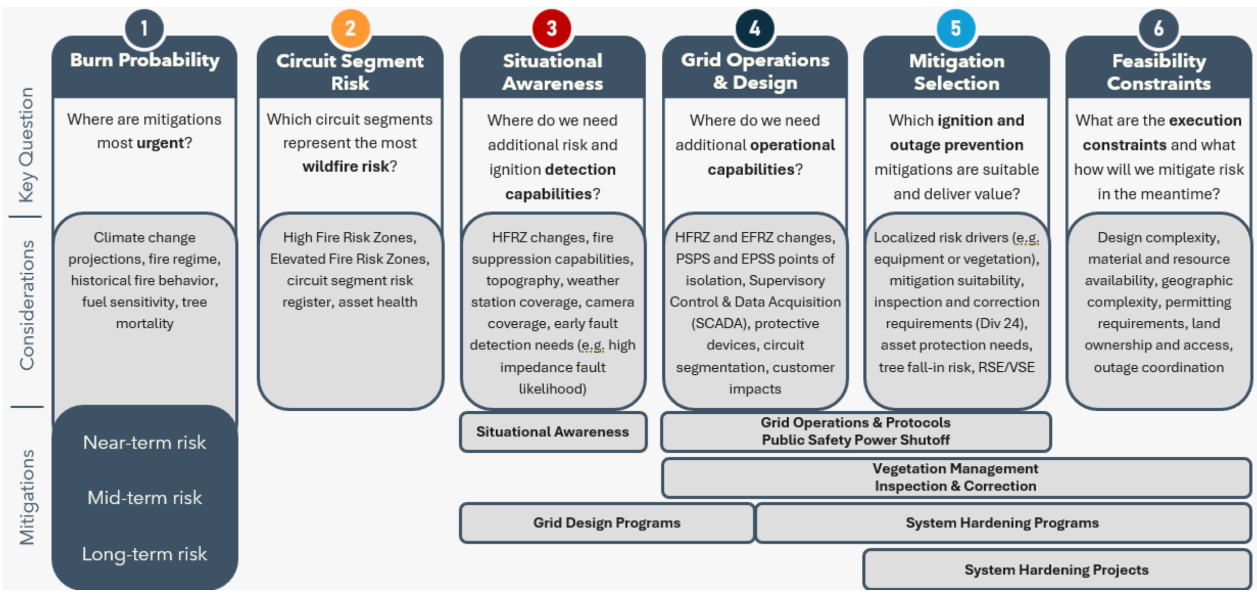


Figure 5-1: Wildfire Prevention Strategy

PGE's identified preventative actions and programs that minimize the risk of the utility's facilities causing a wildfire, along with PGE's 2026-2028 WMP Objectives, are provided in Table 5-1.

Table 5-1: WMP Initiatives and Objectives

Initiative Category	Initiative Name	Initiative ID	Objective 1 Reduce Wildfire Risk Vegetation/ Contact	Objective 2 Reduce Wildfire Risk Equipment Failure	Objective 3 Reduce Customer Impact	Objective 4 Manage Near-Term Risk
Community Outreach and Public Awareness	Community Engagement	COPA-01			X	
	Media Engagement	COPA-02			X	
	Direct to Customer	COPA-03			X	
Grid Design and System Hardening	Grid Planning & Design Standards	GDSH-01	X	X	X	
	Underground	GDSH-02	X	X		

Initiative Category	Initiative Name	Initiative ID	Objective 1 Reduce Wildfire Risk Vegetation/ Contact	Objective 2 Reduce Wildfire Risk Equipment Failure	Objective 3 Reduce Customer Impact	Objective 4 Manage Near-Term Risk
	Reconductor	GDSH-03		X		
	Covered Conductor	GDSH-04	X			
	Distribution Pole Replacement	GDSH-05		X		
	Transmission Structure Replacement	GDSH-06		X		
	Points of Isolation	GDSH-07			X	X
	Fire Safe Fuses	GDSH-08		X		
	Protection and Automation	GDSH-10			X	X
	Fire Mesh Pole Wrap	GDSH-12			X	
	Spacer Cable Pilot	GDSH-13	X			
	Breakaway Service Drop Pilot	GDSH-14	X			
Grid Operations and Protocols	Fire Season Readiness	GOP-01				X
	Enhanced Powerline Safety Settings	GOP-02	X	X		X
	Wildfire Intelligence Center	GOP-04				X
	Protection Practice Improvements	GOP-05	X	X		
Inspect/Correct	Inspection & Correction Program	IC-01		X		
	Ignition Prevention Inspections	IC-02		X		
	Asset Corrections	IC-03		X		
	Ignition Risk Corrections	IC-04		X		
	Tree Attachments	IC-05	X			
	Distribution Drone Inspections Pilot	IC-07		X		
	Transmission Drone Inspections Pilot	IC-08		X		
Public Safety Power Shutoff/Emergency Preparedness	PSPS Readiness	PSPS-01	X	X		X
	Medical Battery Support	PSPS-02			X	
	PSPS Notification Management	PSPS-04			X	
	Emergency Preparedness	PSPS-06				X
Situational Awareness and Forecasting	Situational Awareness & Forecasting	SAF-01			X	X
	AI Cameras	SAF-02				X
	Weather Stations	SAF-03				X
	Early Fault Detection	SAF-04	X	X		X
	Live Fuel Moisture Sampling	SAF-06				X
	Oregon Hazard Labs Bridge Funding	SAF-07				X
	Multi-sensor Fault Detection Pilot	SAF-08				X

Initiative Category	Initiative Name	Initiative ID	Objective 1 Reduce Wildfire Risk Vegetation/ Contact	Objective 2 Reduce Wildfire Risk Equipment Failure	Objective 3 Reduce Customer Impact	Objective 4 Manage Near-Term Risk
Vegetation Management	AWRR Program	VM-01	X			
	AWRR Active Growth Period Patrol	VM-02	X			
	AWRR Active Growth Period Mitigation	VM-03	X			
	AWRR Probable Hazard Patrol	VM-04	X			
	AWRR Probable Hazard Mitigation	VM-05	X			
	AWRR Clearance Pilot	VM-07	X			

5.2 Framework

PGE's mitigation strategy framework addresses mitigation selection, program delivery, and data governance.

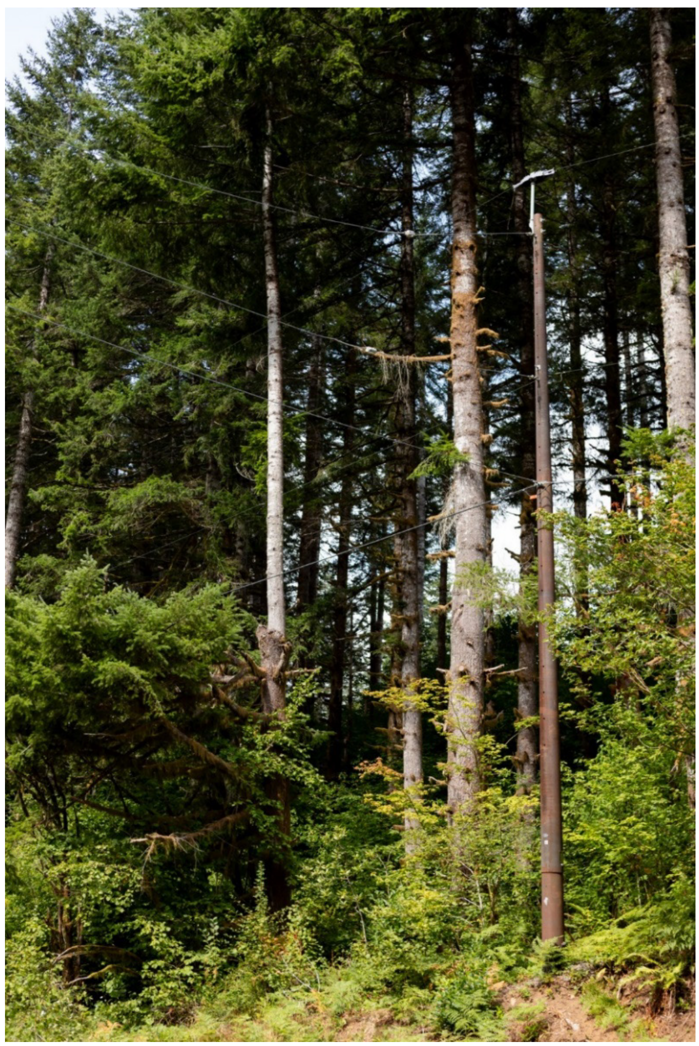


Figure 5-2: Grid Planning and Design Standards: Ductile Iron Pole

5.2.1 Mitigation Selection

PGE acknowledges that wildfire risk exists across its service area, but certain zones require more urgent mitigation projects due to their higher susceptibility to catastrophic wildfires. Figure 5-3 illustrates how PGE's standard mitigations are applied to the various wildfire risk areas identified in Section 4.2.2.

Wildfire Mitigation	HFRZ	OFRZ	EFRZ	Non-HFRZ WRA	Non-HFRZ
Work Practices	●	●	●	●	○
Design & Constr. Standards	●	●	●	●	○
Public Safety Power Shutoff	●	●	●	N/A	◎
Grid Operations & Protocols	●	●	●	N/A	○
Situational Awareness	●	●	◎	N/A	◐
Grid Design	◎	◎	◎	N/A	○
System Hardening	◎	◎	◐	N/A	○
Vegetation Management	●	⊙	○	N/A	○
Inspect / Correct	●	⊙	○	N/A	○

● Receives wildfire mitigation
◎ Candidate for wildfire mitigation
◐ Previous, in-flight, and adjacent zone investments may apply
⊙ Wildfire mitigation addressed by existing program
○ Does not receive wildfire mitigation, risk reduction addressed by standard work

Figure 5-3: Mitigation Applicability

PGE's mitigation strategy aims to identify the highest risk circuits and maximize customer value by balancing risk mitigation with cost impacts. PGE has matured its approach to selecting which mid- and long-term risk mitigations to prioritize. This more targeted selection process identifies the most cost-effective mitigation for each circuit segment. Figure 5-4 below illustrates PGE's mitigation selection and investment portfolio development process.

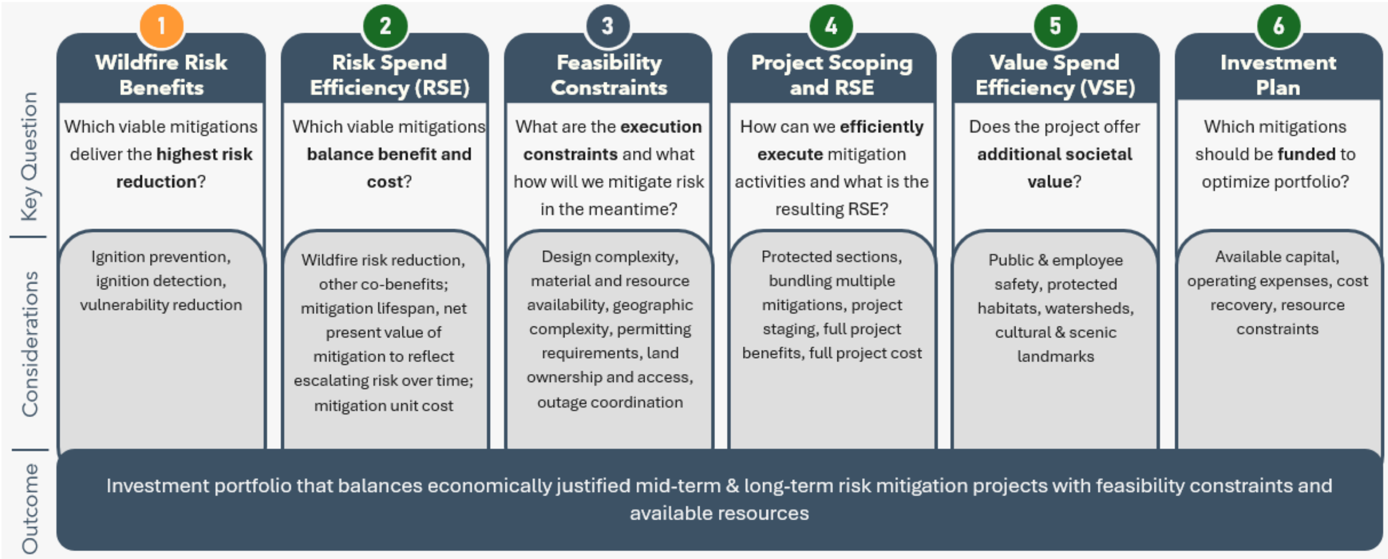


Figure 5-4: Mitigation Selection Process

5.2.1.1 Wildfire Risk Benefits

PGE relies on quantitative measurements to identify segments with the highest wildfire risk mitigation potential. PGE calculates wildfire risk as the product of ignition probability, fire growth potential, and vulnerability. This analysis quantifies the likelihood of asset, vegetation, or animal-caused ignitions developing into consequential wildfires; PGE then estimates potential financial consequences of an ignition through analysis of historical costs related to damaged structures and acres burned. PGE maintains a detailed database of risk calculations at the individual asset level, which PGE can then aggregate these values to protected sections, feeders, substations, and transmission lines. The most important recent advancement in PGE's approach is the ability to standardize the mitigation planning process by consistently initiating risk assessment at the protected section level. This evolution represents a shift from calculating risk at multiple levels without a standardized starting point to specifically targeting the highest risk protected sections. By focusing on the protected section instead of rolled up feeder view, PGE has created a more targeted approach for commencing the wildfire risk reduction analysis. For each protected section, PGE will evaluate a standard set of mid-term and long-term mitigations, from which it can quantify the estimated risk buy-down due to Ignition prevention, ignition detection, and vulnerability reduction.

Figure 5-5: Reconductor Project in Progress

5.2.1.2 Risk Spend Efficiency

PGE calculates RSE for each mitigation option by comparing escalating risk reduction benefits over time, co-benefits (inspections avoided and vegetation costs avoided) compared to project costs. This creates a true benefit-to-cost ratio identifying solutions that deliver the greatest benefit per dollar spent, which allows for comparison across different investment portfolios competing for limited budget dollars. While an RSE of 1.0 or above is generally considered economically viable, the highest RSE option may not always be optimal due to location-specific factors

5.2.1.3 Feasibility Constraints

PGE plans to leverage the risk reduction and RSE data at the protected section level to bundle and create potential project scopes. Before developing formal project scopes, we conduct a critical assessment of various mitigation options against feasibility constraints ranging from design complexity, material and resource availability, geographic complexity, permitting requirements, land ownership/ access, and outage coordination. This upfront evaluation of feasibility constraints helps us develop more efficient project scopes and identify potential obstacles early in the process to develop a high-level investment roadmap.

5.2.1.4 Project Scoping and Risk Spend Efficiency

Upon completion of the feasibility constraint assessment, PGE leverages risk reduction and RSE data to bundle protected sections together to create project scopes that deliver targeted mitigations to customers. RSE is then scaled to the project level, where full spectrum of risk reduction and co-benefits are compared to the project costs to determine the value of the proposed project. Recognizing the interconnectedness of wildfire and reliability investments, PGE quantifies both wildfire risk and reliability risk in its project level RSE analysis. This integrated approach to risk modeling is central to PGE's efforts recognizing reliability events, such as asset failures and vegetation impacts, could result in an ignition and/or wildfire under different environmental conditions. As such, wildfire risk assessment requires analysis of a broad range of risk events

5.2.1.5 Value Spend Efficiency

As part of PGE's process to evaluate the customer value delivered by its wildfire mitigation investments, PGE evaluates the additional public and employee safety, reliability benefits, environmental impact to protected habitats, watersheds, cultural resources, viewsheds, compliance requirements and customer satisfaction. This evaluation enables prioritization of high quality, aligned decisions around capital projects to achieve greatest cost-effective risk reduction while delivering multiple value stream.

5.2.1.6 Investment Plan

PGE's Wildfire investment plan involves developing a menu of potential projects targeting highest risk areas across the service area, with each evaluated for feasibility constraints and economic/societal value through RSE and VSE. This balanced multi-year roadmap weighs risk mitigation benefits against capital and resource availability as well as feasibility constraints such as permitting. This enables strategic funding requests in the appropriate years to achieve risk mitigation goals.

5.2.2 Program Delivery

PGE continues to mature in demonstrating delivery of its Wildfire Mitigation Program through a compliance program focused on Oregon regulatory requirements and benchmarking with leading practice program design and reporting used by peer utilities. Highlights from the program scope include:

- Roles and Responsibilities
- Monitoring and Reporting
- Issue evaluation

5.2.2.1 Roles and Responsibilities

Each Oregon Administrative Rule, WMP commitment, and Area of Additional Improvement is mapped to a unique requirement. Each requirement is assigned to an owner who is responsible for completion and providing either an attestation or evidence of compliance with each requirement. A compliance specialist oversees the comprehensive wildfire mitigation compliance program and is responsible for managing the comprehensive program set of requirements, including due dates where applicable, and driving program and/or compliance requirements to completion using PGE's Compliance Management System as a system of record.

5.2.2.2 Monitoring and Reporting

PGE leverages a monitoring and reporting framework that compares actual results to targets shared in the WMP using Key Performance Indicators (KPIs).

- WMP Execution KPIs (progress vs. planned): % of completion compared to WMP target.
- Outcome and Risk KPIs: number of ignitions, impacts from EPSS, etc.

Execution KPIs are evaluated weekly while Outcome & Risk KPIs are evaluated monthly, quarterly, or annually. KPIs that are not performing to the original plan are evaluated to determine whether recovery is expected, whether a recovery plan is required to deliver on the original plan, or the plan must be altered. When applicable, lessons learned are developed to prevent reoccurrence of potential plan deviations.

In addition to WMP and WMP Updates, PGE provides external reporting to the OPUC through the following methods and timeframes:

- Mid-year and Full Year Retrospective Reports filed on September 1 and March 1, respectively
- Data Template Workbook filed for Q1-Q3 and Full Year on December 31 and March 31, respectively

5.2.2.3 Issue Evaluation

In 2025, PGE established an Issue Evaluation process modeled after PGE's NERC Reliability Compliance Program Issue Evaluation that will be further matured in 2026. The purpose of this process is to identify and evaluate potential deviation from compliance requirements or plan to prevent recurrence and foster continuous improvement. The process considers requirements laid out in OARs, WMP Guidelines, OPUC Recommendations, PGE WMP commitments, and PGE wildfire-related plans and subplans. As deviations are identified, PGE will perform an evaluation, identify the underlying cause, and develop corrective or preventive actions that will be tracked in PGE's Compliance Management System. The Issue Evaluation process was initiated in 2025 to focus on two areas:

- Developing the Issue Evaluation template
- Developing the stakeholder interview and correction process

The focus of this program in 2026 will be to refine criteria for inclusion into the program, finalize documentation, and deliver training to PGE personnel to support implementation.

5.2.3 Data Governance and Validation

PGE recognizes that data is a foundational asset that enables effective wildfire mitigation planning, operational readiness, and regulatory compliance. Through investment in staff and technology to steward data governance, PGE has established a rigorous framework for data used across wildfire mitigation activities.

During the 2026–2028 period, PGE will continue to evaluate and refine its data governance and validation practices to strengthen quality assurance, consistency, and interoperability across systems that support wildfire mitigation. These efforts are guided by PGE's broader Data Governance Framework, which defines how data is collected, stored, and used through coordinated application of people, processes, and technology.

Continuous improvement in this area will be informed by multiple inputs—including data audits, maturity models, independent reviewer feedback, after-action reviews, and stakeholder observations—to identify opportunities to enhance data integrity and traceability. Key focus areas include:

- **Data Risk Identification and Assessment:** Evaluating potential threats to data integrity, including incomplete or outdated information, inconsistent data handling, or version control challenges. Risks are prioritized by potential impact on wildfire prevention and regulatory compliance.
- **Data Validation:** Reviewing data against defined schema, formats, and ranges to increase accuracy and consistency across systems. PGE's validation processes emphasize early error detection, clear source documentation, and consistent dating for all reported figures.
- **Quality Assurance and Quality Control:** Applying preventive (QA) and detective (QC) measures to maintain accuracy from data collection through publication. QA focuses on standardizing procedures and training, while QC involves testing and auditing to confirm results meet defined quality standards.
- **Governance and Accountability:** Maintaining clear roles and responsibilities through PGE's established data governance structure, including Data Owners, Stewards, and Custodians, to improve accountability for data management decisions and compliance with corporate retention and security policies.
- **Monitoring and Continuous Improvement:** Utilizing dashboards, benchmarking, and peer review to monitor data quality metrics, track emerging risks, and implement corrective actions. Lessons learned from audits, regulatory feedback, and internal reviews are incorporated into ongoing training and process refinements.

Through these efforts, PGE aims to continuously enhance the reliability and defensibility of data that supports wildfire mitigation planning, while remaining adaptable to evolving regulatory requirements and operational needs. The approach reinforces PGE's commitment to transparency, consistency, and continuous improvement—providing a trusted foundation for decision-making, reporting, and risk management across the enterprise.

5.3 Results

Table 5-2 shows a summary of the regulatory filings associated with PGE's wildfire mitigation program in 2025, including the status at the time of this filing.

Table 5-2: PGE 2025 Regulatory Filings

Regulatory Filing	Reference	Due Date	Status
2024 Full Year Retrospective Report	Docket UE 412	March 1, 2025	Complete
2024 Full Year Data Template	Docket UM 2340	March 31, 2025	Complete
2025 Mid-Year Retrospective Report	Docket UE 412	October 1, 2025	Complete
2026 – 2028 Wildfire Mitigation Plan	OAR 860-300-0020(2)	December 31, 2025	Planned
2025 Q1-Q3 Data Template Workbook	Docket UM 2340	December 31, 2025	Planned
2025 RSE Workbook	Docket UM 2340	December 31, 2025	Planned
2025 PSPS Annual Report	OAR 860-300-0070(1)	December 31, 2025	Planned

5.4 Initiatives and Targets

PGE's Wildfire Mitigation Strategy Development category includes initiatives designed to track costs associated with PGE's strategy development, program delivery, and governance.

5.4.1 Initiative Summary Table

Table OPUC 5-1: Wildfire Mitigation Strategy Development Initiative Cost Summary in Thousands

Initiative Activity	Tracking ID	Target Unit	2026 Target	2026 Forecast ($1,000)	2027 Target	2027 Forecast ($1,000)	2028 Target	2028 Forecast ($1,000)	Three-Year Forecasted Total ($1,000)	Section
WMP Strategy & Plan Development	WMSD-01	Approval of WMP	1	$1,560	1	$1,662	1	$1,833	$5,055	5.4.2.1
WMP Data Template Workbook	WMSD-02	# data template workbook filings	3	$108	3	$111	3	$114	$333	5.4.2.2
Wildfire Mitigation Strategy Development IT	WMSD-03	N/A	N/A	$190	N/A	$143	N/A	$85	$418	5.4.3
WMP Performance Management	WMSD-04	N/A	N/A	$409	N/A	$423	N/A	$435	$1,267	5.4.2.3

Notes:
1. Forecasts and Three-Year Totals provided in $/thousands.
2. All initiative Forecasts and Three-Year Totals include capital cost and operations and maintenance expense.

5.4.2 Initiative Details

5.4.2.1 Strategy and Plan Development (WMSD-01)

The purpose of this initiative is to capture enterprise costs associated with the development of PGE's WMP and the comprehensive strategy of mitigation selection based on results of the wildfire risk analysis. Discussion of the work included in mitigation selection in this initiative is included in Section 5.2.1. The enterprise cost for compliance and performance management, beginning in 2026, has been moved to initiative WMP Compliance and Performance Management (WMSD-04).

5.4.2.2 WMP Data Template Workbook (WMSD-02)

In response to requirements adopted by the OPUC in 2340 Order 24-326, PGE developed this initiative to track the enterprise cost of delivering the data template workbook on December 31, for Q1-Q3 performance of the current year, and March 31, for entire prior year performance. Additionally, the cost to support the new RSE Workbook that will be filed on December 31 per OPUC 2340 Order 25-436 will be included in this initiative beginning in 2025.

5.4.2.3 WMP Compliance and Performance Management (WMSD-04)

The purpose of this initiative is to capture enterprise costs associated with WMP compliance and performance monitoring of initiatives. Included in this effort in 2026 will be continued maturation of identifying potential non-compliancy in execution of the WMP and tracking corrective and preventive actions to mitigate reoccurrence.

Figure 5-6: Crews Conduct Cross-Arm Replacement

5.4.3 Wildfire Mitigation Strategy Development IT (WMSD-03)

This initiative was started in 2025 to track information technology (IT) investments that support the Wildfire Mitigation Strategy Development initiatives.

5.4.3.1 Data Template Workbook Automation and Monitoring

The OPUC Data Template Workbook filing process requires coordination across 13 different functions to compile, validate, and submit comprehensive wildfire program data twice annually. To support this filing, PGE consolidated critical data sources in a centralized database, including ignition events, Supervisory Control and Data Acquisition (SCADA) data, and inspection records, creating the technical foundation for automating portions of the regulatory filing process.

Data Template Workbook automation improves efficiency, addresses data quality, enables timely regulatory filings, and establishes infrastructure for expanded automation as data requirements increase. Automated workbook population leverages Snowflake consolidated data sources to directly feed workbook sections through scripted automation wherever data availability and formatting requirements enable systemic population. Data is maintained in Snowflake through 2025 foundational work and ongoing integration efforts, reducing manual extraction and formatting effort. 2026 automation efforts will focus on workbook sections with the highest manual burden and readily available data sources, including sections related to geoprocessing activities where Snowflake integration offers substantial efficiency gains.

The progress tracking dashboard will provide enterprise-level visibility into the entire Data Template Workbook compilation lifecycle, enabling timely regulatory filing. All contributors will access real-time status tracking showing their submission completeness, data quality validation results, and outstanding issues requiring resolution before filing deadlines. Program managers monitor aggregate progress across all functions, identifies bottlenecks, and facilitates issue resolution before filing deadlines.

The 2026 data flow improvements will establish the technical infrastructure and operational workflows required for expanded capabilities in 2027-2028 as regulatory requirements evolve and additional data sources integrate into consolidated platforms.

- **Data Collection/Procurement:** Snowflake consolidated data sources, SCADA operational data, and inspection records; geo-processed data from geodatabase server; source system data from grid management platforms, work management system, and operational databases.
- **Data Integration/Conditioning:** Automated data extraction from Snowflake for sections with consolidate data availability; data transformation processes formatting outputs to match template structure; integration with geodatabase results for sections requiring specialized geoprocessing.
- **Data Analysis:** Data quality validation; progress tracking metrics by function; timeline and filing deadline monitoring
- **Delivery:** Automation of select sections; real-time progress tracking dashboard accessible to all contributors; comprehensive audit trail documentation

5.5 Continuous Improvement

5.5.1 Program Maturity

The International Wildfire Risk Mitigation Consortium (IWRMC) maturity results underscored the importance of clear data governance, performance tracking, and documentation. Between 2022 and 2025, PGE saw the greatest maturation of all IWRMC Maturity Model categories in Data Management and Governance. This section, however, has been removed from the latest version of the IWRMC model. With a commitment to sound data governance, PGE will seek opportunities to use other models to assess growth in this arena. Continuous improvement will include reviewing processes for data stewardship and enhancing coordination between program delivery, IT systems, and reporting functions. PGE will also examine how cross-functional program management can improve accountability and efficiency across wildfire mitigation initiatives.

5.6 Pilot Technology Summary

The following tables capture pilot efforts projected to occur during the 2026-2028 timeframe. Some of these pilots were initiated in 2025 while others are scheduled to commence in 2026.

Table OPUC 5-2: Pilot Technology Summary

Pilot/Initiative Name	Spacer Cable Pilot Tracking ID: GDSH-13
Details	See Section 6.2.12
Goals	The intent of this pilot is to compare the efficacy of Spacer Cable against traditional overhead hardening and covered conductor on PGE's system using statistical methodologies.
Status	Planned
Current penetration/saturation	Not applicable
Application	Overhead primary system hardening
Milestones	2026 – Identify specific circuit segments for the pilot, continue benchmarking, and commence change management. 2027 – Begin implementation based on results from prior year planning.
Forecast Capital ($1,000)	$3,499
Forecast O&M ($1,000)	$0
Actual Capital (as of 9/30/2025) ($1,000)	$0
Actual O&M (as of 9/30/2025) ($1,000)	$0
Implementation Timeframe	January 1, 2026-December 31, 2028.
Pilot Lifespan	Three years (2026-planning; 2027-design; 2028-construction)
Pilot/Initiative Name	**Breakaway Service Drop Pilot Tracking ID: GDSH-14**
Details	See Section 6.2.13
Goals	PGE will begin planning and installation of these breakaway services in 2026 and 2027, programmatically, on previous overhead to underground conversion projects
Status	Planned
Current penetration/saturation	Not applicable
Application	Overhead secondary system hardening

Pilot/Initiative Name	Breakaway Service Drop Pilot Tracking ID: GDSH-14
Milestones	2026 – Begin planning for breakaway services on feeders that have been undergrounded in HFRZs 2027 – Begin implementation of breakaway services on feeders identified during the planning stage
Forecast Capital ($1,000)	$463
Forecast O&M ($1,000)	$0
Actual Capital (as of 9/30/2025) ($1,000)	$0
Actual O&M (as of 9/30/2025) ($1,000)	$0
Implementation Timeframe	January 1, 2026–December 31, 2028.
Pilot Lifespan	Three years (2026-planning; 2027 & 2028-implementation)
Pilot/Initiative Name	**Distribution Aerial Digital Inspection Pilot Tracking ID: IC-07**
Details	See Section 7.2.6.2
Goals	Evaluate effectiveness of using drones for distribution Ignition Prevention Inspections. See Section 7.2.6.2 for more details.
Status	On-going
Current penetration/saturation	New HFRZ 12 Ignition Prevention Inspections were performed in 2025
Application	Ignition Prevent Inspections
Milestones	Program kicked off in 2025 and RSE methodology developed
Forecast Capital ($1,000)	$0
Forecast O&M ($1,000)	$612
Actual Capital (as of 9/30/2025) ($1,000)	$0
Actual O&M (as of 9/30/2025) ($1,000)	$41
Implementation Timeframe	2025–2028
Pilot Lifespan	Four years
Pilot/Initiative Name	**Transmission Aerial Digital Inspection Pilot[2] Tracking ID: IC-08**
Details	See Section 7.2.6.3
Goals	Evaluate effectiveness of using drones for transmission Ignition Prevention Inspections.
Status	Planned
Current penetration/saturation	Partial scope of 230 kV and 500 kV Ignition Prevention Inspections
Application	Ignition Prevent Inspections
Milestones	2026 – Continue to develop aerial digital inspection processes and procedures for 230 kV and 500 kV transmission structures and capture learnings.

Pilot/Initiative Name	Transmission Aerial Digital Inspection Pilot[2] Tracking ID: IC-08
	2027 – Implantation of learnings from 2026 to fully implement and evaluate efficacy of pilot in 2027.
Forecast Capital ($1,000)	$0
Forecast O&M ($1,000)	$0[2]
Actual Capital (as of 9/30/2025) ($1,000)	$0
Actual O&M (as of 9/30/2025) ($1,000)	$0
Implementation Timeframe	2025–2027
Pilot Lifespan	Four years

Pilot/Initiative Name	AWRR Clearance Pilot Tracking ID: VM-07
Details	See Section 8.2.8
Goals	Evaluate whether increasing minimum vegetation clearance around distribution conductors from ten feet to fifteen feet meaningfully improves wildfire risk reduction, reliability, and long-term cost efficiency.
Status	Planned
Current penetration/saturation	Not applicable
Application	Vegetation Management Clearance
Milestones	2026 – Results will establish baseline implementation costs; subsequent years will measure reliability performance, regrowth rates, and public acceptance.
Forecast Capital ($1,000)	$0
Forecast O&M ($1,000)	$1,865
Actual Capital (as of 9/30/2025) ($1,000)	$0
Actual O&M (as of 9/30/2025) ($1,000)	$0
Implementation Timeframe	January 1, 2026–December 31, 2028
Pilot Lifespan	Three years

Pilot/Initiative Name	Multi-sensor Fault Detection Pilot Tracking ID: SAF-08
Details	See Section 9.2.6
Goals	Evaluate use cases for multi-sensors to complement existing RF sensors and system protection capabilities.
Status	Planned
Current penetration/saturation	Not applicable
Application	Situational Awareness and Forecasting Grid Monitoring Systems
Milestones	2026 – Evaluate use cases and technologies that will augment and complement current RF sensor deployment and system protection capabilities. Select vendor and identify circuit(s).

Pilot/Initiative Name	Multi-sensor Fault Detection Pilot Tracking ID: SAF-08
	2027 – Begin implementation of multi-sensors on circuits identified in the planning stage. 2028 – Continue implementation of multi-sensors on circuits identified in the planning stage.
Forecast Capital ($1,000)	$161
Forecast O&M ($1,000)	$0
Actual Capital (as of 9/30/2025) ($1,000)	$0
Actual O&M (as of 9/30/2025) ($1,000)	$0
Implementation Timeframe	January 1, 2026—December 31, 2028
Pilot Lifespan	Three years (2026-planning; 2027 & 2028-implementation)

Notes:
1. All forecasts provided in $/thousands.
2. Scope for transmission aerial digital inspections is under development. However, PGE's Reliability Technicians will continue to utilize drones to document inspection findings in need of repair. More information will be provided in PGE's next WMP update.

6 Grid Design and System Hardening

6.1 Overview

Risk reduction remains the primary driver behind PGE's strategic Grid Design and System Hardening work. PGE's planning focuses on both the reduction of wildfire risk caused by PGE's assets and increasing the resiliency of PGE's assets to wildfire damage. Some Grid Design programs result in intermediary benefits, such as operational capabilities to facilitate a PSPS or allow implementation of EPSS. This category contains initiatives addressing all four of PGE's objectives:

- **Objective #1:** Reduce wildfire risk associated with electrical contact to vegetation or other objects.
- **Objective #2:** Reduce wildfire risk associated with equipment failure.
- **Objective #3:** Reduce wildfire and mitigation impacts to customers.
- **Objective #4:** Increase situational awareness and operational capabilities to manage near-term risk.

As discussed in Section 5.2.1, PGE's mitigation strategy addresses near-, mid-, and long-term risk. Grid Design and System Hardening initiatives support all three approaches:

- PGE has developed capital Grid Design programs to provide operational capabilities that enable PGE to address **near-term** risk by implementing EPSS or PSPS.
- To address **mid-term** risk, PGE replaces assets at risk of failure, including but not limited to poles, transformers, crossarms or fuses; priorities are informed by annual findings during PGE's annual Ignition Prevention Inspection work, as discussed in Section 7.
- **Long-term** risk reduction is addressed primarily by complex System Hardening projects, leveraging large scale rebuilds or underground conversion projects, which align with industry's best practices to balance the costs of mitigations against proposed benefits of risk reduction.

While most of this work focuses on HFRZs in the distribution service area where PGE's customers are served, programs may extend into EFRZs, and assets in OFRZs are included in accordance with OAR 860-300-0020(1)(a)(A-B). PGE's ability to deliver clean, reliable energy safely and consistently is considered in the planning and execution of these projects.

6.2 Mitigations

6.2.1 Grid Planning and Design Standards (GDSH-01)

This initiative is intended to track the planning and scoping of specific GDSH initiatives as well as Grid Planning and Design Standards updates that drive the long-term programmatic and systematic work performed on PGE's system. PGE has developed Fire-Safe Design and Construction standards to reduce ignition likelihood and wildfire consequences, improving the function and resiliency of the system over time and through the normal courses of business. Changes to these design standards are informed by industry best practices, emerging technologies or new vendor information, root-cause analysis studies, industry and peer benchmarking, risk-analysis, or partnerships with industry leaders such as the Electric Power Research Institute (EPRI). As PGE's system is complex, with ongoing operational considerations driven by legacy construction methods, it is expected that new information researched and published within PGE's Standards will drive operational and system changes over time.

Fire-Safe Design and Construction Standards are applied in HFRZs, EFRZs, OFRZs, and WRAs through two methods:

- **Systematic Work:** Applied to regular work such as new customer line extensions, pole replacements, municipality driven projects, etc.
- **Programmatic Work:** Driven by specific PGE programs, as addressed primarily by PGE's Wildfire Mitigation Plan.

6.2.1.1 Fire Safe Fuses

PGE requires Cal Fire Exempt fuses in areas prone to wildfire risk, reducing the likelihood of ignition. Traditional expulsion-type fuses used to protect the distribution system vent hot gases and particles when interrupting fault current that can ignite surrounding vegetation or dry brush. Cal Fire Exempt fuse technologies typically involve current-limiting, non-expulsion, and low-expulsion fuses.

6.2.1.2 Ductile Iron Poles

In areas subject to wildfire risk, PGE standards may require the use of non-wood poles. Ductile iron poles are typically used for distribution circuits while steel may be used for transmission. Ductile iron poles have a longer life expectancy compared to typical wood poles and are resistant to rot, woodpeckers, insects, as well as being inert against fire.

Non-wood poles in wildfire risk areas are required when:

- The pole has a transmission circuit attached.
- The pole is located in an environmentally sensitive area.
- There is no failure containment structure within three spans in any direction.
- The pole is located near railroad tracks, navigable waterways, interstate highways, or high-speed highways.
- Trees, woody vegetation or structures are within 30 feet horizontally of the pole.

Some exceptions are allowed to promote safety of PGE's crews. For example, non-wood poles must be bucket-truck accessible and able to be replaced without an outage. If a wood pole is required due to safety reasons, the pole is wrapped with fire mesh.

Figure 6-1 below shows the process of pole material selection, promoting the use of fire-resistant material while promoting system hardening initiatives across PGE's system.

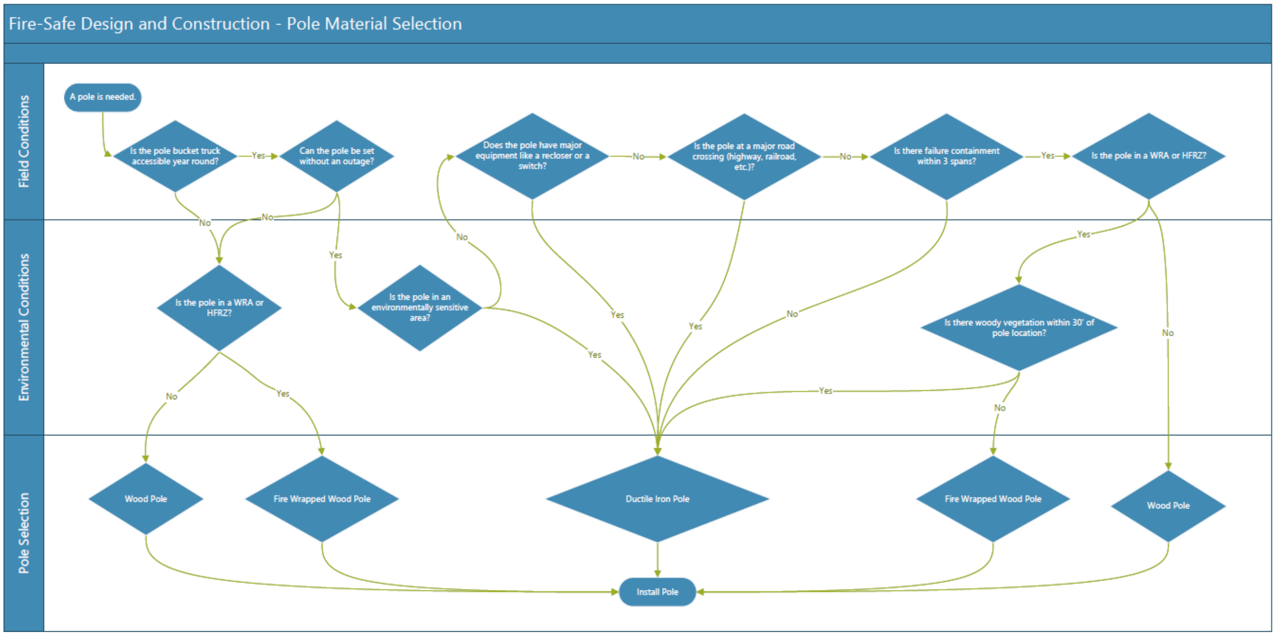


Figure 6-1: Fire-Safe Construction Pole Material Decision Tree

6.2.1.3 Pole and Structure Withstand Criteria

New poles and structures in areas prone to wildfire risk are designed to higher withstand criteria that exceeds minimum NESC requirements. Exceeding minimum wind criteria reduces the likelihood of a pole failure during weather conditions typically associated with extreme wildfire risk, decreasing the ignition risk. Greater withstand criteria aids in more resilient systems over time compared to typical NESC Grade C construction applied in typical distribution systems. Structures are typically reframed with fiberglass crossarms to reduce ignition likelihood associated with crossarm failures and increase the Basic Insulation Level (BIL) of the pole top assembly.

6.2.1.4 Fire Mesh Wrap

If wood poles are utilized in a wildfire risk area, the poles are wrapped with fire mesh to decrease vulnerability to wildfire damage. Fire mesh pole wrap helps maintain strength and structural integrity in the event of a fire impacting a wood structure. The material installation may also reduce the chance that the poles and conductor fall to the ground in the event the pole is damaged by a fire, limiting additional repair challenges.

PGE installs fire mesh pole wrap to a distance of eight feet above ground line and to a depth of six inches below soil level with the intention of deploying the pole wrap on wood poles where fire behavior and flame lengths would not exceed eight feet above ground line. In areas of heavier or taller vegetation, fire mesh pole wrap is still likely to be installed programmatically as a cost-effective measure to preserve the pole in the event of a low intensity fire. Should a pole surrounded by more dense vegetation require future replacement, it may be replaced with a ductile iron pole as described above.

6.2.2 Underground (GDSH-02)

PGE's underground conversion program is intended to remove overhead power lines to significantly reduce wildfire risk and operational expenses while also reducing the likelihood a circuit will be impacted by a PSPS.

6.2.2.1 Benefits

Underground conversion projects deliver the following benefits to customers:

- **Ignition Prevention:** By removing overhead lines, PGE significantly reduces the chance of electrical contact with trees, limbs, and other objects, such as mylar balloons, birds, or squirrels.
- **Reliability Benefits:** Compared to overhead, underground circuits provide reliable service to customers year-round by limiting weather-related impacts and preventing outages due to contact with tree limbs, fallen trees, and other objects. Depending upon the system configuration, PGE may be able to avoid de-energizing underground circuits during a PSPS event. In contrast, other system hardening alternatives do not protect against fallen trees or reduce the need for de-energization during a PSPS event.
- **Operating Expense Reduction:** Converting an overhead circuit to underground eliminates the need for costly vegetation management and reduces outage response costs. In addition to removing the overhead powerlines, PGE also removes or sells power poles. If PGE vacates a pole with joint occupants, the pole is sold or transferred to an attaching third party operator (typically a telecommunications company), reducing the cost of ownership for PGE customers and eliminating the need for annual Ignition Prevention Inspections. The sale of the poles to an attaching third party may also offset the cost of the capital project.

6.2.2.2 Feasibility Constraints

In certain locations, underground conversion may not be feasible. For example, rocky terrain, creek or river crossings and other challenging environmental conditions may make it prohibitively difficult or expensive to install underground systems. In such cases, PGE may consider alternative risk reduction measures, such as deploying covered conductor in combination with other protective strategies such as early fault detection or other technologies.

For circuits where PGE selects undergrounding to be the appropriate risk reduction methodology, line routing must be evaluated. In urban or easily accessible areas, the new underground route may follow the current overhead path, assuming conflicts with other utilities, such as natural gas, sewer, communications, or water lines, can be avoided or mitigated. If the line route needs to be augmented to avoid these conflicts, easements and additional municipality coordination is required. PGE also considers other line rerouting, such as removing line from private property and shifting to public rights-of-way when possible.

In more challenging environments such as mountainous or sparsely populated areas, topography often presents additional challenges. Steep terrain, dense vegetation, water crossings, erosion risks, and heavy equipment access restrictions can all complicate design, permitting, and construction. In these situations, overhead lines may need to be relocated to public rights-of-way. The resulting underground line mileage is often greater than the original overhead line mileage.

During the detailed design process, PGE coordinates with customers to design new circuit routes. Project teams maintain customer communications with in-depth personal field meetings in addition to the annual community workshops as detailed in Section 13.2.3.

In some situations, such as Summit-Meadows, a complete line routing change is required. The existing circuit route is overland and creates considerable challenges for outage restoration during winter weather events as well as challenges investigating potential ignitions. Surrounded by Mt. Hood National Forest, wilderness, recreational areas and the Pacific Crest Trail, this circuit requires rerouting because the terrain is not suitable for underground construction. This project is expected to be completed in 2029 pending coordination with multiple agencies, including the USDA Forest Service, Oregon Department of Transportation and ski resorts being served by this load.

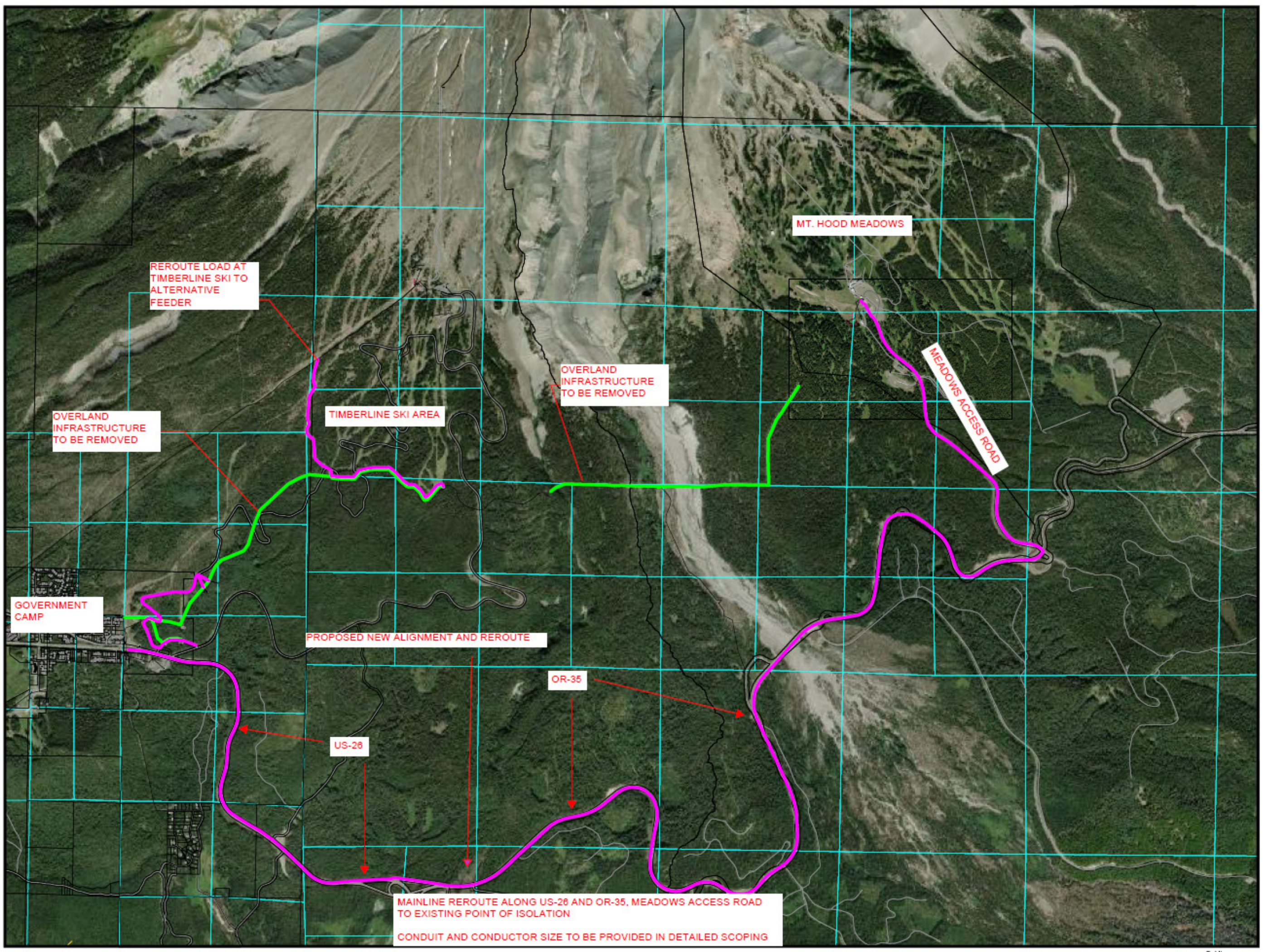


Figure 6-2: Summit-Meadows Proposed Reroute

6.2.3 Reconductor (GDSH-03)

PGE selects traditional overhead hardening in specific areas to reduce ignition risk associated with conductor failure.

6.2.3.1 Benefits

PGE's copper replacement projects are designed to strengthen and modernize the electric grid, reducing the probability that overhead equipment becomes the source of a wildfire ignition. Copper conductor, as verified by an EPRI study detailed in Section 6.5.2, is an older conductor of small diameter that is prone to pre-fault burn down.

6.2.3.2 Layered Mitigation

Project scope includes the replacement or trussing of poles to meet capacity requirements, replacement of crossarms with stronger, fire-resistant materials, and replacement of protective devices like fuses and reclosers to minimize fault energy. Collectively, these mitigations reduce ignition likelihood and vulnerability to wildfire damage.

6.2.4 Covered Conductor (GDSH-04)

PGE implements covered conductor to reduce ignition likelihood as an alternative to underground conversion. To mitigate risks of high impedance faults associated with covered conductor, these projects typically require the installation of Early Fault Detection (EFD) sensors as described in Section 9.3.4.

6.2.4.1 Benefits

Covered conductor projects deliver the following benefits to customers:

- **Ignition Prevention:** By installing covered conductors, PGE reduces the chance of electrical contact with trees, limbs, and other objects, such as mylar balloons, birds, or squirrels. Covered conductors also prevent phase-to-phase flashovers due to conductor slap or galloping.
- **Reliability Benefits:** Covered conductor improves reliability to customers year-round by limiting weather-related impacts and preventing outages due to contact with tree limbs and other objects.
- **Operating Expense Reduction:** Installing covered conductor reduces the cost of outage response by limiting impacts resulting in tree limb and other object contact.

6.2.4.2 Application Considerations

Covered conductor technology is designed to reduce ignition potential by preventing sparks when conductors come into contact with tree limbs, wildlife, debris or other aerial materials like balloons. Covered conductor can be an effective way to reduce fault-related ignition incidents at a lower cost compared to underground conversion, while still maintaining system accessibility and operational flexibility.

Covered conductors do not mitigate the risk of a tree fall-in, so PGE utilizes the geo-probability analysis discussed in Section 4.2.3.3. to identify which segments are appropriate for application of this mitigation.

Additionally, covered conductor introduces the risk of a High Impedance Fault (HIF) that is difficult for traditional system protection devices like fuses or reclosers to detect. Typically, a tree falling on an energized line would immediately result in fault current, causing a protective device to operate, de-energizing the circuit. With covered conductor, tree contact would not immediately draw fault current, as is the exact intent of the conductor technology, and the insulation may abrade or be damaged by the tree-fall event. Insulation damage may further decay over time, potentially resulting in arcing and an ignition. In remote areas with poor detection and response times, this could introduce additional wildfire risk.

6.2.4.3 Layered Mitigation

To mitigate the risk an undetected HIF, PGE installs EFD sensors on circuits with covered conductor. These sensors can detect partial discharge associated with covered conductor abrasion, damage to insulators, crossarms, cutouts or other electrical equipment. See Section 9.2.4 for additional details.

During a covered conductor project, PGE replaces aging and overloaded wood poles with ductile iron poles. While PGE would not typically replace poles solely based on age, system resiliency against wildfire damage is improved by increasing the diversity of pole materials on a circuit.

Covered conductor projects further reduce ignition risk by including in the scope deployment of Fire Safe Fuses (see Section 6.2.8 for details), installation of avian and squirrel guards to prevent wildlife contact, crossarm and insulator replacement with fiberglass or polymer materials, and the application of greater withstand criteria as noted in Section 6.2.1.3.

Figure 6-3: Covered Conductor installation on Leland-Carus

6.2.5 Distribution Pole Replacements (GDSH-05)

PGE replaces distribution poles to reduce ignition likelihood based upon the results of PGE's annual Ignition Prevention Inspection program, see Section 7 for details. Pole replacements also increase system resilience, reducing vulnerability to wildfire damage that could result in customer outages.

Pole replacements are made in compliance with the Fire Safe Design & Construction standards discussed in Section 6.2.1. This includes the use of either ductile iron, or fire-mesh wrapped wood poles and the application of greater withstand capability.

6.2.6 Transmission Structure Replacements (GDSH-06)

PGE replaces transmission poles to reduce ignition likelihood based upon the results of PGE's annual Ignition Prevention Inspection program, see Section 7 for details. Pole replacements also increase system resilience, reducing vulnerability to wildfire damage that could result in customer outages.

Pole replacements are made in compliance with the Fire Safe Design & Construction standards discussed in Section 6.2.1 above. This includes the use of steel, ductile iron, or fire-mesh wrapped wood poles and the application of greater withstand capability.

6.2.7 Points of Isolation (GDSH-07)

The purpose of this initiative is to increase operational capabilities, including EPSS and PSPS, while minimizing PSPS exposure to customers by deploying assets that give PGE the capability to remotely de-energize specific feeder segments impacted by wildfire risk.

6.2.7.1 Benefits

The Points of Isolation (POI) program delivers the following benefits to customers:

- **Operational Capabilities:** The reclosers and smart devices installed as part of this program enable implementation of Near-term Risk mitigation measures, including EPSS and PSPS, that directly reduce ignition probability. See Sections 10 and 12 for additional details.
- **Reliability Benefits:** Increased feeder segmentation enables PGE to deploy EPSS and PSPS to more localized, targeted sections to minimize customer impacts. Additionally, SCADA-enabled reclosers provide reliability benefits year-round by increasing PGE's ability to monitor outages, respond quickly, and in some cases reconfigure circuits remotely.
- **Operating Expense Reduction:** SCADA-enabled Points of Isolation lower the cost of EPSS and PSPS implementation by eliminating the need for manual deployment.

6.2.7.2 Application Considerations

SCADA-enabled devices have been installed as part of PGE's strategy to quickly and efficiently implement EPSS and PSPS. Non-SCADA-enabled devices require qualified workers to drive throughout the system during high wildfire risk conditions, manually updating protective device settings to implement EPSS or operating various devices to de-energize circuit sections leading up to a PSPS event. As part of the POI program, hydraulic reclosers are replaced with SCADA-enabled devices that can be operated from PGE's system control center, limiting the requirement for qualified workers to drive the lines ahead of PSPS events, decreasing execution time and cost while and increasing safety.

PGE's enhanced risk modeling and situational awareness investments enable increasingly localized implementation of EPSS and PSPS, further enhancing the value of feeder segmentation through the POI program. New reclosers are installed to enable system segmentation to align with localized fire weather and other wildfire risk drivers, resulting in EPSS and PSPS execution that impacts only the number of customers served by circuits exposed to high-risk conditions. This segmentation also supports more effective response to winter storm events.

PGE carefully weighs these considerations balancing the number of customers impacted with the need to maintain the correct grid topology to function correctly during a PSPS event or EPSS deployment throughout fire-season.

6.2.7.3 Layered Mitigation

Introduction of a new protective device onto an existing circuit requires a protection coordination study to prevent unnecessary outages, so the installation of a new recloser under the POI program may be combined with fuse replacements, as described in Section 6.2.8, or other protective device upgrades that lower ignition probability.

6.2.8 Fire Safe Fuses (GDSH-08)

PGE programmatically replaces traditional expulsion-type fuses with Cal Fire Exempt fuses in targeted areas of PGE's service area to reduce the ignition risk. These replacements directly reduce ignition probability while preserving critical grid protective functions, see Section 6.3.8 for more information.

This initiative results in the replacement of fuses both inside and outside of HFRZ boundaries, expanding ignition prevention and avoiding unnecessary customer outages due to fuse miscoordination. The program is designed to replace all fuses on a given circuit, extending beyond the HFRZ boundary to the substation breaker, enabling effective fuse coordination. Feeders are selected based upon risk modeling with consideration for feeders or segments that may be selected for other mitigations like covered conductor, copper removal, or undergrounding. Alongside covered conductor installations, system automation, and vegetation management, the transition away from expulsion fuses is part of PGE's layered strategy supporting risk reduction.

6.2.9 Generation Resilience (GDSH-09)

This initiative was created to improving dam safety in the face of potential wildfire or PSPS impacts while maintaining compliance of PGE's hydro-electric facilities with FERC and Oregon Department of Fish and Wildfire (ODFW) requirements.

- PGE completed the installation of three emergency generators at PGE's Westside Hydro (WSH) facility, which was significantly impacted by the 2020 Labor Day Fires, including emergency evacuation of PGE personnel.
- PGE's Pelton Round Butte Project located East of the Cascade Crest currently has generators available for use in the event of a PSPS, wildfire-related outage, or emergency evacuation.

- No further scope is expected for this initiative in future years.

6.2.10 Protection and Automation (GDSH-10)

The purpose of this initiative is to increase operational capabilities by upgrading the control and protection systems on existing POIs to allow effective EPSS deployment and PSPS execution.

6.2.10.1 Benefits

The Protection & Automation program delivers the following benefits to customers:

- **Operational Capabilities:** The protection and control devices installed as part of this program enable implementation of EPSS and PSPS to address near-term risk by reducing ignition probability. See Sections 10 and 12 for additional details.
- **Reliability Benefits:** Upgrading protective devices and providing SCADA connectivity improves reliability by allowing use of a less conservative Fire Season Mode as part of EPSS on non-EFR days. Additionally, modern, SCADA-enabled devices provide reliability benefits year-round by increasing PGE's ability to monitor outages, respond quickly, and more effectively investigate outage causes.
- **Operating Expense Reduction:** SCADA-enabled protective devices with EPSS and PSPS capabilities lowers the cost of implementation by eliminating the need for manual deployment.

6.2.10.2 Application Considerations

This initiative upgrades protection and control equipment on existing POIs, including substation breakers and reclosers. Circuit topology, substation location, and protection scheme coordination sometimes require the substation breaker to be the point of isolation for PSPS and EPSS execution. If PGE is unable to remotely implement EPSS due to the lack of SCADA or technical limitations of the existing protective equipment, devices are left in the most conservative Enhance Fire Risk (EFR) mode for the duration of fire season. EFR Mode is more likely to reduce reliability for customers because circuits are not automatically re-energized, even after a temporary outage. Modern protection and automation equipment allows PGE to limit the use of EFR Mode to periods with enhanced fire risk conditions.

6.2.11 Fire Mesh Pole Wrap (GDSH-12)

PGE programmatically installs fire mesh wrap to decrease vulnerability to wildfire damage, reducing the likelihood of customer outages in the event of a wildfire. See Section 6.2.1.4 for more information. PGE's programmatic deployment started in 2021 and focused on HFRZs primarily east of the Willamette River as well as on transmission and generation assets east of the Cascade crest.

Figure 6-4: Fire Mesh Pole Wrap Installation

6.2.12 Spacer Cable Pilot (GDSH-13)

PGE continues to explore innovative and alternative construction methodologies in alignment with industry best practices. In 2026, PGE will explore Spacer Cable as an alternative overhead construction method compared to traditional covered conductors typically installed on crossarms. Peer benchmarking, utility alignment, and training started in 2025 as described in Section 6.5. In 2026, PGE will identify specific circuit segments for the pilot, continue benchmarking, and commence change management. The intent of this pilot is to compare the efficacy of Spacer Cable against traditional overhead hardening and covered conductor on PGE's system using statistical methodologies. Additional details on this pilot, including deployment timelines, are provided in Table OPUC 5-2.

6.2.13 Breakaway Service Drop Pilot (GDSH-14)

PGE validated breakaway service connection performance in 2025, enabling preliminary installs to be used on overhead secondary services. These breakaway services allow separation of the secondary service line on the source side of the connection instead of on the load side. If the service conductor is impacted by a tree or other failure, the breakaways result in a de-energized down line. PGE will begin planning programmatic installation of these breakaway services in 2026 and 2027, prioritizing circuits previously converted from overhead to underground. Additional details on this pilot, including deployment timelines, are provided in Table OPUC 5-2.

6.3 Results

Detailed 2025 actuals are shown in the Initiative Details tables in Section 6.4.2 to allow comparison to 2026-2028 targets.

6.3.1 Grid Planning and Design Standards (GDSH-01)

In 2025, PGE updated and improved Fire-Safe standards, including the creation of separate Design and Construction standards. Other improvements include:

- Leveraging risk-model updates, the application of these standards expanded beyond HFRZs into EFRZs, and other areas of the service area exposed to possible wildfire risk.
- Clarified criteria for deploying ductile iron or other inert pole materials.
- Updated deployment plan for Fire Safe Fuses on entire circuits, enabling more effective protection coordination studies

6.3.2 Underground (GDSH-02)

PGE completed forty miles of underground line construction in 2025, removing 32 circuit miles of overhead primary distribution and exceeding the 2025 WMP Update target of 26 circuit miles. Specific project results are detailed in Table 6-1 with the following project-specific target updates:

- The Grand Ronde – Agency project was originally scheduled to complete all ten circuit miles in 2025. However, construction sequencing proved more complicated. As PGE continues to find the best alternatives and efficient use of resources, PGE shifted construction for four out of the total ten circuit miles into 2026 with plans to complete the work prior to the 2026 fire season.
- On the Willamina-Buell project, PGE was able to complete construction on 10 additional circuit miles without incurring additional costs. This furthers PGE's risk reduction goals, allowing resources to move to the next complex mitigation project earlier than planned.

6.3.3 Reconductor (GDSH-03)

PGE completed 12 miles of copper primary conductor removal, meeting the 2025 WMP Update target for the North Plains-Mason Hills project. PGE identified an additional two miles of reconductor required on this circuit during detailed scoping and construction, which is scheduled for construction in early 2026.

6.3.4 Covered Conductor (GDSH-04)

PGE completed 14 miles of covered conductor reconductor in 2025, completing the second phase of the Leland-Carus reconductor project. This completes 29 circuit miles of covered conductor and system hardening upgrades under this initiative since inception. Design for phase 3 of this project will be complete in 2025 with construction scheduled in 2026, marking the completion of this project. Following the reconductor work, EFD sensor will be installed on the Leland-Carus feeder; see Section 9.2.4 for details.

6.3.5 Distribution Pole Replacements (GDSH-05)

In 2025, PGE replaced 82 poles in HFRZs under this initiative, less than the 2025 WMP Update forecast of 100 poles. After several years of Ignition Prevention Inspections and Corrections, inspection finding rates have declined in long standing HFRZs. Repeated annual inspections have successfully resulted in a healthier population of distribution poles in HFRZs, resulting in a more resilient grid. Specific 2025 results include:

- Replacement of six poles to address 2025 heightened condition inspection findings.
- Replacement of an additional seven poles to address 2025 inspection findings.
- Completion of all but one pole replacement due in 2025; PGE is actively working with customers to resolve the remaining pole replacement.
- Replacement of two poles within Portland Water Bureau's Bull Run Watershed, reducing ignition risk on Mt. Hood. The Bull Run Watershed is one of the most significant and critical resources within PGE's service area. Replacement of these poles reflects the ongoing partnership between PGE and the City of Portland.
- Replacement of a pole at Pelton Dam after navigating access issues, FERC compliance requirements, specialized equipment needs, and weather concerns.

An example of a distribution pole replacement is shown in Figure 6-5.

Figure 6-5: Distribution pole replacement with Ductile Iron pole

6.3.6 Transmission Structure Replacements (GDSH-06)

PGE completed three transmission structure replacements to correct inspect/correct findings, which is lower than the 2025 WMP Update forecast of 15 poles. Actual inspection findings from 2024 and 2025 indicated a healthier transmission structure population in HFRZs, requiring fewer replacements.

6.3.7 Points of Isolation (GDSH-07)

PGE installed the following 25 reclosers, meeting the 2025 WMP Update target.

- 15 non-SCADA-enabled hydraulic reclosers were replaced, enabling more efficient EPSS and PSPS implementation.
- Ten new reclosers were installed to enable EPSS and reduce the impact of a potential PSPS associated with HFRZs 17 and 19.

6.3.8 Fire Safe Fuses (GDSH-08)

In addition to systematic deployment through Fire Safe Design Standards, PGE has programmatically replaced expulsion fuses along six feeders across PGE's service area. The 2025 program included fuse replacements on the following feeders, reducing ignition likelihood:

- Welches – Welches 13: HFRZ 2 in NW Portland
- Sylvan-Patton: Zone 13 at the base of Mt. Hood

6.3.9 Generation Resiliency (GDSH-09)

In 2025, PGE completed the installation of three emergency generators to reduce wildfire and PSPS consequences to PGE's Westside Hydro project in HFRZ 6. This project supports the compliance of the hydro-electric facility with FERC and ODFW requirements while significantly improving personnel safety.

6.3.10 Protection and Automation (GDSH-10)

PGE did not perform mitigation work under this initiative in 2025. Efforts were focused on incorporating stakeholder feedback from the UM 2340 public workshop to inform 2026 improvements that minimize customer impacts of EPSS.

6.3.11 Fire Mesh Pole Wrap (GDSH-12)

PGE installed 965 pole wraps in 2025 across several HFRZs, bringing the total count for programmatic deployment to 3,800. Poles are also wrapped through systematic application of Fire Safe Design Standards as described in Section 6.2.1. Prior year's scope included structure wrapping at the Tucannon wind farm transmission line in eastern Washington, as well as emergent work during a 2024 lightning-caused fire (Elk Lane Fire) near Madras, OR, which threatened PGE's 230 kV generation lead lines and structures.

PGE transitioned this program from time-intensive field validated criteria to a risk informed geographic-based prioritization within HFRZs, EFRZs and OFRZs, targeting specific poles not slated for replacement or removal. This new criterion leveraged vegetation-type analysis across the prioritized zones, targeting poles owned by PGE that would be susceptible to fire in areas where fire wrap would be an ideal mitigation to preserve a pole.

While dense vegetation immediately surrounding a pole decreases the effectiveness of pole wrap from a structure failure, it remains a cost-effective measure to preserve PGE assets in the event of a fire, as fire intensity is highly variable. Full distribution pole replacement costs are about 97 percent more expensive than wrapping an existing pole, thus pole wrap remains a cost-effective investment in the hopes of preserving an existing asset during a fire event.

6.4 Initiatives and Targets

Qualitative and quantitative targets are provided below for each initiative and year of the three-year WMP. Forecast values reflect the best and most up-to-date information available at this time.

- Project cost and schedule may change to reflect construction resourcing strategy, permitting requirements, easements, and material availability.
- Initiatives driven by inspection findings, such as Distribution Pole Replacements (GDSH-05) and Transmission Structure Replacements (GDSH-06), are likely to contain more variability.
- As discussed in Section 2.2, 2027 and 2028 targets for ongoing programs reflect PGE's standard assumptions related to cost and risk escalation.
- As discussed in Section 6, PGE is evaluating each circuit segment to select specific mitigations based upon localized risk factor and cost. As such, 2027 and 2028 targets for Underground (GDSH-02), Covered Conductor (GDSH-04), and Spacer Cable (GDSH-13) will be updated with the 2027 WMP Update.

6.4.1 Initiative Summary Table

Table OPUC 6-1: Grid Design and System Hardening Initiative Cost Summary in Thousands

Initiative Activity	Tracking ID	Target Unit	2026 Target	2026 Forecast ($1,000)	2027 Target	2027 Forecast ($1,000)	2028 Target	2028 Forecast ($1,000)	Three-Year Forecasted Total ($1,000)	Section
Grid Planning and Design Standards	GDSH-01	N/A	N/A	$180	N/A	$186	N/A	$192	$558	6.2.1
Underground-ing	GDSH-02	# of circuit miles	26	$36,054	28	$41,357	15	$38,984	$116,395	6.2.2
Reconductor	GDSH-03	# of circuit miles	6	$4,295	4	$697	0	$0	$4,993	6.2.3
Covered Conductor	GDSH-04	# of circuit miles	15	$12,831	16	$18,618	19	$20,132	$51,581	6.2.4
Distribution Pole Replacements[33]	GDSH-05	# of structures	52	$843	172	$2,903	170	$3,103	$6,849	6.2.5
Transmission Pole Replacements[36]	GDSH-06	# of structures	20	$620	51	$1,620	31	$979	$3,219	6.2.6
Points of Isolation	GDSH-07	# of assets	50	$3,376	40	$3,893	30	$2,979	$10,248	6.2.7
Fuse Replacements	GDSH-08	# of feeders	2	$1,498	3	$6,485	4	$7,682	$15,665	6.2.8

[33] Targets for inspection-driven work are highly variable; forecasts reflect assumptions about HFRZ changes and projected inspection failure rates.

Initiative Activity	Tracking ID	Target Unit	2026 Target	2026 Forecast ($1,000)	2027 Target	2027 Forecast ($1,000)	2028 Target	2028 Forecast ($1,000)	Three-Year Forecasted Total ($1,000)	Section
Generation Resiliency	GDSH-09	# of assets	0	$0	0	$0	0	$0	$0	6.2.9
Protection and Automation	GDSH-10	# of assets	5	$732	0	$0	0	$0	$732	6.2.10
Grid Design and System Hardening IT	GDSH-11	N/A	N/A	$313	N/A	$509	N/A	$472	$1,294	6.4.2.1
Fire Mesh Pole Wrap	GDSH-12	# of structures	3,108	$2,004	3,126	$1,689	2,927	$1,581	$5,275	6.2.11
Spacer Cable Pilot	GDSH-13	# of circuit miles	0	$0	PILOT	$154	3	$3,345	$3,499	6.2.12
Breakaway Service Drop Pilot	GDSH-14	# meters	0	$0	PILOT	$154	200	$309	$463	6.2.13

Notes:
1. Forecasts and Three-Year Totals provided in $/thousands.
2. All initiative Forecasts and Three-Year Totals include capital cost and operations and maintenance expense.

6.4.2 Initiative Details

6.4.2.1 Grid Planning and Design Standards (GDSH-01)

The purpose of this initiative is to capture costs associated with planning of Grid Design and System Hardening initiatives, as well as the development of Fire Safe Design and Construction Practices.

PGE will continue systematic deployment of Fire Safe Designs as described in Section 6.2.1. Additionally, PGE will develop or enhance standards associated with the planned pilots, including spacer cable, break-away service drops, and Multi-sensor Fault Detection. Three Year Plan

6.4.2.2 Underground (GDSH-02)

PGE's long-term underground projects scoped and validated through 2028 are shown in Table 6-1 with new projects set to begin in 2026. Refreshed risk modeling coupled with ongoing RSE methodology improvements and long-term strategy development, as discussed in Section 4 and Section 5, are likely to result in changes to future projects. These changes may result in PGE pivoting to a different mitigation than previously identified or to pursue the current mitigation under a different funding mechanism if wildfire is no longer the primary risk driver or pause the investment all together. PGE remains committed to selecting the most cost-effective mitigation to address risk on each circuit and will utilize improved risk models to adjust project plans accordingly. Additionally, PGE considers the complexities of each underground project and their respective feasibility challenges.

Table 6-1: Underground Project List

Project	HFRZ	Terrain	Plan (# of OH circuit miles removed)				In-Service Year
			2025[1]	2026	2027	2028	
Scoggins Cherry Grove (Ph 2)	18	Flat terrain, heavily forested	2	Project complete			2025
Grand Ronde - Agency	19	Forested and agricultural land use, flat terrain	6	4	Project complete		2026
Willamina - Buell	19	Forested and agricultural land use, flat terrain	21	1	Project complete		2026
Orient-Oxbow	4	Heavily forested or agricultural. Borders Mt. Hood Forest and Bull Run watershed	3	17	Project complete		2026
Summit 13	1	Rock and boulders in sand, heavily forested (Mt. Hood National Forest), snow Nov–May	0	4	4	Project complete	2027
Summit-Meadows	1	Rock and boulders in sand, heavily forested (Mt. Hood National Forest), snow Nov–June	0	0	0	0	2029[34]
Estacada - North Fork	6	Agricultural and some forest cover. Clackamas River canyon bisects zone, flat save for river canyon.	0	0	24	15	2029[35]
Total			**32**	**26**	**28**	**15**	

Note:
1. 2025 results reflect status of this filing.

[34] Summit-Meadows will complete construction in 2029 and due to full reroute that requires the existing overhead line to remain energized until the entire underground circuit construction is complete.
[35] Estacada-North Fork project spans three areas with multiple sections constructed over four years.

6.4.2.2.A Project Update

PGE amended the scope of the Willamina-Buell project at the end of 2025, driven primarily by updates to its risk modeling as detailed in Section 4. By further segmenting the project and applying the mitigation selection process described in Section 5.2.1, PGE identified a six-mile section of the 34-mile project that no longer requires the overhead to underground conversion originally planned for 2026. An additional section of project, now primarily driven by reliability, operational and aging asset risk, has moved from the WMP portfolio to PGE's base capital portfolio.

This decision supports PGE's wildfire mitigation strategy by focusing limited resources on the highest-risk areas. This adjustment allows PGE to fund projects in the highest-risk areas more effectively and maximizes safety benefits across the entire service area while prioritizing affordability for customers through targeted economic investments.

6.4.2.3 Reconductor (GDSH-03)

PGE's Reconductor initiative primarily focuses on removal of #4 and #6 copper conductor, which have exhibited a tendency to become more brittle over time, resulting in decreased tensile strength and increased ignition probability. As HFRZs change, PGE may identify additional circuits to add to this initiative.

Table 6-2: Reconductor Project List

Project	HFRZ	Terrain	Plan (# of circuit miles reconductored)				In-Service Year
			2025[1]	2026	2027	2028	
North Plains-Mason Hill	15	Forested and agricultural land use, flat terrain	12	6	Project completes.		2026
Rock Creek-Newberry	14	Forested and agricultural land use, flat terrain	0	0	4	Project completes.	2027
Total			**12**	**6**	**4**	**0**	

Note:
1. 2025 results reflect status of this filing.

6.4.2.4 Covered Conductor (GDSH-04)

PGE's covered projects scoped and validated through 2028 are shown in Table 6-3. Ongoing RSE methodology improvements and long-term strategy development, as discussed in Sections 4 and 5, are likely to result in changes to future projects. PGE remains committed to selecting the most cost-effective mitigation to address risk on each circuit and will utilize improved risk models to adjust project plans accordingly.

Table 6-3: Covered Conductor Project List

Project	HFRZ	Terrain	Plan (# of circuit miles reconductored)				In-Service Year
			2025[1]	2026	2027	2028	
Leland-Carus	11	Flat terrain, heavily forested	14	15	Project complete		2027
Estacada-North Fork	6	Forested and agricultural land use, flat terrain	0	0	16	16	2029
Spacer Cable pilot comparison circuit to be determined			0	0	0	3	2029
Total			14	15	16	19	

Note:
1. 2025 results reflect status of this filing.

6.4.2.5 Distribution Pole Replacements (GDSH-05)

After several years of annual inspections and programmatic pole replacement in HFRZs, PGE is continuing to see the volume of poles requiring replacement fall in long standing HFRZs. As wildfire risk areas change, PGE is analyzing historical findings to build a predictive model of expected findings annually within the existing and new fire risk zones. With the changes in PGE's 2026 HFRZs, more than 14,000 new poles will enter the Ignition Prevention Inspection program with inspections continuing on more than 13,000 previously inspected poles. This will provide an opportunity for PGE to fine tune the forecasting methodology of pole inspection findings in 2026 based upon the date of last inspection. The pole replacement forecast shown below for 2026 through 2028 assumes the following:

- 0.042 percent of previously inspected poles are expected to require replacement
- 1.32 percent of poles new to the Ignition Prevention Inspection program will result in a finding require replacement in Year 1, 0.63 percent in Year 2, and 0.20 percent in Year 3
- 15 percent of the replacements will be classified as urgent or heightened, requiring same year correction
- 85 percent of the replacements will be required within 2 years

Table 6-4: Distribution Pole Replacement Program

Year of Scope	HFRZ	Quantity
2025[1]	All	82
2026	All	52
2027	All	172
2028	All	170

Note:
1. 2025 results reflect status of this filing.

6.4.2.6 Transmission Structure Replacements (GDSH-06)

PGE continues to refine its forecasting process to support out-of-year quantities as well. While the sample size of poles remains much smaller than the distribution pole count, expansion and changes to PGE's HFRZs will certainly result in new findings to be addressed and corrected in 2027 and 2028. It is expected that these quantities will continue to be revised in future WMPs and WMP updates. The pole replacement forecast shown in Table 6-5 for 2026 through 2028 assumes the following:

- 0.25 percent of previously inspected poles will result in a finding requiring structure replacement
- 5 percent of poles new to the Ignition Prevention Inspection program will result in findings requiring a structure replacement in Year 1, 3 percent in Year 2, and 1 percent in Year 3
- 15 percent of the replacements will be classified as urgent or heightened, requiring same year correction
- 85 percent of the replacements will be required within 2 years

Table 6-5: Transmission Structure Replacement Program

Year of Scope	HFRZ	Quantity
2025[1]	All	3
2026	All	20
2027	All	51
2028	All	31

Note:
1. 2025 results reflect status of this filing.

6.4.2.7 Points of Isolation (GDSH-07)

PGE evaluates POI locations annually as HFRZ and EFRZ boundaries change and localized risk drivers are identified, allowing efficient PSPS and EPSS implementation in new areas of the system. Locations are prioritized based upon risk modeling and estimated EPSS and PSPS outage duration times. Table 6-6 reflects the current forecast for deployment of new POIs; PGE will update plans as required to reflect HFRZ and EFRZ changes in future years. The 2026 POI program includes the following scope:

- Replacement of 4 non-SCADA hydraulic reclosers
- Replacement of 6 non-SCADA electronic reclosers
- Installation of 40 new reclosing devices

Table 6-6: Points of Isolation Program

Year of Scope	HFRZ	Device Quantity
2025[1]	2025 HFRZs 1,4,5,9,10,12	25
2026	4, 5, 6, 8, 9, 10, 11, 12, 13, 17, 18, 19, 20 ,21	50

Year of Scope	HFRZ	Device Quantity
2027	4, 6, 8, 9, 10, 11, 12, 17, 20, 21	40
2028	4, 8, 10, 12, 15, 18, 20, 21	30

Note:
1. 2025 results reflect status of this filing.

6.4.2.8 Fire Safe Fuses (GDSH-08)

PGE plans to programmatically deploy Fire Safe Fuses on an increasing number of feeders annually as detailed in Table 6-7.

Table 6-7: Fire Safe Fuses Program

Year of Scope	HFRZ	Feeder Count
2025[1]	2, 13	2
2026	5, 13	2
2027	8, 17	3
2028	17, 18	4

Note:
1. 2025 results reflect status of this filing.

6.4.2.9 Protection and Automation (GDSH-10)

PGE plans to upgrade control and protection systems on five existing points of isolation in 2026. Additional upgrades may be identified annually as required to reflect HFRZ and EFRZ changes and technology limitations.

Table 6-8: Protection and Automation Project List

		Plan (protection systems upgraded)				
Project	**HFRZ**	**2025[1]**	**2026**	**2027**	**2028**	**In-Service Year**
2026 EPSS Scope	7, 9, 10, 13	No Scope defined	5	No Scope defined		2026

Note:
1. 2025 results reflect status of this filing.

6.4.2.10 Fire Mesh Pole Wrap (GDSH-12)

PGE's three-year plan for programmatically installing fire mesh reflects accelerated deployment to address HFRZ changes and system reliability during fire season, when the grid is exposed to high loads as well as the risk of wildfire damage.

Table 6-9: Fire Mesh Wrap Program

Project	HFRZ/ EFRZ/ OFRZ	Plan (# of pole wraps installed)				In-Service Year
		2025[1]	2026	2027	2028	
Fire Mesh Pole Wrap	All	965	3,108	3,126	2,927	Ongoing

Note:
1. 2025 results reflect status of this filing.

6.4.3 Grid Design and System Hardening IT (GDSH-11)

This initiative was started in 2025 to track information technology (IT) investments that enable Grid Design and System Hardening initiatives.

6.4.3.1 Capital Portfolio Reporting Automation

Effective oversight of PGE's Grid Design and System Hardening capital investments requires comprehensive, accurate, and timely financial and performance data. As PGE's wildfire mitigation capital portfolio continues to grow in scope and complexity, IT investments will enable:

- Application of consistent data collection methods across all projects
- Accurate and cost-effective reporting
- Timely reporting to allow for execution risk recovery and resource reallocation
- Real-time visibility into portfolio performance for executive decision-making

Reporting automation will establish a centralized, automated data integration and reporting platform. Building on existing enterprise data infrastructure investments, this solution consolidates financial and project performance data from various data and software repositories into real-time dashboards accessible to Projects Managers, program leadership and steering committee stakeholders. This initiative enables efficient, effective portfolio governance through the following data flow improvements:

- **Data Collection/Procurement:** Automated extraction of financial data from internal financial repository software (incurred costs, loaded costs, AFUDCs, budget allocations), project metrics from project management software, and asset/project data from work management systems.
- **Data Integration/Conditioning:** Consolidation of disparate data sources with automated normalization; standardized data models to support consistency; quality checks identifying data discrepancies and gaps.
- **Data Analysis:** Dashboard creation with portfolio-level KPI tracking (spend progression, milestone achievement, risk indicators); trend analysis and variance reporting; cross-project comparative analytics.
- **Delivery:** Real-time portfolio dashboards accessible to Project Managers and leadership; automated monthly reporting; executive insights supporting data-driven decision making.

6.5 Continuous Improvement

6.5.1 Program Maturity

From 2022 to 2025, PGE saw significant maturation (34 percent increase) in Grid Design and System Hardening based on corresponding category scores to the IWRMC Maturity Model. PGE will use the 2025 maturity model learnings to examine how grid design standards and field implementation practices can be better aligned with emerging resiliency needs.

Focus areas for assessment include:

- Optimizing prioritization methods for hardening projects
- Validating the performance of pilot technologies (e.g., spacer cable and breakaway service drops)
- Enhancing documentation of decision criteria within the grid planning and design standards initiative.

PGE will continue to evaluate lessons from prior installations to improve consistency in design practices and operational coordination without materially changing investment levels.

6.5.2 Industry Research

PGE continuously collaborates with EPRI to align on industry best practices, new engineering developments and technology and to discuss the impacts of these findings with peer utilities. In 2025, PGE participated in the EPRI Conductor Burndown beyond Compact Single Phase Recloser Supplemental Project. This data and study reflect significant operational considerations related to EPSS and protection coordination as well as identifying conductor types and sizes that may not be suitable candidates for certain operational practices.

The EPRI study consisted of testing different conductor types, fault magnitudes, and reclosing sequences and determining which combination are at risk of conductor burndowns (energized or de-energized). EPRI tested #4 Cu[36], #6 Cu, 4 ACSR[37], 2 ACSR, 1/0 ACSR and 1/0 AAAC[38], using four different recloser protection settings:

- 2 fast trips + 2 slow trips
- 2 100T fuse curve trips
- 2 slow trips
- 1 fast trip + 1 slow trip

EPRI is still in the process of finalizing the report, but preliminary data shared in a draft report has confirmed protection schemes suitable for the various conductor types across PGE's service area.

Additional conclusions confirm PGE's risk modeling assumptions for copper conductor burn down rate and likelihood, agnostic of protection scheme. The report also indicates that #4 ACSR may also

[36] Cu: Copper Conductor.
[37] ACSR: Aluminum Conductor, Steel Reinforced
[38] AAAC: All Aluminum Alloy Conductor

be prone to burn down, which will inform PGE's strategy for future Reconductor projects under GDSH-03.

6.5.3 Emerging Technologies and Research Applications

6.5.3.1 Microgrids

PGE explored the use of microgrid deployment for targeted de-energization and mitigations in 2024 and 2025. Preliminary scope development focused on an alternatives analysis study for the Summit-Meadows feeder, one of the most challenging topographical distribution feeders within PGE's service area. While the Summit-Meadows feeder relatively lightly loaded compared to other PGE circuits, its load mass being primarily on the very end of the circuit made it attractive for microgrid analysis. This circuit traverses areas of Mt. Hood, deviating from navigable roads and partially bisecting the Mt. Hood Wilderness area while serving load at both Timberline Ski Area and Mt. Hood Meadows, among other customers.

Through an exploratory proposal with a microgrid company experienced in utility-centric seasonal and remote islanded microgrids, PGE evaluated a mixture of solar panels, battery storage, and backup propane generation as electric generation for the Meadows microgrid study. A microgrid operable from mid-May to late-October could allow for complete de-energization during a typical PGE fire season West of the Cascades, removing ignition risk on this remote and topographical challenging circuit. Other considerations for evaluating alternative mitigations included:

- **Overall project cost and schedule.** Due to the complexity and duration of snow received annually on Mt. Hood, project duration for microgrid deployment and alternative mitigations were the same.
- **Availability of incentives and tax credits.** The cost effectiveness of the microgrid project was dependent on tax credits and the potential for solar panel tariffs would introduce supply chain risk.
- **Permitting feasibility within a USDA National Forest.** Initial feasibility meeting included members of Mt. Hood National Forest's permitting teams as well as Mt. Hood Meadows staff.
- **Future operations and maintenance costs.** RSE calculation captures ongoing O&M compared to alternative mitigations. Compared to traditional distribution, microgrids carry additional O&M costs.

The microgrid company provided a full feasibility study report which was evaluated by PGE subject matter experts for cost and details. This project scope included additional civil and electrical reroute of part of the existing circuit, as load would still be served by a section of the feeder during the summer months at Timberline ski area.

For comparison, PGE developed a project estimate for an underground conversion of the Summit-Meadows feeder. The feasibility constraints discussed in Section 6.2.2.2 led to the development of a new pathway following the US Highway 26 and OR Route 35 corridor to get from the Summit substation in Government Camp to the Mt Hood Meadows ski area (about 11 miles).

PGE compared the microgrid proposal to the underground conversion project using an RSE methodology:

- **Microgrid with tax credits RSE:** 6.0
- **Underground Conversion RSE:** 9.3

Based upon the capital project costs, ongoing operating cost, dependance upon tax credits, and feedback from the USFS, PGE selected an underground conversion to begin design in 2026. See Section6.4.2.2 for details.

PGE also evaluated the potential application of a microgrid at a PGE generation site and to serve remote, terminal-end HFRZ customers. PGE provided the microgrid company with geographic information about PGE's service area, leveraging both civil and electrical infrastructure for analysis. The microgrid company provided detailed analysis based on preferred criteria provided by PGE, leveraging their expertise in site selection for terminal-end customer load microgrid candidacy.

PGE received that analysis in the spring of 2025, and after careful review with the microgrid company, has decided not to pursue programmatic microgrid deployment at this time. Rough order of magnitude costs put the microgrid development between $1.2 million and $1.5 million per site, although final costs would be site specific based on topography and load served. Microgrid deployment also requires ongoing annual O&M for the new technology, and in many cases would require PGE to leave existing overhead asset in place or would require substantial underground conversion in addition to the microgrid. PGE did not explore permanently islanding these locations. While mitigation distances varied over the course of the study, line de-energization distances varied between half mile and two-mile, serving single phase loads. PGE's current estimates for an underground conversion of single-phase rural circuit at approximately $860,000 per square mile. While the initial capital investment may be similar to a microgrid, underground conversions reduce ongoing O&M expenses related to vegetation management and Ignition Prevention Inspections while microgrids increase O&M expenses.

Following the passage of HB 2066 (2025), the 'OPUC opened a microgrid rulemaking (AR 681) on October 24, 2025, scheduled to run through March 2027. Through AR 681, the OPUC will investigate and establish a regulatory framework for allowing the deployment, ownership, and use of microgrids and community microgrids. PGE's recent comments in AR 681 underscore the importance of developing geographic frameworks that incorporate hazard data, system constraints, and population-specific resilience needs, and emphasize that any community microgrid zone designation must be coordinated with utilities to avoid selecting areas where system conditions make microgrids infeasible or prohibitively costly.

PGE is engaged in the regulatory process to shape a workable framework that acknowledges the utility's role in the planning, evaluation, interconnection, and operation of microgrids, and appropriately aligns with the resiliency goals of communities, the utility, and the state.

6.5.3.2 Covered Conductor

PGE compared the covered conductor (tree wire) currently used by PGE to other utilities, including Avista Energy, SnoPUD, SDG&E and Pacific Power. This comparison also leveraged existing information from conductor suppliers and EPRI.

PGE is the only utility in this comparison study using single-ply tree wire ACSR conductor; other utilities use two-ply or three-ply tree wire ACSR conductor in heavily treed areas. PGE will continue this evaluation by assessing cost, lead time, required tools, and training requirements for changing the covered conductor standard.

6.5.3.3 Underground Fuse Cabinets

PGE is exploring padmount equipment that can allow fusing to be installed at intermediate points along an underground tapline. Material and vendor exploration considers both single-phase and three-phase configurations to sectionalize long, underground taplines. PGE evaluated two different manufacturers in 2025, both manufacturers of the fuse cabinets are current approved manufacturers producing other equipment for PGE.

The fuse cabinets must accommodate currently approved Cal Fire Exempt fuses that are used within GDSH-08, PGE's overhead fuse replacement program. This will allow PGE to leverage existing supply chain for both overhead and underground while efficiently manage stock.

After a successful demonstration in 2025, the S&C Electric dead front cabinet with 200 Amp load break elbow terminations with integrated fusing has been selected for testing on an underground conversion project discussed in Section 6.4.2.2. Installation of two cabinets will be piloted on the Orient-Oxbow project in 2026.

6.5.3.4 Ground Level Distribution System

PGE continues to explore novel underground construction techniques and technologies. Converting overhead systems to underground, while highly effective at mitigating ignition risk, is an expensive process that is not suitable for all locations.

Ground Level Distribution Systems (GLDS), though not prominent in electric infrastructure, are used in various other utilities such as gas transmission, heating pipes, water and sewer. For the electric distribution system, GLDS includes fire-retardant geopolymer concrete encased Cable in Conduit (CIC) distribution lines at grade or slightly below grade levels. Lines installed in this fashion are far less prone to vegetation-related impacts and offer protection from other geographic risk factors like vehicles.

GLDS is potentially lower cost compared to traditional underground conversion due to less trenching, spoil disposal, and restoration. For similar reasons, GLDS can be quicker to install and can be used in rugged or rough terrains as well as culturally sensitive areas due to minimal construction impacts to the surrounding area.

PGE is evaluating this construction technology, benchmarking with other utilities on the strengths, weaknesses and challenges. California utilities have also partnered with EPRI to study the engineering considerations associated with this new construction technology – PGE is awaiting more information related to these engineering consideration findings prior to exploring the further use case of GLDS for wildfire mitigation.

7 Inspect and Correct

7.1 Overview

PGE takes a proactive approach to wildfire prevention through the "Inspect Correct" methodology. Ignition Prevention Inspections are a critical component of PGE's overall wildfire mitigation strategy, identifying and addressing potential hazards before they can pose a risk to infrastructure and communities. Prior to fire season, PGE proactively identifies ignition hazards across HFRZs and OFRZs each year. Correction of identified hazards are performed on timelines that reflect ignition risk. PGE's inspection and correction program reduces wildfire risk with initiatives addressing PGE's first two objectives:

- **Objective #1:** Reduce wildfire risk associated with electrical contact to vegetation or other objects.
- **Objective #2:** Reduce wildfire risk associated with equipment failure.

PGE conducts annual Ignition Prevention Inspections (IPI) within its HFRZs and OFRZs in accordance with OAR 860-024-0018(3) and 860-024-0018(4). PGE inspects each supporting structure (pole or tower) within the HFRZs and OFRZs. In addition to the inspection requirements in OAR 860-024-0018, Oregon Administrative Rules prescribe several additional inspection asset requirements for electric operators. Table OPUC 7-1 and Table OPUC 7-2 outline the details of PGE's inspection and correction programs.

Table OPUC 7-1: Asset Inspection Programs

OAR Inspection	OPUC Inspection Type	OPUC Frequency	Utility Program Name	Utility Program Details	Utility Frequency
OAR 860-024-0011(2)(c)	Safety Patrol Inspections	Every 2 years	Safety Patrol Transmission Patrol	Identify hazards	Every 2 years Annually[1]
OAR 860-024-0011(1)(A)(B)	Detailed Inspections	10 years	FITNES Overhead Inspection Transmission Patrol	Identify violations of Commission Safety Rules + Pole Test and Treat	Every 10 years Annually[1]
OAR 860-240-0001 **OAR 860-024-0018(3)(a)**	Ignition Prevention (HFRZ Safety Patrol)	Annual HFRZ	Ignition Prevention Inspection	Identify potential sources of electrical ignition	Annually

OAR Inspection	OPUC Inspection Type	OPUC Frequency	Utility Program Name	Utility Program Details	Utility Frequency
OAR 860-024-0010	Other inspection	As Needed: follows significant storm event	Post Storm Patrol and Repair	Identify hazards, material inventory, and material/debris removal	As needed following significant events
NA	Other				

Note:

1. Transmission Patrols are performed on a more frequent basis.

To support customer affordability, PGE's HFRZ IPI may be combined with other safety or detailed inspections as outlined in OAR 860-024-0001(6). To avoid multiple inspections of the same pole each year, PGE's IPI may also incorporate the Safety Patrol Inspections described in OAR 860-024-0011(2)(c) or be combined with the Detailed FITNES inspection described in OAR 860-024-0011(1)(b)(A-B). Figure 7-1 summarizes PGE's inspection and correction programs administered in accordance with Oregon Administrative Rules.

Inspection Type	Inspection Criteria: FITNES Overhead Inspection (includes Pole Test & Treat)	Inspection Criteria: Ignition Prevention Inspection	Inspection Criteria: Safety Patrol	Inspection Criteria: Post Storm Patrol and Repair	Resources
FITNES Overhead Inspection (10-year)	✓	✓	✓	✓	2-person crew to enable safe use of tools (including chemicals) and data collection*
Ignition Prevention Inspection (annual)		✓	✓	✓	2-person crew to enable safe use of tools, data collection, and 2-person corrections
Safety Patrol (annual)			✓	✓	Driver + Inspector
Post Storm Patrol and Repair (as required)				✓	Driver + Inspector

*Industry standard is to use 2-person crews for Pole Test & Treat. Inspection of lattice transmission towers are performed by PGE Reliability Technicians to satisfy the requirements of OAR 860-024-0011(1)(b).

Figure 7-1: Inspection Type vs. Inspection Criteria

Methods of correction range from minor repairs such as re-sagging conductors, tightening loose hardware, and bonding—to more extensive repairs such as replacement of damaged poles. Corrections are addressed through the initiatives listed in Table 7-1 and correction times adhere to requirements set forth in OAR 860-024-0012 and 860-024-0018 as detailed in Table OPUC 7-2,

Table 7-1: Correction Initiatives

Initiative Activity	Tracking ID	Expense Type	Section
Distribution Pole Replacements	GDSH-05	Capital	6.3.5
Transmission Structure Replacements	GDSH-06	Capital	6.3.6
Asset Corrections	IC-03	O&M	7.2.3
Ignition Risk Corrections	IC-04	Capital	7.2.4
Tree Attachments	IC-05	Capital	7.2.5

Table OPUC 7-2: Asset Correction Types

OAR Correction	OPUC Finding	OPUC Corrective Timeframe	Utility Correction Type Name	Utility Type Details	Utility Corrective Timeframe
OAR 860-024-0012(1)	Priority I, or other utility specific correction timelines	30 days	Imminent	A condition that poses an impending risk to life or property. Must be repaired, disconnected, isolated, or mitigated and will be monitored until resolved or reclassified.	1 day
OAR 860-024-0012(1)	Priority A	90 days	Urgent	A condition that poses a significant risk to safety, reliability, or the environment.	30 days
OAR 860-024-0012(2)	Priority B	2 years	Standard	A condition that poses a minor risk to safety, reliability, or the environment that typically would require a secondary event for the risk to be realized.	2 years
OAR 860-024-0012(3)(a)	Priority C	10 years	Priority C	A condition that poses little or no foreseeable risk of danger to life or property	10 years
OAR 860-024-0018(5)(a)(b)	Ignition Prevention Finding	180 days	Heightened	Any condition which correlates to a heightened risk of fire ignition. To be used for applicable IPI findings.	180 days

OAR Correction	OPUC Finding	OPUC Corrective Timeframe	Utility Correction Type Name	Utility Type Details	Utility Corrective Timeframe
NA	Other				

7.2 Mitigations

7.2.1 Ignition and Correction Program (IC-01)

IC-01 is an on-going initiative to capture costs associated with designing, planning, managing, and governing the overall inspection and correct program.

Figure 7-2: Ignition Prevention Inspection on Mt. Hood Corridor

7.2.1.1 Ignition Prevention Inspection Program Oversight

PGE's Ignition Prevention Inspection program manager oversees administration, fieldwork, technical support, management oversight, and reporting. Prior to each inspection season, all crews receive thorough training encompassing:

- Communication protocols between PGE and inspection vendors
- Inspect/Correct procedures including visual inspection techniques pole occupant identification, measurement methods, and digital photo documentation
- Detailed Inspect/Correct standards with specifications showing conditions requiring inspection and correction
- GIS software training
- Vendor performance requirements

- Customer communication protocols for property access
- Quality Assurance requirements
- Equipment specifications and crew configuration
- Inspection scope and locations
- Wildfire awareness and fire suppression safety training

Performance monitoring is enabled by GIS-powered dashboards that provide real-time visibility into inspection progress and completion rates, regional inspection coverage, corrective action status, trend identification for recurring issues, and timely completion tracking for critical safety work.

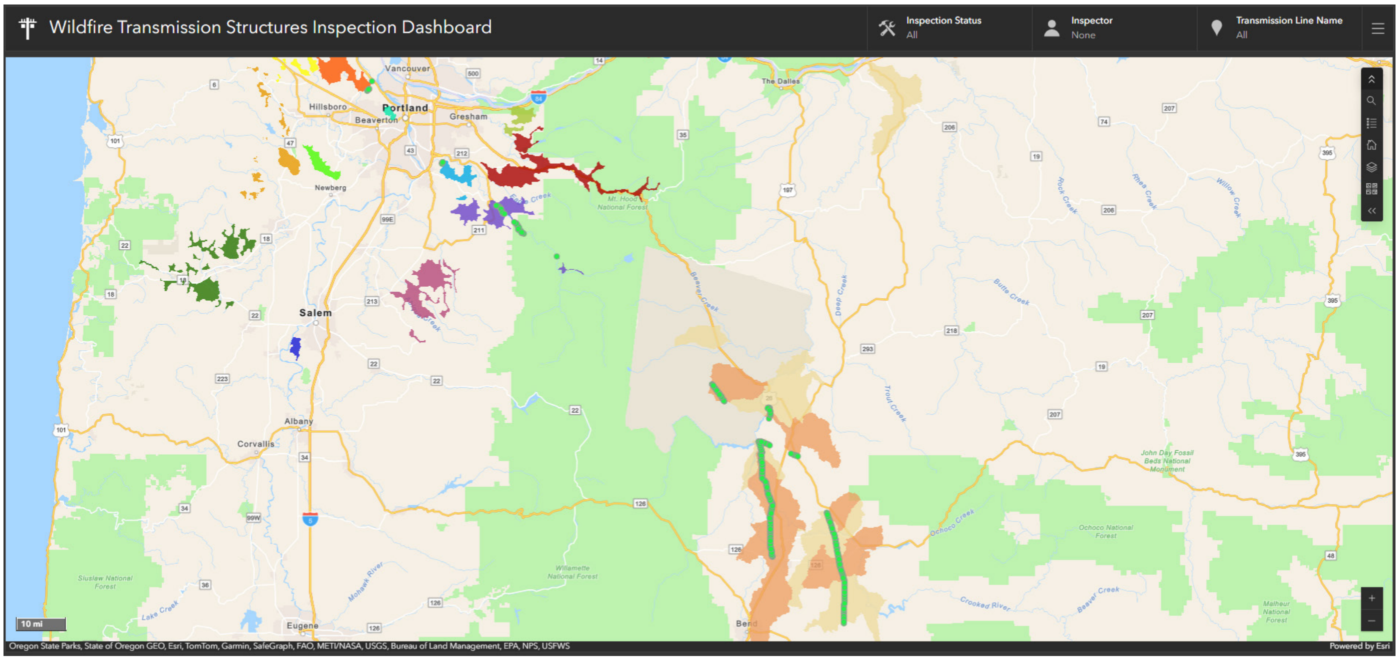


Figure 7-3: Online Structure Tracking Data

7.2.1.2 Inspection Finding Data

Ignition Prevention Inspection crews and PGE Reliability Technicians utilize a standardized form to record conditions consistently and repeatable during field inspections. All inspection data along with digital photographs of each supporting structure are captured using mobile GIS software, creating a comprehensive visual record. Ignition Prevention Inspection findings are uploaded from PGE's GIS software to a database that allows for efficient analysis and prioritization.

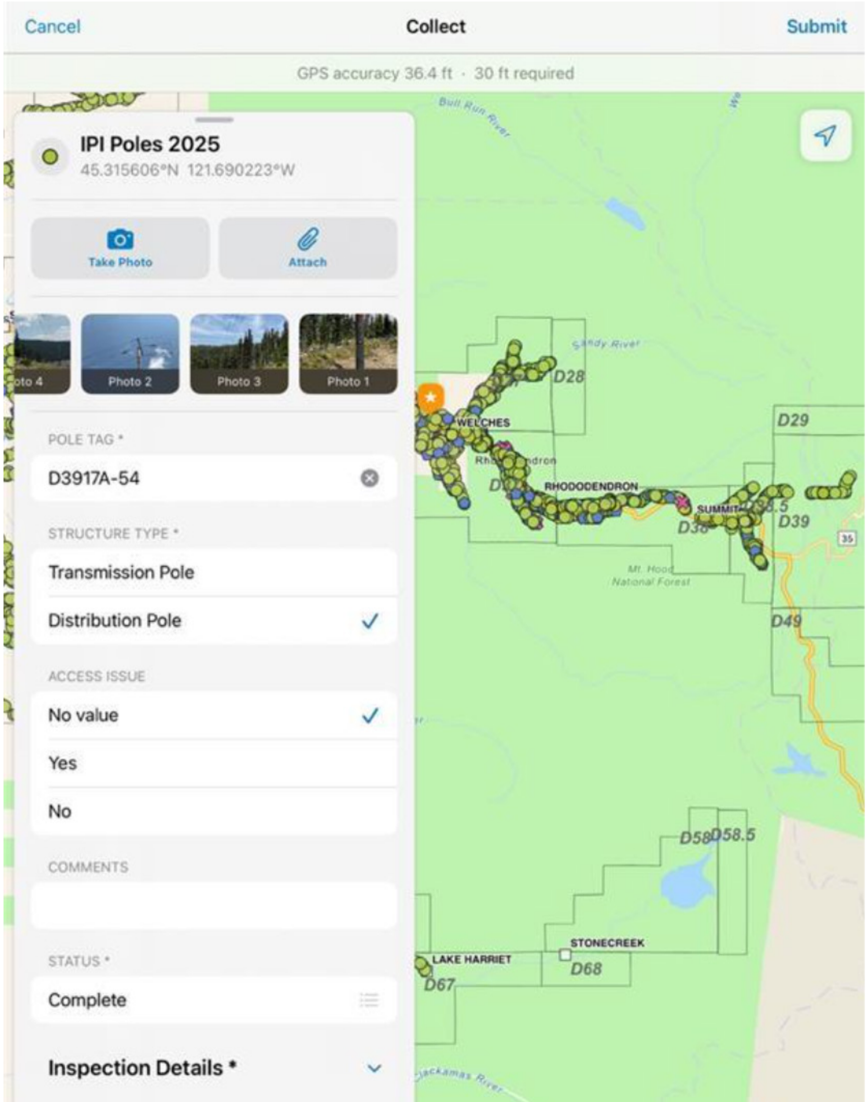


Figure 7-4: Inspection Mobile Application

7.2.1.3 Correction Work Orders

For corrections, PGE generates work orders through PGE's work management system that contain detailed information about the location, nature of the concern, and recommended remediation actions along with required correction timeframe as prescribed by OAR 860-024-0012 and OAR 860-024-0018.

PGE also manages the correction of pole occupant conditions identified through PGE's Ignition Prevention Inspections. This includes the timely issuance of notices of violations to pole occupants as prescribed by OAR 860-024-0018(6). Pursuant to OAR 860-024-0018(7), if the pole occupant does not respond with the correction of the condition within the timeframes set forth in the notice, PGE will perform the correction and charge the pole occupant for the actual cost of the work plus an additional 25-percent fee of the total amount of the work.

7.2.2 Ignition Prevention Inspections (IC-02)

7.2.2.1 Transmission and Distribution Structures

Using a competitive bidding process, PGE selects the vendor to perform the Ignition Prevention Inspections within the HFRZ. The pricing structure of the competitive bidding process is based on unit rates associated with specific inspection and correction tasks. The vendor's crews who perform the inspection and correction tasks are signatories to the International Brotherhood of Electrical Workers (IBEW), Local 125. PGE has historically employed an inspect-correct methodology whereby crews perform inspection tasks and complete many corrections during the initial visit of the pole. The rationale behind this approach was to reduce PGE's average correction times, complete most corrections in advance of each year's fire season, and reduce customer impacts by eliminating the need for multiple site visits. However, PGE has observed a trend of fewer conditions being identified on an annual basis by PGE's Ignition Prevention Inspections. As a result, through PGE's Year 2026 competitive bidding process, PGE will explore flexibility in inspection crew structure to facilitate de-coupling of inspection and correction tasks.

The Ignition Prevention Inspection crews conduct thorough inspections of distribution structures and transmission (57 kV and 115 kV) support structures, lines, and equipment. These inspections include visual assessments from ground level using binoculars or tripod-mounted spotting scopes, physical measurement of vegetation and conductor clearances, sounding of wooden supporting structures to detect internal damage or decay, targeted drilling of poles when necessary to assess damage extent, and detailed measurements for comprehensive evaluation.

Figure 7-5: Ignition Prevention Correction

7.2.2.2 230 kV and 500 kV Transmission Structures

PGE Reliability Technicians inspect 230 kV and 500 kV transmission facilities within PGE's ROW for generation and transmission assets located outside of PGE's service area. These technicians possess specialized knowledge of transmission facility construction, operation and maintenance practices, and supporting structure bonding and grounding configurations.

Their inspection process includes ground-level visual assessment of supporting structures, lines, and equipment, utilization of specialized equipment including binoculars, spotting scopes, range finders, infrared and corona cameras, and drones to augment ground-based inspections. They conduct physical verification of potential clearance issues through measurement of vegetation and conductor clearances, visual inspection and sounding of wooden supporting structures, visual inspection of non-wood structures for corrosion, cracks, and deformation, and foundation inspection for spalling, cracks, erosion, and settling.

7.2.2.3 Ignition Prevention Inspection Standards

PGE's Ignition Prevention Inspection standards build upon several years of experience in administering its Facility Inspection and Treatment to the National Electrical Safety Code (FITNES) Program, in compliance with OAR 860-024-0011 and OAR 860-024-0012. PGE continuously refines its Ignition Prevention Inspection work practices through active participation in industry discussions and forums as well as learnings through PGE's wildfire mitigation initiatives. These standards direct inspectors to identify conditions that, if left unaddressed, could lead to vegetation or other contact with energized parts or equipment failure, potentially causing an ignition event.

PGE's Ignition Prevention Inspection standards address several key inspection categories: bonding, broken lashing wire, conductor clearances, damaged conductor, damaged/broken/missing/loose hardware and equipment, damaged or decayed poles, tree attachments, idle or abandoned electrical equipment and other potential sources of ignition.

A comprehensive list of PGE's Ignition Prevention Inspection standards is available in Appendix J. PGE will update these standards as required to reflect updated information or OPUC guidance.

7.2.2.4 Quality Control

During the initial one to two weeks of HFRZ inspections, a PGE Quality Control Inspector accompanies each crew to verify work quality, provide feedback, and answer questions. Throughout the remainder of the inspection period, PGE conducts weekly QA/QC of each crew's work. New crews added mid-season must complete identical training and initial observation requirements.

The Quality Control Inspector performs multiple QA tasks beyond routine QC, including reviewing inspection results, conducting refresher training, meeting crews onsite, assessing access constraints, and verifying mapping information.

For transmission facilities (non-wood and engineered supporting structures for 57 kV and 115 kV transmission facilities, as well as all 230 kV and 500 kV transmission facilities), Lead Working Foremen oversee QA/QC for inspections performed by PGE Reliability Technicians.

7.2.2.5 Risk-Based Inspection Prioritization

PGE initiates annual distribution, 57 kV transmission, and 115 kV transmission Ignition Prevention Inspections in late Q1 and completes them by June 30th each year, with most inspections finished before fire season declaration. For annual 230 kV and 500 kV transmission Ignition Prevention Inspections, PGE begins as soon as location and environmental conditions allow, also aiming for completion by June 30th each year, with the most completed prior to fire season declaration.

The inspection schedule follows a risk-informed approach considering "Mean Risk Score" for each HFRZ as presented in Table 4-6. HFRZ inspections are sequenced from highest to lowest risk scores. Adjustments to sequencing are informed by operational factors including weather conditions, vegetation management requirements, accessibility challenges, and coordination with 10-year FITNES inspection cycles and transmission patrol cycles. Transmission inspections are scheduled earlier in the annual cycle to maximize time available for any necessary corrections.

PGE continuously evaluates inspection timing to identify conditions resulting from winter weather events. Higher elevation inspections may experience delays due to snowfall, which can impede physical access and obscure defects on equipment.

7.2.3 Asset Corrections (IC-03)

This initiative addresses O&M corrections, including landscape pole clearing, de-energization of abandoned equipment, replacement of automatic hardware located in reduced tension spans, straightening of leaning poles, grounding and bonding, and insulator replacement.

Figure 7-6: Ignition Prevention Crew Replacing Insulator

7.2.4 Ignition Risk Corrections (IC-04)

This initiative enables capital investments to reduce ignition likelihood by addressing inspection findings and emerging risks identified by PGE's ignition task force or industry engagement.

7.2.4.1 Emerging Ignition Risk Corrections

As described in Section 4.8.3, PGE's Ignition Task Force identifies corrective actions associated with ignition investigations. No ongoing forecast is available for this scope of work as initiative tracking is specific to newly identified ignition hazards or industry learnings.

7.2.4.2 Ignition Risk Corrections

This initiative also addresses following ignition risk correction activities as required to address ignition hazards identified by Ignition Prevention Inspections:

- **Crossarm Replacements:** Critically damaged crossarms, such as those that are broken, receive immediate replacement. Crossarms with less severe damage, such as splits, are scheduled for replacement within 30 days. This tiered prioritization system enhances efficient resolution of structural issues based on safety risk levels that may lead to ignition or undue reliability concerns.
- **Distribution Transformer Replacements:** Transformers are replaced when they show signs of physical damage or when leaking is detected. This practice enhances system reliability, prevents potential environmental impacts from leaking materials, and maintains safe electrical service for customers and communities.
- **Removal of Abandoned Facilities:** When abandoned facilities are identified in the field, they are de-energized as prescribed by OAR 860-024-0018(1) and removed under this initiative to prevent additional maintenance costs.

The fire mesh pole wrap program was previously included as part of this initiative reporting in PGE's 2025 WMP Update submission. This system hardening program is now tracking under a separate Fire Mesh Pole Wrap (GDSH-12) initiative, see Section 6.2.11 for details.

7.2.5 Tree Attachments (IC-05)

The purpose of this initiative is to reduce ignition likelihood by removing all conductor tree attachments by December 31, 2027, as required by OAR 860-024-0018(2).

Trees pose unique risks because they are living, dynamic supports subject to growth and decay, which can compromise conductor tension, clearances, and insulation integrity. As such, trees cannot be relied upon to maintain structural stability, leading to potential violations of required clearances and possible increased risk of abrasion or limbs failing and thus contacting a service conductor. Tree attachments identified on PGE's system have consisted of conductors energized below 600 volts.[39]

[39] See, OAR 860-024-0016(5).

Figure 7-7: Service Conductor Attached to Tree (left) and Correction (right)

7.2.6 Aerial Digital Inspections

PGE's Aerial Digital Inspection program represents a strategic advancement in infrastructure monitoring capabilities. By deploying advanced aerial technologies, we're able to conduct aerial assessments of assets with enhanced detail and efficiency. In connection with Ignition Prevention Inspections, this program is specifically designed to identify potential ignition risks. After PGE has matured foundational drone capabilities through inspections, PGE's goal is to strategically leverage drones for post-PSPS patrols.

7.2.6.1 Program Overview and Governance

PGE has a coordinated program that leverages advanced aerial technology to enhance inspection of transmission and distribution infrastructure. While this program is not specific to wildfire mitigation activities, initial priorities are focused on ignition risk reduction and informed by wildfire related Industry Engagement. Foundational program development includes:

- Development of drone standards
- Updates of related policies and procedures
- Training
- Implementation of an image repository, automation, and artificial intelligence
- Development of key performance indicators, including cost management and benefit tracking.

PGE is working closely with other utilities to establish best practices, evaluate equipment options, assess software solutions, and incorporate lessons learned to develop standardized procedures, technical specifications, and imaging requirements.

7.2.6.2 Distribution Aerial Inspection Pilot (IC-07)

This pilot was initiated in 2025 to evaluate the effectiveness and cost of aerial digital inspections. Additional details on this pilot, including deployment timelines, are provided in Table OPUC 5-2.

7.2.6.3 Transmission Aerial Inspection Pilot (IC-08)

This pilot has been initiated to improve upon and evaluate the effectiveness of PGE's aerial digital inspections. PGE's Reliability Technicians utilize drones to assist with documenting conditions identified through the Ignition Prevention Inspections of 230 kV and 500 kV transmission structures. The captured imagery is thoroughly analyzed by PGE engineers to identify potential defects that may not be readily apparent during conventional ground inspections. This high-resolution visual data also serves as a valuable resource for conducting trend analysis and optimizing maintenance planning strategies. Additional details on this pilot, including deployment timelines, are provided in Table OPUC 5-2.

7.3 Results

7.3.1 Results Summary Table

PGE completed all planned 2025 inspections; counts are listed in Table 7-2 for comparison with 2026–2028 targets. Table OPUC 7-3 summarizes the 2025 inspection findings and corrections in HFRZs by classification through Q3. Full year data will be provided with the WMP Data Template Workbook submittal in March 2026.

Table OPUC 7-3: HFRZ Asset Correction Summary

OPUC Correction	OPUC Corrective Timeframe	Utility Correction Type Name	Total Findings[1]	Corrected on Time	Corrections Past Due[2]	Average Days to Correct
Priority I, or other utility specific correction timelines	30 days	Imminent	13	11	2	29
Priority A	90 days	Urgent	38	35	3	73
Priority B	2 years	Standard	1,737	1,385	0	40
Priority C	10 years	Deferred	N/A	N/A	N/A	N/A
Ignition Prevention Finding	180 days	Heightened	14	14	0	119
Other			N/A	N/A	N/A	N/A

Notes:
1. Reflects 2025 Ignition Prevention Inspection and FITNES inspection findings in HFRZs.
2. Reflects corrections that exceeded the OPUC corrective timeframe on or before September 30, 2025; all Priority I and Priority A corrections were completed prior to September 30, 2025.

7.3.2 Ignition Prevention Inspections (IC-02)

PGE has observed a consistent downward trend in conditions identified year over year, despite the expansion of HFRZs. The decrease demonstrates the effectiveness of the Ignition Prevention Inspection project. For example, bad order pole findings have reduced from 1.65 percent in 2022 to just 0.13 percent in 2025, despite a steady increase in the pole quantity inspected annually. This reduction in findings rate illustrated the effectiveness of the Inspect and Correct Program, reducing pole-driven ignition risk in PGE's HFRZs.

The following inspection criteria updates were made to address newly identified ignition hazards:

- Identification and replacement of automatic hardware located in reduced tension spans. Automatic hardware (splices and dead ends) requires full tension to work correctly and are expected to fail prematurely when installed in reduced tension spans.
- Raised the minimum height for communication mainlines from 14 feet over areas subject to truck traffic to 15 feet 6 inches.

7.3.3 Ignition Risk Corrections (IC-04)

As a result of industry information related to the 2025 Los Angeles Wildfires[40] (Eaton and Palisades fires), PGE conducted an additional assessment of ignition risks related to transmission lines and induced voltage. This resulted in a project to upgrade the static wire on PGE's Grizzly - Malin 500 kV transmission line, one of three parallel 500 kV lines, each owned by a separate utility, that make up the California-Oregon Intertie (COI). PGE's Grizzly - Malin 500 kV line is the middle circuit on the COI, resulting in higher than anticipated induced voltage on the static wire and ground conductors. The static wire was originally segmented 22 times along the length of the line, with static segments ranging in length from two miles to 16 miles. To alleviate the induced voltage, PGE is reducing the length of the static segments to no greater than 10 miles by installing additional grounding and using static voltage limiting devices. This reduction will limit the induced voltage on static wire, thus reducing ignition risk along this critical and remote section of the COI.

Due to the resources necessary to safely design and construct 500 kV line corrections, this project was split into two phases, and the segment corrections were prioritized based on existing static segment length, vegetation, and intersections with public land. PGE completed Phase 1 of this project in 2025, which reduced three existing static segments by completing work at 18 locations to modify the static wire, install grounds, and install voltage limiting devices. Phase 2 of the project will be completed in May and June of 2026, addressing the three static segments by completing work at 14 additional locations.

7.3.4 Tree Attachments (IC-05)

PGE's tree attachment program continued to gain efficiency since its inception in 2022, leveraging active project management, effective design, proactive customer outreach, and expedited construction methods, including pre-digging the pole holes ahead of line crew work and separating specialties for efficiency. Many tree attachments targeted for mitigation in 2025 required detailed

[40] "Edison Says Dormant Powerline is Now Leading Theory for Cause of Eaton Fire," Los Angeles Times, 4/11/2025.

coordination with the U.S. Forest Service, as the construction window is limited to the months of June 15–October 15 and may be further reduced due to Industrial Fire Precaution Levels (IFPL) restrictions. Collective completion numbers for both 2024 and 2025 combined resulted in more than 600 supply conductor tree attachments being removed from PGE's system, specifically within PGE's HFRZs.

In 2024, PGE remedied 314 inspection findings, setting 279 poles. A variety of solutions are required to rectify tree-attached secondaries and services, including setting a new pole, removing the attachment while maintaining NESC requirements, or changing the alignment from the existing secondary path. These scope changes have resulted in a different count of attachment removed to pole installed relationship over the life of the program.

In 2025, PGE completed 320 corrections and 271 pole sets. Work completed through 2025 has removed more than 600 distinct attachments within PGE's HFRZs since 2022.

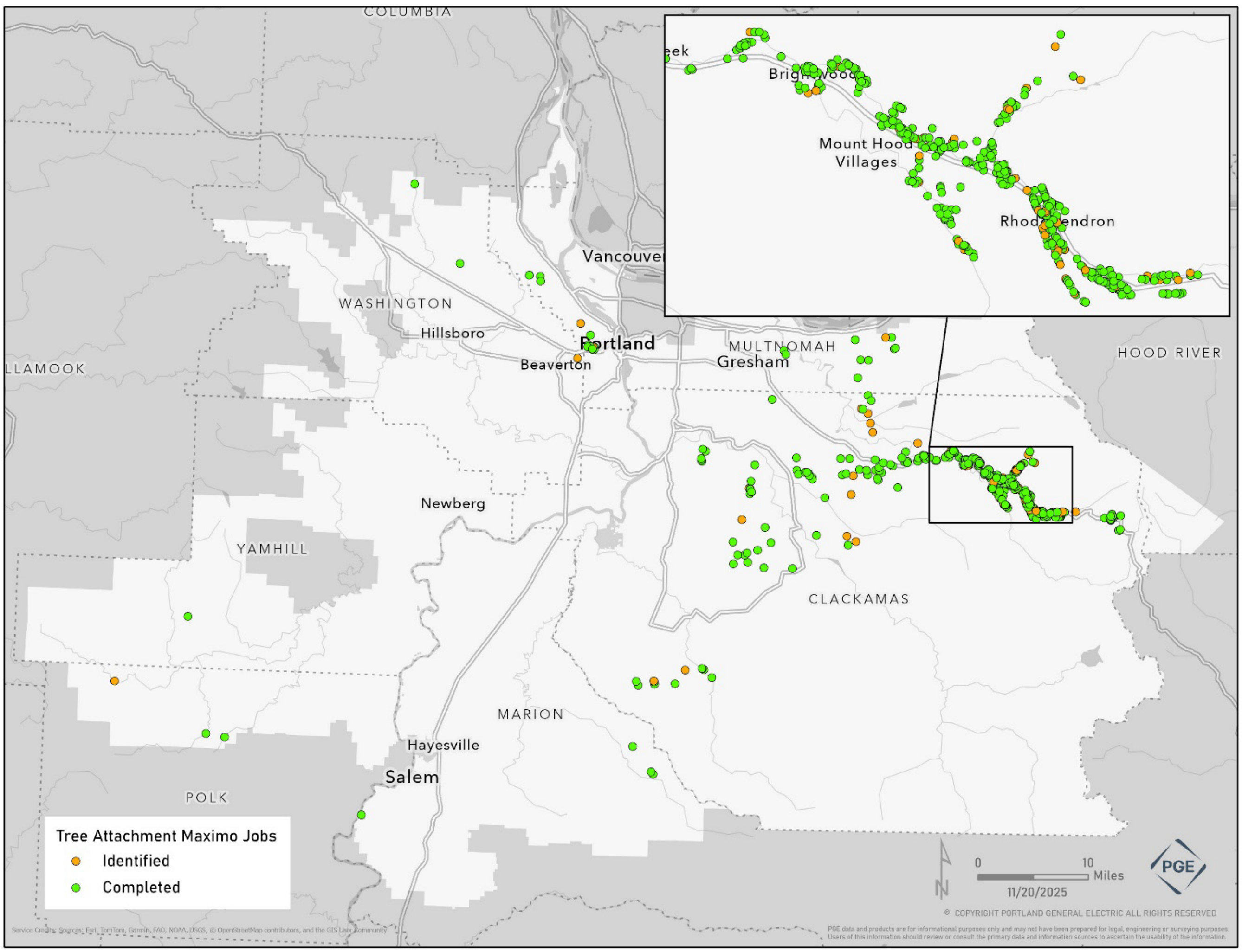


Figure 7-8: Tree Attachment Program Work Orders Over Time[41]

[41] This map is intended to show the spatial location and density of tree attachment work orders found throughout PGE's service area. Work orders count and attachments rectified are not a 1 to 1 comparison.

7.3.5 Distribution Inspections Pilot (IC-07)

PGE piloted the use of drones to perform aerial digital inspections in connection with a portion of the 2025 Ignition Prevention Inspections. Specifically, following a risk-based prioritization framework, PGE focused on newly established HFRZs. The pilot demonstrated that detailed inspections of the structure and associated overhead facilities and equipment may be accomplished with a drone, without the need for line personnel to access the supply space via climbing or with a bucket truck. Upon review of the drone inspection pilot results, PGE's analysis resulting in an RSE of 6.5 for drone-based distribution inspection compared to an RSE of 9.3 for traditional inspection methods. PGE plans to continue to engage in industry learnings and pilot digital aerial inspections in future Ignition Prevention Inspections to further inform the RSE.

7.4 Initiatives and Targets

Targets are provided below for each initiative and year of the three-year WMP. Forecast values reflect the best and most up-to-date information available at this time; assumptions are detailed in Section 7.4.2.

7.4.1 Initiative Summary Table

Table OPUC 7-4: Inspect/Correct Initiative Cost Summary in Thousands

Initiative Activity	Tracking ID	Target Unit	2026 Target	2026 Forecast ($1,000)	2027 Target	2027 Forecast ($1,000)	2028 Target	2028 Forecast ($1,000)	Three-Year Forecasted Total ($1,000)	Section
Inspection and Correction Program	IC-01	N/A	N/A	$397	N/A	$424	N/A	$451	$1,271	7.2.1
Ignition Prevention Inspections	IC-02	# of structures	30,308	$2,668	30,856	$2,853	31,649	$2,954	$8,474	7.2.2
Asset Corrections	IC-03	# of closed or completed jobs	1,339	$892	1,378	$941	1,421	$994	$2,826	7.2.3
Ignition Risk Corrections	IC-04	# of assets	87	$1,235	36	$1,157	29	$1,163	$3,555	7.2.4
Tree Attachments	IC-05	# of corrections	62	$342	68	$390	N/A	$0	$731	7.2.5
Inspect/ Correct IT	IC-06	N/A	N/A	$47	N/A	$293	N/A	$95	$435	7.4.3
Distribution Aerial Digital Inspections	IC-07	# of structures	4,986	$290	2,859	$171	2,432	$150	$612	7.2.6.2
Transmission Aerial Digital Inspections	IC-08	# of structures	N/A	$0	N/A	$0	N/A	$0	$0	7.2.6.3

Notes:
1. Forecasts and Three-Year Totals provided in $/thousands.
2. All initiative Forecasts and Three-Year Totals include capital cost and operations and maintenance expense.

7.4.2 Initiative Details

7.4.2.1 Inspection and Correction Program (IC-01)

The purpose of this initiative to capture costs associated with designing, planning, and managing the Inspection and Correction program, see Section 7.2.1 for details.

7.4.2.2 Ignition Prevention Inspections (IC-02)

Table 7-2 below summarizes the structure counts and line miles associated with PGE's Ignition Prevention Inspections.

Table 7-2: Ignition Prevention Inspections

	2025		2026		2027		2028	
Location	**Structures[1]**	**Line Miles**	**Structures[1]**	**Line Miles**	**Structures[1]**	**Line Miles**	**Structures[1]**	**Line Miles**
HFRZ	28,443	1,289	29,320	1,352	29,837	1,393	30,600	1,434
OFRZ	396	63	988	177	1,018	182	1,048	187

Note:
1. Transmission structures may include multiple poles.

7.4.2.3 Asset Corrections (IC-03)

Targets and actuals for this initiative are updated as required to reflect ignition hazard identification; the forecast in Section 7.4.1 reflects the following assumptions.

Table 7-3: O&M Asset Corrections

Correction Type	2025[1]	2026	2027	2028
Landscape Pole Clearing Jobs	58	60	62	64
Other Ignition Prevention Corrections (excluding FITNES findings)	1,242	1,279	1,316	1,357

Note:
1. 2025 results reflect status as of this filing.

7.4.2.4 Ignition Risk Corrections (IC-04)

Targets and actuals for this initiative will be updated as required to reflect ignition hazard identification; the forecast in Section 7.4.1 reflects the following assumptions in addition to the 500 kV static segmentation work discussed in Section 7.3.2.

Table 7-4: Capital Ignition Risk Corrections

Correction Type	2025[1]	2026	2027	2028
Emerging Ignitions Hazards Removed	18	14	N/A	N/A
Crossarms Replaced	23	24	24	25
Transformers Replaced	4	4	4	4
Abandoned Facilities Removed	42[42]	N/A	N/A	N/A

Note:
1. 2025 results reflect status as of this filing.

7.4.2.5 Tree Attachments (IC-05)

With changes to PGE's HFRZ boundaries amending forecasting and inspection locations for 2026, PGE expects to continue the tree attachment program through the end of 2027, as required by OAR 860-024-0018(2).

Annual actuals and targets are shown in Table 7-5. PGE expects to complete 84 percent of the known tree attachments in 2026 with the remaining carrying over into 2027 due to the need for customer coordination. Customers opting to convert services to underground in lieu of a traditional pole installation have until the end of 2026 to complete the conversion. PGE uses historic average findings per pole count to forecast future inspection findings that will result in additional 2027 scope. Final findings tallies will not be known until the Ignition Prevention Inspection program concludes mid-2026.

The number of pole installations required to eliminate tree attachment varies depending upon tree density, circuit configuration, and the need for secondary alignment. The forecast reflected below assumes a one-to-one relationship between attachment removal and pole installation.

Table 7-5: Tree Attachment Corrections by Program Year

	Program Year			
Target	2025	2026	2027	Total
Attachments Removed	320	62	68	450
Poles Installed	271	62	68	401

7.4.3 Inspect/Correct IT (IC-06)

This initiative was started in 2025 to track information technology (IT) investments that enable PGE's Inspect/Correct program.

7.4.3.1 Inspection and Correction Data Enhancements

Data and workflow enhancements will provide for data collection, analysis, and work management that enables efficient inspection workflows and correction tracking. This technology foundation

[42] Sum of poles and transformers removed due to abandoned status in system.

supports data-driven decision-making and maximizes the program's impact on reducing wildfire ignition risk.

This initiative improves mobile inspection applications, systems of record, integration with work management systems, analytics to identify trends and prioritize high-risk issues, digital field tools to increase thoroughness of inspections, and system enhancements to improve efficiency and data quality.

In 2025, PGE implemented automated data pipelines consolidating FITNES and Ignition Prevention Inspection data from a single database into a centralized data platform, reducing cost, improving data quality, and enabling timely reporting.

Building on this foundation, 2026 work focuses on extending data consolidation to additional enterprise GIS datasets. By integrating enterprise asset and geospatial datasets with existing inspection and violation tracking data, PGE will more effectively identify systemic asset risks, prioritize corrections, and bundle related work. Integrated datasets will also enable PGE to evaluate the RSE for specific components of the inspection and correction program, including the ability to compare the effectiveness of various inspection methods. These enhanced capabilities will be achieved through the following data flow improvements:

- **Data Collection/Procurement:** Integration of additional enterprise GIS datasets including asset characteristics, geospatial layers, and inspection tracking data; enhanced data capture for inspection and violation fields.
- **Data Integration/Conditioning:** Consolidation of disparate GIS data sources with existing inspection datasets; data standardization, quality validation, and cross-program data linking.
- **Data Analysis:** Advanced analytics supporting cross-program trend analysis, inspection prioritization, and RSE modeling; enhance querying capabilities beyond source system limitations.
- **Delivery:** Streamlined OPUC inquiry response, efficient regulatory reporting preparation, RSE model inputs, and operational reporting.

7.5 Continuous Improvement

7.5.1 Program Maturity

From 2022 to 2025, PGE saw significant maturation (23 percent increase) in the Inspect Correct program based on corresponding category scores to the IWRMC Maturity Model. Building on insights from the IWRMC assessment, PGE will review how predictive inspection tools, QA/QC processes, and data collection methods can be better integrated across programs. PGE will assess ways to leverage aerial digital inspections, inspection analytics, and risk-based prioritization to improve the efficiency and traceability of corrective actions. This improvement will emphasize procedural refinement—particularly in how inspection results inform asset management and vegetation activities—while maintaining current resource commitments.

7.5.2 Inspect/Correct Program

The following areas reflect PGE's continuous improvement priorities for inspection and correction:

- **Inspection Finding Forecast:** PGE will utilize the 2026 inspection findings to refine the forecasting methodology used to set targets for correction-related initiatives such as Distribution Pole Replacement.
- **Aerial Digital Inspections:** As described in Section 7.2.6, PGE has integrated drone-based aerial digital inspection technologies to complement traditional ground-based assessment methods. These aerial digital inspections provide detailed inspection data associated with the electric space.
- **Tree Attachment Identification:** PGE will leverage existing mapping systems and new digital work management software to document attachments outside of the HFRZs beginning in 2027. While still in the planning stages, the intent is to capture attachment findings for future rectification.
- **Correction Timeliness:** PGE is improving program management and monitoring of corrections to identify and escalate roadblocks earlier.
- **Correction Prioritization:** PGE plans to automate the correction prioritization of inspection finding based upon risk modeling and known ignition hazards.
- **Reporting:** PGE will continue to improve reporting capabilities related to inspections and corrections, supporting efficient program management, transparency, and the Data Template Workbook.

8 Vegetation Management

8.1 Overview

Vegetation management (VM) is a foundational component of PGE's Wildfire Mitigation Plan and fulfills applicable requirements of OAR 860-300-0020 and OAR 860-024. The program's primary goal is to reduce the potential for vegetation to cause ignition or service interruptions while maintaining compliance, public safety, and ecological balance across the service area. PGE's Advanced Wildfire Risk Reduction (AWRR) vegetation management program addresses PGE's first objective:

- **Objective #1:** Reduce wildfire risk associated with electrical contact to vegetation or other objects.

By integrating field expertise, remote sensing, and data analytics, PGE is evolving from a cycle-based vegetation management approach toward a risk-based, data-informed strategy that aligns vegetation work with the areas of greatest wildfire risk.

Figure 8-1: Vegetation Clearing and Hazard-Tree Removal

During the 2026–2028 WMP cycle, PGE's Vegetation Management program will mature risk-informed planning and execution through strategic priorities:

- **Technology:** Applying technology-enabled analytics to enhance the risk-based planning, execution, and verification of vegetation work.
- **Data Quality:** Improving accuracy and completeness of vegetation-related data sets used for modeling, compliance, and reporting.
- **Annual Period:** Transitioning to a single annual operational period informed by HFRZ-specific risk, remote-sensing insights, and historical hazard data.
- **Clearance Optimization:** Evaluating the effectiveness of an increased 15-foot minimum clearance

PGE's vegetation management strategy combines regulatory compliance with a data-driven, risk-based planning framework that prioritizes mitigation where wildfire exposure is greatest. The approach integrates two distinct programs that capture both routine non-wildfire and routine wildfire vegetation needs:

8.1.1 Program Structure

As detailed in Table OPUC 8-1 and Table 8-1, PGE's vegetation management program consists of complementary programs that meet regulatory requirements and address both routine and wildfire-related vegetation risks.

- **Routine Vegetation Management (RVM):** Cycle-based trimming performed outside HFRZs to maintain required vegetation clearances and ongoing compliance with OAR 860-024-0016 vegetation safety standards.
- **Bulk Transmission Vegetation Management (FAC-003)**: Vegetation patrol and mitigation along bulk transmission corridors (≥200 kV and select 115 kV lines) consistent with North American Electric Reliability Corporation (NERC) Standard FAC-003. In addition, all 115 kV lines receive semi-annual patrols to verify clearance compliance and identify vegetation hazards, including C1–C3 and fall-in conditions within the HFRZ.
- **Advanced Wildfire Risk Reduction (AWRR):** Targeted vegetation mitigation within HFRZs, focused on hazard tree mitigation, enhanced clearances, and pre-season patrols to reduce ignition potential during the fire season, while maintaining compliance with OAR 860-024-0016 vegetation safety standards.
- **Non-routine vegetation mitigation** occurs both inside and outside of HFRZs and is performed under PGE's Facility Inspection and Treatment to the National Electrical Safety Code (FITNES) and Capital programs. This work is conducted outside of standard RVM cycles or AWRR schedules and includes vegetation mitigation identified through FITNES inspections as well as vegetation clearance required to support capital construction projects. Corrective timeframes for non-routine activities differ from standard vegetation programs; they are project-specific and coordinated with construction schedules, environmental permitting, and system readiness milestones – completing all vegetation mitigation prior to asset energization or capital project in-service dates.

Table OPUC 8-1: Vegetation Inspection Type

OPUC Inspection Type	Area	Utility Program Name	Utility Program Details	Utility Corrective Timeframe
Routine Non-Wildfire	Non-HFRZ	Routine Vegetation Maintenance (RVM)	Vegetation mitigation outside HFRZ - focus on compliance/reliability	Conducted on a 2- or 3-year cycle with identified vegetation mitigated during the scheduled work cycle for that period.
Routine Non-Wildfire	Select BES OFRZ	Bulk Transmission Vegetation Management (FAC-003)	Vegetation mitigation along the BES corridor – focus on reliability, ignition risk, compliance	100% of lines inspected at least once per calendar year with no more than 18 months between inspections on the same ROW. Annual work plans formulated through patrols are mitigated each calendar year.
Routine Wildfire	HFRZ	Advanced Wildfire Risk	Vegetation mitigation within the HFRZ - focus	Conducted on an annual cycle, with identified vegetation mitigated in

OPUC Inspection Type	Area	Utility Program Name	Utility Program Details	Utility Corrective Timeframe
		Reduction (AWRR)	on ignition risk reduction/reliability/compliance	accordance with assigned condition classifications and timelines within HFRZ: Imminent hazard (C1) – within 24 hours Probable hazard (C2) – within 12 months High Growth Potential (C3) – within 180 days or before the declared fire season if identified during the Active Growth Period (AGP).
Non-Routine	All	FITNES, Capital	Work performed outside of routine maintenance cycles or wildfire mitigation schedules. This includes vegetation mitigation identified through FITNES as well as vegetation clearance required to support capital projects.	Timeframes are project-driven and coordinated with construction schedules, permitting requirements, and system readiness – completing all mitigation prior to asset energization or capital project in-service dates.

Table 8-1: Vegetation Management Programs Overview

Program	Rule	Scope	Frequency	Focus
Routine Vegetation Management (RVM)	OAR 860-024-0016	Non-HFRZ	2-3 years + mid-cycle	Clearances, hazards
Bulk Electric System (BES)	NERC FAC-003-4	230 kV and above + select BES (OFRZ)	Annual	Ignition risks, clearances, access, hazards, right-of-way encroachments
Advanced Wildfire Risk Reduction				
AWRR Fire Season Readiness (FSR)	OAR 860-024-0016	HFRZ	Annual pre-fire-season patrol & mitigation	Clearances, hazards
AWRR Active Growth Period (AGP)	OAR 860-024-0018(4)	HFRZ	Annual pre-fire-season patrol & mitigation	New growth, ignition risks, clearances, seasonal damage
AWRR Probable Hazard Patrol (PHP)	OAR 860-024-0018(4)	HFRZ	Annual hazard patrol & mitigation	Ignition risks, clearances, hazards, off-right-of-way, access, seasonal damage

8.1.1.1 Routine Vegetation Management (RVM) Program

PGE's Routine Vegetation Management (RVM) program currently operates on a two- or three-year cycle, inspecting and mitigating vegetation along roughly one-third of the overhead distribution system outside of HFRZs each year in compliance with state requirements and industry standards. Work is scheduled year-round, though timing can shift as PGE continues to evaluate and improve the efficiency and effectiveness of vegetation cycles.

Inspectors review vegetation adjacent to PGE overhead transmission and distribution assets - including substations and PGE-owned communication lines - considering proximity, species, growth habits, structural strength, and overall health. Key factors in developing site-specific prescriptions include:

- Required clearances to avoid off-cycle work.
- Line configuration and voltage.
- Location and site conditions.
- Potential conductor sag under environmental conditions.

Foresters then translate these assessments into project-specific work layouts for vegetation contractors. All line-clearance pruning follows PGE specifications designed to maintain safe distances under expected wind and weather. At minimum, PGE meets the clearance requirements outlined in OAR 860-024-0016 and performs all work consistent with American National Standard for Tree Care Operations, ANSI A300 (Part 1) 2008 Pruning, approved 2017 and OSHA Z133 standards.

Field validation is an integral part of the program. PGE forestry staff collaborate directly with crews to confirm scope and quality and conduct regular audits to verify compliance with specifications. Collaboration with stakeholders—including USFS, Oregon Department of Forestry (ODF), ODOT, municipalities, and private landowners—cultivates alignment and consistency across the landscape.

8.1.1.2 Bulk Transmission Vegetation Management (FAC-003)

PGE manages vegetation along bulk transmission corridors (≥200 kV and select 115 kV lines) consistent with NERC Standard FAC-003.

Within the OFRZ, vegetation management follows the same minimum requirements established under FAC-003, which requires that no vegetation be allowed to encroach within the Minimum Vegetation Clearance Distance (MVCD). PGE conducts annual vegetation patrols, in alignment with OAR 860-024-0018(4), of all bulk transmission lines in the OFRZ to confirm compliance with MVCD and to identify and mitigate off-ROW hazard trees capable of falling into energized conductors. These inspections are performed via a combination of aerial surveys and annual ground patrols, supplemented with post-event inspections following high-wind or wildfire incidents. Any vegetation found to pose an immediate threat to conductor clearance or reliability is reported to System Control and mitigated without intentional time delay.

Maintenance practices prioritize a wire-zone/border-zone approach, maintaining:

- **Wire Zone:** 30 feet either side of the centerline of transmission. Vegetation is restricted to a height at maturity of no greater than 15 feet.

- **Border Zone:** From 30 feet to 62.5 feet from centerline of transmission. Vegetation is restricted to a height at maturity of not greater than 35 feet.
- **Danger Tree:** Trees with obvious signs that indicate a potential failure risk which extend above the sighting line and which, when falling, could come within 30 feet of the centerline of transmission.

Mitigation in OFRZ corridors may include mechanical removal, selective herbicide treatment, and habitat-sensitive control measures to preserve low-growing, fire-resistant species while preventing the establishment of tall or fast-growing vegetation that could violate MVCD.

This strategy strengthens PGE's transmission vegetation management in the OFRZ toward meeting FAC-003 reliability standards and the annual vegetation patrol requirements applied to HFRZs, maintaining safe operation of critical transmission infrastructure while mitigating wildfire exposure on and adjacent to PGE's ROW.

8.1.1.3 Advanced Wildfire Risk Reduction (AWRR) Program

PGE's AWRR program goes beyond routine vegetation management, focusing specifically within HFRZs to identify and mitigate vegetation that poses an elevated wildfire threat to utility assets. Launched in 2019 in the Mt. Hood corridor, the program strengthens traditional vegetation practices with shorter patrol cycles, more rigorous inspections, and increased resourcing where wildfire consequences are highest.

The program is designed to reduce ignition potential, improve system resilience, and eliminate vegetation conflicts with powerlines. Efforts include improving access for easier inspection and work, reducing ladder fuels and debris, widening rights-of-way, and mitigating hazard vegetation both on and off ROW.

Every year, PGE inspects all overhead distribution circuits, in addition to a system-wide biannual patrol along all 57 kV and 115 kV lines. Inspections follow International Society of Arboriculture (ISA) protocols at three levels:

- **Level 1:** Limited Visual Assessment
- **Level 2:** Basic Assessment
- **Level 3:** Advanced Assessment

PGE inspectors use Level 1 visual assessments as the primary screening method and progress to Level 2 evaluations when structural defects, proximity, or off-ROW conditions indicate potential for fall-in or clearance encroachment. Off-ROW trees within strike distance default to a Level 2 assessment to evaluate failure potential. Inspectors will also assess sites for suitability of alternative mitigation options such as mowing, herbicide application, tree replacement, and the use of specialized equipment.

Vegetation conditions are then classified as:

- **Condition 1 (C1):** Imminent hazard to PGE facilities
- **Condition 2 (C2):** Probable hazard to PGE facilities

- **Condition 3 (C3):** High-growth potential vegetation likely to require off-cycle work ("Cycle Busters"[43])

Based on these findings, PGE foresters design project-specific work plans for contractors, incorporating remote sensing insights and vegetation risk updates to inform prioritization. Program delivery also includes QA/QC oversight, detailed documentation, and coordination with external partners such as ODOT, ODF, USFS, counties, and municipalities.

Pre-Fire Season Operations (January-June):		In- & Post-Season Operations (July-December):
Fire Season Readiness Patrol + Mitigation (January-June): • Conduct patrols in all HFRZ. • Primary objective: Mitigate vegetation in proximity to power lines; additional C2 work may be required. • Desired outcome-Fire Season Readiness: No vegetation is in contact with conductors.	**Active Growth Period (April-June):** • Conduct patrols in all HFRZ. • Primary objective: Mitigate high-growth potential vegetation (C3); imminent hazard patrol (C1) • Desired outcome-Fire Season Readiness: Reduction in ignition potential from vegetation contact caused by "Cycle-busters" mitigated prior to fire season.	**Hazard Patrol + Mitigation:** • Patrol 100% HFRZ for on- and off-ROW vegetation hazards (C1-C3). • Primary focus: Hazard mitigation of C1/C2 vegetation conditions. • Desired outcome: Reduction of vegetation failure and ignition risk.

Figure 8-2: AWRR Operational Scopes

As outlined above in Figure 8-2, annual vegetation management activities within the HFRZ are structured around two primary operational periods: pre-fire season and post-fire season commencement. Together, three distinct scopes comprise the annual operational cycle.

- **Fire Season Readiness (FSR) Patrol + Mitigation (VM-08/VM-09):** Targeted pre-fire season patrol and mitigation activities conducted to support system readiness for periods of elevated wildfire conditions. This scope focuses on identifying and mitigating imminent hazards (C1), clearance encroachments, and other high-risk vegetation conditions within the HFRZ to reduce ignition potential and support compliance throughout the fire season.
- **Active Growth Period (AGP) Patrol + Mitigation (VM-02/VM-03):** Seasonal patrol and targeted mitigation conducted during peak vegetation growth to identify and address rapidly developing clearance issues (C3) and emergent imminent hazards (C1). AGP activities focus on early intervention to reduce escalation of vegetation risk ahead of fire season and to maintain clearance compliance during periods of accelerated growth.
- **Probable Hazard Patrol (PHP) + Mitigation (VM-04/VM-05):** Annual patrol and mitigation activities focused on identifying and addressing probable vegetation hazards (primarily C2) that present elevated risk of conductor contact or failure under adverse conditions. This scope

[43] See OAR 860-024-0016(1)(a) for definition of Cycle Buster.

emphasizes structural defects, declining tree condition, and off-right-of-way hazards that may not pose immediate threat but warrant mitigation to reduce wildfire and reliability risk over time.

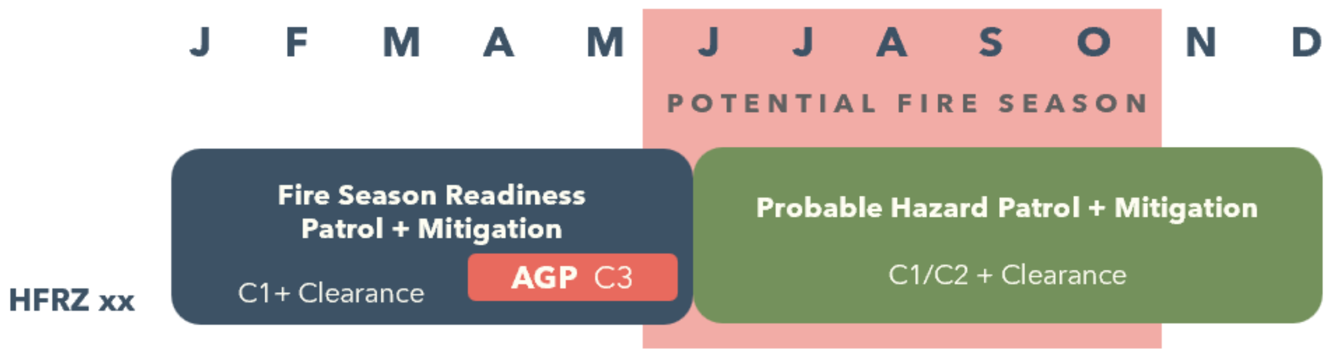


Figure 8-3: 2026 AWRR Mitigation Programs

PGE's shift to an annual cycle, shown in

Figure 8-3, leverages insights from remote sensing, updated vegetation-health indicators, and multi-season historical C2 patterns to determine mitigation targets for each zone individually. PGE prioritizes mitigations based on observed vegetation behavior, identified hazards, and risk modeling rather than fixed mitigation rate for each HFRZ. This updated AWRR structure aligns with risk-based strategy, simplifies planning, strengthens compliance, enables unit costing, and provides flexibility as PGE's wildfire risk landscape evolves.

8.1.2 Operational Restrictions and Fire Weather

Vegetation Management personnel and contractors must follow all Fire Season Readiness protocols as outlined in Section 10.2.1. During fire season, PGE implements comprehensive wildfire mitigation measures including required fire suppression equipment, safe work practices, and operational restrictions based on fire danger conditions. When NWS Red Flag Warnings (RFW) are issued or when Industrial Fire Precaution Levels (IFPL) are elevated, additional operational restrictions apply. PGE maintains established waivers with Oregon Department of Forestry and U.S. Forest Service that allow critical vegetation work to continue under specific conditions. For complete details on Fire Season Readiness, Fire Season Tools and Equipment, Fire Season Work Practices, and Fire Prevention Measures during Fire Season, see Section 10 (GOP-01).

Figure 8-4 shows examples of typical safety and fire equipment utilized by vegetation crews.

Figure 8-4: Vegetation Crews with Safety and Fire Equipment

8.2 Mitigations

8.2.1 Advanced Wildfire Risk Reduction Program (VM-01)

VM-01 in an on-going initiative to capture costs associated with designing, planning, managing, and governing the overall vegetation management program.

8.2.1.1 Clearances

The tables below present the clearance distances required at the time of pruning under PGE's Vegetation Clearance Policy and Specifications, which are designed to meet the standards in OAR 860-024-0016.

Table 8-2: PGE Distribution Clearance Specifications

Post-Work Clearance Distance (7.2–13.2 kV)[1]	Slow (<1 ft./yr.)	Moderate (1–3 ft./yr.)	Fast (>3 ft./yr.)
Side	10 ft.	10 ft.	10 ft.
Under	10 ft.	10 ft.	10 ft.[2]
Over	10 ft.	10 ft.	10 ft.[2]

Notes:
1. For all growth rates, clearance is increased to 15′ within 1 span of major highway or waterway crossing.
2. Increased to 15 ft for Leyland cypress and cottonwood.

Table 8-3: PGE Transmission Clearance Specifications

Post-Work Clearance Distance (57 kV & 115 kV)	Slow (<1 ft./yr.)	Moderate (1–3 ft./yr.)	Fast (>3 ft./yr.)
Side	20 ft.	20 ft.	20 ft.
Under	20 ft.	20 ft.	20 ft.

Post-Work Clearance Distance (57 kV & 115 kV)	Slow (<1 ft./yr.)	Moderate (1-3 ft./yr.)	Fast (>3 ft./yr.)
Over	20 ft.	20 ft.	20 ft.

8.2.1.2 Patrol and Assessment

All vegetation inspections are guided by the International Society of Arboriculture (ISA) Best Management Practices for Utility Tree Risk Assessment (UTRA).

8.2.1.2.A Levels of Assessment

AWRR assessment levels are aligned with ISA standards for vegetation risk assessment. All assessments follow Level 1 and Level 2 procedures; a Level 3 assessment is only required if specifically requested by the forestry manager. Patrols evaluate both on-ROW and off-ROW vegetation within strike distance and screen for hazard conditions.

- **Level 1:** Limited Visual Assessment involves a quick, high-level inspection of trees from a specified vantage point, such as on foot, in a vehicle, or by aerial patrol. It aims to identify trees that pose high or extreme risk by focusing on large areas with minimal details recorded for each tree. Level 1 assessments can also help identify trees or areas that may require a more detailed Level 2 assessment.
- **Level 2:** Basic Assessment is a more thorough visual inspection of a tree and its surrounding environment. This involves walking around the tree to examine the site, above-ground roots, trunk, and branches, and may include the use of simple tools such as a mallet for sounding.
- **Level 3:** Advanced Assessment goes beyond the routine objectives of the AWRR program and is conducted only on an as-needed basis with input from subject matter experts. This level involves more intrusive methods, such as sonography and extraction of core samples. Level 3 assessments are typically performed when removal activities require a higher level of proof, such as for sensitive customers.

This tiered approach enables PGE to deploy inspection resources according to the observed risk, maintaining consistency with ISA standards and AWRR program objectives for wildfire risk reduction within HFRZs. Findings directly inform annual mitigation prescriptions and zone-level expectations. Figure 8-5 shows the AWRR condition assessment work layout process.

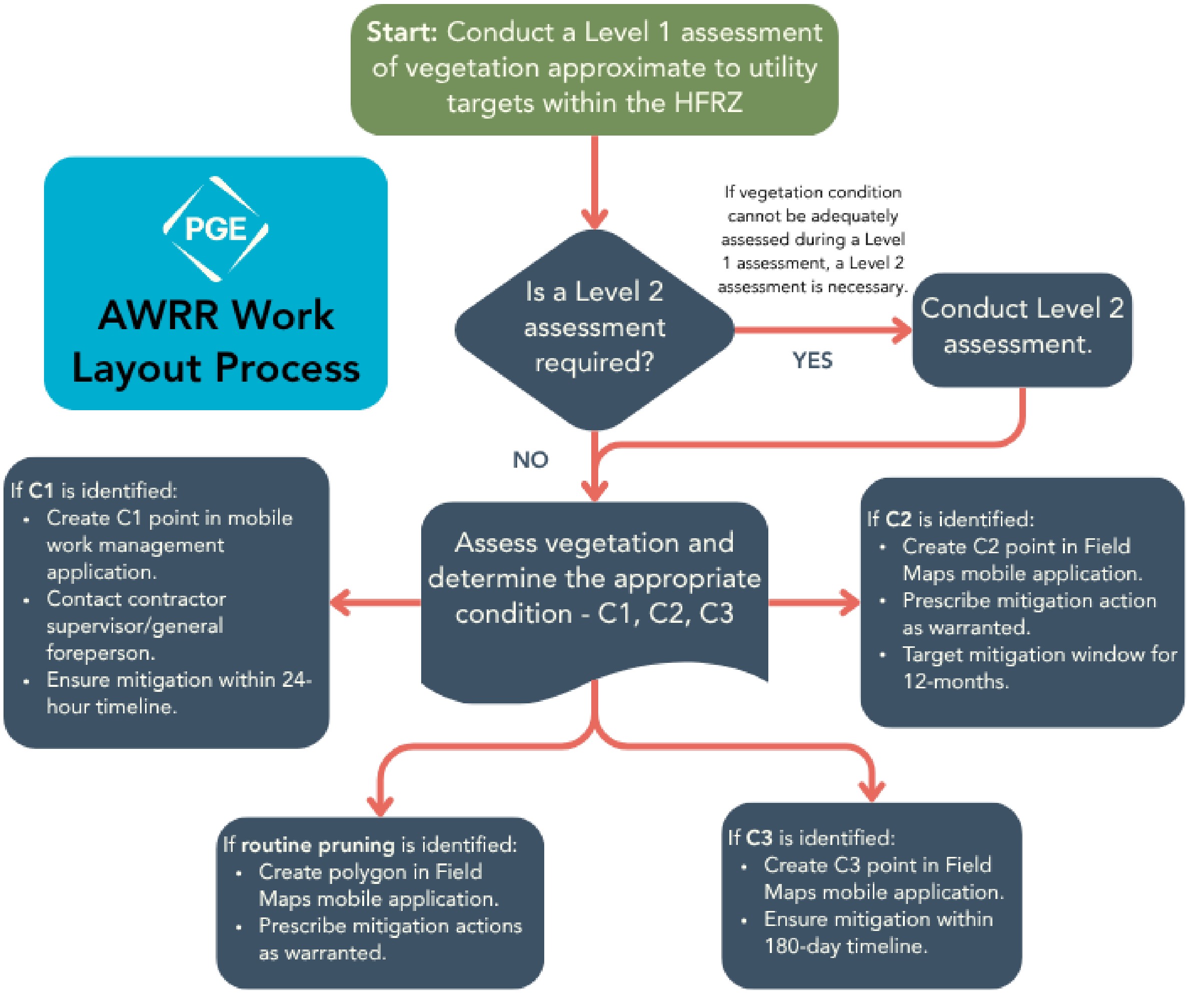


Figure 8-5: AWRR Condition Assessment and Work Layout Process

8.2.1.2.B Condition-Based Tree Assessment

To prioritize mitigation activities, vegetation patrol findings are classified under PGE's Condition-Based Tree Assessment (CBTA) framework.

- **Condition 1: Imminent Hazard Vegetation (C1)**
  - Vegetation presents an imminent likelihood of failure and a high likelihood of impacting PGE assets
  - Vegetation is at risk of contact with people, property, and assets (PPA) within 24 hours due to severe weather conditions or other identified conditions such as:
    - Severe lean
    - Heaving and/or disturbed root area
    - Loss of structural integrity (e.g., fractures, cracks)
- **Condition 2: Probable Hazard Vegetation (C2)**
  - Vegetation is hanging over utility assets or growing in such proximity to utility assets that it creates an electrical hazard or is a danger under health and safety codes to a person working on the assets or with access to the assets.

  - Vegetation is diseased, dead or dying or is close enough to utility assets that pruning, or removal, is necessary to avoid contact between the tree and utility asset.
  - Vegetation is of a size, condition, and proximity to utility assets that it can reasonably be expected to cause damage to utility assets in the future

  C2 vegetation may show signs of:

  - Mortality (Dead/Dying)
  - Structural Damage (e.g., fractures, cracks)
  - Construction Damage (e.g., soil grade change, mechanical wounding)
  - Abiotic Problems (e.g., pollution, herbicidal damage)
  - Biotic Problems (e.g., insect damage, common fungal pathogens)

  Structural defects and conditions that may lead to failure in C2 vegetation include, but are not limited to:

  - Dead or dying parts
  - Broken or hanging branches
  - Longitudinal or transverse cracks
  - Weak attachments or co-dominant stems (including bark, adventitious branches, multiple branching at one point, history of failure)
  - Missing or decaying wood
  - Sapwood decay or damage (including certain types of cankers, mechanical injury, animal feeding, and sapwood decay)
  - Tree architecture issues (e.g., leans, bows, one-sided or unbalanced crown, live crown ratio, taper, overextended branches)
  - Root problems

- **Condition 3: High-growth Potential Vegetation (C3)**
  - Vegetation at time of inspection is within six inches of the conductor or shows evidence of contacting the conductor. This includes vegetation that will not make it through the pruning cycle without encroaching on the required minimum clearances.
  - Vegetation is expected to grow within six inches or contact the conductor before the next inspection cycle.

  C3 vegetation may show signs of:

  - Contacting the conductor.
  - Fast growth rate due to environmental conditions or species characteristics.

In addition to assessing condition, Foresters also consider the likelihood of failure to inform hazard classification:

- Improbable: Very unlikely to fail within the next 12 months

- Possible: Could fail under specific conditions (e.g., severe storm)
- Probable: Likely to fail within the next 12 months
- Imminent: High risk of imminent failure

8.2.1.2.C Mitigation Timeframes

PGE's AWRR program includes mitigation of identified vegetation conditions as shown in Table 8-4. Imminent hazards are addressed as quickly as possible pending safety considerations, including but not limited to extreme weather, access requirements, and the availability of specialized equipment.

Table 8-4: AWRR Vegetation Condition Correction Timeframe

Condition	AWRR Correction Timeframe	OAR Correction Timeframe	OAR
Imminent (C1)	Immediately (pending safety and equipment)	Immediately	860-024-0018(5)(a)
High Growth Potential (C3)	AGP-identified: ▪ C3s: Mitigated prior to PGE-declared fire season. ▪ Post-AGP C3s: Mitigated within 180 days of identification.	≤ 180 days	860-024-0018(5)(b)
Probable (C2)	≤ 12 months	≤ 2 years	860-024-0018(5)(c)

8.2.1.3 Mitigation Prescriptions

8.2.1.3.A Pruning

Vegetation clearances at the time of C2 pruning adhere to PGE specifications as detailed in Section 8.2.1.1, establishing a minimum distance of vegetation from energized assets to maximize public safety, prevent asset damage, and mitigate vegetation-caused ignition risks. However, pruning decisions are not constrained by specific measurements and are made based on the affected tree part(s), assessed risk level, and the prognosis of a long-term mitigation result.

Pruning procedures are prescriptive and consider the species of vegetation as well as regional and location-specific factors related to both tree and asset protection. Pruning procedures also reflect prevailing wind patterns, weather conditions, abiotic and biotic stressors, and proximity to people and property. C2 pruning extends the vegetation assessment beyond PGE's ROW and OAR Division 24 Standards, including the following advanced procedures as prescribed by foresters.

- Reduction involves manipulating the canopy height and/or length of tree parts such as competing leaders and branches. Pruning for reduction mitigates fall-in potential impact to assets.
  - Crown Reduction: Remove structurally compromised leader(s) and branches of the crown resulting in reduced tree height.
  - Branch Reduction: Shorten laterally over-extended branches to limit oscillation, lever movement, and reduce branch weight.

- Raise involves the removal of branches and stems that are positioned in the lower canopy of a tree. Pruning to raise provides increased clearance from assets. The lower "shelf," or scaffold branches, of trees that are growing underneath the assets.
- Cleaning involves removing dead, hanging, or damaged branches from the canopy that have the potential to detach and/or fall from the tree and impact a utility asset.

Figure 8-6: White Oak Structural Defect Pre- and Post-Mitigation

8.2.1.3.B Removal

Trees that are dead, suppressed, in decline, and/or low vigor are assessed and, if necessary, removed to prevent tree failure impacts to assets. Trees that exhibit the following observed characteristics are considered more likely candidates for removal, depending on the circumstances:

- Crown Ratio: Live crown ratios of less than 33 percent may indicate a higher likelihood of tree/tree part failure.
- Sweep or Bow Lead: Bows with longitudinal cracks and/or limited corrective growth in response to bowing.
- Lean: Depending upon growth characteristics and species, Lean can indicate partial failure of the anchoring roots. Leans of greater than 25 percent are evaluated for removal.
- Cracking: Shear, torsional, and horizontal cracking in the major support stems and/or branches.

- Decay: Visible wounding and cavities that exceed approximately 50 percent stem circumference.
- Pathogen: Visible signs and symptoms of known pathogens and insects causing health decline and/or mortality.

Trees and vegetation identified for removal on private property will be scheduled following landowner discussion and/or presentation of formal notification documentation.

Figure 8-7: Removal of C2 Douglas-Fir During Probable Hazard Mitigation

8.2.1.3.C Wood And Slash Management

Brush up to 4 inches diameter is chipped where chipper use is accessible. Chips may be broadcast into vegetated areas, but chip piles must not exceed 4 inches deep; piles larger than 4 inches must be dispersed. Chips should not be broadcast in landscaped/manicured areas.

If brush is not chipper accessible and can be safely managed, lop and scatter is allowable, but not within 100 feet of manufactured structures.

Wood is typically left whole on site unless PGE forester specifies otherwise. Any wood left must not block access points and must not be stacked within 10 feet of any utility pole

8.2.1.3.D Alternative Mitigations

Alternative vegetation treatments such as mowing or herbicide application are used only as supplemental practices to reduce regrowth, ladder fuels, or ground fuel accumulation. These methods do not replace the requirement to achieve and maintain conductor clearance. Where vegetation encroaches on required clearance distances, corrective pruning or removal is performed in accordance with OAR 860-024-0016 and 860-024-0018, with mowing and herbicide applied as follow-up measures to sustain compliance and reduce future fuel loading.

8.2.1.3.E Mowing

PGE utilizes mowing as a strategic vegetation management practice to maintain right-of-way (ROW) safety, reduce surface and ladder fuels, and improve operational access in wildfire-prone areas. Where terrain and environmental conditions allow, forestry mowers and broadcast chippers are deployed to remove trees and woody vegetation ≥ 8 inches diameter, as well as smaller infill vegetation that could contribute to conductor contact or increased ground fuel accumulation.

On private property, mowing and fuel reduction activities are conducted in coordination with landowners to cultivate mutual understanding and respect for property use. The resulting mulch layer created by broadcast chipping helps suppress regrowth, stabilize soils, and promote long-term vegetation control.

Where feasible, PGE expands defensible buffers along ROW corridors to slow potential fire spread and enhance crew access for inspection, maintenance, and emergency response. These activities complement PGE's broader wildfire mitigation strategy by maintaining clear, stable, and accessible corridors that protect critical electrical infrastructure and nearby communities.

Figure 8-8: Heavily Vegetated Corridor Mowing Pre- and Post-Mitigation

8.2.1.3.F Pole Clearance

Within HFRZs, PGE maintains enhanced vegetation clearance standards around poles supporting energized equipment or pole-mounted hardware. Dead or woody vegetation is cleared within a 10-foot radius of these structures to minimize ignition potential, maintain safe working distances, and improve accessibility during patrol or response operations.

All vines and climbing vegetation are removed from poles, guy wires, and conduit to prevent conductor contact, reduce weight and strain on structural components, and validate visibility of equipment during inspections. These activities are performed as part of PGE's AWRR mitigation strategy to reduce ignition risk from vegetation contact, consistent with OAR 860-024 safety standards and PGE's Vegetation Clearance Policy.

By integrating enhanced clearance and vine removal into annual patrols, PGE clears pole-mounted assets within the HFRZs of vegetation hazards throughout the fire season, supporting both system reliability and wildfire resilience objectives.

8.2.1.3.G Substation Defensible Space

PGE maintains vegetation-free zones inside all substation fences to improve safety, equipment reliability, and fire prevention. Outside substation boundaries, vegetation is managed to maintain a minimum of a less than or equal to 3-foot clearance from perimeter barriers, with no trees or limbs permitted to overhang the fence line.

Each year, PGE conducts vegetation assessments for substations located within HFRZs. Based on site-specific conditions, such as surrounding fuel type, slope, and proximity of overstory vegetation, prescriptions may include hazard tree mitigation, targeted clearance pruning, mowing, or brush reduction to further reduce ignition potential and improve defensible space around critical facilities.

8.2.1.3.H Herbicide Treatment

Herbicide application within the HFRZs is conducted by an Oregon Department of Agriculture (ODA) licensed applicator. All applicable areas are treated, targeting fast-growing brush under 8 inches in height, unless restricted by property owner preferences or herbicide label guidelines.

8.2.1.4 Work Management

Foresters develop project-specific work plans based on field inspection results, remote-sensing data, and condition assessment to guide contractor execution. Program delivery incorporates QA/QC oversight, detailed documentation, and coordination with partner agencies such as Oregon Department of Transportation (ODOT), ODF, USFS, counties, and municipalities to improve consistency of vegetation risk mitigation across jurisdictions. Figure 8-10 shows an example of a mobile application used in the field.

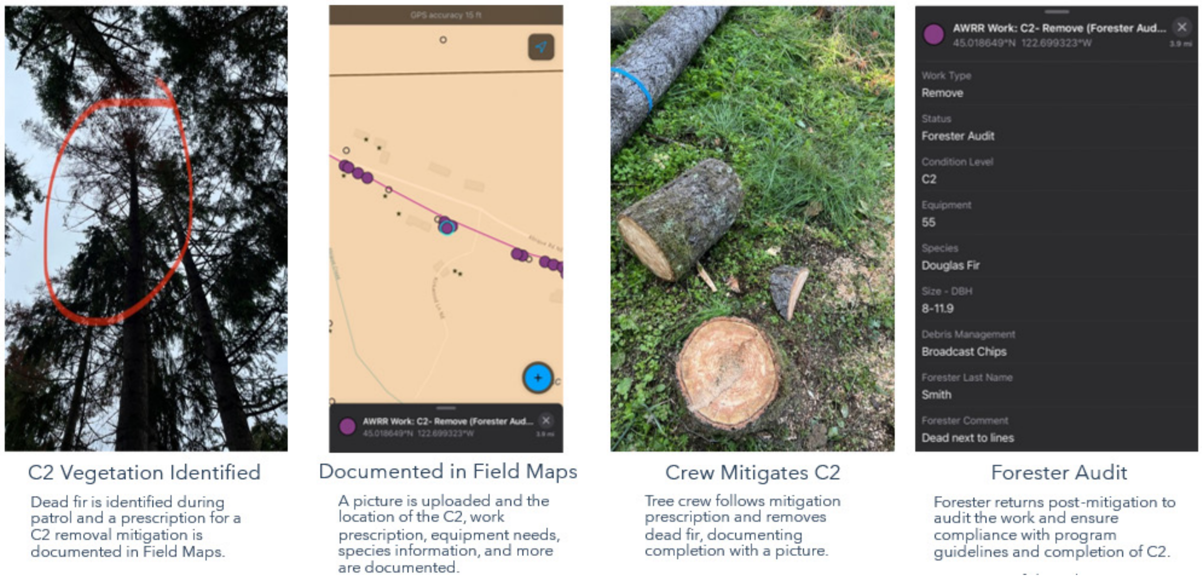


Figure 8-9: AWRR Work Management Example

Field patrol and mitigation results are captured in ArcGIS Field Maps, where vegetation crews access spatial maps detailing required mitigations and associated hazard classifications (C1, C2, C3, and span-clearance work). Vegetation mitigation crews complete mitigations in accordance with inspector prescriptions, and those inspection and completion records automatically feed into an ArcGIS dashboard for real-time tracking of regulatory compliance and vegetation management KPIs. This integrated workflow will enable risk-based routing informed by the Vegetation Risk Index (VRI) and provides full audit traceability across inspection, planning, and operations.

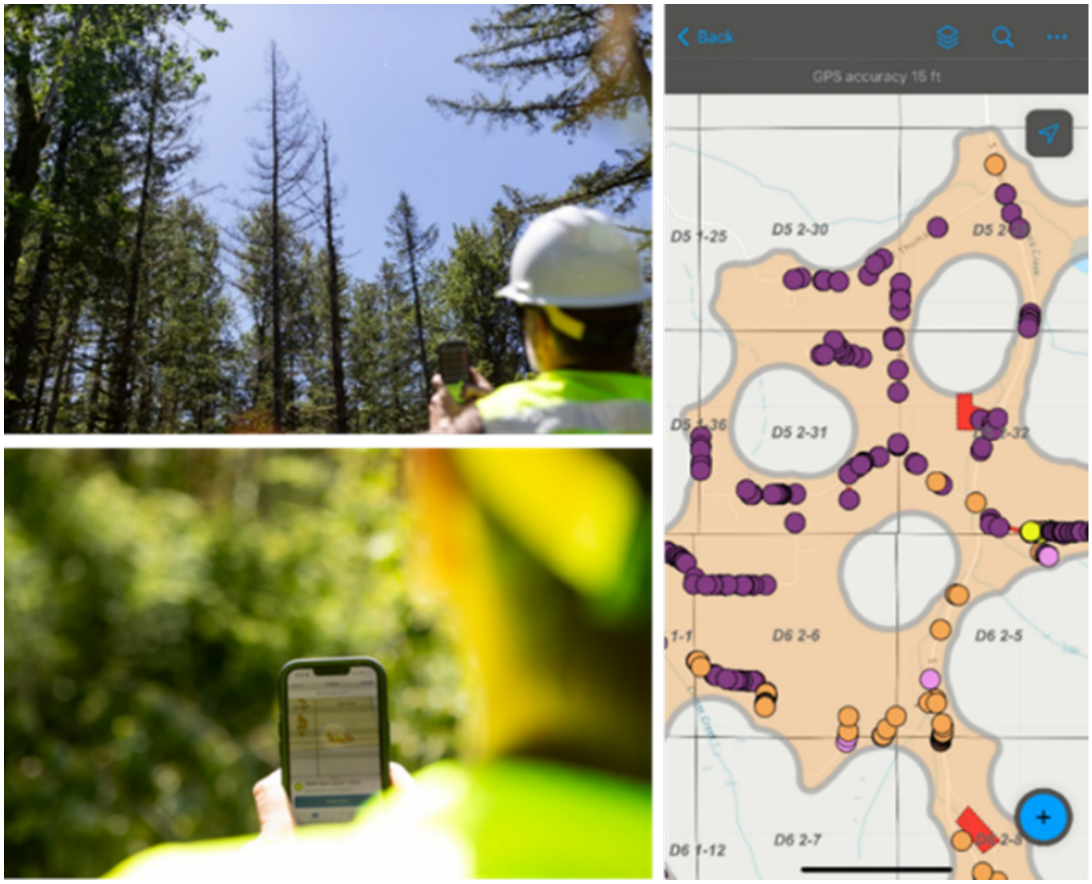


Figure 8-10: AWRR Work Management Mobile Platform Example

8.2.1.5 Quality Assurance/Quality Control

Vegetation work is audited by PGE foresters using PGE's clearance policy standards, ANSI A300 Standards, and ISA pruning best practices. QA/QC activities include contractor performance evaluations, field audits, and photo verification of completed work. All pruning must follow natural pruning methods (such as drop-crotching and directional pruning) to minimize regrowth and maintain long-term clearance.

Audit scores reflect observations in safety, pruning quality, debris management, crew performance, time management, and fire-season readiness (during fire season). Contract crews are expected to achieve a score of 95 or higher to pass inspection. Scores below this threshold trigger consultation with contractor supervision and require corrective mitigation at the contractor's expense.

Audit results are shared in real time with contractors and reviewed monthly to identify trends, address deficiencies, and support continuous improvement.

8.2.2 AWRR Fire Season Readiness Patrol (VM-08)

Beginning in 2026, PGE has refined its AWRR initiative structure to distinguish between probable hazard management and seasonally constrained fire-season readiness activities (Section 8.1.1.3). VM-08 (Fire Season Readiness Patrol) and VM-09 (Fire Season Readiness Mitigation) are separated from VM-04 (Probable Hazard Patrol) and VM-05 (Probable Hazard Mitigation) to improve clarity, accountability, and auditability of work performed specifically to minimize the potential for vegetation-caused interruption or ignition prior to the upcoming fire season. This separation does not expand program scope or introduce new mitigation types. Instead, it aligns inspection and mitigation activities with their operational timing and wildfire-risk intent, allowing PGE to more clearly demonstrate compliance, prudency, and targeted wildfire-risk reduction during periods of elevated exposure.

Fire Season Readiness (FSR) Patrol supports PGE's wildfire preparedness obligations by conducting vegetation patrols across all overhead distribution primary and applicable overhead transmission within the HFRZ prior to the commencement of PGE-declared fire season. Patrols emphasize Condition 1 (C1) vegetation and fast-developing clearance risks that may emerge following spring growth, weather events, or changing site conditions. Inspections may include on- and off-right-of-way vegetation where failure could reasonably result in conductor contact prior to or during fire season. These patrols are designed to confirm system readiness; identify imminent vegetation hazards and potential vegetation clearance encroachments; and validate that wildfire-risk controls remain effective under seasonal conditions.

VM-08 is distinct from VM-04 (Probable Hazard Patrol), which focuses on broader C2 identification across the year. VM-08 is temporally constrained to fire season readiness and is focused on confirming near-term system safety rather than building a full hazard inventory.

8.2.3 AWRR Fire Season Readiness Mitigation (VM-09)

Fire Season Readiness (FSR) Mitigation implements vegetation management actions identified through VM-08 to address vegetation mitigation requirements heading into fire season. The initiative focuses on meeting required vegetation clearance thresholds (Section 8.2.1.1), addressing imminent hazards, and mitigating high-risk conditions.

Priority is given to correcting C1 vegetation and other issues that could lead to ignition or conductor contact during fire season. Mitigation activities include targeted pruning, removal of hazardous limbs, whole-tree removal when necessary, and other corrective measures in accordance with PGE vegetation specifications and OAR requirements (Table 8-4).

8.2.4 AWRR Active Growth Period Patrol (VM-02)

Active Growth Period (AGP) Patrols are conducted during the spring growth flush, when vegetation growth rates are highest across PGE's service area, typically April through June. Inspections focus on identifying (C1) vegetation and high-growth potential (C3) vegetation that is likely to encroach on minimum clearance distances before the next scheduled inspection or mitigation.

In accordance with OAR 860-024-0018(4), AGP patrols improve early detection of seasonal vegetation damage and vegetation "Cycle Busters", or C3 vegetation that may violate required clearances before the onset of fire season as defined in OAR 860-024-0016(1)(a).

C3 vegetation is identified based on species-specific growth potential, proximity to conductors, and site factors such as irrigation or fertilization:

- Is unlikely to maintain minimum required clearance through the pruning cycle under normal or adverse conditions.
- Is expected to grow within six inches of conductors before the next inspection.

- Exhibits high annual growth, active conductor contact, or accelerated growth due to favorable site conditions (e.g., irrigation, fertilizer, ideal soil conditions).

Vegetation identified as non-compliant is documented and scheduled for mitigation. The C3 designation is integrated into PGE's work management system, enabling inspectors to efficiently flag high-growth potential vegetation and support risk-based crew deployment. Trend awareness supports future resource allocation, risk modeling, and program enhancement.

If C3 vegetation is identified after AGP patrols, mitigation is scheduled in accordance with OAR 860-024-0018(5)(b), which allows up to 180 days from identification. When feasible, PGE addresses late-identified C3 vegetation within the same fire season to further reduce risk.

Regardless of timing or classification (C1/C3), vegetation found in the field is prioritized for prompt action to prevent conductor contact and maintain compliance.

Figure 8-11: Vegetation Corridor Inspected During AWRR Patrols

8.2.5 AWRR Active Growth Period Mitigation (VM-03)

Active Growth Period (AGP) Mitigation advances pre-fire-season vegetation risk reduction by aligning patrol and mitigation with current growth rates and internal operational schedules. This targeted work prevents high-growth potential vegetation from diminishing clearances during peak wildfire exposure.

Active Growth Period Mitigation focuses on correcting C1 and C3 vegetation conditions identified through VM-02. Patrols. Mitigation activities include targeted pruning, structural pruning, to control regrowth, and removal of vegetation where growth patterns or site conditions indicate that long-term clearance cannot be maintained through pruning alone.

Work is prioritized to complete indicated work prior to PGE-declared fire season and is executed in accordance with PGE vegetation specifications, ANSI standards, and applicable OAR requirements. Mitigation planning emphasizes long-term effectiveness to reduce the likelihood of repeat growth-driven conflicts within the same season.

AGP mitigation advances pre-fire-season risk reduction by aligning patrol and mitigation with current growth rates and internal operational schedules. This targeted work prevents fast-growing vegetation from diminishing clearances during peak wildfire exposure.

The C3 designation guides mitigation activities by indicating vegetation that:

- Is unlikely to maintain minimum required clearance through the pruning cycle under normal or adverse conditions.
- Is expected to grow within six inches of conductors before the next inspection.
- Exhibits high annual growth, active conductor contact, or accelerated growth due to favorable site conditions (e.g., irrigation, fertilizer, ideal soil conditions).

Figure 8-12: Before and After Active Growth Period (AGP) Mitigation

By integrating satellite data, species growth-rate information, and field patrol results, PGE is advancing a more proactive and strategic approach to vegetation management. This approach supports improved risk-reduction outcomes and enhances planning efficiency, including logistics related to crew bases, travel distance, fuel access, and chip-dump locations.

8.2.6 AWRR Probable Hazard Patrol (VM-04)

Once fire season begins, AWRR will shift to Probable Hazard Patrol (PHP), where the focus will be on both on- and off-ROW potential for vegetation within striking distance may hit the conductor if failure occurs. The patrol scope is focused on C2 vegetation, extends beyond basic ROW inspection, and includes evaluation of both on- and off-ROW vegetation that could create fall-in potential, encroach on required clearances, or exhibit structural or health-related defects.

AWRR patrols begin with a Level 1 visual assessment and escalate to Level 2 when proximity, structural condition, or off-ROW strike distance indicates elevated risk. These inspections play a critical role in identifying vegetation-conductor threats early in the annual cycle, enabling mitigation work aligned with OAR 860-024-0016 and 860-024-0018 safety requirements.

Within the annual cycle, Probable Hazard Patrols leverage remote sensing outputs, vegetation health indicators, and historical C2 patterns to focus efforts on areas with the greatest likelihood of clearance encroachment or fall-in potential. Patrol results, historic hazard mitigation efforts, and remote sensing insights inform zone-specific mitigation rates for the year and create continuity between early-season AGP activities and in-season hazard mitigation.

8.2.7 AWRR Probable Hazard Mitigation (VM-05)

Probable Hazard Mitigation (PHM) is conducted annually and as stated in Section 8.2.3, is organized into two operational periods encompassing both clearance-focused pruning and hazard-tree mitigation. Mitigation prescriptions prioritize vegetation identified through patrols or remote sensing as posing increased ignition or reliability risk. Work includes increasing side clearances, removing dead or diseased limbs, widening vegetation buffers, performing targeted mowing, and removing whole trees where structural defects, mortality, or decline are present.

All mitigation prescriptions are documented in PGE's ArcGIS Field Maps work management platform, which is used consistently across inspectors, contract crews, vegetation supervisors, and AWRR foresters. The system captures vegetation characteristics, location, species, condition, prescribed work, photographs, and relevant customer information. Completed work is reviewed by supervisors and audited by AWRR foresters for compliance with PGE specifications and OAR Division 24 safety standards.

This approach enables PGE to apply a consistent, data-driven mitigation strategy across the entire annual period, rather than assigning work to legacy operational categories. It improves the likelihood that vegetation presenting structural defects, decline, or fall-in potential is mitigated quickly and effectively.

8.2.8 AWRR Clearance Pilot (VM-07)

PGE initiated the Clearance Optimization Study to evaluate whether increasing minimum vegetation clearance around distribution conductors from ten feet to fifteen feet meaningfully improves wildfire risk reduction, reliability, and long-term cost efficiency. The study uses an evidence-based approach—using randomized span blocks, controlled vegetation states, and multi-year data collection across representative locations within the PGE service area. Field trials combine LiDAR-derived vegetation proximity, species growth response, and historical outage and ignition data to compare the effects of different clearance standards on RSE and epicormic regrowth. Results from the first year will establish baseline implementation costs across 30 line-miles; subsequent years will measure reliability performance, regrowth rates, and public acceptance to inform future revisions to PGE's Vegetation Clearance Policy. Additional details on this pilot, including deployment timelines, are provided in Table OPUC 5-2.

8.3 Results

8.3.1 Results Summary Table

Table 8-5 below reflects program delivery as of the development of this WMP.

Table 8-5: 2025 AWRR Patrol and Mitigation Results

2025 HFRZ	Line Miles	Completed C1	C2 Target[2]	Forecast C2 Mitigation Rate	Completed C2	Actual C2 Mitigation Rate	Completed C3
1	289	5	1,039	0.5%	2,201	0.92%	497
2	25	0	2,294	4.4%	405	1.42%	40
3	51	0	653	3.1%	644	3.37%	68
4	161	9	3,199	4.4%	367	1.54%	186
5	150	2	3,707	4.5%	1,217	4.91%	157
6	16	1	1,132	4.7%	655	0.11%	0
7	92	14	256	0.4%	842	0.25%	26
8	43	2	1,392	4.4%	3,851	4.44%	2
9	74	1	1,028	5.5%	293	9.17%	8
10	128	1	270	0.4%	298	0.65%	17
11	18	0	410	4.4%	1,364	6.65%	19
12	36	1	197	1.9%	1,407	2.15%	1
Total	**1,083**	**36**	**13,708**	**2.4% (Avg.)**	**13,554**	**2.3% (Avg.)**	**1,021**

Note:
1. Reflects results as of December 4, 2025.
2. Reflects updated VM-05 C2 mitigation target as referenced in Section 2.3.1.

8.3.2 Reliability and Ignition Risk Reduction Benefits

The AWRR program continues to demonstrate prudency through measurable risk reduction, cost efficiency, and compliance performance. 2025 program results indicate an estimated 35 percent reduction in vegetation-related wildfire and reliability risk, driven by targeted mitigation within HFRZ. AWRR mitigation activities in 2025 are estimated to have prevented approximately 100 potential ignition events through the removal or treatment of identified C1, C2, and C3 hazards.

2025 AWRR program achieved a RSE of approximately 6.4, indicating that each dollar invested generated over six dollars of quantified risk reduction. These results demonstrate that AWRR is effectively targeting the highest-risk vegetation conditions, delivering measurable safety benefits while maintaining regulatory compliance and responsible cost management.

8.3.3 AWRR Cost Effectiveness

- PGE employs multiple strategies to manage AWRR costs and resources while continuing to deliver effective wildfire risk reduction benefits. Advancements in AWRR execution resulted in a 12 percent lower unit cost compared to 2024, PGE was able to achieve 12 percent cost reduction.
- **Program structure:** PGE's program structure combines standard, compliance-driven patrol and clearance work with the augmented wildfire mitigation work to avoid duplication and lower overall vegetation management program cost.
- **Risk-based mitigations:** In 2025, the AWRR program matured its approach by incorporating increased tree mortality insights from climate change, pests, drought, and temperature extremes, all of which heighten both ignition probability and wildfire severity. PGE adjusted HFRZ specific mitigation rates to reflect patrol findings, location-specific mortality, and condition assessments rather than utilizing a flat mitigation rate for every HFRZs.
- **Contract management and crew deployment:** PGE continues to work closely with contractors to identify operational efficiencies, including strategies to limit non-productive time such as distance from their work, optimized routing to reduce drive-time, fueling plans to optimize fuel efficiency and fueling time, and identifying nearby debris disposal.
- **System hardening benefits:** Continued investment in underground conversion results in reduced need for vegetation management.

A summary of the 2025 year-to-date unit costs is shown in Table 8-6 below. For Active Growth Period and Probable Hazard Patrol & Mitigation, this table includes both the per unit mitigation costs and estimated traditional cost-per-line-mile (CPLM) metrics. C3 mitigation costs are driven by tree density and species, and do not typically scale linearly with mileage. C2 mitigation costs are closely related to tree density, species, and health, as well as site complexity, so they do not scale linearly with mileage. The AWRR Mitigation and Overall AWRR CPLM provide an approximate representation of total AWRR non-IT vegetation management costs and can be utilized to assess program efficiency across HFRZs, but they neglect the varying tree densities and hazards across the system.

Table 8-6: 2025 AWRR Mitigation Unit Costs

Category	Initiative	Unit	2025 Cost ($1,000)	Notes
Fire Season Readiness (FSR)	VM-08/09	per line-mile	$13	Cost per line mile of clearance-focused mitigation based on field-validated crew productivity.
Active Growth Period (AGP)	VM-02/03	per C3 mitigation	$0.29	Unit cost reflects C3 mitigation during AGP; work volume and cost vary by species, growth rate, and localized vegetation response rather than linear mileage.
		per line mile	$0.43	Approximate CPLM for managing seasonal vegetation regrowth during AGP; values vary by tree density and

Category	Initiative	Unit	2025 Cost ($1,000)	Notes
				are informed by field patrol findings rather than fixed corridor assumptions.
Probable Hazard Patrol & Mitigation (PHP)	VM-04/05	per C2 mitigation	$1.10	Unit-based work; varies by tree density, species, and site conditions. Highly variable; reflects cost per mile if evaluated independently from compliance trimming.
		per line mile	$10	Indicative cost per line mile when probable hazard mitigation is normalized across treated mileage; included for comparative context only, underlying work is driven by hazard density rather than corridor length.
AWRR Mitigation CPLM	All except VM-01/06/ 07	per line-mile	$27.6	Represents an approximation of the total vegetation mitigation cost per mile (compliance + AGP + C2 mitigation).
Overall AWRR CPLM	All VM Initiatives	per line-mile	$29.7	Represents an approximation of the total AWRR costs, including IT, expressed in CPLM.

8.3.4 Active Growth Period (AGP) Season

Analysis of the 2025 C3 dataset revealed a clear concentration of high-growth vegetation in 2025 HFRZ 1 through 5, driven primarily by bigleaf maple, cottonwood, willow, and other species with rapid early-season extension. C3 volume is not evenly distributed across the system but instead follows predictable patterns tied to microclimate, soil moisture, and species composition. Average C3 findings were just under one per line-mile. These observations reinforce the importance of aligning the AGP patrol window with the months when growth is most vigorous. Accordingly, AGP has been shifted from March through May to April through June, capturing the period when the majority of C3 vegetation emerges, while ad hoc patrols will continue throughout the remainder of the season.

8.4 Initiatives and Targets

Targets are provided below for each initiative and year of the three-year WMP. Forecast values reflect the best and most up-to-date information available at this time; assumptions are detailed in Section 8.4.2.2.

8.4.1 Initiative Summary Table

Table OPUC 8-2: Vegetation Management Initiative Cost Summary in Thousands

Initiative Activity	Tracking ID	Target Unit	2026 Target	2026 Forecast ($1,000)	2027 Target	2027 Forecast ($1,000)	2028 Target	2028 Forecast ($1,000)	Three-Year Forecasted Total ($1,000)	Section
Vegetation Management Program	VM-01	N/A	N/A	$1,031	N/A	$1,095	N/A	$1,159	$3,285	8.2.1
AGP | Patrol	VM-02	# of line miles	1,123	$317	1,143	$303	1,165	$324	$944	8.2.4
AGP | Mitigation	VM-03	# of C3 mitigations	1,123	$459	1,143	$429	1,165	$466	$1,354	8.2.5
Probable Hazard Patrol	VM-04	# of line miles	1,123	$1,220	1,143	$575	1,165	$616	$2,411	8.2.6
Probable Hazard Mitigation	VM-05	# of C2 mitigations	10,647	$13,174	13,411	$12,260	13,295	$12,959	$38,394	8.2.7
Vegetation Management IT	VM-06	N/A	N/A	$2,292	N/A	$300	N/A	$288	$2,880	8.4.3
AWRR Clearance Pilot	VM-07	# of line miles	30	$877	30	$480	30	$508	$1,865	8.2.8
Fire Season Readiness Patrol	VM-08	# of line miles	1,123	$601	1,143	$448	1,165	$479	$1,529	8.2.2
Fire Season Readiness Mitigation	VM-09	# of line miles	1,123	$13,025	1,143	$12,066	1,165	$13,116	$38,207	8.2.3

Notes:
1. Forecasts and Three-Year Totals provided in $/thousands.
2. All initiative Forecasts and Three-Year Totals include capital cost and operations and maintenance expense.

8.4.2 Initiative Details

8.4.2.1 AWRR Program (VM-01)

VM-01 in an on-going initiative to capture costs associated with designing, planning, managing, and governing the overall vegetation management program. See Section 8.2.1 for details.

8.4.2.2 AWRR Patrol & Mitigation Plans

Details used to develop the 2026-2028 forecast are reflected in the table below, using the following assumptions which will be refined with additional Vegetation Risk Index (VRI) analysis and remote sensing updates:

- One C3 condition identified per line mile based upon 2025 AGP findings
- $1000 per C2 mitigation cost
- Zone-specific C2 findings forecast based upon historic field trends and results utilizing remote sensing insights

- $11,545 CPLM for Fire Season Readiness mitigation
- 3 percent annual increase in line-miles for 2027 and 2028
- 3 percent annual increase in labor costs for 2027 and 2028
- In-flight Underground (GDSH-02) mitigations reduce AWRR scope:
  – 2026: 10.3 line-miles
  – 2027: 13.6 line-miles
  – 2028: 11.8 line-miles
- Cost reduction benefits associated with technology and other improvements

Table 8-7: AWRR Patrol & Mitigation Forecast Details

HFRZ No.	2026			2027			2028		
	Line Miles	Estimated Tree Count	C2 Forecast	Line Miles	Estimated Tree Count	C2 Forecast	Line Miles	Estimated Tree Count	C2 Forecast
1	63.12	34,762	730	61.2	34,762	869	57.05	34,762	900
2	88.61	42,244	929	91.3	42,244	980	93.93	42,244	770
3	2.96	2,951	18	3.0	2,951	53	3.14	2,951	53
4	83.61	43,022	473	76.9	43,022	860	79.13	43,022	903
5	11.53	8,683	148	11.9	8,683	182	12.22	8,683	182
6	41.63	17,822	125	42.9	17,822	652	38.31	17,822	363
7	70.8	33,083	529	72.9	33,083	803	75.05	33,083	728
8	41.24	36,229	652	42.5	36,229	468	43.71	36,229	725
9	6.97	41,316	454	7.2	41,316	839	7.39	41,316	620
10	104.91	32,505	585	108.1	32,505	813	111.20	32,505	813
11	70.49	8,104	170	72.6	8,104	203	74.72	8,104	186
12	42	16,758	268	43.3	16,758	369	44.52	16,758	385
13	35.33	17,997	317	36.4	17,997	288	37.45	17,997	360
14	38.85	14,133	226	40.0	14,133	311	41.19	14,133	325
15	25.11	21,985	396	25.9	21,985	462	26.62	21,985	550
16	31.71	63,380	824	32.7	63,380	1,207	33.61	63,380	1,433
17	164.43	31,119	840	169.4	31,119	778	174.30	31,119	762
18	79.37	33,440	502	81.8	33,440	836	84.13	33,440	803
19	74.31	38,071	952	75.5	38,071	914	77.74	38,071	914
20	17.51	11,005	253	18.0	11,005	220	18.56	11,005	220
21	28.71	87,032	1,255	29.6	87,032	1,305	30.43	87,032	1,297
Total	**1,123.2**	**635,641**	**10,647**	**1,143**	**635,641**	**13,411**	**1,165**	**635,641**	**13,293**

These assumptions, made with known geographic boundaries established for 2026 HFRZ, along with the planned improvements and technology investments, result in the program unit costs as shown in Table 8-8.

Table 8-8: AWRR Mitigation Unit Costs

Category	Initiative	Unit	2026 Cost ($1,000)	2027 Cost ($1,000)	2028 Cost ($1,000)
AWRR Mitigation CPLM	All except VM-01/06/07	per line-mile	$25.6	$22.9	$24.1
Overall AWRR CPLM	All VM Initiatives	per line-mile	$29.3	$24.5	$25.7

8.4.3 Vegetation Management IT (VM-06)

This initiative was started in 2025 to track information technology (IT) investments that enable PGE's AWRR Vegetation Management initiatives.

8.4.3.1 Vegetation Risk Index

The 2025 WMP Update established PGE's AWRR program as a cycle-based vegetation management approach operating within the HFRZs. While this schedule-driven methodology has demonstrated effectiveness in reducing vegetation-caused outages and ignitions, the 2026-2028 WMP establishes a risk-informed framework that integrates multiple data sources to prioritize vegetation management activities based on vegetation encroachment and failure risk rather than relying solely on fixed inspection cycles.

The Vegetation Risk Index (VRI) informs how PGE acts on mitigating geographic vegetation risk; addressing the highest risk vegetation threat that could result in a wildfire and/or customer outage. PGE will leverage the VRI to mature the geo-probability analysis discussed in Section 4.2.3.3 by incorporating additional features such as vegetation condition assessments, time since last trim, and environmental factors, including climate-driven tree mortality patterns. These additional features will improve PGE's ability to identify which circuits and spans have the highest likelihood of failure, providing a risk-based method for prioritizing vegetation mitigation that will yield the greatest wildfire and reliability risk reduction.

The 2025 program year focused on foundational model development, data source identification, and piloting. The 2026 initiative incorporates additional data sets while maturing existing ones, establishes automated data pipelines and completes analytical validation to support operational deployment of risk-based vegetation management decision-making through the following data flow improvements:

- **Data Collection/Procurement:** Tree species inventory, Tree Health Index (THI) data procurement from remote sensing platforms and regional environmental data; LiDAR updates capturing current vegetation conditions across PGE's HFRZs; Time Since Last Trim (TSLT) data; AWRR Inspection records, routine vegetation management (RVM) history, and financial tracking data, climate variables and tree mortality indicators.
- **Data Integration/Conditioning:** Automated ingestion of TSLT and THI data into Snowflake; pipeline development for risk model inputs; standardization of multi-source vegetation data for risk; integration of growth zone modifiers, eco-region characteristics, and asset proximity metrics.

- **Data Analysis:** Integration of tree mortality trends, vegetation encroachment patterns, and historical vegetation-caused outage analysis; comparative assessment of risk-based and schedule-based cycles; field validation through crew survey data collection; risk score accuracy and model refinement based on operational feedback.
- **Delivery:** Spatial mapping of VRI; resource allocation optimization; crew deployment guidance based on highest-risk vegetation conditions rather than fixed schedules.

8.4.3.2 Digital Twin Supported AWRR Planning

To accelerate implementation of the Vegetation Risk Index (VRI) and achieve cost efficiencies within the AWRR program, PGE will leverage the Neara platform discussed in Section 4.8.4. For vegetation management, Neara extends the capabilities of VRI by enabling span-level analysis of clearance, conductor movement under load and wind, vegetation encroachment likelihood, and hazard-tree exposure. This modeling allows PGE to identify vegetation threats with greater resolution and accuracy than traditional patrol methods, prioritize mitigation along the highest-risk spans, and quantify the risk-reduction impact of specific AWRR work.

By using Neara's digital twin for AWRR planning, PGE can more efficiently target field resources, reduce unnecessary trimming, and bundle mitigation activities to lower cost per line mile. The platform also supports scenario testing, allowing PGE to compare the relative risk-reduction value of different mitigation strategies before construction or vegetation work is deployed. This capability strengthens cost-management practices and enhances PGE's ability to allocate AWRR investments to the areas of highest wildfire risk. The tool will reduce rework and redundant field visits, improve work package development, and enable more efficient work sequencing.

Together, VRI and Neara establish a cohesive, data-driven approach that links systemwide wildfire-risk modeling to operational vegetation-management decisions. Neara's digital twin provides the analytical structure to translate VRI outputs into actionable, circuit-specific AWRR plans, supporting PGE's goal of delivering measurable wildfire-risk reduction while improving program efficiency over time.

8.5 Continuous Improvement

8.5.1 Program Maturity

Between 2022 and 2025, PGE's vegetation management program showed one percent maturation under the IWRMC Maturity Model, highlighting strong coverage but identifying opportunities to enhance data granularity, audit frequency, and coordination between operational and analytical teams. Focus areas for the 2026–2028 cycle include improving vegetation inventory consistency, refining fuel-load assessment methodologies, and strengthening communication between field operations and wildfire risk modeling. Ongoing evaluation of pilot programs and QA/QC processes will further improve accountability and documentation of vegetation-related risk reduction.

8.5.2 AWRR Program Improvement Priorities

The following areas reflect PGE's continuous improvement priorities for the vegetation management program:

- **Risk-Based Planning**
  - **VRI:** PGE will continue to refine the VRI methodology discussed in Section 8.4.3.1 and incorporate new patrol findings, LiDAR data, mortality rates, and microclimate data. The index will be used to inform AWRR priorities and mature the geo-probability analysis in PGE's wildfire risk methodology.
  - **LiDAR:** LiDAR and satellite data collected in 2026 will be used to inform vegetation planning and prioritization for work executed in both the second half of 2026 and 2027 operational periods, enabling a consistent and progressively refined risk-based approach across the expanded HFRZ footprint.
  - **Digital Twin:** See Section 8.4.3.2
- **Clearance optimization:** See Section 8.2.8
- **Unit cost management:** In addition to using risk-based planning to target mitigation efforts, PGE will continue efforts to manage unit costs. With increased impacts of severe weather on the vegetation, and a projected increase of HFRZ line-miles, PGE seeks offsets through strong contract management, work planning, and resourcing strategies.

9 Situational Awareness and Forecasting

9.1 Overview

PGE's Situational Awareness and Forecasting program represents a holistic, multi-layered approach to wildfire risk management that integrates advanced environmental monitoring, early detection technologies, and sophisticated weather forecasting capabilities. This integrated system provides PGE with enhanced real-time visibility into fire weather conditions, fuel moisture status, and ignition detection across the service area, particularly within HFRZs. In addition to reflecting PGE's foundational principles, this category contains initiatives addressing all four of PGE's objectives, with particular emphasis on Objective #4:

- **Objective #1:** Reduce wildfire risk associated with electrical contact to vegetation or other objects.
- **Objective #2:** Reduce wildfire risk associated with equipment failure.
- **Objective #3:** Reduce wildfire and mitigation impacts to customers.
- **Objective #4:** Increase situational awareness and operational capabilities to manage near-term risk.

The program encompasses four primary components that work cooperatively to support operational decision-making.

- **High resolution weather forecasting** capabilities, including the Weather Research and Forecast (WRF) model, to inform Seasonal and Near-Term Risk Assessments.
- **Environmental monitoring**, including weather stations, automated fuel moisture monitoring, soil moisture measurements, and lightning data to inform Seasonal and Near-Term Risk Assessments.
- **Ignition detection** utilizing AI-enabled cameras to speed up detection and enable suppression response.
- **Early fault detection** sensors monitoring electrical infrastructure to identify emerging equipment failures and potential contact in advance of an outage or ignition.

These integrated capabilities directly inform PGE's critical operational decisions including EPSS deployment, PSPS initiation, and coordination with fire agencies during wildfire events. The program emphasizes extensive collaboration with state, federal, and local fire agencies, regional utilities, and emergency management organizations to support coordinated response and shared situational awareness across jurisdictions. Environmental monitoring data is made publicly available through national databases, contributing to broader regional fire weather intelligence and supporting NWS forecasting improvements.

9.2 Mitigations

9.2.1 Situational Awareness and Forecasting (SAF-01)

This foundational initiative is comprised of weather forecasting, Seasonal Risk Assessment (Fire Season), and Near-Term Risk Assessment (EPSS and PSPS).

9.2.1.1 Weather Forecasting

Severe weather conditions present significant operational challenges for electric utilities, creating complex forecasting demands that directly impact system reliability and infrastructure resilience. Critical weather events affecting PGE's operations occur year-round and include heavy rain and strong windstorms that can damage infrastructure, extended hot and dry periods that elevate wildfire risk particularly when combined with high wind conditions, and extreme heat events that drive anomalously high peak electrical demand and stress equipment leading to potential system instability. PGE has implemented the following to anticipate and effectively respond to these weather-related operational challenges.

9.2.1.1.A High Resolution Weather Modeling

In 2024, PGE established a partnership with Atmospheric Data Solutions (ADS), which was subsequently acquired by Technosylva. ADS-Technosylva brings extensive expertise in weather and fire weather numerical prediction modeling, having successfully implemented WRF Model[44] systems for numerous California utilities.

WRF is a sophisticated mesoscale numerical weather prediction system engineered for both atmospheric research and operational forecasting applications, featuring dual dynamical cores, integrated data assimilation capabilities, and a software architecture that supports parallel computation and system extensibility. The model is currently deployed operationally at the National Centers for Environmental Prediction (NCEP) and other national meteorological centers, as well as in real-time forecasting configurations across laboratories, universities, utilities, and hundreds of commercial enterprises.

PGE's implementation of WRF serves as a high-resolution weather forecasting model that generates critical fire weather parameters including wind speed, temperature, relative humidity, and precipitation data. These outputs feed into Nelson Dead Fuel Moisture (DFM) and Live Fuel Moisture (LFM) models developed by Technosylva to calculate essential fire danger indicators such as 1-hour, 10-hour, 100-hour, and 1,000-hour fuel moisture levels. The system incorporates over 20 years of climatological reanalysis data with identical spatial, temporal resolution and model physics as the operational forecast model. These climatologies, combined with historical fire occurrence and outage datasets, support the development and testing of a Fire Potential Index (FPI) and outage-to-ignition models to inform EPSS and PSPS implementation.

The WRF model delivers data at 2 × 2-kilometer spatial resolution with hourly temporal outputs through a nested grid configuration utilizing 6-kilometer and 2-kilometer horizontal grids. The

[44] Skamarock, W. C., Klemp, J. B., Dudhia, J., Gill, D. O., Liu, Z., Berner, J., Wang, W., Powers, J. G., Duda, M. G., Barker, D. M., & Huang, X.-Y. (2021). A Description of the Advanced Research WRF Model Version 4. National Center for Atmospheric Research: Boulder, CO, USA.

system initializes using 25-kilometer resolution output from the NCEP Global Forecast System (GFS) model data. The GFS, commonly known as the American Model, is operated and maintained by NOAA's National Center for Environmental Prediction and serves as the United States' primary global forecasting model.

Table 9-1: WRF Forecast and Historical Weather Variables

Category	Parameter	Units	Description
Spatial/Temporal	Time	–	Forecast time
	Latitude	°	Geographic latitude
	Longitude	°	Geographic longitude
Wind (10 m)	Wind speed and direction at 10 m	mph	Wind speed and direction at 10-meter height
	Wind gust speed	mph	Surface wind gusts
Wind (50 m)	Wind speed and direction at 50 m	mph	Wind speed and direction at 50-meter height
Wind (925 mb)	Wind speed and direction at 925 mb	mph	Wind speed and direction at 925 mb level
Wind (850 mb)	Wind speed and direction at 850mb	mph	Wind speed and direction at 850 mb level
Wind (700 mb)	Wind speed and direction at 700 mb	mph	Wind speed and direction at 700 mb level
Wind (500 mb)	Wind speed and direction at 500 mb	mph	Wind speed and direction at 500 mb level
Surface Temperature/ Humidity	Air temperature 2 m	°F	Air temperature at 2 meters
	Relative humidity 2 m	%	Relative humidity at 2 meters
	Dew point temperature	°F	Surface dew point temperature
	Dewpoint depression 2 m	°F	Temperature minus dew point at 2 m
Fire weather indices	Hot dry windy index	–	Using max vapor pressure deficit in lowest 500 m
	Water vapor saturation deficit in air 500 m	hPa	Vapor pressure deficit
Atmospheric layers Relative Humidity (RH)	Relative humidity in the planetary boundary layer	%	Surface to 850 mb average RH
	Relative humidity low trop	%	850-700 mb average RH
	Relative humidity mid trop	%	700–500 mb average RH
	Relative humidity 850 mb	%	Rh at 850 mb level
	Relative humidity 700 mb	%	Rh at 700 mb level
Atmospheric Temperature	Air temperature 925 mb	°C	Temperature at 925 mb level
	Air temperature 850 mb	°C	Temperature at 850 mb level
	Air temperature 700 mb	°C	Temperature at 700 mb level

Category	Parameter	Units	Description
	Air temperature 500 mb	°C	Temperature at 500 mb level
Moisture	Total precipitable water	In	Total atmospheric water content
Cloud Cover	Low cloud fraction	%	Low level cloud coverage
	Mid cloud fraction	%	Mid-level cloud coverage
	High cloud fraction	%	High level cloud coverage
Convective Available Potential Energy (CAPE) Indices	CAPE lifted at surface	$J\ kg^{-1}$	Surface-based CAPE
	CAPE max lifted between 700 mb–500 mb	$J\ kg^{-1}$	Maximum CAPE 700-500 mb
	Mu CAPE	$J\ kg^{-1}$	Most unstable CAPE
Convective Inhibition (CIN)	Atmosphere convective inhibition with respect to the surface	$J\ kg^{-1}$	Surface-based CIN
	Atmosphere convective inhibition 700–mb 500 mb	$J\ kg^{-1}$	Cin between 700–500 mb
Lifted Index	Lifted index from surface	°C	Surface-based lifted index
	Lifted index from 850 mb	°C	850 mb lifted index
	Lifted index from 700 mb	°C	700 mb lifted index
	Lifted index from 650 mb	°C	650 mb lifted index
Geopotential Heights	Geopotential height at 850 mb	m	Height of 850 mb level
	Geopotential height at 700 mb	m	Height of 700 mb level
	Geopotential height at 500 mb	m	Height of 500 mb level
Surface Conditions	Surface wind gust	mph	Maximum wind gust speed
	Surface downwelling shortwave flux	$W\ m^{-2}$	Solar radiation at surface
	Mean sea level pressure	hPa	Sea level pressure
Radar/Lightning	Radar reflectivity	dBZ	Precipitation intensity
	Hourly cg lightning flash density	–	Cloud-to-ground lightning
Precipitation	Hourly precipitation amount	In	Hourly total precipitation
	Accumulated precipitation amount	In	Cumulative precipitation
Rainfall	Hourly rainfall amount	In	Hourly liquid precipitation
	Accumulated rainfall amount	In	Cumulative rainfall
Snow Water Equivalent	Accumulated snowfall water equivalent	In	Cumulative snow water content
	Hourly snowfall water equivalent	In	Hourly snow water content
Snowfall Depth	Accumulated snowfall depth Kuchera	In	Total snow depth (Kuchera method)
	Hourly snowfall depth Kuchera	In	Hourly snow depth (Kuchera method)
	Hourly snowfall ratio Kuchera	-	Snow-to-liquid ratio

Category	Parameter	Units	Description
	Hourly snow depth	In	Snow depth from land surface model
Winter Weather	Hourly freezing rainfall	mm	Freezing rain amount
	Hourly icefall amount	mm	Ice pellet amount
	Wet bulb zero	m	Freezing level height
Wildfire Fuel Variables	1-hour dead fuel moisture	%	Fine fuel moisture content
	10-hour dead fuel moisture	%	Small branch fuel moisture
	100-hour dead fuel moisture	%	Large branch fuel moisture
	1000-hour dead fuel moisture	%	Log/trunk fuel moisture
	Energy release component (ERC)	–	Potential fire energy release
	Ignition component	–	Fire ignition probability

Table 9-2: Additional Historical WRF Percentile Weather Variables

Category	Parameter	Units	Description
Surface Temperature/Humidity	Max air temperature 2m	°F	Maximum air temperature at 2 meters
	Min dew point temperature	°F	Minimum surface dew point temperature
Wind (10m)	Max Wind speed and direction at 10m	Mph	Maximum wind speed and direction at 10-meter height
	Max wind gust speed	Mph	Maximum surface wind gusts
Fire Weather Indices	Max Hot dry windy index	–	Maximum using max vapor pressure deficit in lowest 500m
	Max water vapor saturation deficit in air 500m	Hpa	Maximum vapor pressure deficit
Precipitation	Max Hourly precipitation amount	In	Maximum Hourly total precipitation
Winter Weather	Max Hourly freezing rainfall	Mm	Maximum freezing rain amount
	Max Hourly snowfall water equivalent	In	Maximum hourly snow water content
Convective Available Potential Energy (CAPE) Indices	Max CAPE lifted at surface	J kg^{-1}	Maximum surface-based CAPE
	Max CAPE max lifted between 700mb 500mb	J kg^{-1}	Maximum max CAPE 700-500mb
	Max MU CAPE	J kg^{-1}	Maximum most unstable CAPE
Convective Inhibition (CIN)	Max Atmosphere convective inhibition wrt surface	J kg^{-1}	Maximum surface-based cin
	Max Atmosphere convective inhibition 700 mb 500 mb	J kg^{-1}	Maximum cin between 700-500 mb

Category	Parameter	Units	Description
Wildfire Fuel Variables	Min 10-hour dead fuel moisture	%	Minimum small branch fuel moisture
	Min 100-hour dead fuel moisture	%	Minimum large branch fuel moisture
	Min 1000-hour dead fuel moisture	%	Minimum log/trunk fuel moisture
	Max Energy release component (ERC)	–	Maximum potential fire energy release

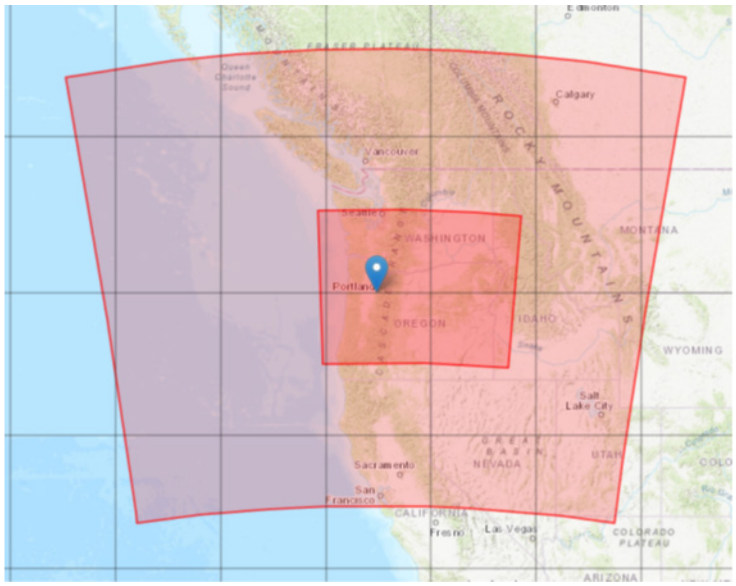


Figure 9-1: WRF 6 km (Outer) and 2 km (Inner) Resolution Domains

9.2.1.1.B Weather Forecast Time Horizon

PGE's WRF model delivers a five-day forecast horizon, providing meteorologists with critical lead time to anticipate and prepare for potential fire weather conditions. This five-day time horizon strikes an optimal balance between forecast accuracy and advance planning capabilities.

The WRF model initializes using 25-kilometer resolution output from the NCEP GFS model data, then downscales this information through nested grid configurations of six kilometer and two-kilometer horizontal resolution. This multi-scale approach enables both broad regional context and detailed local forecasts critical for wildfire risk assessment.

The model generates hourly temporal outputs throughout the five-day forecast period, allowing for precise tracking of diurnal weather patterns that significantly influence fire behavior. These hourly forecasts are particularly valuable for anticipating rapid changes in wind, temperature, and humidity conditions that can quickly elevate wildfire risks.

By maintaining this five-day forecast horizon, PGE can effectively support both tactical operational decisions requiring immediate action and strategic planning for potential PSPS events that benefit from longer lead times. This forecast timeframe aligns with standard utility industry practices while providing sufficient detail for PGE's specialized fire weather applications.

9.2.1.1.C Weather Impact Forecasting

Advanced weather forecasting capabilities are essential for PGE to anticipate and prepare for fire weather conditions that could lead to increased ignition risk. By integrating multiple high-resolution models with ensemble forecasting, PGE can better identify potential high-risk weather patterns days in advance, allowing for more strategic deployment of resources and more precise implementation of wildfire safety measures.

In 2025, PGE started developing a unified weather dashboard to integrate multiple forecast models including GFS, European Centre for Medium-Range Weather Forecasts (ECMWF), and WRF data into a single platform. This dashboard provides meteorologists with a consolidated view of deterministic forecasts alongside their ensemble versions (Global Ensemble Forecast System [GEFS] and ECMWF Ensemble Prediction System [EPS]) with percentile breakdowns, enabling better understanding of forecast uncertainty and potential extreme conditions.

A key enhancement to the unified weather dashboard was the integration of National Lightning Detection Network (NLDN) data through ArcGIS Online, which provides PGE meteorologists with research-grade lightning data featuring 12-second latency and detailed strike characteristics that can be overlaid with infrastructure layers for enhanced threat assessment. This consolidated platform brings previously disparate lightning services into a single system, improving operational efficiency while enabling both immediate safety decisions and long-term research applications. Additionally, the features specialized pressure visualizations to help identify high-wind events up to seven days in advance, supporting the proactive risk mitigation strategies.

PGE deployed unified visualization tools that allow for side-by-side comparison of different forecast models, enhancing meteorologists' ability to identify model agreement and divergence in critical fire weather parameters. The system supports both tabular data views and geospatial visualizations to accommodate different analytical approaches.

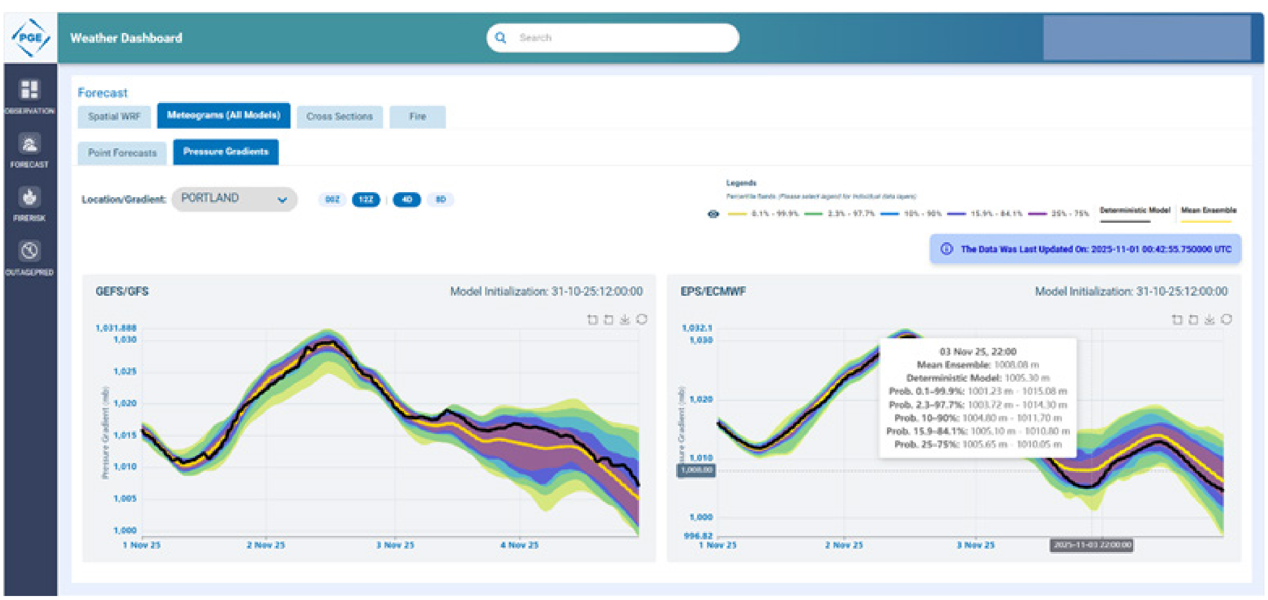


Figure 9-2: Weather Dashboard: Ensemble Model Pressure Forecast Comparison

For 2026, PGE plans to expand weather impact spatial visualization of WRF data, with time-lapse functionality covering five days, and develop a multifaceted company impact model. This storm-planning tool will predict not only daily/system-wide outages but also estimate crew needs and resource requirements, with future expansion to more granular spatial and temporal resolutions to better support EFR and PSPS decision-making processes.

These enhanced forecasting capabilities enable more accurate identification of potential wildfire conditions, supporting proactive risk mitigation. The forecasting platform provides extended forecast views up to eight days and supports company preparedness up to five to seven days in advance through impact models, directly strengthening PGE's wildfire prevention strategy by providing meteorologists with more robust and diverse forecast models.

9.2.1.2 Seasonal Risk Assessment (Fire Season)

PGE conducts seasonal risk assessments to determine the degree of wildfire risk within a meteorological forecasting timeframe. Weather and fuels conditions can change rapidly throughout fire season. To maintain effective situational awareness of seasonal wildfire risk, PGE's meteorologists and wildland fire experts conduct a robust daily wildfire risk assessment by evaluating numerous wildfire risk indicators, noted in Table 9-3. Additionally, PGE reviews partner wildfire risk forecast products, collaborates with bordering utilities on their assessments, and monitors fire season activity. PGE uses the results of this comprehensive wildfire risk assessment to inform decisions about fire season declarations, EPSS deployment, and PSPS implementation.

Table 9-3: Seasonal Risk Assessment Metrics and Indices

Wildfire Risk Indicator	Unit	Source(s)
Fire Weather Analysis		
Sustained wind speed	mph	PGE installed weather stations, ASOS[1], RAWS[2]
Wind gust	mph	
Relative humidity (minimum)(East/West)	%	
Relative humidity (maximum)	%	
Fuels Analysis		
Energy Release Component (ERC)	Percentile	PGE WRF Model, PNW Wildfire Planning cloud-based platform[3]
Burning Index (BI)	Percentile	
Severe Fire Danger Index	Percentile	
Drought Analysis		
Evaporative Demand Drought Index (EDDI)	Percentile	NOAA Physical Sciences Laboratory
U.S. Drought Monitor	D0-D4	US Drought Monitor[4]
Wildfire Risk Analysis		
PGE Fire Potential Index	Qualitative	PGE FPI Dashboard
PGE Wildfire Threat Index	Percentile	Internal data, daily assessment platform

Wildfire Risk Indicator	Unit	Source(s)
Fire Agency Readiness and Partner Forecasts		
Preparedness Level, Region 6	1-5	Northwest Interagency Coordination Center (NWCC)
Staffing Level	1-5	Columba Cascade Interagency Communications Center (WACCC)
Aviation Resource Availability	Qualitative	Columba Cascade Interagency Communications Center (WACCC)
Local Initial Attack Capacity	Qualitative	Interagency coordination meetings
PGE Operational Readiness	Qualitative	Internal
Watches, Warnings and Advisories	Qualitative	National Weather Service (NWS)
GACC Significant Fire Potential	Low–High Risk	National Wildfire Coordinating Group (NWGC)

Notes:
1. Automated Surface Observing Systems operated by NWS, Federal Aviation Administration (FAA), and the Department of Defense.
2. Remote Automatic Weather Stations operated by National Interagency Fire Center (NIFC).
3. NFDRS outputs via Fire Environment Mapping System (FEMS) data from Region 6 RAWS.
4. National Drought Mitigation Center at the University of Nebraska-Lincoln, the US Department of Agriculture and NOAA.

9.2.1.2.A Fire Weather Monitoring

Continuous monitoring of fire weather parameters is essential because rapidly changing conditions can quickly elevate ignition risks. The ability to track these changes at ten-minute intervals provides PGE with the situational awareness needed to implement protective measures before conditions reach critical thresholds.

PGE's fire weather monitoring program combines real-time data from PGE's 92-station weather network with high-resolution WRF model outputs to track critical fire weather parameters across the service area. Meteorologists can continuously monitor temperature, relative humidity, wind speed and direction, precipitation, and fuel moisture conditions at 10-minute intervals, providing enhanced temporal and spatial resolution compared to existing state and federal networks. This monitoring system enables rapid identification of developing fire weather conditions and supports real-time operational decision-making for EFR settings and PSPS events.

9.2.1.2.B Fire Weather Pattern Analysis

Understanding historical fire weather patterns is crucial because it allows PGE to recognize developing conditions that have historically been associated with significant fire activity. This pattern recognition capability enables more proactive risk management before conditions reach their peak hazard level.

PGE analyzes fire weather patterns through structured evaluation of meteorological trends and their relationship to historical fire occurrence data. Using the integrated IRWIN fire database and over 20 years of reanalysis data from the WRF modeling system, PGE identifies recurring fire weather patterns and their correlation with ignition events across different geographical areas and fuel types.

Detailed frequency analysis conducted at regional airports revealed critical patterns in fire weather conditions. This analysis utilized historical data extending back to the mid-to-late 1990s. When analyzing days with minimum relative humidity below 30 and 20 percent, PGE identified that the primary fire weather risks occur during two distinct synoptic patterns:

- **Dry easterly flow events (east to northeast offshore flow):** These events dominate the highest risk days when relative humidity falls below 20 percent creating the driest and most dangerous fire weather conditions across the service area.
- **Dry frontal passages events:** These occur when a weather front breaks down established high-pressure systems where conditions are already hot and dry, followed by strong onshore flow with minimal or no rainfall. These events showed the highest frequency when examining days with minimum relative humidity below 30 percent.

A wind rose analysis as shown in Figure 9-3 provides critical insights into both average and peak sustained wind speeds and dominant wind directions, further enhancing PGE's ability to anticipate dangerous fire weather scenarios.

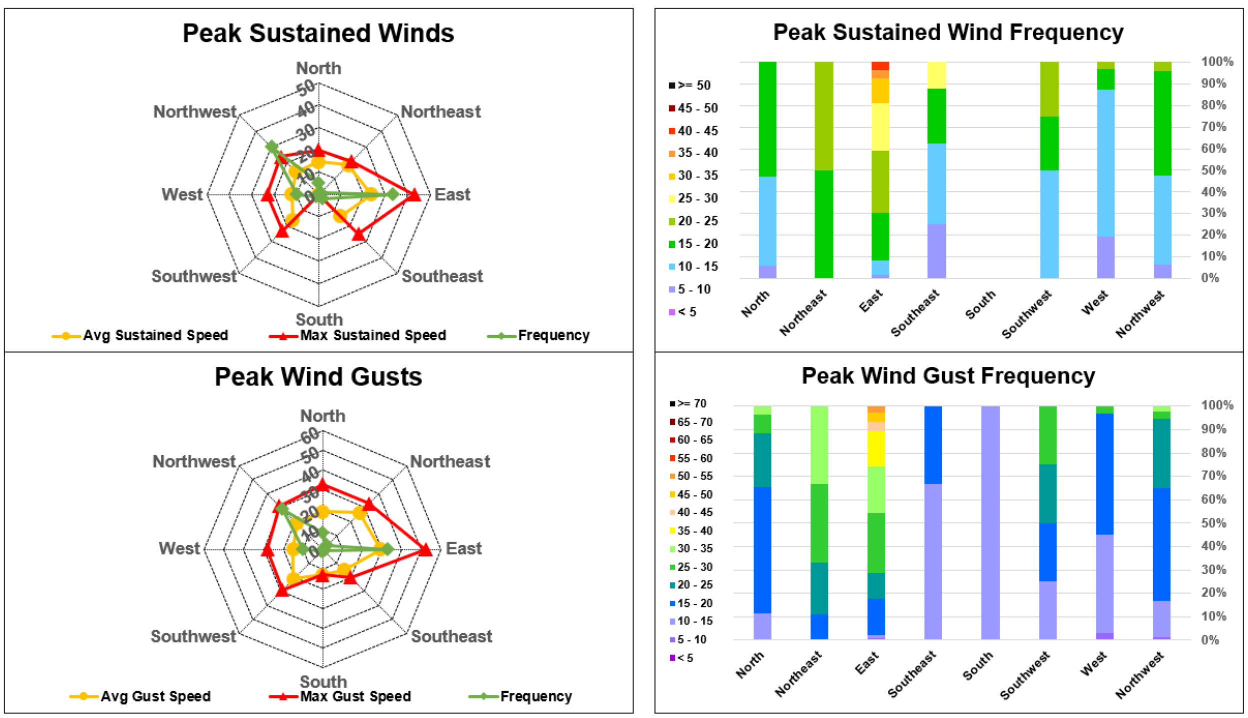


Figure 9-3: Portland Airport Wind Rose: min RH <= 20%, 1995 to Present

PGE utilizes the weather dashboards discussed in Section 9.2.1.1.C to perform this analysis by placing current conditions in historical context, identifying when fire weather parameters exceed typical seasonal ranges or approach extreme percentile thresholds. The system provides 5-day forecasts of critical fire weather indices with historical comparisons, helping meteorologists recognize developing conditions that historically correlate with increased fire activity.

This thorough approach to fire weather pattern analysis informs seasonal risk assessments and supports both tactical and strategic operational planning, enhancing PGE's ability to anticipate periods of elevated wildfire risk.

9.2.1.2.C Drought Monitoring and Evaporative Demand Drought Index (EDDI)

Incorporating drought indices into fire risk assessment is vital because long-term moisture deficits fundamentally alter wildfire risk by increasing fuel availability and flammability. These indicators provide essential context that short-term weather observations alone cannot capture.

PGE incorporates drought monitoring and EDDI products into its fire weather analysis framework. These indices provide critical context for understanding long-term moisture deficits and atmospheric drying conditions that contribute to fuel availability and fire behavior potential. The integration of drought indicators with local fuel moisture measurements from the weather station network enables complete assessment of both short-term and seasonal fire risk drivers.

9.2.1.2.D Daily Fire Risk Communication

During fire season, PGE publishes a daily seven-day fire weather risk chart that synthesizes fire weather analysis results into accessible decision support tools for operational teams and stakeholders. This product integrates fire weather risk and fuels observations to create risk indices across HFRZs. The fire risk indices incorporate forecasted wind speeds, relative humidity, and drought conditions to provide critical context into company risks by presenting complex information in clear, actionable formats that support EPSS deployment and PSPS decision-making processes.

9.2.1.3 Near-Term Risk Assessment

PGE uses advanced, data-driven methods to evaluate fuels across its service area. The National Fire Danger Rating System (NFDRS) uses weather, fuels and topography to assess the potential for wildfires on a given day. It provides daily outputs and indices that help PGE with decision making. This science-based framework translates complex fire danger information into simple, understandable levels to describe the potential wildfire risk on a given day.

PGE uses the following NFDRS outputs to help inform daily decision making:

- Energy Release Component (ERC)
- Burning Index (BI)
- Severe Fire Danger Index (SFDI)

The ERC metric indicates the potential energy released by burning fuels or how hot the fire will burn and its potential intensity. This output reflects both dead and live fuel moistures, which makes it a good indicator of long-term drought effects as well as a good measure of the overall severity of fire season. The BI is a measurement related to the potential flame length, which indicates the effort required to control a fire. The SFDI is a categorical metric used to further assess wildfire risk and is calculated by combining the percentiles of ERC and BI into a single value that is assigned to one of five categories: Low, Moderate, High, Very High, and Severe. This system provides a clear, easy to understand tool to communicate fire danger.

The NFDRS metrics are analyzed at both a regional and more localized scale using the Northwest Interagency Coordination Center (NWCC) Predictive Services fuels and fire danger tools as well as the more localized NWCC Fuels Status page that uses the Northwest Oregon Fire Danger Operating Plan fire danger rating areas.

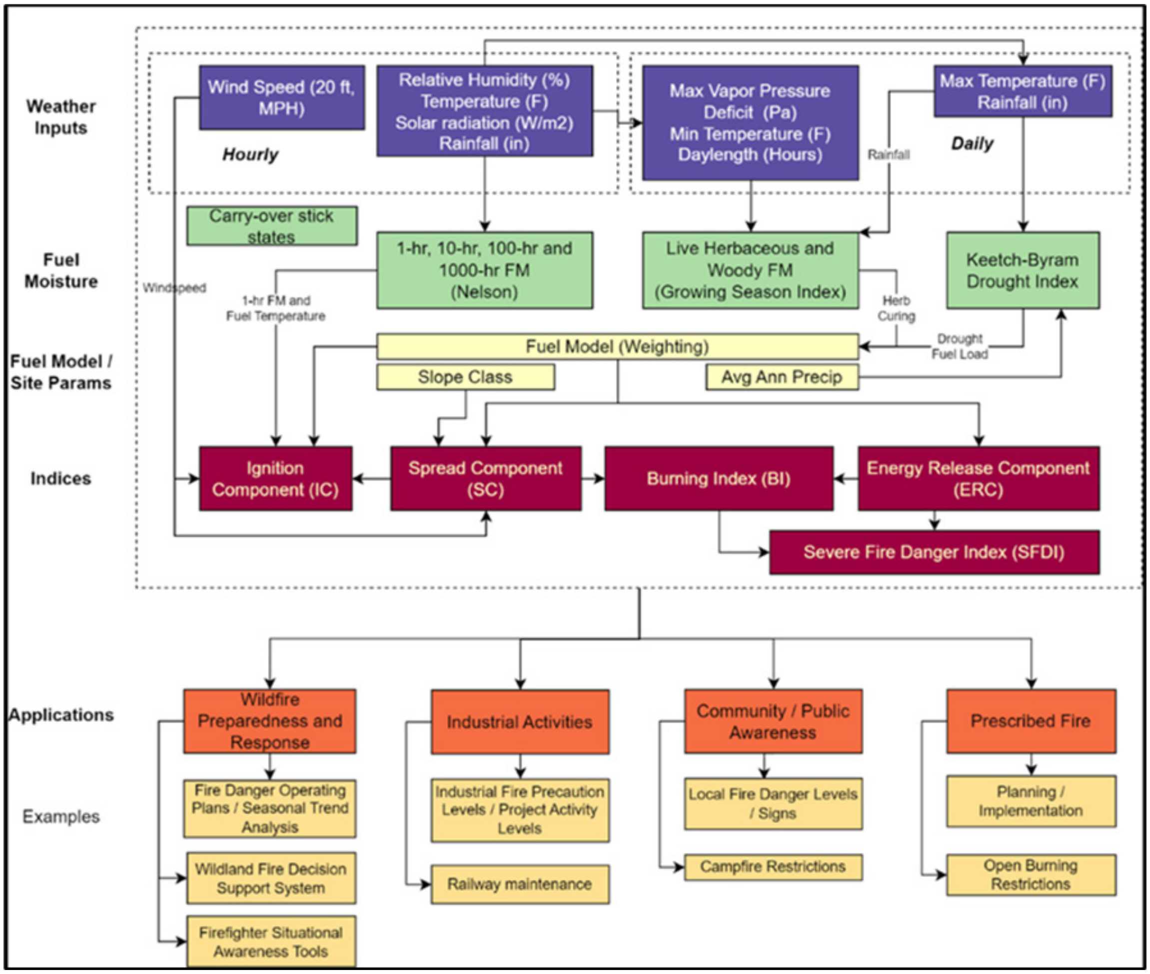


Figure 9-4: US National Fire Danger Rating System (NFDRS)

Critical values are calculated by performing a statistical analysis of the historical data for a particular area, usually a pre-identified Fire Danger Rating Area (FDRA). The critical values are known as climatological breakpoints and are expressed as percentiles. The 90th and 97th percentiles of ERC and BI data are important for assessing fire danger. These breakpoints can then be translated into fire danger ratings. Breakpoints can be viewed in Table 9-4.

Table 9-4: National Fire Danger Rating Thresholds

NFDRS Outputs	Very Low	Low	Moderate	High	Very High
Energy Release Component (ERC)	≤79th	80–84th	85–89th	90–94th	>95th
Burning Index (BI)	≤79th	80–84th	85–89th	90–94th	>95th
Spread Component	≤79th	80–84th	85–89th	90–94th	>95th
Ignition Component	50–59th	60–69th	70–79th	80–89th	≥90th
Severe Fire Danger Index (SFDI)	≤60th	≤80th	≤90th	≤97th	≤100th

PGE has implemented a Live Fuel Moisture Sampling program (SAF-06) to support wildfire risk assessment. For detailed information on this program, including sampling methodology, measurement verification, and integration with PGE's FPI, see Section 9.2.5.

PGE is currently developing a structured fire danger decision framework that will integrate outputs from the NFDRS. Using weather and fuel moisture data from PGE weather stations, the system will calculate fire danger indices (ERC, BI, SFDI) that help quantify current and expected conditions across the service area. These outputs will allow PGE to anticipate periods of elevated risk (daily and seasonally), adjust maintenance or vegetation work accordingly and coordinate with the fire agencies using a shared decision framework at a much more granular level. The result would be a standardized, data-driven approach that supports timely, defensible, and coordinated decisions across jurisdictions. PGE expects this to be completed by the end of 2026.

PGE is increasingly relying on fire behavior modeling tools to support real-time situational analysis and response during wildfire events. This modeling plays a critical role in assessing ignition risk, predicting fire spread, and informing operational decisions such as PSPS triggers, near-term risk to assets, keeping employees and the public safe, and communications with emergency management partners.

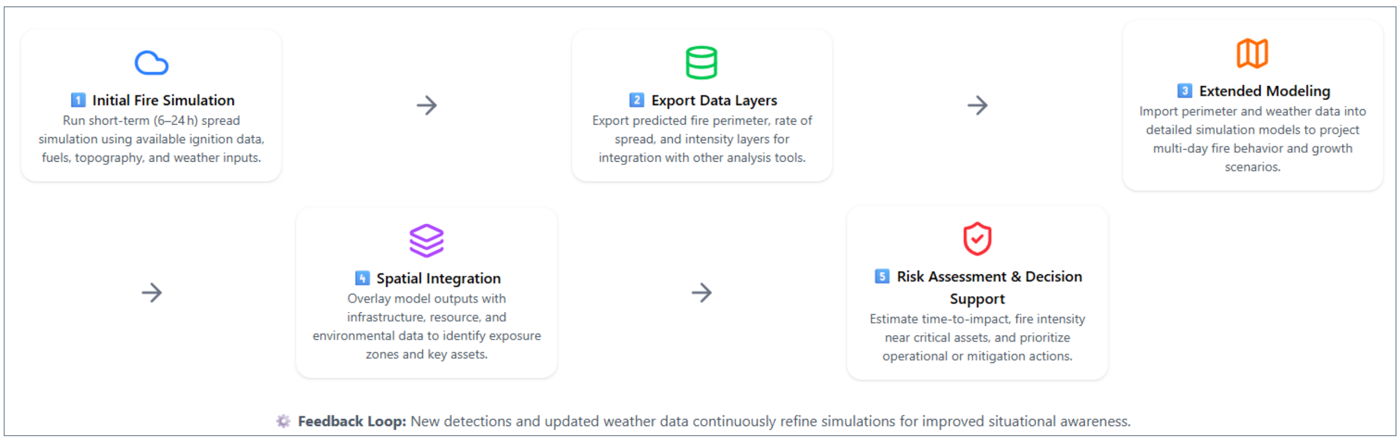


Figure 9-5: Fire Spread Modeling and Risk Analysis Workflow

Fire behavior modeling is an emerging, fast developing industry. PGE strives to use the latest programs and platforms that provide the greatest value to customers using cutting-edge technology such as the established physics-based approaches, machine learning models, and coupled atmospheric fire models. Over the last year PGE has been testing the OroraTech Platform. OroraTech is a global wildfire intelligence platform that provides near real-time detection and fire spread forecasting using satellite data, terrain, fuels, and weather information. Its Fire Spread model simulates potential fire growth over short time horizons (typically 6–24 hours) to predict direction, rate of spread, and intensity under current or forecasted conditions. Integrated into a broader fire spread modeling and risk analysis workflow, OroraTech provides the rapid situational awareness and initial predictive layer that can be combined with more detailed modeling tools (e.g., physics-based or landscape-scale simulations) and GIS-based asset data to assess exposure, model fire progression, and support operational mitigation and response strategies.

Lightning-caused ignitions represent a significant wildfire risk factor that PGE actively monitors through direct access to research-grade lightning data. The system provides detailed strike information including location, timing, polarity, and peak current—parameters that directly influence ignition probability. This data supports both real-time operational decision-making during thunderstorm events and post-event correlation analysis to identify potential lightning-caused damage or ignitions. The lightning detection network's historical archive dating back to 2016 enables thorough investigation of wildfire causes and supports development of lightning-specific risk factors within PGE's fire risk assessment framework.

9.2.1.3.A Partner Wildfire Risk Forecasts

PGE maintains continuous monitoring of critical wildfire risk forecasts and briefings from key federal partner agencies to enhance situational awareness and inform operational decision-making. This comprehensive monitoring approach includes:

- **Geographic Area Coordination Center (GACC):** PGE regularly reviews GACC weather and fire briefings, which provide regional fire weather outlooks and operational intelligence. PGE monitors the 7-day significant fire potential forecasts issued by GACC Predictive Services, which assess the likelihood of significant wildfire activity based on weather patterns, fuel conditions, and fire danger indices. These forecasts help PGE anticipate periods of elevated fire risk and adjust operational posture accordingly.
- **National Weather Service (NWS):** PGE actively monitors NWS briefings and maintains regular communication with local NWS offices during fire season through weekly to daily coordination calls. PGE integrates NWS Red Flag Warnings (RFW) directly into operational dashboards, providing real-time awareness of critical fire weather conditions.
- **National Lightning Detection Network (NLDN):** PGE maintains direct access to research-grade lightning detection data that complements NWS thunderstorm forecasts with precise, real-time strike information. This system provides 12-second notification of lightning activity with 100-meter location accuracy, enabling rapid operational response to developing thunderstorm threats. The data is integrated into company situational awareness platforms and shared with key operational partners to enhance coordinated response during lightning events.

9.2.1.3.B Fire Potential Index (FPI) and Enhanced Fire Risk (EFR) Models

PGE has invested in operational tools that support rapid and effective wildfire threat assessment and decision-making. In 2025, PGE developed FPI and EFR models currently being evaluated. The goal for developing these tools is to understand the potential for wildfires, especially large catastrophic fires. Future initiatives will significantly enhance the statistical foundation of the FPI model through improved "NULL" fire data sampling[45], as random sampling of non-fire data can lead to model inaccuracies.

In August 2025, PGE updated the HFRZs and Areas of Interest (AOI) within the models, increasing alignment with the latest risk assessment data. Enhanced visualization tools highlighting key drivers of fire risk were deployed in September 2025, allowing meteorologists to quickly identify which specific factors are elevating risk in particular areas.

[45] NULL fire data refers to locations and times when fires did not occur, which are necessary for balanced model training to avoid bias toward fire occurrence prediction.

For 2026, PGE plans to extend the EFR model beyond current wind gust and humidity parameters to include sustained wind measurements, ERC, BI, and ignition criteria parameters, with redesigned rule-based processing logic. This enhancement will incorporate the moisture relationship data collected from the weather station network to improve prediction accuracy in varying moisture conditions.

Additionally, PGE is implementing significant improvements to the WRF data pipeline to eliminate automation failures that currently impact model performance. These enhancements include improved Extract, Transform, Load (ETL) processes – the systematic procedure of extracting raw weather data from source systems, transforming it into formats suitable for analysis, and loading it into operational databases for model consumption. The improvements also include automated monitoring for data feed disruptions and error recovery mechanisms to enable consistent data availability for downstream models even during system interruptions.

PGE continues to develop a comprehensive validation framework that systematically compares model predictions against real meteorological observations and actual fire occurrences using IRWIN fire data. This framework validates model accuracy across different fire size classes (including Class C: 10-100 acres and Class D: 100+ acres), generates regular performance reports for meteorologist review, and supports continuous model improvement through feedback mechanisms. The validation metrics include specific thresholds for different fire size categories to verify the models effectively predict both smaller and larger fire events.

PGE updates and plans future improvements, aligning with industry best practices, with a goal of being more targeted in the application of wildfire risk mitigations. These enhancements directly support PGE's commitment to executing PSPS events with minimal customer impacts while maintaining safety during high-fire-risk conditions.

9.2.1.3.C Wildfire Threat Index Forecast Enhancements

Beginning in 2026, PGE will improve near-term wildfire risk assessment processes that leverage the WTI data. A new software platform will incorporate PGE's advanced high-resolution WRF data to calculate ignition potential, conditional impacts, fire size potential, and WTI. This new capability provides significant improvements of wildfire threat assessment both spatially and temporally. Spatially, the data will be available across the entire PGE service area and outside of the service territory in transmission rights-of-way and generation sites. Temporally, the data will be calculated twice daily using PGE's WRF weather and fuels data that includes 120 hours of data at an hourly resolution. Together, these improvements unlock the full potential of WTI including calculations of ignition potential, conditional impacts, and fire size potential in a much more granular and complete manner.

9.2.1.3.D Near-Term Risk Response Levels

PGE incorporates a comprehensive 5-level risk classification system based upon the Seasonal Risk Assessment Metrics and Indices detailed in Table 9-3 to guide operational response across all network components.

- **Level 1:** Normal
- **Level 2:** Moderate Risk

- **Level 3:** High Risk
- **Level 4:** Very High Risk
- **Level 5:** Extreme Risk

As wildfire risk escalates from Level 1 to Level 5, PGE implements increasingly robust protective measures and near-term risk mitigations tailored to each infrastructure type.

- **Distribution:** overhead distribution
- **T1 Transmission:** 57 and 115 kV with underbuilt distribution
- **T2 Transmission:** 57 and 115 kV with no underbuilt distribution
- **T3 Transmission:** 230 and 500 kV

Levels 1-2 maintain normal operations with enhanced monitoring, while Levels 3-5 activate progressively stricter operational protocols including EPSS EFR Mode and, if necessary, PSPS. This multi-layered approach identifies operational risk mitigation measures to address varying levels of near-term risk. See Section 10.2.2 and Section 12 for details about EPSS and PSPS, respectively.

Table 9-5: PGE Near-Term Risk Response Levels

Risk Level	Distribution	T1 Transmission	T2 Transmission	T3 Transmission
Level 1: Normal	Fire Season	Normal	Normal	Normal
Level 2: Moderate risk	EPSS EFR	EPSS EFR	EPSS EFR	EPSS EFR
Level 3: High risk	PSPS	PSPS	EPSS EFR	EPSS EFR
Level 4: Very high risk	PSPS	PSPS	PSPS	EPSS EFR
Level 5: Extreme risk	PSPS	PSPS	PSPS	PSPS

9.2.2 AI Cameras (SAF-02)

PGE has an AI-camera network to provide enhanced situational awareness and early fire detection utilizing strategically positioned cameras across its service area. This technology delivers significant customer benefits by speeding up ignition detection and response times, thus reducing fire growth potential and enabling PGE to respond to potential wildfire impacts to the grid. The cameras monitor critical utility assets across the Northwest as well as generation assets in Montana, many provide enhanced safety in vulnerable areas.

The AI-camera detection system provides continuous 360-degree monitoring with machine-learning algorithms that identify smoke or flame signatures within seconds—significantly faster than traditional reporting methods. The platform integrates high-resolution sensors with local weather data, fire perimeters, and PGE asset information, while delivering automated alerts directly to control rooms for rapid decision-making with minimal false positives. The technology further combines camera and satellite AI for advanced nighttime detection using infrared imagery, enhancing 24/7 monitoring capabilities. Fire agencies and emergency responders have direct platform access, enabling faster fire suppression response times.

PGE leverages geographic viewshed data to identify coverage gaps and to prioritize annual camera installations in high-risk locations. PGE also coordinates with other camera network partners to maximize coverage efficiency and leverages non-PGE camera networks when available. PGE has developed valuable industry partnerships through shared camera access agreements with other investor-owned utilities and non-utility partners in the Northwest.

To coordinate statewide detection efforts, PGE collaborates with stakeholders including government agencies, fire services, utilities, emergency managers, federal land management agencies, Tribal governments, OPUC Safety Staff, and academic institutions. Additionally, PGE is an active member of the Oregon Wildfire Detection Camera Interoperability Committee (OWDCIC), established by the Governor's office in 2022.

The AI camera company provides onboarding for agencies and Public Safety Partners, enabling them to effectively leverage the early detection capabilities to identify threats significantly faster than traditional reporting methods. For agency partners, this training typically includes:

- Direct platform access for fire agencies and emergency responders
- Hands-on training sessions for using the AI-powered detection system
- Tutorial materials for interpreting the 360-degree visual monitoring capabilities
- Guidance on accessing and utilizing real-time alerts when smoke or flame signatures are detected
- Training on how to view integrated data layers including weather information, fire perimeters, and utility asset locations
- Instructions for sharing situational awareness across stakeholder organizations
- Ongoing technical support and communication channels during wildfire events
- Regular updates on system improvements and new features
- By identifying fires in their early stages and enabling rapid intervention, this technology demonstrates commitment to innovative community protection solutions that promote safety beyond the borders of PGE infrastructure through:
- Real-time visual confirmation for situational awareness
- Faster response to emerging fires
- Improved resource allocation during incidents
- Strengthened coordination between PGE and emergency responders

9.2.3 Weather Stations (SAF-03)

PGE's weather station network is critical for wildfire risk management because it provides real-time data in areas with complex terrain and microclimates that would otherwise be "blind spots" in weather forecasting. This enhanced visibility enables more precise identification of localized high-risk conditions that could lead to ignitions.

Wildfire risk exists across several remote areas within PGE's service area, and complex terrain causes many microclimates in which weather patterns differ over small distances. Terrain and its general alignment then cause downslope windstorms, a phenomenon occurring on the leeward side of a mountain range, characterized by strong damaging surface wind. Several Remote Automatic Weather Stations (RAWS) and NWS weather stations exist across the service area. However, many microclimates have no measurement devices, which can lead to "data holes", inaccurate forecasts, and unidentified weather risks.

9.2.3.1 Benefits

The purpose of PGE's weather station network is to provide additional coverage, especially around HFRZs, to verify weather conditions across the territory and build better models. Data from these stations is used throughout the year, especially during fire season, to monitor and validate weather risk conditions. Humidity, fuel moisture, and soil moisture sensors are utilized to monitor and assess fuel conditions around the service area, which is essential for the Near-Term Risk Assessment discussed in Section 9.2.1.3.

Weather station data is also utilized to verify weather model forecast performance and is uploaded in real-time to the Meteorological Assimilation Data Ingest System (MADIS)[46], making it publicly available. As a result, all PGE's real-time and historical station data can be found on the NWS Weather and Hazards Data Viewer. Data from MADIS is also used by NOAA's National Centers for Environmental Prediction to initialize Global Weather Models and by the National Center for Atmospheric Research (NCAR) to initialize its WRF.

[46] The Meteorological Assimilation Data Ingest System (MADIS) is a meteorological observational database and data delivery system that provides observations that cover the globe.

9.2.3.2 Locations

PGE's 92 weather stations primarily provide higher visibility to the weather across HFRZs.

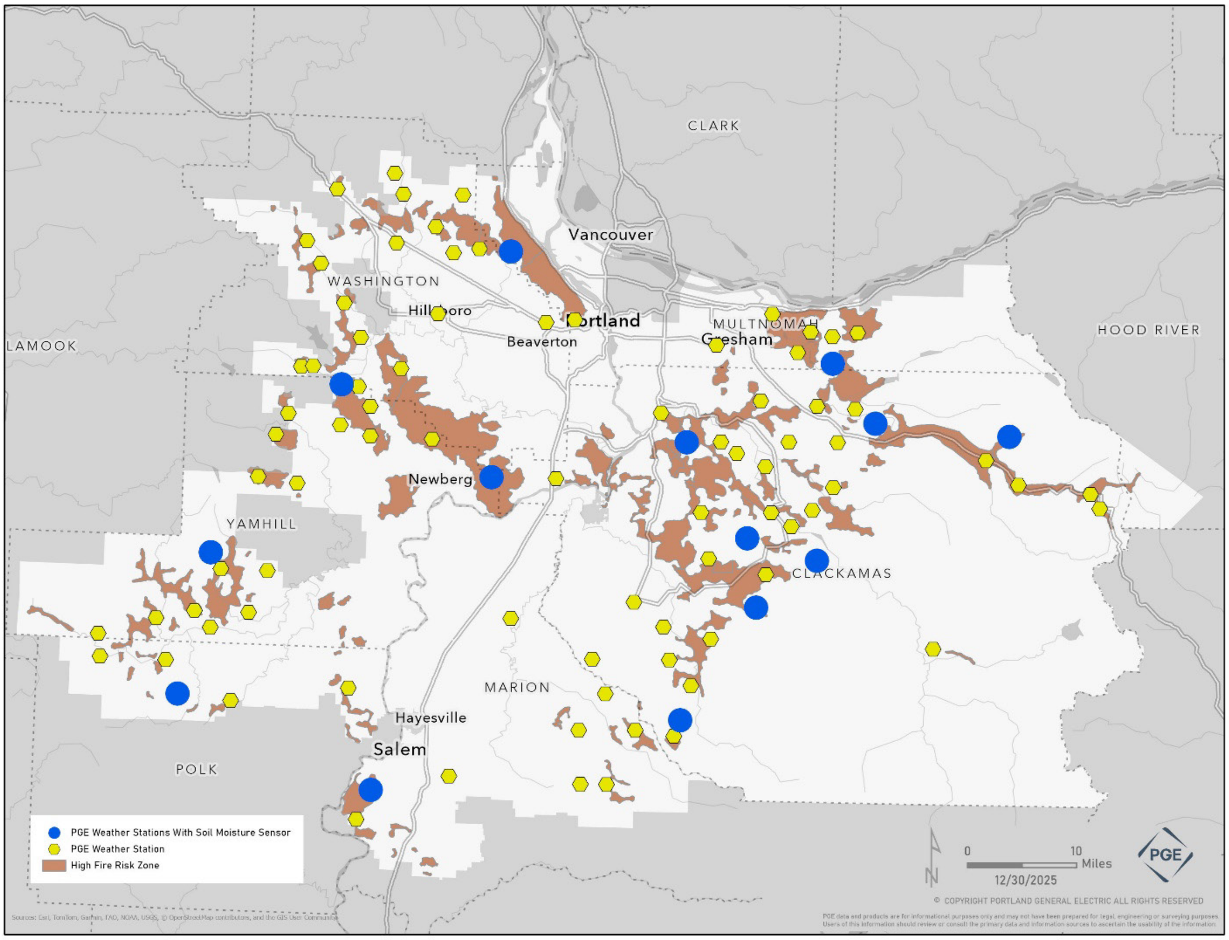


Figure 9-6: PGE Weather Stations and HFRZ

9.2.3.3 Measurements and Data

PGE's weather station network provides higher spatial and temporal granularity compared to state and federal weather station networks, while also measuring additional variables. Weather stations measure the following variables every 10 minutes via cellular or satellite communications:

- Air Temperature
- Relative Humidity
- Sustained Wind Speed and Direction
- Wind Gust Speed and Direction
- Rainfall Amount
- 10-hour fuel moisture

Thirteen station locations also have soil temperature and moisture sensors with measurements taken at six separate soil depths.

9.2.3.4 Calibration and Verification

All instruments undergo factory calibration to validate data quality upon deployment. During setup, field technicians collaborate with external vendor analysts to verify proper data communication. Once operational, the vendor implements automated data validation and generates alerts for stations requiring review. Meteorologists routinely monitor data output and flag any questionable readings; if necessary, field crews are dispatched for verification and resolution. Each station receives annual sensor calibration and maintenance, except when access is restricted due to factors such as customer denial or safety concerns.

9.2.4 Early Fault Detection (SAF-04)

PGE has implemented Early Fault Detection (EFD) technology to detect incipient faults on the system before they become an outage or ignition risk. The sensors can locate potential faults within 30 feet on the electrical system, allowing PGE to monitor the system remotely and respond to emerging issues.

EFD sensors operate on the principle that defective electrical assets emit distinct radio frequency (RF) signals, unlike healthy components that are typically silent at these frequencies. Sources such as loose connections, vegetation contact, or insulation breakdown produce RF emissions that EFD sensors detect.

9.2.4.1 Benefits

EFD technology provides several benefits, primarily the reduction of wildfire ignition risk. These sensors augment the annual physical inspections conducted under the Ignition Prevention Program through ongoing monitoring with the potential to find issues unseen to the human eye. Based on efficacy values from similar implementations, EFD technology shows high effectiveness in detecting potential failures in conductors, insulators, transformers, and other critical components.

Beyond ignition prevention, the technology enhances reliability, reduces outage-related costs, and provides more accurate fault location capabilities. Proactive maintenance of components projected to fail in the near-term decreases outages and reduces after-hours work. This has the dual benefit of increasing reliability while lowering crew resource needs and decreasing cost.

9.2.4.2 Installation Considerations

EFD deployment locations are selected based upon risk with consideration for other long-term projects such as underground conversions or covered conductor. For example, covered conductor projects require EFD technology to be installed after completion to mitigate risks associated with HIF, broken conductors, and torn insulation. PGE deploys EFD technology on feeders that intersect with HFRZs, but sensors are deployed along the full length of a feeder and may extend beyond the HFRZ boundary.

Installation standards address various PGE primary framing and NESC requirements, including climbing and working space. Project planning requires cell-signal research to verify signal strength and provider.

9.2.4.3 Response Process

Figure 9-7 details PGE's process for EFD alert monitoring, investigation, and correction of detected anomalies. As with many predictive technologies, the EFD alerting system must be tuned and refined, so PGE collaborates with the sensor manufacturer and utility peers to develop best practices.

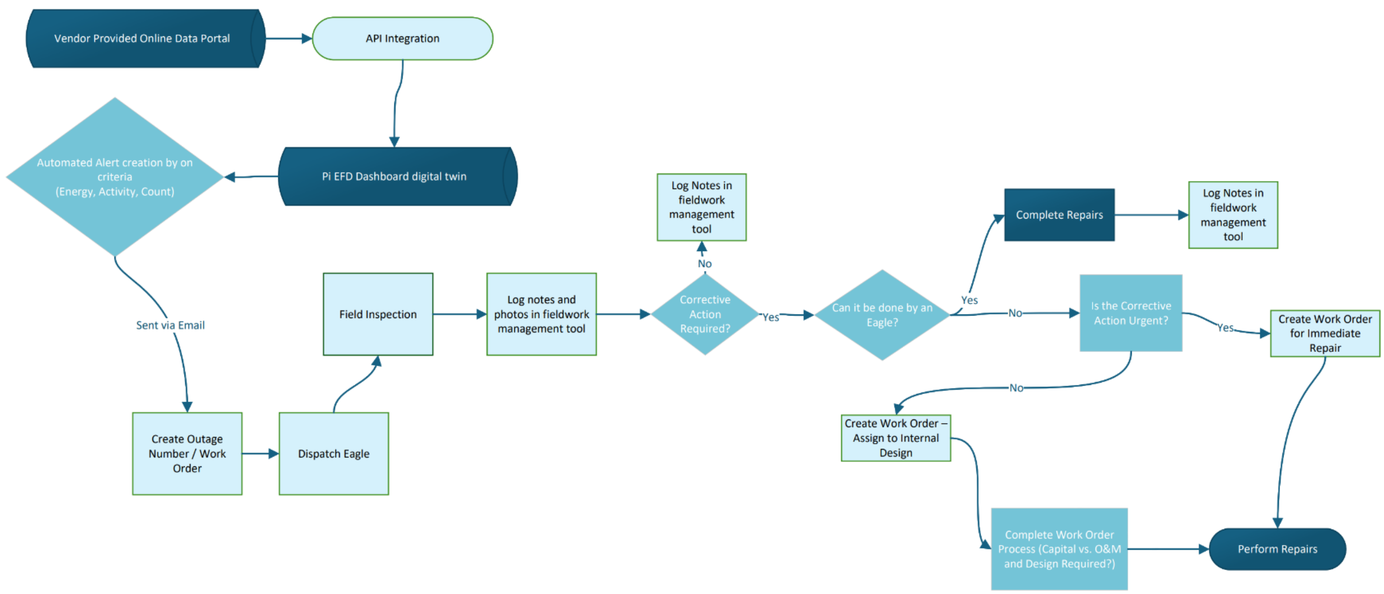


Figure 9-7: EFD Alert Response Process

PGE uses corona and acoustic cameras in addition to traditional inspection methods to locate incipient faults. Acoustic cameras are able to detect tracking or anomalous noises that may indicate radio frequency anomalies for findings that are inaudible to the human ear. Use of these tools has reduced the number of alerts that result in no finding, but false positives have not been eliminated. PGE continuously monitors false-positive findings and re-investigates every three to six months depending upon the severity. If the alert indicates an increasing severity, the re-investigation timeline shortens.

Imminent hazards are repaired by PGE's front-line linemen immediately following the investigation. If additional resources are required to safely make a correction, extra line resources may be deployed to assist. Other positive findings will be corrected through a work order with a risk-based correction timeframe.

9.2.5 Live Fuel Moisture Sampling (SAF-06)

Live fuel moisture content is a critical parameter in wildfire risk assessment, as it directly influences ignition probability and fire behavior. Understanding these moisture levels across PGE's service area enables more accurate fire risk modeling and supports precise operational decision-making during high fire risk conditions. This data provides essential ground-truth validation for remotely sensed estimates and enhances the accuracy of PGE's FPI models.

PGE's manual fuel moisture sampling program is managed in partnership with the University of Idaho through a NASA FireSense Project. Samples are taken from eleven sites across the service area, ten of which are adjacent to PGE weather stations, to represent the broader fuels complex across the service area. Monthly samples are taken from these locations from April to October.

9.2.5.1 Benefits

PGE will study the relationship between live fuel and soil moisture by comparing the live fuel sampling data to the adjacent weather station soil moisture readings. This research will provide a comprehensive understanding of moisture conditions across the service area and benefit PGE's wildfire risk assessment program in several ways:

- Improve PGE’s FPI calculation to improve prediction accuracy
- Validate the calculated live fuel moistures produced by the FEMS
- Improve situational awareness during fire season
- Contribute to a historical fuel moisture dataset to support seasonal trend analysis

Fuel moisture and weather data from automated weather stations is publicly available to support fire industry and community partners.

The current partnership with University of Idaho addresses this program through 2026 as discussed in Section 9.4.2.5. PGE has an incremental initiative to continue the collection of live fuel moisture samples in 2027–2028, see Section 9.4.4.1 for details.

9.2.5.2 Locations

All fuel moisture instrumentation has been deployed in a strategic manner to better understand the fuel conditions in all HFRZs. The eleven manual fuel moisture sampling locations in and around HFRZs were chosen to be co-located with automated fuel and soil moisture sampling.

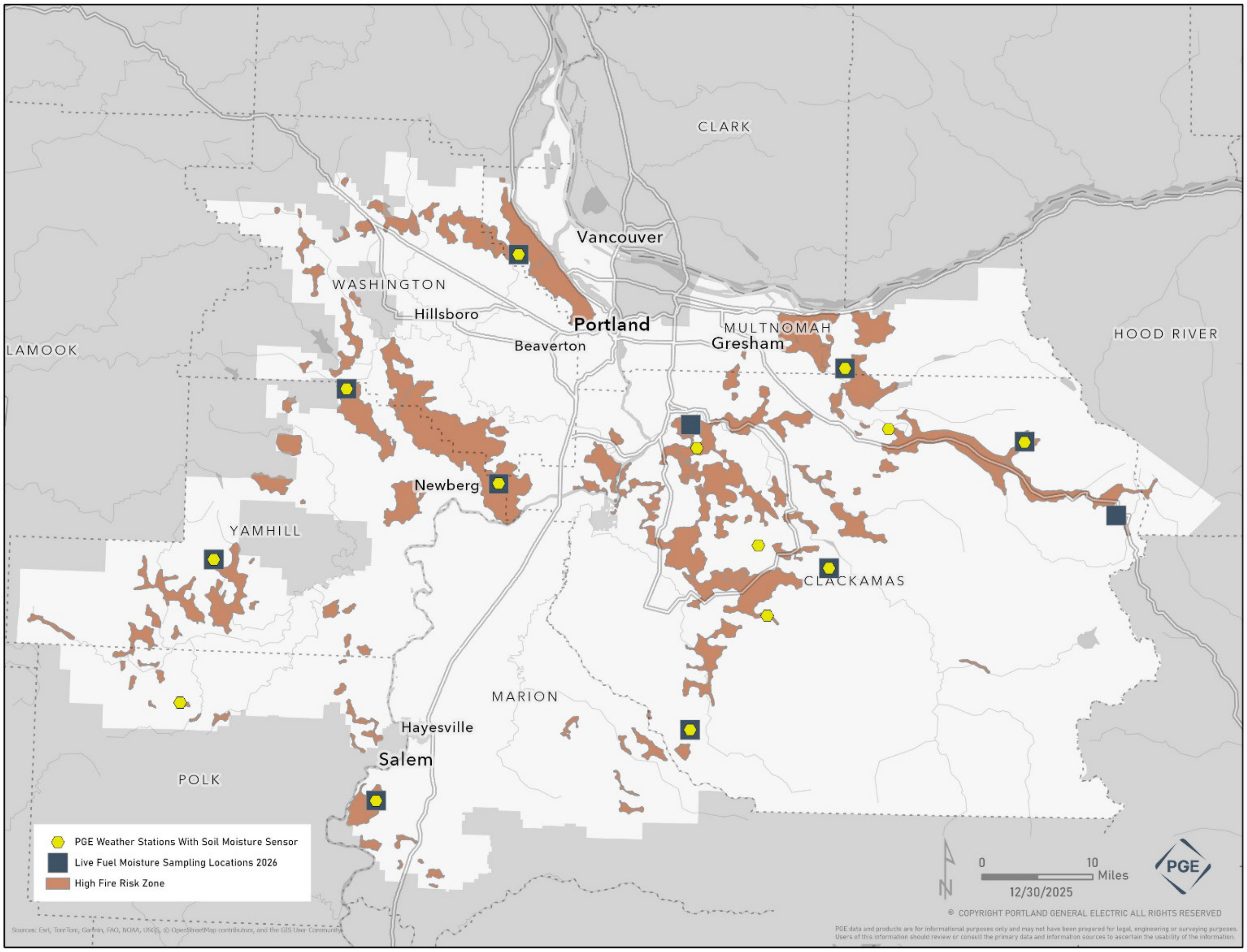


Figure 9-8: Live Fuel Moisture Sampling Locations

9.2.5.3 Measurement, Verification, and Calculation

Moisture content values are calculated by comparing the weight of the water in the sample to the weight of the oven-dried sample. These measurements are recorded and archived for situational awareness and to bolster historical datasets. This process is relatively maintenance-free apart from basic lab equipment and field tools that are used to perform and process the sample. Quality control procedures include duplicate sampling at select locations and periodic cross-validation with nearby automated fuel moisture sensors.

Moisture content is calculated from the measurements:

$$\frac{(weight\ of\ water\ in\ sample)}{(dry\ weight\ of\ sample)}(100) = \text{Percent of moisture content}$$

This calculation provides a standardized measurement that can be compared across different vegetation types and locations, enabling consistent evaluation of wildfire risk factors throughout PGE’s service area.

9.2.6 Multi-sensor Fault Detection Pilot (SAF-08)

PGE currently leverages Radio Frequency (RF) sensors as part of the Early Fault Detection (SAF-04) initiative. Multi-sensors include devices that can monitor physical, electrical, structural, and environmental conditions at the span interval. Multi-sensor technology can detect existing issues on the electrical system, even during a power outage, making them well suited to identify potential ignition hazards during an EPSS or PSPS event, whereas RF sensors are well suited to identify incipient failures prior to an outage.

The purpose of this pilot is to learn where multi-sensor fault detection devices may be a preferable situational awareness investment compared to RF sensor technology. Expected outcomes from this three-year pilot is guidance on whether PGE moves forward with one or both sensor technologies based on PGE's evaluation of wildfire risk at the protected section. Additional details on this pilot, including deployment timelines, are provided in Table OPUC 5-2.

9.3 Results

9.3.1 Situational Awareness and Forecasting (SAF-01)

9.3.1.1 Seasonal and Near-Term Risk Assessment Results

As discussed in Section 9.2.1, PGE's seasonal and near-term wildfire risk assessment integrates weather and fuels data, fire activity, and operational readiness indicators to inform Grid Operations and Protocols as well as potential PSPS initiation. In 2025, PGE implemented Grid Operations and Protocols discussed in Section 10 to address seasonal and near-term risk then incorporated observed risk factors into the wildfire risk modeling discussed in Section 4.2. To reflect changes in seasonal risk and industry engagement learnings, PGE expanded the use of EPSS and refined EFR and PSPS deployment thresholds related to overhead asset classes and their location relative to HFRZs. In response to increased lightning occurrences in the Pacific Northwest, PGE is procuring high-resolution lightning detection data to enable effective assessment of this near-term wildfire risk.

PGE responded to the seasonal risk assessment by declaring fire season East of the Cascade Crest on June 6th and West of the Cascade Crest on June 20th. PGE responded to the near-term risk assessment by declaring 17 EFR days East of the Cascade Crest and 8 EFR days West of the Cascade Crest. PGE rescinded fire season on October 10th, at which time the following seasonal risk factors were noted:

Weather and Fuels

- Warmer temperatures with below normal precipitation and limited high wind events
- Increased drought across service area due to a dry spring: 100 percent compared to 54 percent in 2024; 77 percent severe drought or worse compared to zero percent in 2024
- Multiple lightning events, September had the 2nd highest rate in PGE's history.

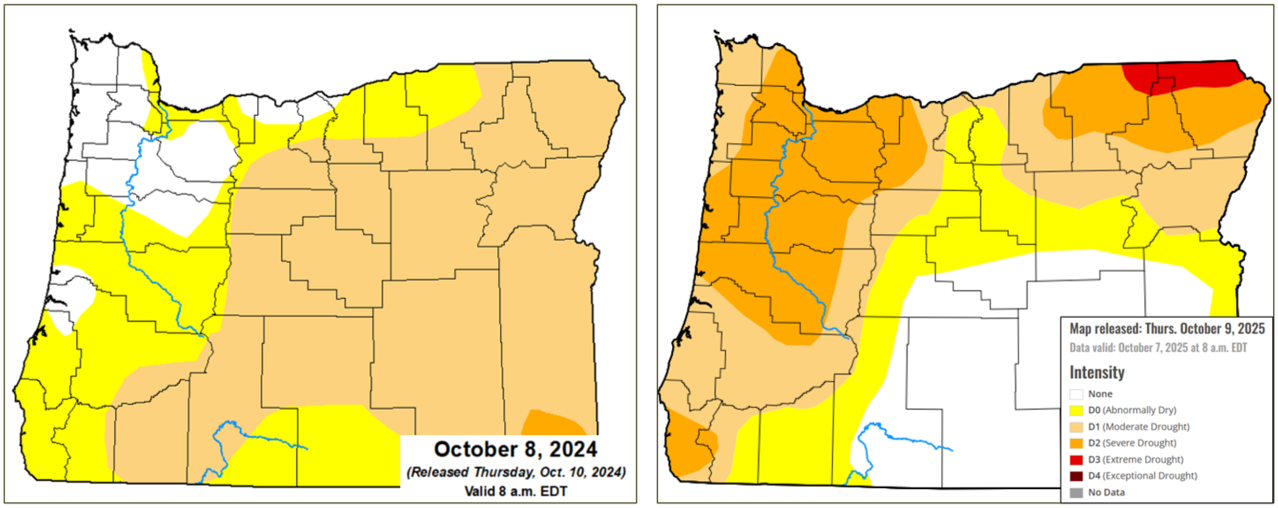


Figure 9-9: U.S. Drought Monitor[47]: Oregon Drought 2024 vs 2025

Fires

- Approximately 13 percent of all acres burned across the U.S. were in the Pacific Northwest compared to 30 percent in 2024
- Strong suppression response limited fire growth: number of wildfires was above the 10-year average, but number of acres burned was below average

Annual wildfire outcomes are strongly influenced by factors that lie outside utility control, including weather patterns, fuel conditions, and suppression resources. See Section 3.4 for a more comprehensive discussion of the 2025 fire season.

9.3.1.2 Enhancements

In 2025, PGE delivered several key enhancements to forecasting and situational awareness capabilities:

- **Visualization Infrastructure:** Implemented unified visualization capabilities through ArcGIS layers and dashboards. These tools provide integrated views of WRF weather and fire weather model outputs, reducing analysis time when evaluating complex meteorological conditions.
- **Model Integration:** Completed first phase development of forecast model integration, bringing together data from GFS, ECMWF, and WRF sources. This integration has measurably improved operational efficiency and enhanced decision support for meteorological assessments.
- **FPI Model Enhancement:** Implemented improved NULL fire data sampling methodologies, increasing prediction reliability by incorporating more representative non-fire data points. Initial validation shows improvement in model specificity without sacrificing sensitivity to high-risk conditions.

[47] National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture and the National Oceanic and Atmospheric Administration.

- **EFR Model Expansion:** Initiated expansion of EFR model beyond basic wind and humidity parameters. The incorporation of ERC and Burning Index (BI) metrics provides more comprehensive risk assessment capabilities, allowing for more precise identification of high-risk areas during the 2025 fire season.
- **Systems Integration:** Launched development of the Meteorology Tools platform in June 2025. This platform streamlines workflows and reduces system navigation time for meteorologists when rapid assessments are most crucial.
- **Impact Forecasting:** Initiated development of company impact forecasting models to deliver preliminary system-wide outage predictions. These models will eventually support more effective resource allocation during high-impact weather scenarios.

9.3.2 AI Cameras (SAF-02)

PGE completed installation of the Sycan Capacitor Station camera in May 2025, completing the intended 2024 scope of work and bringing the total AI Camera network to 38 cameras. Following the 2025 Eaton fire, additional areas associated with Northwest Portland around the Forest Park area were identified as requiring greater granularity and coverage. An additional camera, located near the Hazel Dell neighborhood in Vancouver, WA was expected to be installed in December 2025, but camera activation was delayed due to site flooding during an atmospheric river. This camera installation is planned for January 2026 and will provide coverage of the WUI in and around the Forest Park area of Northwest Portland.

In 2025, 83 percent of the system alerts came from cameras covering PGE's service area and 17percent came from cameras covering assets outside PGE's service area. 47 percent of the alerts came from only eight cameras.

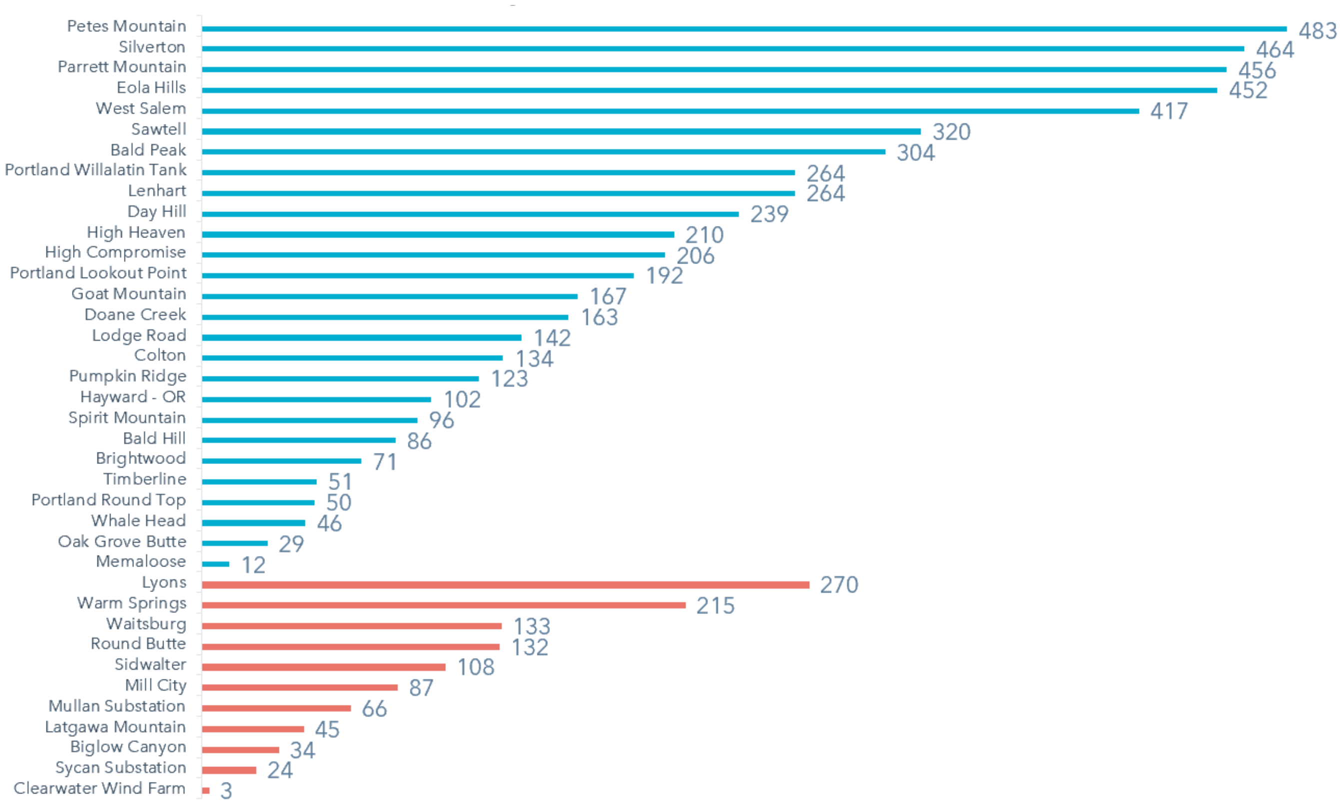


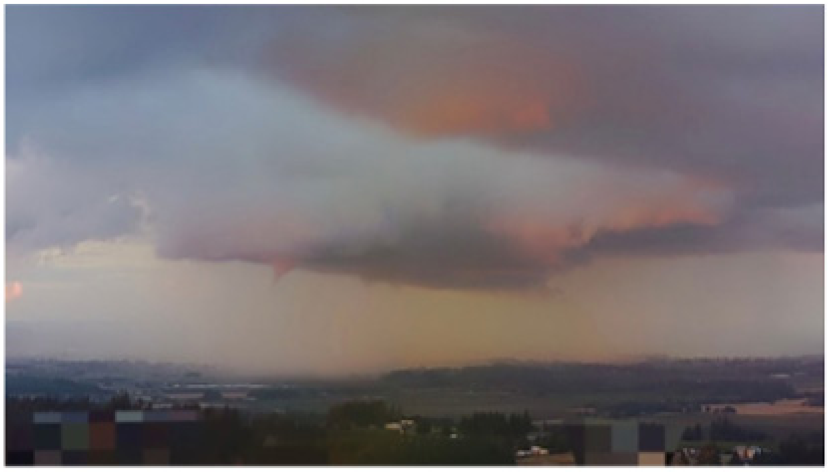
Figure 9-10: 2025 AI Camera Alerts

9.3.2.1 Wildfire Watch

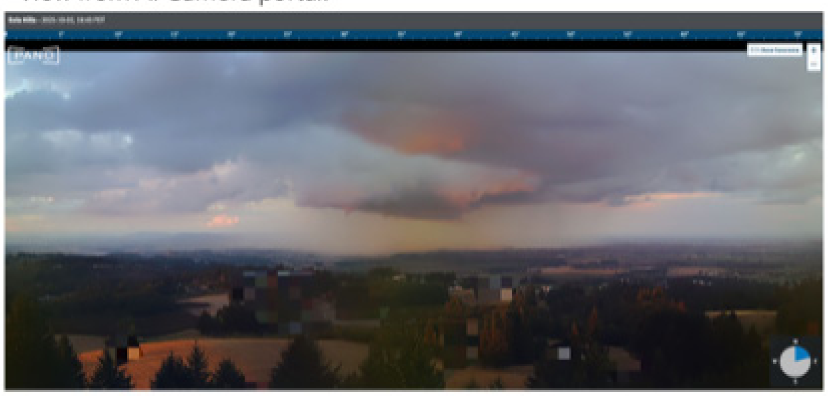
In 2025, PGE partnered with the AI camera company to make the AI wildfire detection camera feed publicly accessible on the Wildfire Watch website. By providing real-time visual access to high-risk areas, PGE empowers customers, emergency responders, and community members with the same situational awareness that guides utility operations. This public-facing approach has demonstrably improved early fire reporting, reduced response times, and fostered greater community engagement in wildfire prevention. Customers have expressed appreciation for the ability to monitor conditions near their homes and businesses, particularly during high-risk weather events. Additionally, this transparency has strengthened relationships with local emergency management agencies through shared visual intelligence. Public camera access reflects PGE's collaborative approach to safety, increasing shared information and resources across the service area.

Beyond ignition detection and monitoring, this regional resource is available to forecasters and public safety agencies to monitor other meteorological conditions that may be of concern for public safety. Figure 9-11 illustrates use of PGE's AI camera by weather professional to monitor and share public safety information about a funnel cloud. Access to this platform is a tool for both the public and PGE's customer base as well as supporting other areas of Oregon and Washington to aid in community situational awareness.

Detailed view of emerging funnel cloud



View from AI Camera portal.



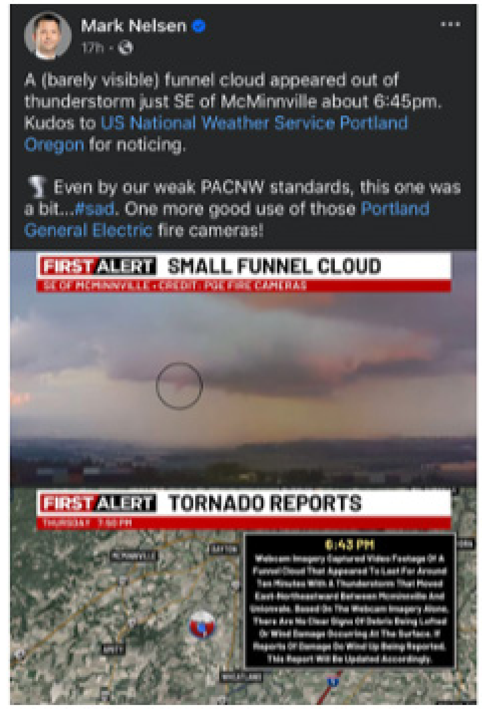


Figure 9-11: Wildfire Watch Camera Portals in Use

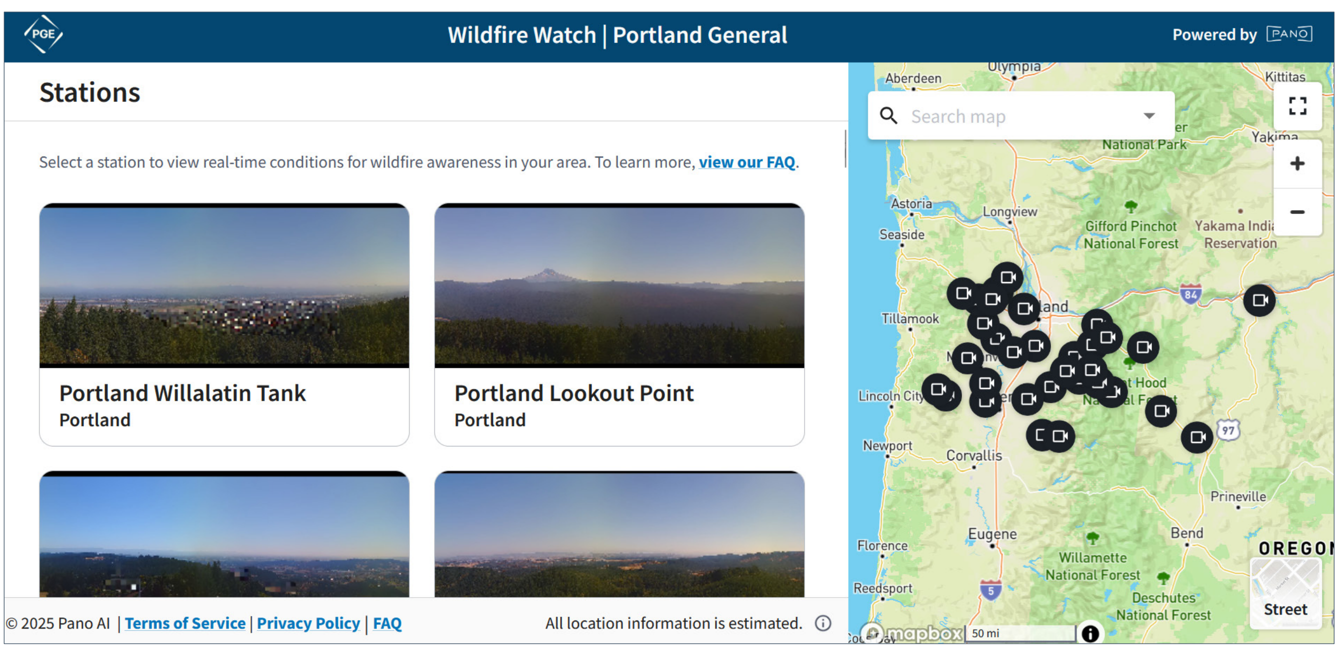


Figure 9-12: PGE Wildfire Watch Public Dashboard

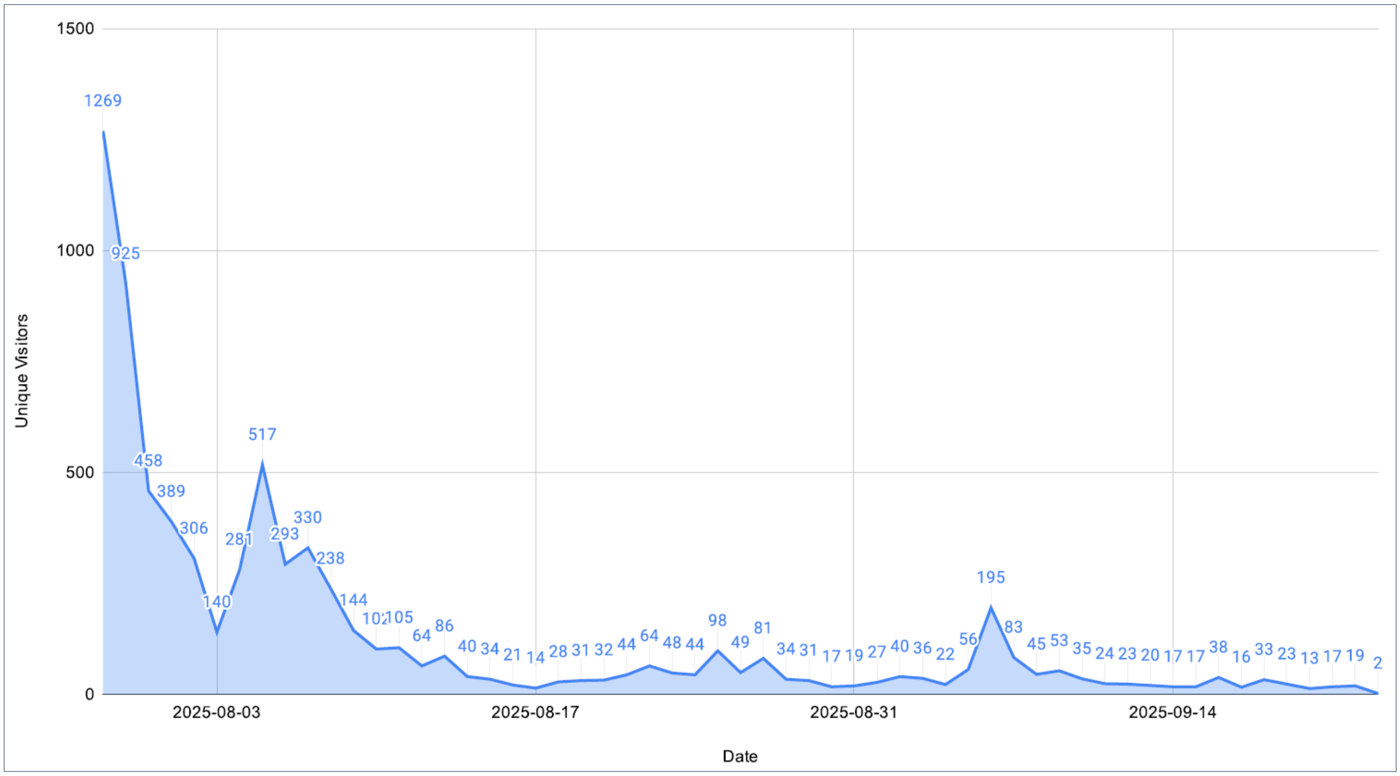


Figure 9-13: Wildfire Watch Website Traffic

9.3.3 Weather Stations (SAF-03)

In 2025, PGE completed several weather monitoring enhancements through strategic expansion and integration:

- **Network Expansion:** Installed seven new weather stations as well as 13 soil temperature and moisture sensors across HFRZs, providing soil moisture data at six different depths. This deployment increased environmental monitoring coverage and established baseline measurements in previously unmonitored microclimates.
- **Data Integration:** Observed weather data from Synoptic was integrated into PGE's network, including automated monitoring to detect data feed disruptions and spatial visualization through ArcGIS.
- **Real-time Monitoring Enhancement:** Implemented accelerated data refresh rates to five minutes during PSPS events and 10 minutes during normal operations, measurably improving the ability to detect rapidly changing weather conditions.
- **Operational Integration:** The successful incorporation of weather station data into the Customer Demand Center platform has enabled access to observational weather data for multiple operational teams.

9.3.4 Early Fault Detection (SAF-04)

In 2025, PGE equipped two circuits with EFD sensors prior to fire season, bringing the total to 10 circuits:

- Molalla – Marquam (2025 HFRZ 5)
- Redland – 13 (2025 HFRZ 3)

PGE also continued to refine the EFD alert process and prioritization through ongoing review and development with both the technology vendor and peer utilities. EFD alerts resulted in both positive findings and false-positive findings over the last several years. Alerts have resulted in findings such as loose insulator tie wires, broken cutouts, bird-caged conductor, loose splices, damaged covered jumper wire insulation and loose or missing insulator nuts.

Hazards inside an HFRZ would typically be found and corrected under PGE's annual Ignition Prevention Inspection program, but EFD installations extend beyond the HFRZ boundary. On feeders that cross HFRZ boundaries, EFD technology is closing the gap on inspection cycle for outage and ignition-drivers in-between PGE's 10-year FITNES inspection cycles.

PGE made several improvements to streamline the installation process and lower cost, including:

- Finalized the construction standard, including NESC climbing and working space requirements, adaptability to various distribution framing configurations, and solar-powered units.
- Developed cell-signal strength testing capabilities, eliminating a second site visit for 80-90% of the installations.
- Expanded training for PGE personnel, reducing reliance on contractors

9.3.5 Live Fuel Moisture Sampling (SAF-06)

PGE established the live fuel moisture monitoring program in partnership with the University of Idaho through a NASA FireSense Project in 2025. Eleven sites were selected, ten adjacent to weather stations, and samples were taken. Sampling began in September of 2025 and 174 samples were taken from 34 different species across the eleven sites. This data will be used to benchmark with the calculated estimations provided from the FEMS.

9.4 Initiatives and Targets

9.4.1 Initiative Summary Table

Table OPUC 9-1: Situational Awareness and Forecasting Initiative Cost Summary in Thousands

Initiative Activity	Tracking ID	Target Unit	2026 Target	2026 Forecast ($1,000)	2027 Target	2027 Forecast ($1,000)	2028 Target	2028 Forecast ($1,000)	Three-Year Forecasted Total ($1,000)	Section
Situational Awareness and Forecasting	SAF-01	N/A	N/A	$496	N/A	$558	N/A	$583	$1,637	9.2.1
AI Cameras	SAF-02	# of cameras (AI detection)	1	$742	0	$540	0	$565	$1,847	9.2.2
Weather Stations	SAF-03	# of weather stations	10	$1,036	3	$652	3	$468	$2,157	9.2.3
Early Fault Detection	SAF-04	# of circuits	2	$3,353	6	$2,595	4	$1,501	$7,449	9.2.4

Initiative Activity	Tracking ID	Target Unit	2026 Target	2026 Forecast ($1,000)	2027 Target	2027 Forecast ($1,000)	2028 Target	2028 Forecast ($1,000)	Three-Year Forecasted Total ($1,000)	Section
Situational Awareness and Forecasting IT	SAF-05	N/A	N/A	$1,271	N/A	$1,067	N/A	$1,077	$3,415	9.4.3
Live Fuel Moisture Sampling	SAF-06	# of assets	11	$0	11	$50	11	$50	$100	9.2.5
Oregon Hazard Labs Bridge Funding	SAF-07	# of cameras (AI detection)	13	$232	13	$232	0	$0	$464	9.4.4.2
Multi-sensor Fault Detection Pilot	SAF-08	# of circuits	0	$0	1	$80	1	$80	$161	9.2.6

Note:
1. Forecasts and Three-Year Totals provided in $/thousands.
2. All initiative Forecasts and Three-Year Totals include capital cost and operations and maintenance expense.

9.4.2 Initiative Details

9.4.2.1 Situational Awareness and Forecasting (SAF-01)

PGE has a three-year plan to build capabilities and enable near-term risk management structure through three enhancement objectives:

- **Platform Integration.** Fully integrate all meteorological tools with PSPS and other operational systems, establishing a seamless decision support platform. See Section 9.4.3 for more details.
- **Advanced Analytics.** Implement circuit-level predictive analytics to improve accuracy of weather-caused impact forecasts during extreme weather events; Implement predictive analytics utilizing fuel moisture and soil moisture data to improve forecasts during changing fire risk conditions.
- **Operational Risk Management.** Enable management of varying levels of near-term risk through daily fire risk summaries and automated workflow based on risk levels.

To support these goals, PGE plans to complete the following in **2026**:

- Integrate all forecast models into a unified dashboard with improved system availability. This combined view will include 48 hours of historical weather data alongside seven days of forecast data, creating a seamless transition between observed and predicted conditions. This enhancement will directly support PSPS decision-making by providing weather intelligence that integrates past, present, and future conditions.
- Establish baseline metrics for FPI model performance against actual fire occurrences and increase FPI model prediction accuracy through enhanced variable testing.

- Establish baseline correlations between soil moisture measurements, atmospheric humidity, and fuel moisture conditions.
- Correlate circuit-level outage and ignition analysis with weather and complete initial implementation of the outage prediction model.

PGE's **2027** plan furthers these enhancements:

- Implement FPI variable testing and machine learning enhancements to improve prediction accuracy.
- Optimize soil moisture sensor network based on analysis of 2026 data, and test fuel and soil moisture data integration into FPI models.
- Enhance company impact models with circuit-level outage and ignition probability models.
- Develop daily fire risk summary with updated risk levels

In **2028**, PGE will continue testing systems, refining processes, and automating workflows to deliver on the three-year enhancement objectives.

9.4.2.2 AI Cameras (SAF-02)

PGE regularly assess the AI camera coverage and related partnerships, but no new additional cameras are currently planned for 2026-2028. In lieu of investing in additional PGE-owned cameras, PGE has proposed an incremental initiative SAF-07 to provide bridge funding for existing Oregon Hazard Labs (OHAZ) cameras, see Section 9.4.2.2 for details. Additional cameras may be installed under SAF-02 if coverage gaps are identified by PGE or agency partners or if the OHAZ cameras are decommissioned. PGE will continue to foster collaborative use of the AI Camera network to promote public safety by PGE staff as well as aiding in public safety where others may benefit from information provided by the AI camera network.

9.4.2.3 Weather Stations (SAF-03)

PGE's three-year plan for weather station investments:

- **2026:** Relocate ten weather stations to improve poor station signal and install ten new weather stations to account for spatial changes in the HFRZs.
- **2027:** Relocate five weather stations and install three new weather stations to improve spatial coverage in HFRZs.
- **2028:** Install three additional weather stations to improve spatial coverage in HFRZs and optimize weather station deployment based on terrain analysis findings, with targeted coverage in identified microclimate zones.

9.4.2.4 Early Fault Detection (SAF-04)

PGE plans to expand the current program to include new geographic areas, primarily focused on distribution circuits as detailed in Table 9-6.

- **2026:** Installations will continue to fortify PGE's detection capabilities in some of PGE's longest standing HFRZs, with Sandy-Wildcat on Mt. Hood and Leland-Carus southeast of Portland following the 45-mile covered conductor project. Installation will also begin in the Hillsboro area in preparation for the 2027 fire season.

- **2027:** Deployment on the west side of the Willamette River will continue with the completion of the Hillsboro-Laurel feeder as well as installation on six feeders southwest of the Portland Metro area.
- **2028:** Installations will expand coverage southeast of Portland and provide significant coverage in HFRZs northwest of the Portland Metro area.

Table 9-6: Early Fault Detection Projects

Feeder Name	HFRZ	Unit Count	In-Service Year
Leland-Carus Sandy-Wildcat	5, 11	113	2026 Fire Season
Hillsboro-Laurel	17	39	2026 for 2027 Fire Season
Cornelius-13 Scholls-Ferry Rainbow Springbrook-Zimri Newberg-Chehalem Scoggins-Laurelwood	17, 18	142	2027 Fire Season
North Plains-Mason Hill North Plains 13 Rock Creek-Newberry Estacada-North Fork	6, 14, 15	144	2028 Fire Season

9.4.2.5 Live Fuel Moisture Sampling (SAF-06)

In 2026, PGE will continue monthly fuel moisture sampling at 11 locations from April through October in partnership with University of Idaho. Additionally, PGE will:

- Test integration of live fuel moisture data into the FPI model
- Establish correlations between sampled fuel moisture and remote sensing derived fuel moisture estimates
- Create a historical database to support seasonal trend analysis

PGE has an incremental initiative to continue live fuel moisture sampling in 2027 and 2028, see Section 9.4.4.1 for details.

9.4.3 Situational Awareness and Forecasting IT (SAF-05)

This initiative was started in 2025 to track information technology (IT) investments that enable Situational Awareness and Forecasting initiatives.

In 2025, PGE completed the initial development of a unified access portal for meteorological tools, creating a single-entry point for weather and fire risk assessment data. This Meteorology Tools Integration Platform addresses a critical operational challenge: meteorologists previously needed to access multiple separate websites with inconsistent interfaces and authentication requirements, significantly slowing analysis during critical weather events.

The meteorology unified platform consolidates meteorological tools through Customer Demand Center integration, providing single sign-on capabilities and consistent interfaces across all data platforms. The 2026-2028 initiative establishes comprehensive integration infrastructure enabling real-time lightning monitoring and alerting capabilities, expands FPI and EFR model parameters with additional weather features and improved data sampling methodologies, and enables automated data processing with minimal manual intervention. By reducing navigation time between systems by approximately 50 percent, the platform enables timelier operational decision making related to EPSS and PSPS. This approach delivers immediate operational value through the following data flow improvements:

- **Data Collection/Procurement:** External lightning data service procurement providing real-time strike detection and historical analysis; weather station networks, WRF model forecasts, sea level pressure maps, and point forecast data; early fault detection system data correlating electrical events with weather patterns; real-time fuel moisture sampling and remote sensing-derived estimates supporting FPI and EFR model refinement.
- **Data Integration/Conditioning:** Customer Demand Center integration providing single sign-on capabilities and role-based access control across meteorological platforms; automated lightning data integration pipelines enabling real-time alerts and geospatial mapping; automated data validation processes across integrated platforms.
- **Data Analytics:** Expansion of FPI and EFR model parameters incorporating wind gusts, humidity, and human activity parameters with improved data sampling; enhanced validation frameworks utilizing WRF data pipelines; integrated analysis combining lightning strike data, atmospheric conditions and operational constraints; automated threshold monitoring; system availability monitoring during critical fire weather events.
- **Delivery:** Unified access portal; real-time dashboard displaying integrated weather, fire risk, and operational status; predefined weather threshold-based alerting systems with proactive notifications; lightning data alerts; geospatial lightning data mapping; visualization of FPI, EFR, point forecasts, sea level pressure, and WRF data supporting Grid Operations and PSPS decision making.

9.4.4 Incremental Initiatives

PGE will commence work on incremental initiatives contingent upon likely and timely recovery of costs.

9.4.4.1 Live Fuel Moisture Sampling (SAF-06)

If approved by the OPUC for cost recovery, PGE will transition in 2027 from a university partnership as described in Section 9.2.5 to internal program management or contracted services. This will enable PGE to:

- Expand sampling locations to cover additional vegetation types and microclimates
- Implement automated reporting and visualization of fuel moisture trends

- Develop fuel moisture thresholds specific to PGE’s service area to support operational decision-making

If approved, the 2027–2028 scope would include continued fuel moisture sampling at eleven locations support seasonal trend analysis from April through October using PGE staff or contract services, as well as:

- Refined integration of live fuel moisture sample data into FPI
- Continued development of historical database

In 2028, PGE would re-evaluate the sampling locations in preparation for the next three-year plan.

9.4.4.2 Oregon Hazard Labs Bridge Funding (SAF-07)

Following the unsuccessful passage of House Bill 3219 in 2025, the University of Oregon Hazard Lab (OHAZ) wildfire detection camera network faces a critical funding gap through the 2026 and 2027 fire seasons. This network complements PGE's current AI Camera initiative (SAF-02) – improving situational awareness, detection speed, location accuracy, and system redundancy, while facilitating rapid coordination and response during events that could impact PGE assets.

PGE's comprehensive evaluation of the OHAZ camera network identified seven non-co-located cameras providing vital fire detection coverage. Three of these cameras serve as the sole effective detection source in remote areas containing PGE transmission and generation assets. Four cameras strengthen detection capabilities within the service area by addressing limitations of PGE’s existing AI camera network caused by topography or vegetation obstruction.

Additionally, three sites where OHAZ cameras are co-located with PGE AI cameras have been identified. These co-located installations are currently operational, offering supplemental visibility to PGE HFRZs in the Cascade foothills, Highway 26 corridor, and remote areas of the Mt. Hood National Forest.

Without bridge funding, PGE would experience wildfire detection gaps and potentially need to install new cameras to maintain essential situational awareness. A comparison of three options and their associated costs for 2026 and 2027 appears in Table 9-7.

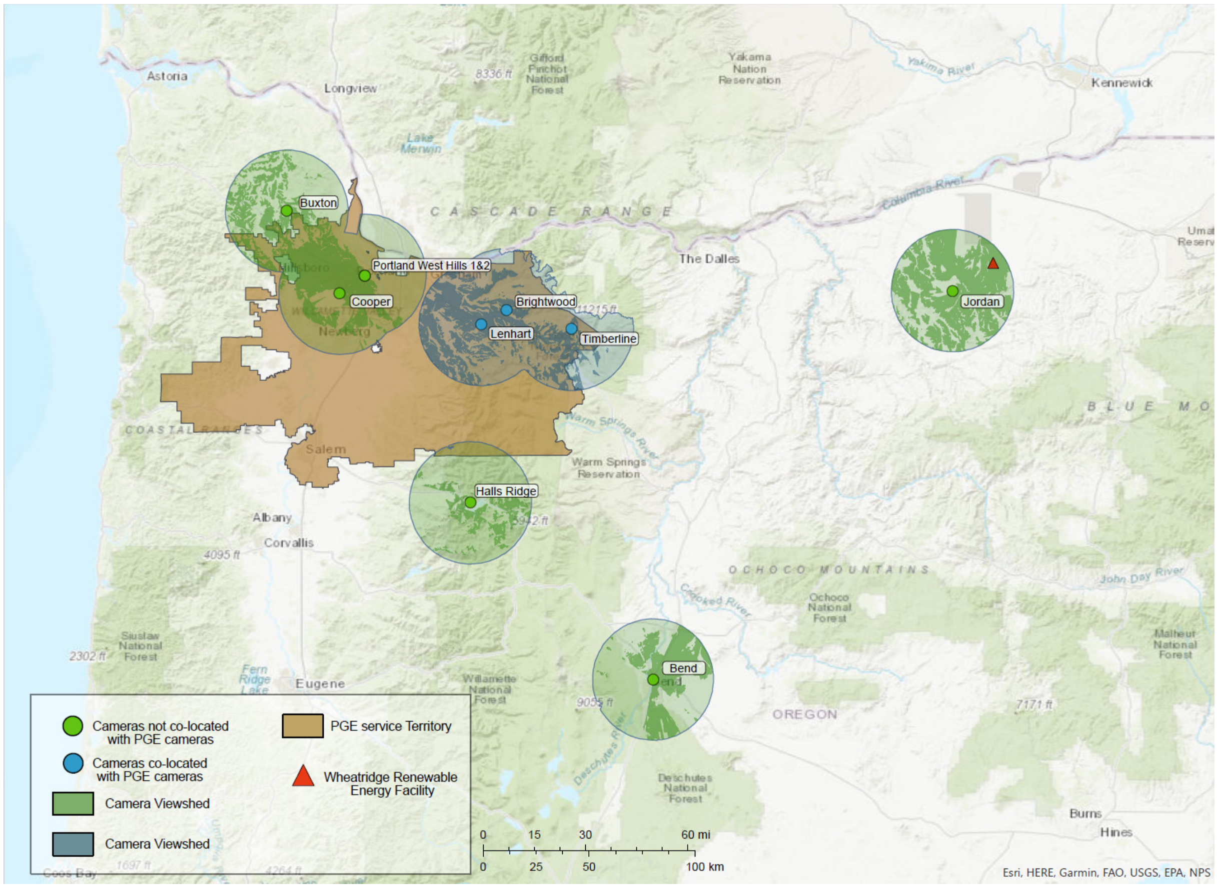


Figure 9-14: OHAZ Camera Locations for PGE Bridge Funding

Table 9-7: Oregon Hazards Lab Camera Options-

Option	Non-co-located Cameras	Co-located Cameras	2026 Capital ($1000)	2026 O&M ($1000)	2027 Capital ($1000)	2027 O&M ($1000)	2026-2027 Total ($1000)
1	7 existing	0	$0	$157	$0	$157	$314
2	7 existing	3 existing	$0	$232	$0	$232	$464
3	7 new AI cameras (SAF-02)	0	$1,348	$0	$0	$67	$1,415

Since OHAZ funding for 2028 and beyond is anticipated through a future legislative session, PGE recommends Option 2. This provides bridge funding for 10 OHAZ camera sites: seven operational non-co-located cameras maintaining critical detection coverage and three operational co-located cameras preserving existing visibility while offering enhanced redundancy. This approach maintains uninterrupted detection coverage while enabling technical evaluation of both camera platforms.

9.5 Continuous Improvement

9.5.1 Program Maturity

From 2022 to 2025, PGE saw significant maturation (40 percent increase) in Situational Awareness and Forecasting based on corresponding category scores to the IWRMC Maturity Model. PGE will review how situational awareness technologies—such as AI cameras, weather stations, and early fault detection—can be better integrated into operational workflows. Continuous improvement will focus on enhancing system interoperability, increased situational awareness of hazardous weather conditions, improved wildfire risk prediction, and more targeted PSPS implementation. Lessons from the IWRMC results will guide efforts to align forecasting analytics with PSPS and grid operations decision thresholds, while maintaining the current operational footprint.

9.5.2 Situational Awareness and Forecasting (SAF-01)

PGE has established robust cross-utility partnerships within Oregon and Washington State non-utility partners, significantly expanding shared monitoring capabilities across the region. These collaborative relationships enhance public safety response coordination and effectiveness. This strategic approach directly supports PGE's commitment to mitigating wildfire risks while minimizing customer impacts during high-fire-risk conditions. Through ongoing industry collaboration, PGE continues to develop best practices, shared operational philosophies, and integrated data systems to promote public safety during critical fire-weather events and potential ignition events.

9.5.3 AI Cameras (SAF-02)

PGE will continue to foster ongoing partnerships related to camera platforms and data sharing with partner utilities, Public Safety Partners, and research organizations to document ignitions and efficacy of the camera network in alerting to ignitions and response. Lessons learned and knowledge sharing will be a continuous event in 2026 and beyond. Ongoing data integration will also be explored with the AI camera parent company, incorporating user feedback on both user interface design and data ingestion.

9.5.4 Weather Stations (SAF-03)

PGE continues to evaluate and enhance its weather station network through targeted expansion in microclimate zones, relocation of suboptimal stations, and data-driven optimization to maintain HFRZ coverage. This enhanced weather monitoring infrastructure directly supports PGE’s wildfire mitigation strategy by enabling more precise risk assessments, supporting faster and more accurate PSPS decisions, and reducing potential ignition risks through better weather intelligence.

9.5.5 Early Fault Detection (SAF-04)

PGE continues to refine workflows, partnering with the technology vendor to document best practices, develop automation, and improve efficacy tracking. There are ongoing improvements in the alert severity algorithm based upon alert frequency and total count over time. Potential EFD system enhancements center around a shared findings and correction database that would enable all electric utilities to improve alert tuning, response process, and risk modeling. PGE’s goal is to leverage EFD technology to turn uncertain, stochastic failure risk into actionable, localized intelligence.

9.5.6 Live Fuel Moisture Sampling (SAF-06)

The program will continue to evolve through development of PGE-specific fuel moisture thresholds that can be directly incorporated into operational decision-making processes. PGE is working to establish correlations between sampled fuel moisture data and remotely sensed estimates to expand coverage beyond physical sampling locations.

As the program matures, PGE will build a robust historical fuel moisture dataset that can be used to calculate fire danger metrics with its own data, reducing reliance on generalized regional assessments and improving the precision of fire risk evaluations specific to PGE's service area.

10 Grid Operations and Protocols

10.1 Overview

PGE's wildfire mitigation strategy includes five interrelated Grid Operations & Protocol (GOP) initiatives designed to prevent utility-caused ignitions and manage near-term risk. This category contains initiatives addressing three of PGE's objectives:

- **Objective #1:** Reduce wildfire risk associated with electrical contact to vegetation or other objects.
- **Objective #2:** Reduce wildfire risk associated with equipment failure.
- **Objective #4:** Increase situational awareness and operational capabilities to manage near-term risk.

Fire Season Readiness (GOP-01) establishes operational protocols for field personnel during fire season, including required suppression equipment, safe work practices, and operational restrictions based on fire danger levels.

Enhanced Powerline Safety Settings (EPSS) (GOP-02) implements specialized protection settings that increase sensitivity to faults and limit automatic reclosing in high-risk areas. The program operates in three progressive modes—Normal, Fire Season, and Enhanced Fire Risk (EFR)—with each providing increasingly conservative protection settings.

GOP Information Technology initiative (GOP-03) leverages technology to improve the effectiveness, efficiency, and documentation of Near-term Risk mitigations through decision support tools and automation.

Wildfire Intelligence Center (GOP-04), proposed for 2027 implementation, would provide 24/7 situational awareness through integrated monitoring of weather conditions, satellite detection systems, AI-enabled cameras, and agency communications. This hub would support real-time decision-making for work restrictions, Near-term Risk mitigations, and resource deployment during elevated fire danger periods.

Protection Practice Improvements (GOP-05) aims to reduce ignition risks by improving fault detection, trip coordination, reclose blocking, and feeder segmentation. These technical upgrades create standardized protection capabilities for a more resilient distribution network that can identify potential ignition threats early.

PGE's GOP programs emphasize continuous improvement rather than fixed endpoints, with a strategic approach that progressively enhances automation, precision, and system resilience. The framework aligns with regulatory requirements while balancing safety imperatives against reliability impacts through targeted deployment in high-risk areas.

10.2 Mitigations

10.2.1 Fire Season Readiness (GOP-01)

When PGE declares fire season, field operations employees and suppliers (contractors and vendors) follow operational protocols to reduce the risk of ignitions and maintain safety standards. This includes the use of fire suppression tools and equipping vehicles with necessary firefighting equipment. Fire Season Readiness includes preparing personnel through specialized training on wildfire mitigation techniques, such as fire prevention practices, hazard identification, and emergency response. See Table 10-1 for details.

As part of ongoing situational awareness and the near-term risk assessment discussed in Section 9.2.1, PGE monitors and integrates applicable wildfire restriction frameworks issued by state, federal, and Tribal land and fire management authorities, including:

- NWS Red Flag Warnings (RFW)
- Industrial Fire Precaution Levels (IFPL)
- National Fire Danger Rating System (NFDRS)
- other jurisdiction-specific fire orders

IFPL and NFDRS-based restrictions primarily apply to PGE's vegetation management activities, where they inform work scheduling and execution. For transmission and distribution, generation, and other utility field operations, PGE considers these frameworks as inputs while primarily relying on comprehensive utility-specific wildfire operating procedures outlined in this section. Where required, PGE aligns operations with U.S. Forest Service O&M plans or existing IFPL waivers while maintaining focus on wildfire mitigation protocols that are tailored specifically for electric utility operations.

During periods of elevated fire risk, PGE implements operational controls based on a comprehensive assessment of conditions, which may include restrictions on spark-producing work, time-of-day limitations, enhanced fire watches, pre-positioned suppression resources, or suspension of non-essential activities. These measures are coordinated with relevant public safety partners to reduce ignition risk while supporting safe, reliable electric service during fire season.

PGE conducts an annual Fire Season Readiness review before fire season is declared. This evaluation identifies field personnel and Suppliers required to complete mandatory Fire Season Training, examines operational restrictions in fire-risk zones, verifies completion of vegetation inspections and asset-preparedness activities, tests emergency communication protocols with state and local public safety partners, and confirms fire suppression tools and equipment readiness.

10.2.1.1 Fire Season Tools and Equipment

During fire season, field personnel are equipped with fire suppression tools and equipment identified in company standards, including properly rated fire extinguishers, round-pointed shovels, and Pulaskis.

Activities across all wildfire classification zones (WRA, HFRZ, OFRZ, EFRZ) may also require supplemental fire suppression equipment, including fire trailers. Fire trailers must be staged onsite and available for rapid deployment to support and enhance personnel's ability to contain a fire start within their operations area. These trailers are equipped with 500 gallons of water, 500 feet of booster hose, and a high-pressure pump capable of delivering effective initial attack capability. Prior to fire season, field personnel receive hands-on training or complete a computer-based training refresher on how to safely operate this equipment, including proper deployment techniques and operational limitations.

Field equipment must be inspected regularly for functionality, with documentation maintained according to company standards. Fire suppression tools and equipment must comply with Oregon Department of Forestry requirements (Chapter 629, Division 43 - Fire Prevention), as well as applicable federal and Tribal fire suppression tools and equipment rules and regulations. Equipment inspections should verify proper working condition, appropriate maintenance, and immediate accessibility during operations in fire-prone areas.

Figure 10-1: 500 Gallon Mobile Fire Trailer

10.2.1.2 Fire Season Work Practices

To mitigate the risk of utility-caused ignitions during fire season, field personnel must adhere to specific fire-safe work practices. These practices include performing pre-activity fire weather assessments for work areas and adjusting operations accordingly. PGE emphasizes minimizing the use of spark-emitting equipment in areas with dry vegetation, particularly during periods of heightened fire danger, and requires additional mitigation measures when such work is unavoidable.

Should a fire start from utility operations, affected personnel follow company-specific and jurisdictional procedures including notification of local fire authorities and PGE control centers and implementing appropriate evacuation and containment measures according to emergency response protocols. PGE personnel should first address personal safety and any attempt to suppress a fire should be made only if it is reasonable and safe to do so. Personnel must preserve evidence for investigation and submit a detailed ignition report documenting the incident.

Table 10-1: Fire Prevention Measures during Fire Season

Category	Requirements
Required Equipment	▪ All vehicles: Round-pointed shovel (8" wide, 26" handle), Pulaski (26" handle), fire extinguisher (2A:10BC/5 lb.) ▪ Power-driven equipment: One 2A:10BC fire extinguisher per internal combustion engine ▪ Power saws: 8-oz pressurized fire suppressant container and round-pointed shovel per saw ▪ Fire trailers as supplemental equipment when conditions warrant
General Operating Procedures	▪ Review fire weather forecasts for work locations ▪ Check for Red Flag Warnings in effect ▪ Maintain required fire suppression tools ready for immediate use ▪ Follow site-specific wildfire action plans ▪ Adhere to IFPL restrictions (if applicable)
Safe Work Practices	▪ Park only on non-combustible surfaces ▪ Prevent contact between hot equipment and vegetation ▪ Maintain vegetation-free 10-foot radius around spark-emitting work ▪ Allow internal combustion engines to cool before refueling ▪ Use non-incendiary road flares when possible ▪ Avoid hot work (grinding, welding) during high-risk periods unless proper safety protocols are in place ▪ Avoid working near dry vegetation during high-risk fire conditions
Red Flag Warning (RFW) Protocols	▪ In HFRZs: Postpone non-permissible work (overhead line work, spark-emitting activities, off-road travel, ground disturbance, refueling) ▪ Fire trailers are required if operating in HFRZs ▪ Take extra precautions even outside HFRZs based on local conditions ▪ Consider fire risk across all wildfire risk classifications (WRA, HFRZ, OFRZ, EFRZ)
Fire Response Protocol	▪ Stop work and address personal safety ▪ Notify emergency services and PGE Control Center ▪ Attempt to suppress fire only if reasonable and safe to do so ▪ Preserve evidence ▪ Submit detailed incident reports ▪ Evacuate the area promptly if fire spreads beyond control
Dynamic Operations	▪ Implement work modifications during elevated fire-weather conditions ▪ Adjust operations based on Red Flag Warnings and IFPL levels (if applicable) ▪ Potentially suspend high-risk activities when conditions warrant

Category	Requirements
Compliance with External Regulations	▪ Follow fire season restrictions for federal lands (USFS, BLM), state lands (ODF), and Tribal lands ▪ Adhere to any project-specific fire season protocols or waiver restrictions required by the authority having jurisdiction (AHJ)

10.2.1.3 Fire Season Operating Restrictions

Fire season work activities are regulated by multiple risk indicators: NWS RFWs, IFPL, Federal and Tribal fire-restriction systems, local fire-danger forecasts, and—piloting in 2026—PGE's proprietary FPI. During RFW, specific activities in HFRZs must be suspended, including overhead line work, spark-producing operations, off-road travel, ground disturbance, and equipment refueling. Essential work conducted during these periods requires enhanced safety measures, including dedicated fire suppression equipment and management authorization following comprehensive site-specific risk assessment. Activities across all wildfire classification zones (WRA, HFRZ, OFRZ, EFRZ) may require additional mitigation measures or temporary work stoppages based on prevailing conditions.

Field operations throughout fire season must comply with requirements from multiple Authorities Having Jurisdiction (AHJ). PGE operations align with specific protocols established by the USFS, Bureau of Land Management (BLM), Tribal authorities, and state agencies such as the ODF. The four-level IFPL system provides structured guidance for permissible work activities and timing during elevated fire danger.

10.2.2 Enhanced Powerline Safety Settings (GOP-02)

PGE’s Enhanced Powerline Safety Settings (EPSS) strategy modifies protective device behavior – specifically circuit breakers and reclosers – to respond more sensitively to electrical faults and restrict automatic re-energization. This configuration reduces the potential for ignition from arcing conductors during periods of elevated fire risk.

The EPSS deployment strategy uses two complementary mitigations – fire season deployment to mitigate seasonal risk and EFR deployment to mitigate near-term risk.

PGE’s EPSS program includes the deployment modes shown in Table 10-2. Following any trip under EFR or Fire Season settings, field crews must patrol all downstream line segments to minimize ignition risk.

Table 10-2: Enhanced Powerline Safety Setting Modes

Mode	Description
Normal	Instantaneous and/or time overcurrent trip
	1–3 shot reclosing or re-energization attempts
Fire Season	Definite time fast trip
	1 shot reclosing or re-energization attempt
Enhanced Fire Risk (EFR)	Definite time fast trip

Mode	Description
	No reclosing or re-energization attempt

10.2.2.1 EPSS Annual Program

As shown in Figure 10-2, the EPSS Program Roadmap follows nine coordinated workflows. Each workflow establishes readiness for activation before the fire season and supports post-event evaluation for continuous improvement.

- Technology and Infrastructure Upgrades
- Wildfire Risk Assessment
- Device Identification
- System Configuration
- Permitting
- Validation
- Stakeholder Engagement
- Operational Deployment
- Post-Season Review

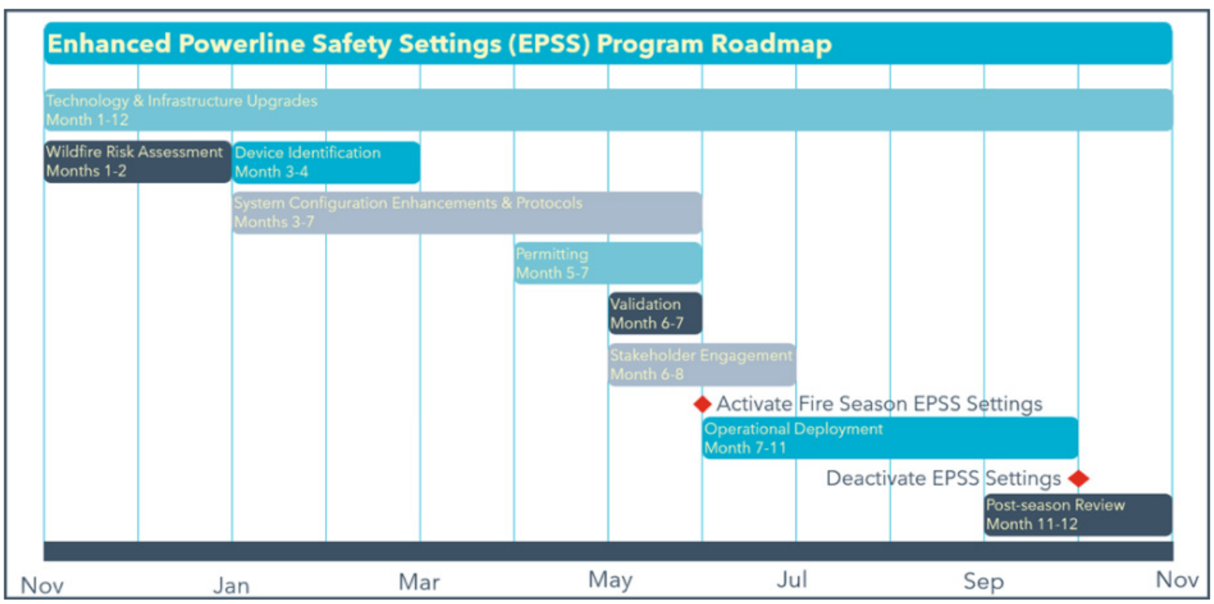


Figure 10-2: EPSS Program Roadmap

10.2.2.2 EPSS Deployment

To mitigate wildfire risks and enhance grid safety, PGE's EPSS program employs two deployments across HFRZs and EFRZs. EPSS deployment decisions are made based upon the Seasonal and Near-Term Risk Assessments detailed in Section 9.2.1.2 and Section 9.2.1.3.

- **Seasonal Risk:** PGE activates Fire Season Mode in all pre-designated HFRZs and EFRZs at the start of PGE-declared fire season. EPSS fire season settings remain activated in all HFRZs and EFRZs until PGE rescinds its fire season declaration.
- **Near-term Risk:** PGE activates EFR Mode when fire weather forecasts indicate elevated fire risk conditions or there is a RFW declaration by the NWS. When pre-established risk thresholds are met, PGE initiates its EFR request process to change protective device settings in impacted HFRZs and/or EFRZs from fire season mode to more conservative EFR Mode, resulting in greater protective device sensitivity and disabled reclosing.

EPSS devices without SCADA connectivity require the EPSS mode to be changed manually by field personnel. To eliminate delays associated with manual deployment, non-SCADA EPSS devices are kept in EFR Mode throughout fire season.

10.2.2.3 Distribution EPSS

10.2.2.3.A Distribution Device Operation

Distribution EPSS settings are applied to feeder breakers and reclosers that protect feeder segments in HFRZs and EFRZs, regardless of the physical location of the device.

- **Normal Mode:** Feeder breakers typically allow two to three automatic reclosing attempts, while reclosers typically allow three automatic reclosing attempts after a fault, using standard (time overcurrent or instantaneous) trip settings. This mode prioritizes reliability and fast restoration of service.
- **Fire Season Mode:** Reclosing is reduced to a single attempt, and trip settings are adjusted to a fast definite time. This configuration helps isolate faults more quickly and reduces the chance of re-energizing lines in contact with vegetation or with failing components.
- **Enhanced Fire Risk Mode:** Automatic reclosing is fully disabled. Devices trip and remain open until manual inspection confirms safe conditions. This mode uses definite time fast trip settings to rapidly isolate faults.

PGE utilizes Hot Line Hold (HLH) functionality as a substitute for EPSS in the event EPSS should be deployed outside of an HFRZ or EFRZ or cannot be deployed due to technical limitations of the equipment. This standard crew safety mechanism is more sensitive than EPSS, because it enables an instantaneous trip and blocks reclosing while crews are working near energized equipment.

10.2.2.3.B Distribution Patrol and Re-Energization

Distribution patrol provisions require that line sections protected by EPSS are patrolled following abnormal protective-device operation to prevent ignitions and maintain operational safety. By linking patrol scope to equipment status, system configuration, and EPSS status, the procedure minimizes ignition risk due to re-energization.

When a distribution EPSS device trips and recloses in Fire Season Mode, PGE must patrol downstream overhead primary conductors to identify potential ignition hazards even though the circuit is automatically re-energized. If a breaker or recloser trips to lockout under EPSS, the downstream overhead circuits must be patrolled prior to re-energization.

Across PGE's service area, if more than one relay and reclose event occurs on the same circuit within a 12-hour period and the cause for both operations is unknown, the overhead primary conductor is patrolled.

10.2.2.4 Transmission EPSS

10.2.2.4.A Transmission Device Operation

PGE applies EPSS to its transmission system. Transmission lines typically operate in normal mode during fire season because instantaneous tripping and one-shot reclosing are standard. EPSS protocols are activated to block automatic reclosing during EFR conditions. EFR Mode is activated on transmission lines using a tagging switch or reclose cutout switch to disable automatic reclosing. Once a fault occurs, the circuit remains de-energized until manual inspection confirms safe conditions.

Transmission lines with non-standard protection schemes, such as the Brightwood-Rhododendron 57 kV line on Mt Hood, are equipped with a Fire Season Mode.

PGE generation lead lines are typically protected using instantaneous tripping. If a generator lead line has reclosing, the tagging switch is utilized to implement EPSS protocols in response to EFR conditions.

Figure 10-3: PGE Personnel Inspect Distribution Circuit

10.2.2.4.B Transmission Patrol and Re-Energization

Transmission patrol procedures reflect a disciplined, risk-based approach to restoring service with field verification to prevent ignitions and maintain operational safety throughout fire season and during EFR conditions.

When a transmission line trips, PGE initiates patrol of the affected line. If the entire transmission circuit cannot be patrolled due to safety or access limitations, only those segments that have been inspected may be re-energized. Once patrols are complete, and no faults or hazards are identified, reclosing remains blocked during the restoration process and re-enabled after the line has been safely re-energized. If more than one trip and reclose event occurs on the same transmission line within a 12-hour period, reclosing is disabled, and the full line is patrolled.

If a transmission line within an HFRZ or EFRZ trips and recloses during fire season, reclosing is disabled, and the line is patrolled to identify potential ignition hazards even though it was automatically re-energized. If a transmission line within an HFRZ or EFRZ trips and recloses during EFR conditions, the line is patrolled prior to re-energization. If a transmission outage occurs during EFR conditions and repair time exceeds six hours, the line must be re-patrolled.

10.2.3 Wildfire Intelligence Center (GOP-04)

If approved by the OPUC, PGE's proposed Wildfire Intelligence Center (WIC) will serve as PGE's 24/7 wildfire-situational-awareness hub beginning in 2027. This advanced monitoring facility would integrate multiple data streams including weather information, fuel conditions, detection technologies, forecasting tools, and agency communications to provide timely and actionable decision support. The WIC would be an important effort to fully address OPUC Area of Additional Improvement 25-234_ ALL_2512 expectations for transparent and coordinated wildfire-risk communication across stakeholders, particularly public safety partners.

The center's core capabilities would include round-the-clock staffing during fire season, integrated alerting systems, and multiple detection technologies such as satellite hotspot identification and AI-enabled camera monitoring. The WIC would incorporate comprehensive data sources, including weather-station readings, WRF data, and fire-spread modeling. WIC personnel would monitor emergency-response radio channels and serve as the local contact point for wildfire reports.

The WIC would provide operational integration during high fire risk periods, maintaining continuous coordination with multiple agencies and internal teams. The WIC would work directly with fire dispatch centers, Incident Management Teams, utility wildfire teams, and Public Safety Answering Points. Internally, the WIC would maintain constant communication with PGE System Control and field crews, including damage assessment teams, to collaboratively address developing wildfire situations.

The WIC would produce several critical decision-support outputs that enhance PGE's wildfire response, including fire-weather alerts, risk escalation notifications, crew staging recommendations, and operational restrictions based upon FPI assessments. The center would generate wildfire intelligence briefs for both internal stakeholders and partner agencies while providing dedicated support to the Incident Management Team (IMT) during prolonged events.

These comprehensive capabilities would significantly enhance early detection capabilities, response efficiency, and operational coordination during wildfire emergencies. By centralizing wildfire intelligence and maintaining continuous situational awareness, the WIC would enable PGE to implement proactive measures that mitigate wildfire risks while supporting rapid incident response. The center would be a significant advancement in PGE's wildfire mitigation strategy, providing the technological infrastructure and human expertise needed to navigate increasingly complex fire seasons with greater precision and effectiveness.

Work on this initiative is contingent upon OPUC approval of the forecast for recovery shared in PGE's 2026-2028 WMP.

10.2.4 Protection Practice Improvements (GOP-05)

GOP-05 focuses on minimizing ignition risk through systematic improvements in high impedance fault detection, distribution fast trip coordination, reclose attempt reduction, feeder segmentation strategies, and development of standardized distribution protection performance criteria. These technical enhancements aim to create a more resilient electrical distribution network capable of preemptively identifying potential ignition scenarios and utilizing industry leading protection practices to reduce ignition risk. Implementation is planned to begin in 2026 with high impedance fault process learning in the areas of high impedance fault alarm analysis and validation and automatic High impedance fault event report retrieval.

Contingent upon OPUC approval of the forecast for recovery shared in PGE's 2026-2028 WMP, PGE will accelerate deployment of new protection schemes to field devices starting in 2027.

10.3 Results

10.3.1 Fire Season Readiness (GOP-01)

PGE has implemented a comprehensive fire season management framework achieving significant milestones across multiple domains. The Fire Season Declaration procedures incorporate more precise environmental criteria with streamlined communication protocols, and all required PGE employee training was completed. Operational readiness improved through enhanced situational awareness and infrastructure data sharing with agencies via NIFC and Intterra platforms, while strengthening partnerships through collaborative forums and joint response protocols.

- Standardized Fire-Season Declaration and Operating Posture
  - Developed and annually refined a formal Fire Season Declaration and Rescission Procedure with clear criteria based on environmental conditions, weather forecasts, and regional fire risk assessments
  - Implemented targeted communication protocols to provide timely notification to field personnel, suppliers, customers, local fire agencies, emergency management organizations, and government officials
  - Established standardized operating procedures that adapt to changing risk levels across PGE's service area
- Improved Workforce Training and Preparedness

    - Achieved exceptional Fire Season Training completion rates: 100 percent for internal employees (1,621 of 1,624) and 92 percent for external suppliers (230 of 250) with the remaining suppliers put on hold
    - Developed and implemented comprehensive fire season operating standards with clear operational protocols, safety requirements, and decision frameworks
    - Created specialized training modules focused on ignition prevention techniques and emergency response procedures
- Operational Readiness and Fire-Season Procedures
    - Implemented daily operational briefings integrating real-time and forecasted fire weather, NWS alerts, and wildfire status across the service area
    - Implemented a secure, centralized geospatial data-sharing initiative that significantly improves wildfire response capabilities:
    - Leveraged the National Interagency Fire Center (NIFC) ArcGIS Online (AGOL) platform to provide Incident Management Teams with immediate access to current, authoritative infrastructure data
    - Extended critical infrastructure data access to local fire agencies through Oregon Department of Forestry's Intterra platform, significantly improving upon outdated Homeland Infrastructure Foundation-Level Data (HIFLD)
    - Established a collaborative solution securely managed by U.S. Forest Service Region 6 staff, enhancing safety protocols and strengthening real-time mapping during emergencies
        - This streamlined approach has effectively reduced risks associated with outdated infrastructure information that could compromise wildfire response efforts.
    - Established year-round operations calls with increased cadence during fire season (including weekend/on-demand calls during elevated conditions)
    - Maintained and enhanced operational tools and procedures for continuous monitoring during fire season
- Coordination with Public Safety Partners and Fire Agencies
    - Established and facilitated bi-weekly Pacific Northwest Utility Wildfire Collaboration forum for knowledge sharing and strategy development among regional electric utilities
    - Collaboratively reviewed and refined HFRZs with fire agencies
    - Conducted regular wildfire preparedness communication with fire agencies and public safety partners year-round
    - Developed joint response protocols to protect communities and critical infrastructure during wildfire events

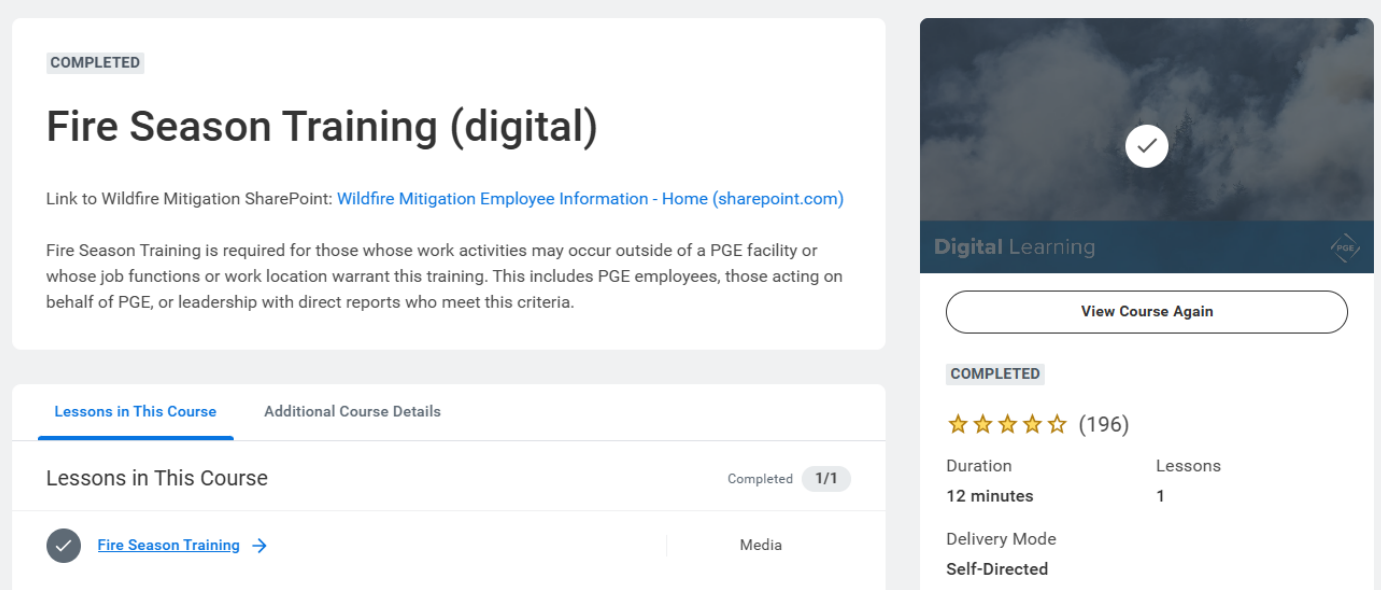


Figure 10-4: Season Training Requirement

10.3.2 Enhanced Powerline Safety Settings (GOP-02)

In 2025, PGE expanded the use of EPSS beyond HFRZs to include EFRZs. PGE implemented EPSS Fire Season Mode within the service area June 20th through October 10th, implemented EFR settings for eight days West of the Cascade Crest and 17 days East of the Cascade Crest.

10.3.2.1 Ignition Reduction

PGE's analysis suggests a potential annual ignition reduction through EPSS implementation of approximately 16 percent. This figure is derived from multiple factors, including seasonal activation patterns and comparative utility performance.

This estimate reflects a middle-ground approach that draws from peer utility experiences while accounting for system configuration differences that might impact effectiveness. The analysis deliberately excludes higher efficacy rates from certain utilities due to concerns about system compatibility and transferability of results.

The calculation also incorporates seasonal adjustment factors, recognizing that EPSS would primarily operate during higher-risk fire months rather than year-round, which significantly influences the overall expected annual reduction. This inference-based approach acknowledges limitations in direct measurement capabilities and represents an attempt to establish reasonable expectations in the absence of comprehensive historical performance data specific to this system.

10.3.2.2 Reliability Impacts

Although EPSS does not increase the number of outages, this wildfire mitigation may cause momentary outages to become sustained outages when reclosing is blocked in EFR Mode. To minimize customer impacts to those sustained outages, PGE's staffing strategy and investment in Points of Isolation (GDSH-07) to sectionalize the distribution system correlate with a reduction in Customer Average Interruption Duration Index (CAIDI) for HFRZ and EFRZ. Figure 10-5 shows CAIDI for HFRZ and EFRZ from 2022-2025 during fire season.

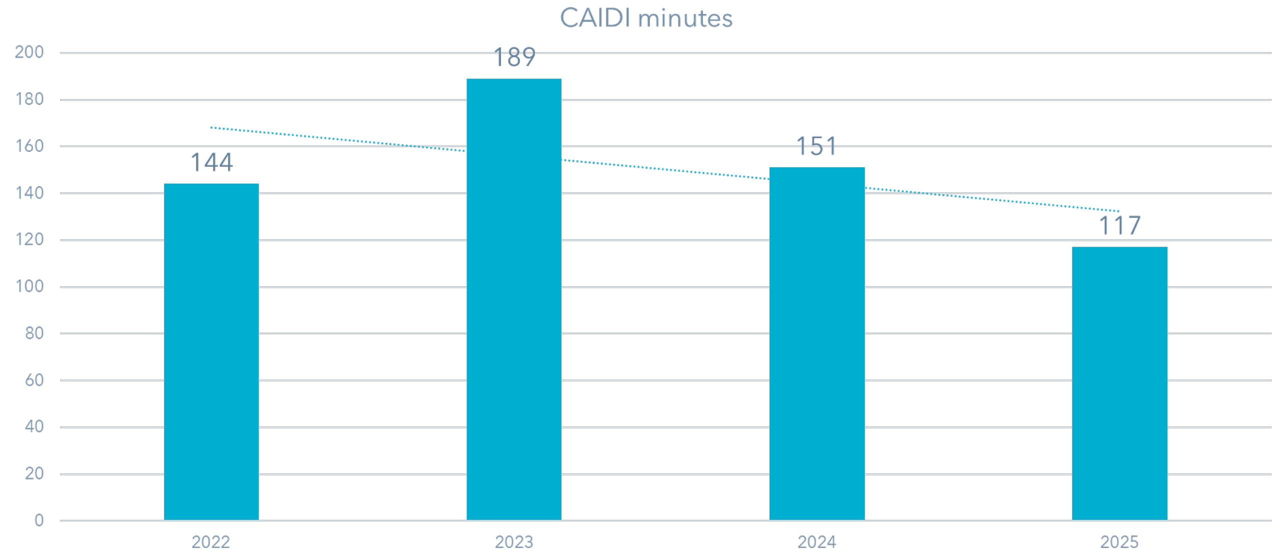


Figure 10-5: HFRZ and EFRZ CAIDI (2022-2025)

- Staffing Strategy:
  - Focus on internal line crew hiring has strengthened workforce availability and improved outage response.
  - Outage threat assessment process has enabled faster response during periods of higher outage risk.
- Investment in Points of Isolation:
  - By segmenting feeders and reducing the number of customers on each part of the circuit, PGE is able to restore more customers during efforts to isolate and repair the faulted part of a circuit.
  - Percentage of total devices included in EPSS program has increased approximately 147 percent since 2023, improving fault location and data available to outage response teams.
  - Percentage of EPSS devices that are SCADA-enabled has increased from 30 percent in 2023 to 58 percent in 2025. This reduces customer impacts by enabling PGE to switch between Fire Season Mode and the more conservative EFR Mode rather than blocking reclosing for the duration of fire season.

10.3.2.3 Customer Reliability Complaints

There were thirteen recorded reliability complaints during the 2025 fire season. Most reported outages cite equipment failures (fuses, transformers, cables, pole hardware) and tree-related issues, which are standard reliability concerns. Similar to 2024, no reliability complaints were linked to addresses within an HFRZ or EFRZ with EPSS activated during fire season in 2025.

10.3.2.4 Deployment Data

EPSS is utilized on circuits serving approximately 6.3 percent of PGE's total customer base (59,940 customers). East region circuits spend more time in EPSS mode (35 percent) compared to West region circuits (31 percent). Currently, 264 distribution devices operate in EPSS mode, with the majority (154) located in HFRZs.

The system includes 19 transmission lines covering 345.1 overhead circuit miles and 79 distribution circuits spanning 2,949.2 miles. Distribution coverage is primarily in HFRZ (1,465.1 miles), followed by non-HFRZ (1,031.8 miles) and EFRZs (452.3 miles). The Customer Average Interruption Duration Index (CAIDI) for EPSS-served customers is 118 minutes.

Table 10-3: PGE Enhanced Powerline Safety Setting Data

EPSS Data	2025
Percent of year with EPSS protection - SCADA days	
East	35%
West	31%
Number of Transmission Lines with EPSS	19
Total Transmission Circuit Miles with EPSS	345.1
HFRZ	75.5
EFRZ	14.4
Non-HFRZ	255.2
Number of Distribution Devices with EPSS	264
HFRZ	154
EFRZ	56
Non-HFRZ	54
Number of Distribution Circuits with EPSS	79
Total EPSS Distribution Circuit Miles	2,949.2
HFRZ	1,465.1
EFRZ	452.3
Non-HFRZ	1,031.8
Total Number of Customers on EPSS circuits	59,940
HFRZ	20,967
EFRZ	8,585
Non-HFRZ	30,388
Percent of total customers on EPSS circuits	6.3%
Customer Average Interruption Duration Index on EPSS circuit (CAIDI)	117

10.4 Initiatives and Targets

10.4.1 Initiatives Summary Table

Table OPUC 10-1: Grid Operations and Protocols Initiative Cost Summary in Thousands

Initiative Activity	Tracking ID	Target Unit	2026 Target	2026 Forecast ($1,000)	2027 Target	2027 Forecast ($1,000)	2028 Target	2028 Forecast ($1,000)	Three-Year Forecasted Total ($1,000)	Section
Fire Season Readiness	GOP-01	# employees trained	1,500	$264	1,500	$411	1,500	$423	$1,098	10.2.1
Enhanced Powerline Safety Settings	GOP-02	# of circuit miles	2,109	$375	2,146	$387	2,183	$398	$1,160	10.2.2
Grid Operations IT	GOP-03	N/A	N/A	$503	N/A	$432	N/A	$659	$1,595	10.4.3
Wildfire Intelligence Center	GOP-04	N/A	N/A	$50	N/A	$643	N/A	$585	$1,278	10.2.3
Protection Practices Improvements	GOP-05	N/A	N/A	$0	N/A	$50	N/A	$50	$100	10.2.4

Notes:
1. Forecasts and Three-Year Totals provided in $/thousands.
2. All initiative Forecasts and Three-Year Totals include capital cost and operations and maintenance expense.

10.4.2 Initiative Details

Optimizing PGE's Grid Operations and Protocols relies heavily on the Situational Awareness and Forecasting capabilities discussed in Section 9, most notably the related Information Technology improvements detailed in Section 9.4.3.

10.4.2.1 Fire Season Readiness (GOP-01)

PGE's three-year plan entails continued improvements to operational protocols, workforce training, field procedures, and agency coordination through integrated risk analytics and automated decision support systems.

- Standardized Fire-Season Declaration and Operating Posture
  - Enhance fire season declaration triggers with granular risk modeling
  - Implement and refine FPI by 2027, establish data-driven operational protocols and work restrictions
- Improved Workforce Training and Preparedness
  - Implement competency-based assessments for fire season training
  - Create an FPI-based portal by 2027, providing real-time guidance on permissible field work based on fire risk levels

- Operational Readiness and Fire-Season Procedures
  - Integrate the FPI system with work management platforms to automatically restrict high-risk activities during elevated fire conditions
- Coordination with Public Safety Partners and Fire Agencies
  - Create external communication protocols to share FPI status with fire agencies and public safety partners to align operational postures

10.4.2.2 Enhanced Powerline Safety Settings (GOP-02)

The Enhanced Powerline Safety Settings (EPSS) program emphasizes iterative progress, learning from experience, and building resilience over time. Building upon the 2025 baseline capabilities and tools, PGE's three-year plan is as follows:

- **2026:** Streamline for Efficiency
  - Reducing inefficiencies through better coordination, automation, feedback loops, and integration. Improve implementation in both HFRZs and EFRZs.
- **2027:** Refine for Accuracy and Adaptability
  - Increasing precision and responsiveness with more targeted deployment guided by real-time insights and evolving needs, enabled by smaller fire risk zones and more feeder segmentation.
- **2028:** Scale with Resilience
  - Scale the program as fire risk zones expand and build capability to adapt dynamically to changing conditions beyond designated zones.

10.4.2.3 Protection Practice Improvements (GOP-05)

In 2026, PGE will start this initiative as described in Section 10.2.4 leveraging existing resources. PGE has an incremental initiative to accelerate deployment of new protection schemes in 2027 and 2028, see Section 10.4.4.2 for details.

10.4.3 Grid Operations and Protocols IT (GOP-03)

This initiative was started in 2025 to track information technology (IT) investments that enable Grid Operations and Protocols initiatives.

10.4.3.1 EPSS Automation and Analytics

EFR automation and EPSS analytics build on the 2025 foundation by automating NWS RFW integration and establishing operational analytics capabilities. Automated RFW processing will eliminate manual monitoring delays and deliver EFR directives immediately to system operators when fire weather conditions emerge. The EPSS operational analytics dashboard will provide system-wide querying capabilities to evaluate device performance, investigate fault events, and correlate weather conditions with system behavior for continuous EPSS monitoring and ignition causation analysis. These capabilities are enabled by the following data flow improvements:

- **Data Collection/Procurement:** RFW feeds monitoring fire forecast zones; meteorologist fire weather analysis; EFR decision-making based on conditions beyond RFW triggers; SCADA operational data capturing device status, recloser operations, and SCADA command history; HFRZ and EFRZ boundary definitions.
- **Data Integration/Conditioning:** Automated EFR request generation based upon RFW; EFR request routing to Grid Operations; SCADA data integration aggregation across inventory; time-series data processing supporting historical queries and event-based investigation.
- **Data Analysis:** Real-time EFR request status tracking throughout declaration and implementation; escalation when response timing thresholds are exceeded; completion verification and documentation; device status monitoring supporting real-time situational awareness; fault operation analysis enabling investigation by zone, feeder, asset, phase, and temporal patterns; fire season readiness verification of operational modes; weather correlation analysis relating meteorological conditions to device behavior during risk events.
- **Delivery:** Automated EFR request delivery to Grid Operations; multi-stakeholder notifications to designated groups; SCADA-driven dashboard enabling ad-hoc queries and operational investigation; dashboard views supporting real-time monitoring during EFR conditions; historical analysis capabilities informing EPSS program optimization and ignition causation studies.

10.4.3.2 EPSS/PSPS Device Repository

This effort would establish a centralized repository serving as a single source of truth for EPSS-enabled devices across PGE's service area. The system consolidates device data into a unified platform with comprehensive records. This centralized repository eliminates manual reconciliation and provides accurate device inventory critical for PSPS scoping and EPSS planning.

- **Data Collection/Procurement:** Device identifiers and configurations, device attributes including location coordinates, HFRZ/EFRZ assignments, protection settings, SCADA enablement status, and installation/modification dates; HFRZ boundary modifications and updates affecting device fire risk zone designations
- **Data Integration/Conditioning**: Repository intake with validation rules; device record reconciliation logic identifying conflicts (duplicate devices, inconsistent attributes, coverage gaps); documentation of device lifecycle changes including installations, relocations, boundary modifications, and SCADA enablement updates.
- **Data Analysis:** Workflows for submission approval; conflict resolution processes addressing gaps and overlaps in device submissions; device inventory analytics supporting EPSS/PSPS scoping, EFR event planning and regulatory reporting.
- **Delivery:** Single source of truth for EPSS device inventory; comprehensive documentation

10.4.4 Incremental Initiatives

PGE will commence work on incremental initiatives contingent upon likely and timely recovery of costs.

10.4.4.1 Wildfire Intelligence Center (GOP-04)

Wildfire Intelligence Center is a proposed program to capture costs associated improving situational awareness and coordination by standing up a dedicated intelligence center to protect communities, assets, and personnel to reduce ignition consequence. Details on this proposed program are included in Section 10.2.3.

If approved, the WIC would further PGE's Objective #4 and enable optimization of near-term risk mitigation through the following three-year year plan:

- Standardized Fire-Season Declaration and Operating Posture
  - Develop automated notification system integrated with the WIC platform for streamlined fire season declarations
  - Create tailored operational protocols designed to leverage the WIC's zone-specific risk analytics and forecasting capabilities
  - Enhance fire season declaration triggers with granular risk modeling through the WIC, targeted for implementation by 2028
- Improved Workforce Training and Preparedness
  - Implement competency-based assessments for fire season training with simulation capabilities incorporated into the WIC
  - Develop advanced training modules that will utilize the WIC's scenario-planning tools for supervisors and crew leads
  - Create mobile training resources connecting with the WIC's knowledge repository
- Operational Readiness and Fire-Season Procedures
  - Establish the WIC as the central hub for comprehensive situational awareness and near-term risk mitigation
  - Design digital field tools connecting the WIC for real-time documentation and risk assessment
  - Establish coordination protocols within the WIC for improved information sharing
  - Develop enhanced restoration procedures utilizing the WIC's post-fire assessment capabilities
- Coordination with Public Safety Partners and Fire Agencies
  - Conduct joint tabletop exercises utilizing the WIC's simulation capabilities with fire agencies
  - Design secure data sharing portals within the WIC for seamless coordination with public safety partners
  - Develop community-based wildfire safety initiatives informed by the WIC's risk analysis and forecasting tools

10.4.4.2 Protection Practice Improvements (GOP-05)

Protection Practice Improvements will be initiated in 2026 with proposed accelerated deployment in 2027 and 2028. Details on this program are included in Section 10.2.4.

10.5 Continuous Improvement

GOP programs are guided by a philosophy of continuous improvement—an ongoing focus on learning, refining capabilities, enhancing efficiency, and adapting to evolving needs.

10.5.1 Program Maturity

From 2022 to 2025, PGE saw maturation (8% increase) in Grid Operations and Protocols based on corresponding category scores to the IWRMC Maturity Model. PGE will explore opportunities to enhance maturity in GOP by incrementally strengthening how wildfire risk is incorporated into routine operations, emergency response, and real-time decision-making. PGE will also examine ways to evolve PSPS protocols toward more dynamic, event-severity–based criteria informed by weather, vegetation, and asset-condition indicators. Together, these efforts aim to mature grid operations from largely static, rule-based practices toward more adaptive, risk-informed protocols, while maintaining flexibility as lessons are learned.

10.5.2 Fire Season Operations

PGE aims to transform operational protocols, workforce training, field procedures, and agency coordination through integrated risk analytics and automated decision support systems. Key improvement priorities are:

- FPI implementation and refinement
- Automation and reporting
- Wildfire Intelligence Center development

10.5.3 Enhanced Powerline Safety Settings

Areas identified for continuous improvement include the following elements from the IWRMC Maturity Model Grid Operations and Protocol:

- Automated SCADA-driven processes for adjusting the sensitivity of grid risk reduction elements based on fire risk conditions.
- Broadening availability of fast-trip settings beyond HFRZs.

11 Emergency Preparedness

11.1 Overview

PGE's emergency preparedness program is designed to improve workforce readiness, strengthen coordination with public safety partners, enable situational awareness, and continuously improve through lessons learned. This drives rapid, coordinated responses to enable wildfire mitigation, protect life and property, and maintain public trust. This category reflects a foundational principle and addresses PGE's fourth objective:

- **Objective #4:** Increase situational awareness and operational capabilities to manage near-term risk.

11.2 Strategy and Response

PGE's emergency preparedness strategy is built on the concept that a well-coordinated and proactive response is essential to protect public safety, maintain grid reliability, and minimize the consequences of wildfire-related impacts. Through the following integrated approach, PGE's emergency preparedness efforts are designed meet regulatory requirements, build public trust, enhance community resilience, and reduce the overall risk of catastrophic wildfire impacts.

- **Coordination:** PGE works with public safety agencies, local governments, Tribes, and community partners before, during, and after fire season or wildfire event.
- **Incident Command System (ICS):** At its foundation, PGE's approach is based in the ICS, which enables seamless integration with state, county, and local emergency management agencies. This structure enables clearly defined roles and responsibilities, streamlined communication, and efficient resource deployment when wildfire conditions escalate, or a PSPS becomes necessary.
- **Situational Awareness:** PGE's strategy prioritizes early situational awareness—leveraging advanced weather monitoring, real-time system intelligence, and fire risk modeling—to enable data-driven decisions, proactive emergency response coordination, and communication with customers and public safety partners. These measures reduce uncertainty for communities, allow emergency responders to pre-position resources, and provide vulnerable customers, including those dependent on medical equipment, time to prepare.
- **Workforce Readiness:** Dedicated training, simulations, and annual exercises—including tabletop drills with Public Safety Partners and full-scale PSPS simulations—provide employees the ability to respond effectively under rapidly changing conditions. Mutual assistance agreements with peer utilities and contractors add surge capacity, reflecting the recognition that wildfire emergencies often outpace local resources.
- **Continuous Improvement:** PGE's emergency preparedness strategy is deliberately adaptive. Each event is followed by structured after-action reviews that identify operational gaps, communication challenges, and opportunities to strengthen coordination with state and local agencies. These insights inform updates to response protocols, de-energization decision

criteria, and community engagement strategies, creating a feedback loop of continuous improvement.

11.2.1 Emergency Preparedness

Prior to each wildfire season, PGE conducts a comprehensive preparedness cycle to validate the availability of staff, systems, and equipment. Activities include logistical checks of backup communications equipment, verification of mobile command and field response units, and pre-staging of materials in high fire-risk areas. To retain adequate workforce capacity, PGE maintains mutual assistance agreements and contracts with third-party resources that can be mobilized during extended PSPS events or large-scale wildfire emergencies. Readiness plans also include procedures for staging mobile generators and other critical assets to support resilience hubs, medical facilities, and other critical infrastructure.

11.2.2 Training and Exercise

Training and exercises are essential to enabling an effective emergency response and building organizational resilience. PGE conducts at least one Homeland Security Exercise and Evaluation Program (HSEEP)-aligned tabletop and/or functional exercises with Public Safety Partners annually in alignment with OAR 860-300-0040(4)(b). These exercises test PGE's ICS structure, PSPS notification systems, partner coordination protocols, and customer support services. Exercises are designed to simulate realistic wildfire and PSPS scenarios, incorporating cross-agency communication and decision-making. PGE also participates in partner-led exercises and full-scale drills.

PGE provides annual training for field crews, control center operators, and customer service teams focused on PSPS protocols, wildfire risk awareness, and emergency communication procedures. Training modules are updated regularly to reflect lessons learned from prior events and incorporate evolving best practices. By educating and developing staff across all business units so they understand their roles during high fire-risk conditions, PGE maintains a workforce that can respond effectively, safely, and consistently under rapidly changing circumstances.

After every exercise, PSPS event, or significant wildfire emergency, PGE performs a structured after-action review (AAR) to identify successes, gaps, and areas for improvement. Findings from AARs are integrated into subsequent training cycles and incorporated throughout PGE's Wildfire Mitigation Plan.

Figure 11-1: Emergency Training Exercise in the Emergency Operations Center

PGE offers comprehensive electrical hazards and awareness training to a wide range of public safety partners and emergency responders. This specialized program provides critical knowledge and skills through in-person, detailed instruction designed specifically for firefighters, police officers, emergency medical personnel, and various other first responder agencies throughout PGE's service area.

Training curriculum covers essential safety elements:

- Identification and assessment of electrical hazards in emergency scenarios
- Establishment of proper safe approach distances to downed power lines
- Techniques for recognizing energized equipment in various conditions
- Effective coordination protocols with PGE during emergency situations
- Evidence-based response procedures for incidents involving electrical infrastructure

Through these educational partnerships, PGE demonstrates commitment to protecting life safety, safeguarding property, and preserving the natural environment. By equipping emergency responders with specialized knowledge and fostering strong agency relationships, we create a more resilient community prepared to effectively manage electrical emergencies while minimizing risks to personnel and the public.

The continued expansion of this training program represents a key component of PGE's 2026-2028 wildfire mitigation strategy, strengthening collaboration with emergency services and enhancing community preparedness for potential electrical hazards during wildfire events.

11.2.3 Emergency Response Coordination

PGE activates its Emergency Operations Center (EOC) under an ICS framework during wildfire or PSPS events. This structure establishes clear chain of command, delineates functional responsibilities across planning, operations, logistics, and finance, and drives alignment between field response and executive leadership. Embedding ICS principles into utility operations also drives alignment with fire service and emergency management protocols, allowing for a common operating picture during high-stakes events. PGE's standard Incident Management Team (IMT) structure is illustrated in Figure 11-2.

Emergency preparedness is conducted in coordination with Public Safety Partners as defined in OAR 860-300-0010(7), including the Oregon Department of Human Services (ODHS), state Emergency Support Function-12 (ESF-12), local, county and Tribal emergency managers. PGE also engages with federal partners such as the U.S. Forest Service during significant wildfire emergencies. Coordination includes off season planning meetings, joint training exercises, and real-time information exchange during events to support an integrated response and minimize public safety impacts.

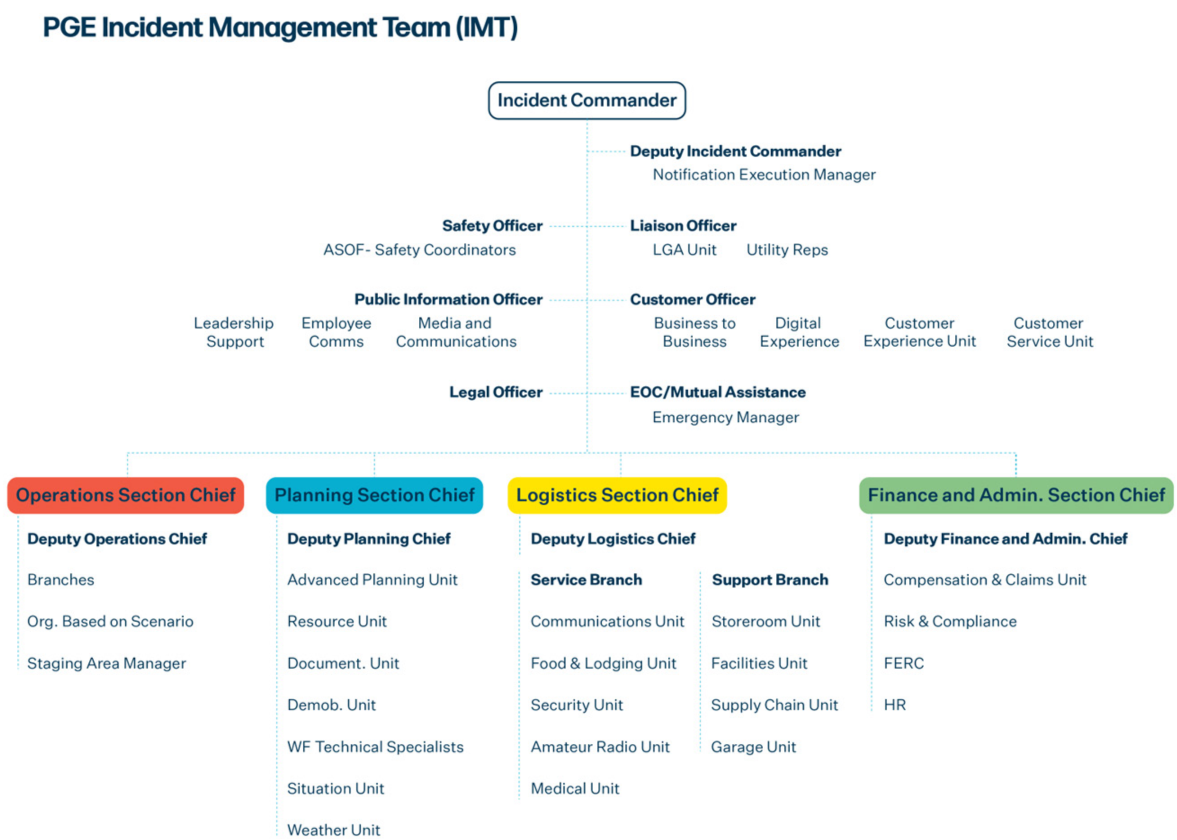


Figure 11-2: PGE Incident Management Team

11.2.4 Public-Facing Information

PGE maintains public-facing Wildfire Safety and Prevention and Public Safety Power Shutoff webpages that provide customers with real-time information. The webpages are mobile-friendly, ADA-compliant, and supported by surge-capable IT infrastructure to withstand heavy traffic during emergencies, consistent with OAR 860-300-0060. Features include:

- Guidance on preparedness actions and access to customer support services such as cooling centers, battery rebate programs, medical certificate program, and community resource hubs
- Interactive outage maps and event status
- Information about PSPS events, including the definition, description of the process, customer communication (notification) expectations, and a link to update customer contact information
- A summary of factors that determine the need for a PSPS:
  - Wind speed
  - Humidity
  - Temperature
  - Moisture levels in trees and brush
  - Field observations
  - Information from local fire departments and emergency management organizations

11.2.5 Public Safety Partner Coordination

PGE collaborates closely with state, federal, and local fire agencies, as well as regional dispatch centers, to enhance early detection, communication, and coordinated wildfire response. During fire season, PGE participates weekly to daily calls with local NWS and GACC offices, covering weather forecasts, fuel conditions, and public safety concerns. PGE also monitors messages and communicates with these partners through Slack. Additionally, PGE provides these partners with access to its AI wildfire-detection camera network, which offers near real-time situational awareness and facilitates early notification to first responders—often before incidents are reported by the public. PGE continuously monitors the Integrated Reporting of Wildland-Fire Information (IRWIN) system, National Interagency Fire Center (NIFC) intelligence feeds, and other situational-awareness platforms to track wildfire activity and assess proximity to critical electric infrastructure.

When a fire is detected near utility assets, PGE proactively contacts the appropriate dispatch center to share information regarding fire location, size, behavior, resources on scene, and potential electrical hazards, supporting a unified and efficient incident response. This communication enables safe firefighting operations around energized facilities and expedites coordination for potential system de-energization or restoration.

PGE participates in annual coordination meetings and seasonal briefings with ODF, Oregon Office of Emergency Management (OEM), USFS, BLM, and local fire protection districts to strengthen relationships, review protocols, and validate contact lists before the start of each fire season. These collaborations mirror leading practices implemented by other Pacific Northwest utilities, including

PacifiCorp's and Idaho Power's joint wildfire-partner engagement programs, which emphasize real-time data sharing, joint exercises, and post-incident reviews.

In alignment with OAR 860-300-0010(7), which defines Public Safety Partners and incorporates ESF-12 responsibilities, PGE coordinates energy-sector support during emergencies through OEM's ESF-12 network. This drives statewide emergency-response protocols, enables stakeholder-facing collaboration, and supports a unified, cross-jurisdictional approach to wildfire mitigation and response across Oregon and neighboring states.

PGE satisfies OAR 860-300-0020(1)(d) by conducting structured engagements shown in Table 11-1 pre-fire season, during an event, and after fire-season with regional, state, local, and municipal partners on PSPS and Wildfire protocols and operational adjustments during wildfire conditions. These engagement activities fulfill OAR's requirements by effectively communicating de-energization protocols, promote public and responder safety, and preserve critical health and communication infrastructure.

Table 11-1: PGE Agency/Partner Collaboration Touchpoints

Agency/Partner	Purpose of Collaboration	Frequency	Communication Method	PGE Lead Role
Oregon Department of Forestry (ODF)	Coordinate wildfire detection, suppression, and camera access	Annual pre-season meeting as needed during fire events	Email, phone, virtual meetings	Wildfire Operations Program Manager
Oregon Department of Emergency Management (OEM)	ESF-12 coordination, emergency notifications, and mutual-aid planning	Quarterly, during declared emergencies	OEM WebEOC, phone, email	Emergency Response Manager
U.S. Forest Service (USFS) and BLM	Share fire intelligence, camera data, and access coordination	Biennial coordination calls	Joint incident coordination calls	Wildfire Operations Program Manager
Regional Dispatch Centers/Fire Districts	Report active fires, share fire size and hazard info near lines	Real-time during events	Phone, radio, or text	Field Operations / Control Center
Regional Disaster Preparedness Organization (RDPO)	Provide information on Emergency Management programs, key projects, training and exercises, and current wildfire status.	Monthly	Virtual meeting	BCEM Manager
Local Emergency Managers Meeting (Washington County)	Provide information on Emergency Management programs, key projects, training and exercises, and	Monthly	Virtual meeting	BCEM Manager

Agency/Partner	Purpose of Collaboration	Frequency	Communication Method	PGE Lead Role
	current wildfire status.			
Multnomah County Emergency Management	Coordinate warming/cooling shelters, communicate restoration status, and support operational and resource requirements for community response.	As needed, when Multnomah Emergency Management activates their EOC	Virtual meeting	BCEM Manager
Other Utilities (PacifiCorp, PSE, Idaho Power, Avista, BPA)	Exchange best practices and cross-utility coordination	Bi-weekly coordination calls	Virtual meeting	Wildfire Program Manager

PGE conducts two-phase coordination with Public Safety Partners:

- **Fire-season operations:** Recurring coordination calls, situational updates, and deployment of Public Safety Liaisons to county or Tribal EOCs; and
- **Off-season planning:** Annual workshops and protocol reviews with emergency agencies, fire authorities, ODOT, and ESF-12 representatives.

11.2.6 Real-Time De-Energizations

Real-time de-energizations, typically to address public safety or other emergency response, can occur any time of the year. Additionally, PGE personnel on-site have the authority to de-energize portions of the distribution system without requesting permission from or notifying PGE management – for example, crews may need to immediate de-energize a downed power line. In addition, first responders may request a real-time de-energization from PGE via 911.

11.3 Results

11.3.1 Engagement and Readiness

In 2025, PGE completed the following engagements:

- WMP engagement and public forums across the service area with Public Safety Partners and local communities; refined inclusive outreach content and timing based on survey feedback.
- Pre-season coordination and exercises with Public Safety Partners (including at least one HSEEP-aligned tabletop focused on PSPS notification roles/structure) and aligned operational language on "safety settings" with partners.

Areas of Strength identified during engagements include:

- Conducts daily coordination calls with Public Safety Partners (PSP), Emergency Managers, and PIOs.
- Provides clear information on PSPS triggers, decision-making factors, notifications, and restoration processes.
- Coordination with Oregon DHS and local jurisdictions on Customer Resource Center (CRC) planning supports community health, safety, and communication needs during de-energization events.
- Cross-jurisdictional workshops and exercises enhance mutual understanding of roles, responsibilities, and operational changes during wildfire season.

Areas for Improvement identified during the engagements informed improvement priorities and include:

- Strengthening communication to rural and hard-to-reach populations.
- Improving message alignment with neighboring utilities during overlapping outages.

11.3.2 Electrical Hazards and Awareness Training

PGE implemented the Electrical Hazards and Awareness Training across 18 participating entities shown in Table 11-2, enhancing PSP preparedness and coordination across PGE's service area. Through structured, in-person instruction tailored to firefighters, law enforcement, emergency medical personnel, other first responders, and municipalities, the training improved participants' ability to identify and assess electrical hazards, establish appropriate safe approach distances to downed conductors, recognize energized equipment, and coordinate effectively with PGE during emergency incidents.

Table 11-2: Agency Electrical Hazards and Awareness Training

Agency/Organization	Training Date(s)
City of Happy Valley	12/10/2024
City of Sandy	12/18/2024
Gresham Fire & Emergency Services	2/19-20/2025,
Clackamas County	3/4/2025
Portland Fire & Rescue	4/9/2025
Grand Ronde Fire & Emergency Services	4/15, 4/17-4/18, 4/25/2025
Gresham Fire & Emergency Services	4/22/2025
Tualatin Valley Fire & Rescue	6/15/2025
City of Hillsboro	6/17/2025
Portland Fire & Rescue	7/8/2025
Lafeyette Fire	9/25/2025
Carlton Fire	9/25/2025

Agency/Organization	Training Date(s)
Portland Water Bureau	10/8/2025
Portland Bureau of Transportation	10/20–21/2025
Estacada Fire & Emergency Services	11/19/2024
Hillsboro Fire & Rescue	11/20-21/2025
Portland Bureau of Transportation	11/20/2025
Turner Fire	12/2/2025

11.3.3 Incident Command System Training Program

In 2025, PGE advanced its ICS training program to strengthen organizational readiness for outage events, including storms, wildfires, and PSPS events. An external emergency-management vendor developed utility-specific basic and advanced ICS curricula, and PGE's Incident Command and General Staff began completing this training cycle in 2025.

The program incorporates both computer-based and instructor-led instruction with the audience and curriculum provided in Figure 11-2.

Figure 11-3: Overview of Emergency Preparedness Training

To sustain internal capability, the curriculum includes a train-the-trainer component that equips PGE personnel to deliver and maintain ICS readiness across the organization. Other utilities and Public Safety Partners have observed the training sessions to benchmark practices and promote cross-agency alignment.

PGE's total 2025 investment in ICS training was $235,000, with $115,000 funded through PSPS and wildfire-related activities and $120,000 funded through the BCEM program for storm and other outage events.

11.3.4 Summary

For the 2025 wildfire season, PGE strengthened engagement, readiness, situational awareness, and emergency response capabilities. Across the service area, PGE conducted WMP engagement sessions with Public Safety Partners and local communities, incorporating survey feedback to refine outreach timing and content. Pre-season readiness also included coordinated exercises with Public Safety Partners, including an HSEEP-aligned tabletop focused on PSPS notification roles and processes. PGE further aligned terminology on "safety settings" with partner agencies and implemented an OAR-compliant PSPS notification cadence, supported by a dedicated Notification Execution Manager within the IMT.

11.4 Initiatives and Targets

11.4.1 Initiative Summary Table

Table OPUC 11-1: Emergency Preparedness Initiative Cost Summary in Thousands

Initiative Activity	Tracking ID	Target Unit	2026 Target	2026 Forecast ($1,000)	2027 Target	2027 Forecast ($1,000)	2028 Target	2028 Forecast ($1,000)	Three-Year Forecasted Total ($1,000)	Section
Emergency Preparedness	PSPS-06	# of exercises	2	$57	2	$60	2	$63	$180	11.2

Notes:
1. Forecasts and Three-Year Totals provided in $/thousands.
2. All initiative Forecasts and Three-Year Totals include capital cost and operations and maintenance expense.

11.4.2 Emergency Preparedness (PSPS-06)

Emergency Preparedness is a program to capture costs associated with general wildfire emergency preparedness activities, including customer support in wildfire emergencies, emergency preparedness plans, public emergency communication strategies, and public safety portal. This is not a new program but splits the existing PSPS-01 initiative between wildfire response (PSPS-06) and PSPS related activities (PSPS-01). Details on PGE's Emergency Response program are included in Section 11.2.

11.4.3 Emergency Preparedness IT

Information technology (IT) investments associated with Emergency Preparedness can be found in Section 12.4.3.

11.5 Continuous Improvement

11.5.1 Program Maturity

Continuous improvement is foundational to PGE's emergency preparedness program. Each year, PGE reviews lessons learned from wildfire seasons, PSPS activations, emergency drills, and customer and partner feedback to refine programmatic and technical approaches. This cycle of assessment, adaptation, and implementation is designed to enhance the effectiveness, reliability, and inclusivity of emergency preparedness activities.

From 2022 to 2025, PGE saw substantial maturation (22 percent increase) in Emergency Planning and Preparedness, which includes elements of PSPS and GOP, based on corresponding category scores to the IWRMC Maturity Model. The 2025 IWRMC maturity model identified Emergency Preparedness as a maturing but interdependent component of PGE's overall wildfire mitigation framework. While existing procedures effectively support coordination during high-risk fire events, opportunities remain to enhance integration, situational awareness, and community readiness within existing resources.

Lessons learned from 2024–2025 engagement, Wildfire exercises, and PSPS exercises informed the 2026-2028 improvement priorities:

- **Cross-functional coordination:** Reviewing how operational readiness activities, including fire-season exercises and PSPS simulations, can more systematically inform future planning and scenario development.
- **Communication consistency:** Assessing current internal and external communication protocols to deliver clear, coordinated messaging between control center operations, field crews, and community partners.
- **Situational Awareness:** Integrating predictive modeling and real-time weather data can improve decision thresholds and operational readiness during elevated fire risk.
- **After-action learning:** Refining processes to capture lessons from past activations and exercises update the WMP framework accordingly.
- **Outreach:** Enhancing non-digital outreach methods, incorporating rural communication updates into daily coordination calls and expanding joint PIO coordination with adjacent utilities.

Continuous improvement in Emergency Preparedness will emphasize refining coordination and planning processes rather than expanding program scope. The objective is to adapt preparedness activities to emerging risks and lessons learned while maintaining alignment with other wildfire mitigation and operational readiness initiatives.

11.5.2 Programmatic Improvements

PGE's continuous improvement efforts are informed by the following feedback mechanisms.

- **After-Action Reviews (AARs):** Following each wildfire season and PSPS activation, PGE conducts structured AARs with internal teams and Public Safety Partners. Corrective actions are documented, prioritized, and tracked for closure within defined timelines, consistent with FEMA's Homeland Security Exercise and Evaluation Program (HSEEP) standards.

- **Stakeholder Engagement:** Feedback from county emergency managers, Tribal governments, and community-based organizations is used to improve communication cadence, message clarity, and support for Access and Functional Needs (AFN) populations.
- **Benchmarking with Peer Utilities**: PGE actively compares its processes with those of California IOUs (PG&E, SDG&E, SCE) and regional peers (PacifiCorp, Idaho Power, Avista, Puget Sound Energy) to identify emerging best practices in PSPS protocols, customer support, and restoration coordination.

11.5.3 Technical Improvements

- **Notification Technology:** PGE will continue upgrading its multi-channel alerting systems to improve reliability and delivery success rates, targeting >95 percent successful delivery for digital notifications by 2027. Enhancements include GIS-based boundary targeting and multi-language automated translation.
- **Public Safety Portal Enhancements:** Building on peer examples such as PacifiCorp's Public Safety Partner Portal, PGE is evaluating the addition of a secure, partner-facing interface to share PSPS and wildfire status data in near-real time.
- **Restoration Optimization:** Use of predictive analytics and advanced weather modeling to further reduce average PSPS restoration time. PGE's target is a 10 percent year-over-year reduction until achieving under 12 hours for 90 percent of customers by 2027.
- **Exercise Integration:** Expansion of simulation tools and scenario-based training, incorporating climate change projections and evolving wildfire behavior to better stress-test PSPS and restoration protocols.

12 Public Safety Power Shutoff

12.1 Overview

PGE's PSPS program prepares PGE and partners to proactively turn off power when conditions threaten the ability to safely operate the grid. This mitigation option will be implemented to reduce wildfire ignition risk during periods of extreme fire danger in alignment with OARs 860-300-0040, 0050, and 0060. This category contains initiatives addressing all four of PGE's objectives:

- **Objective #1:** Reduce wildfire risk associated with electrical contact to vegetation or other objects.
- **Objective #2:** Reduce wildfire risk associated with equipment failure.
- **Objective #3:** Reduce wildfire and mitigation impacts to customers.
- **Objective #4:** Increase situational awareness and operational capabilities to manage near-term risk.

12.2 Strategy and Response

PGE remains focused on preparing for effective PSPS execution, notification management, and community support in the 2026–2028 timeframe. PGE's PSPS program is designed to:

- **Protect public safety, property and public spaces** by proactively de-energizing lines in HFRZs, EFRZs, or anywhere in the service area when conditions present imminent wildfire risk.
- **Coordinate with public safety partners** including public safety agencies, local and county emergency managers, Tribal emergency managers, and community partners to enable accurate, timely, and actionable communication. Coordination includes working meetings, annual exercise and after-action reviews described in Section 11.2.5.
- **Support customers and communities** by dispatching Community Resource Centers (CRCs) to impacted areas, providing a Medical Certificate Program that includes PSPS preparation assistance, distributing Medical Batteries to medically vulnerable customers in HFRZs, and conducting wellness checks for PGE's most vulnerable eligible customers.
- **Communicate transparently** to customers and public safety partners real-time, before, during, and after PSPS events using multiple channels, languages, and accessibility options.
- **Continuously improve and refine** PSPS protocols through annual tabletop exercises, customer surveys, and after-action reviews (AARs) with internal and external partners. The input and information gathered from these events feed into ongoing PSPS refinements.
- **Monitor performance and customer impacts,** providing transparent annual reporting on any PSPS events and customer impacts, with a goal of reducing restoration times and outage durations, frequency, scope.

PGE's most recent PSPS event occurred in September 2022. However, PGE improves systems, plans, and procedures annually to improve PSPS effectiveness while minimizing the impacts of PSPS events on customers and communities.

12.2.1 De-energizing Power Lines and Power System Operations During PSPS Events

As a key mitigation to protect people, property, and public areas, PGE will proactively turn off power when conditions threaten the ability to operate the grid safely. PGE's declaration of a PSPS is not limited to an HFRZ and may occur anywhere in the service area, based on the same criteria used to declare a PSPS within an HFRZ. Criteria used to determine whether a PSPS could occur can be found in Table 9-3.

When PSPS events are declared, PGE keeps customers and stakeholders informed and strives to mitigate customer impacts by limiting the outage duration, as much as conditions allow.

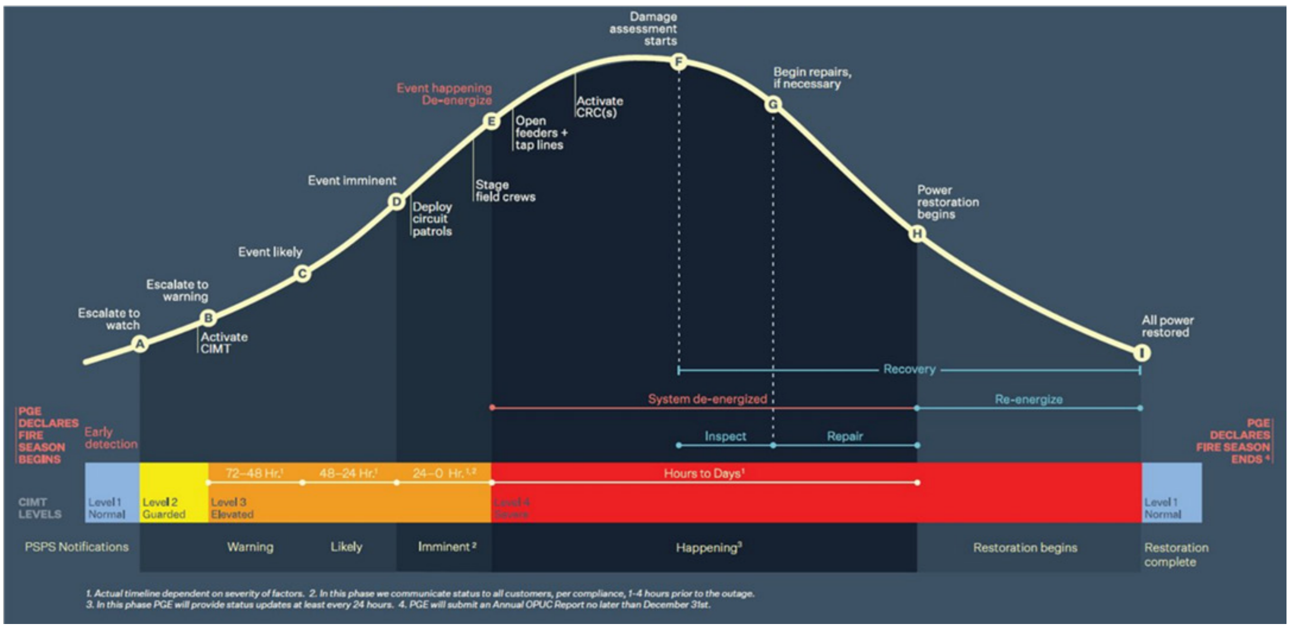


Figure 12-1: PSPS Process Bell Curve

12.2.2 PSPS Activation Levels

When PGE makes the decision to execute a PSPS event, the order of operation generally follows the PSPS Process Bell Curve shown in Figure 12-1. PGE will adapt actual PSPS event operations as required to address evolving, dynamic, and unpredictable circumstances. At any point on the bell curve, the acting Incident Commander (IC) will make the decision to escalate or de-escalate the PSPS event based upon the Near-Term Risk assessment detailed in Section 9.2.1.3.

12.2.2.1 Level 1: Normal

Year-round, PGE conducts a weekday operations call under Level 1: Normal conditions. Should weather or other related events warrant communications outside the normal schedule, PGE may convene the daily operations call on weekends or holidays.

Once fire season has been declared, PGE closely monitors and communicates regional weather and wildfire situation/status to operational leadership. Through real-time situational awareness monitoring and near-term risk assessment as described in Section 9.2.1.3, the daily briefings during fire season include:

- Fire weather forecasts and fire potential specific to PGE's service area
- Reporting of NWS-issued watches and warnings
- Summary of current regional fire activity

Additionally, PGE closely monitors changing or deteriorating conditions, regularly communicating critical updates to affected business units. To assist with this, PGE maintains working relationships with fire agencies, fire management officers, district foresters and dispatch centers at the federal, state, Tribal, and local levels, including the Portland office of the NWS. These partnerships provide PGE with specific, granular-level situational awareness, assistance with forecast modeling validation, fire suppression resource pre-positioning, and activity/growth updates for fires in near PGE assets.

12.2.2.2 Level 2: Guarded

If the near-term risk assessment indicates that current or predicted fire risk conditions warrant an escalation in planning and coordination, PGE shifts to Level 2: Guarded, which represents a PSPS Watch posture. When this occurs, PGE's Senior Director of Wildfire and Operational Compliance or their designee activates the PSPS Assessment Team (PAT) to monitor conditions, evaluate near-term risk, and prepare to initiate the next PSPS Activation Level, if necessary.

- PGE will place the full IMT on standby and build the duty roster.
- Event posture decision-making authority is assigned to the PAT IC.
- PGE issues a preliminary notification to internal stakeholders, Emergency Support Function (ESF) 12, and OPUC Safety Staff.

12.2.2.3 Level 3: Elevated

PGE's decision to escalate to Level 3: Elevated status is predicated on the pace of the onset of fire weather conditions. If the near-term risk assessment indicated that a PSPS is possible within 72 hours, the PAT IC may make the decision to proceed to Level 3: Elevated.

- PGE will fully activate the IMT.
- Event posture decision-making authority is transferred to the IMT IC and remains with the IMT until the end of the PSPS event.

Level 3: Elevated is divided into three sequential, time-boxed phases, each representing an escalated state of readiness. To the extent practicable, PGE will adhere to the following notification timeline in advance of a PSPS event (See Section 12.2.4 for details):

- **PSPS Warning:** 72–48 hours prior to de-energization.
- **PSPS Likely:** 48–24 hours prior to de-energization.
- **PSPS Imminent:** 4 hours–1 hour prior to de-energization.

During the Level 3: Elevated phase of the potential PSPS event, PGE closely monitors fire potential indicators, situation, and status. The IMT develops Incident Action Plans for each operational period (or as directed by the IMT IC), including situation-specific tactics and detailed instructions for field and support personnel. For example, the IMT will secure resources and determine the locations for Field Observers and Community Resource Centers (CRCs). Immediately prior to de-energization, PGE resources in the field move into their "Get Set" positions or designated staging areas until execution of de-energization begins. PGE will continue to monitor fire weather conditions throughout the Level 3: Elevated phase. When the near-term risk assessment indicates that a PSPS is imminent and the IMT Situational Unit has determined that escalating to Level 4: Severe is appropriate, they will recommend de-energization of the appropriate PSPS area(s).

12.2.2.4 Level 4: Severe Event Happening

Transitioning from to Level 4: Severe is triggered by the IC decision to de-energize at least one PSPS area. Immediately after, operational resources are given the "Go" signal to open feeder and line points of isolation to strategically de-energize the circuit and allow a safe, efficient re-energization when weather conditions allow. The Customer Officer will order the mobilization of CRCs to support customers as described in Section 12.2.3.

12.2.2.5 Level 4: Severe Restoration

Restoration following PSPS or wildfire events is executed in a safety-first, phased manner with prioritization factoring in circuits serving critical facilities, emergency services, and medical care centers. Once weather conditions necessitating a PSPS de-energization subside, PGE conducts detailed patrols and equipment inspections to assess damage and begin necessary repairs. Once given authorization by the IC, based on the near-term risk assessment and data provided by the Situation Unit, line crews execute cutsheets to restore power. PGE sends an "End of PSPS" notification when all power is restored.

PGE communicates restoration timelines to customers and partners throughout the restoration process, providing transparency and setting realistic expectations. Following restoration, PGE compiles event documentation, conducts post-incident performance reviews, and submits required regulatory reports to the OPUC annually. Lessons learned from recovery and restoration are incorporated into continuous improvement cycles, enhancing resilience for future events.

12.2.3 Community Resource Centers

During PSPS events, PGE may establish CRCs in selected areas to provide critical restoration information to customers impacted by the outage(s). The CRCs also provide customers with electronic and medical device charging, internet access, and clean water and ice to offset some of the impacts associated with a PSPS. PGE has identified multiple potential locations for CRCs within or near each HFRZ to provide the flexibility to select the location that best suits customers' needs based on event specifics. PGE may not establish a CRC in an impacted PSPS Area; this may be due to resources being provided by a county, Red Cross, or other entity, when a single CRC is serving multiple PSPS areas, or when safety concerns preclude PGE's ability to site a particular CRC. PGE may determine that CRC locations are not needed in areas not directly impacted or that it is possible to serve multiple impacted areas from a common CRC location. Pre-identifying multiple CRC locations within each HFRZ gives PGE options if mandatory evacuations require the relocation of a CRC. PGE's goal is to locate CRCs as near as possible to the areas impacted by the de-energization. However, specific circumstances may make this impractical. Decisions need to be made quickly regarding where and how many CRCs are required.

PGE leverages a CRC staffing model that includes an Activation Lead who coordinates directly with Fire DAWG and the IMT to stand up and operate the CRCs. In addition, PGE trains employees in advance to act as either Customer Experience Leads or general support staff that report to any active CRC location to assist visitors as needed and report vital real-time information impacting the CRC to the acting CRC Activation Lead. PGE trains enough employees to staff as many CRCs that may be necessary.

Figure 12-2: PGE Community Resource Center

PGE's decision-making process for potentially deploying CRCs begins during Level 3: Elevated PSPS Likely. At this phase, PGE selects the specific CRC location(s) and sets hours of operation. Whenever possible, PGE will work with community partners to make CRC resources available to impacted customers regardless of whether a pre-determined location is available for the specific PSPS event. For example, if a location is outside the known HFRZ areas, PGE will work quickly to identify an appropriate location. PGE uses the community's customer demographic data to inform location placement to select sites that are fully accessible (on or near main roads) and known locations within the community. PGE will notify Public Safety Partners and adjacent Public Safety Partners as soon as CRC locations and activation schedules are confirmed. PGE endeavors to have CRCs operational within 24 hours of de-energization and keep these locations operational for as long as they benefit customers.

12.2.4 PSPS Notification Management

Before a PSPS event, PGE provides publicly available information on the Public Safety Power Shutoff website to help customers prepare and learn what to expect, see Section 11.2.4 for more details.

During PSPS events, PGE provides PSPS status updates, including location, de-energization estimates, and ERTs for each impacted PSPS Area on the interactive Outage Map. All PSPS information on portlandgeneral.com is easily readable and accessible on mobile devices.

Beginning at the Level 3: Elevated phase, to the extent practicable, PGE will initiate a methodical sequence of pre-event PSPS notifications and subsequent updates, delivered in 24-hour intervals, that progress from each of the three phases-Warning, Likely, Imminent-through the Level 4: Severe Restoration Complete phase.

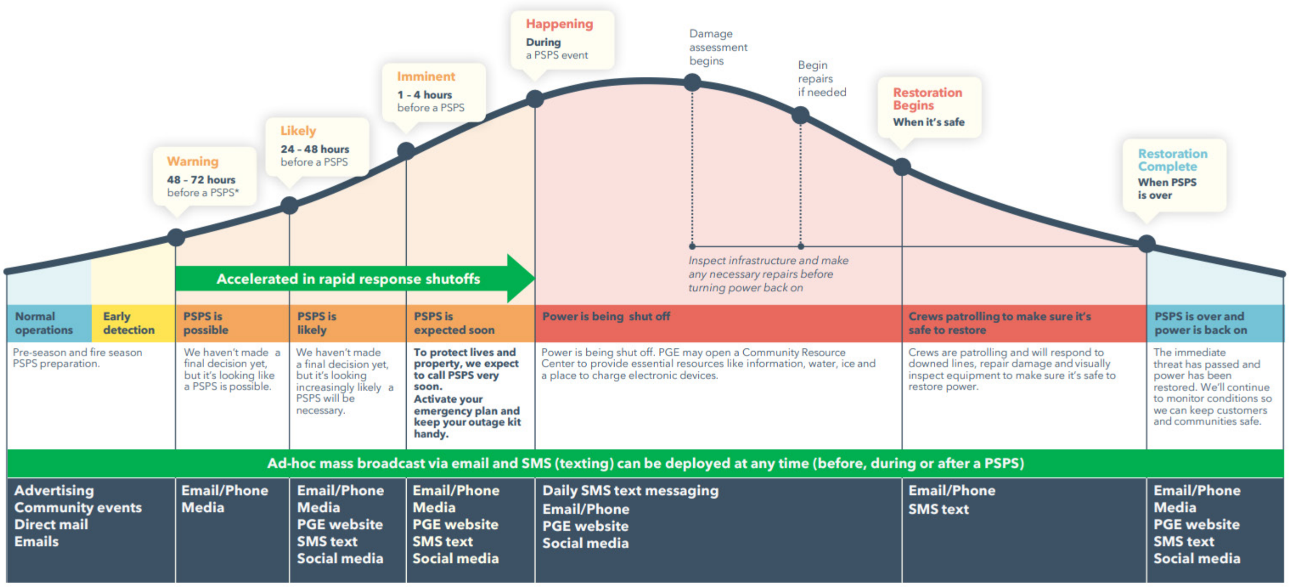


Figure 12-3: PSPS Notification Bell Curve

During a PSPS event, PGE will communicate with Public Safety Partners, operators of utility-identified critical facilities (including Communications facilities), customers, and other stakeholders at the time periods identified in Table 12-1. When possible, PGE will provide priority notifications to Public Safety Partners, Adjacent Public Safety Partners, and utility-identified critical facility operators 72–48 hours before de-energization.

Table 12-1: PSPS Notification Cadence

Notification Cadence	Public Safety Partners, Adjacent Public Safety Partners, Stakeholders	Utility-identified Critical Facilities[1]	Customers
PSPS Warning **72-48 hours prior to de-energization**	✓	✓	
PSPS Likely **48-24 hours prior to de-energization**	✓	✓	✓
PSPS Imminent **48-24 hours prior to de-energization**	✓	✓	✓
PSPS Happening	✓	✓	✓

Notification Cadence	Public Safety Partners, Adjacent Public Safety Partners, Stakeholders	Utility-identified Critical Facilities[1]	Customers
At de-energization			
Restoration Begins	✓	✓	✓
Restoration Complete	✓	✓	✓
At a minimum, status updates at 24-hour intervals until service has been restored[2]	✓	✓	✓

Notes:
1. Including Communication Facilities.
2. These notifications may be required any time after initial notifications during Level 3: Elevated through restoration, as dictated by the event.

PGE uses multiple media channels to inform impacted customers, communities, and stakeholders throughout the PGE service area per OAR 860-300-0050. Special attention is given to those within areas affected by a PSPS event. PGE will deliver notifications in multiple formats across multiple channels, including phone calls, text messages, prepared public safety notifications distributed through Public Safety Partners, social media posts, media advisories, emails, and messages to agencies that serve diverse community populations. For PSPS outreach to customers and stakeholders, PGE aims to address the geographic and cultural demographics of the PSPS Area, including language, access to broadband, and accessibility for those who are visually impaired or hard of hearing, through the following strategies:

- All of PGE's PSPS-related written communications are in English and Spanish.
- PGE Customer Service offers a language hotline to answer customer questions in 200 languages.
- PGE works closely with Public Safety Partners, broadcast, and print media to provide regular PSPS-related text messages and news reports to help customers who may not have in-home broadband access.
- All PSPS-related content on the portlandgeneral.com website is designed to be ADA-compliant for vision-impaired, deaf, and hard-of-hearing customers.[48] PGE provides both audible and written messaging options and closed captioning on all videos posted to the website.
- Throughout PSPS events, PGE distributes PSPS-related information through various platforms and formats such as text messaging, online content, traditional media, written materials, and information sharing with community-based organizations and Public Safety Partners to achieve the broadest reach possible.

PGE recognizes the importance of effective communication with stakeholders before, during, and after a PSPS event. Figure 12-4 provides a visual summary of PGE's PSPS notification strategy.

[48] Web Content Accessibility Guidelines (WCAG) 2.0

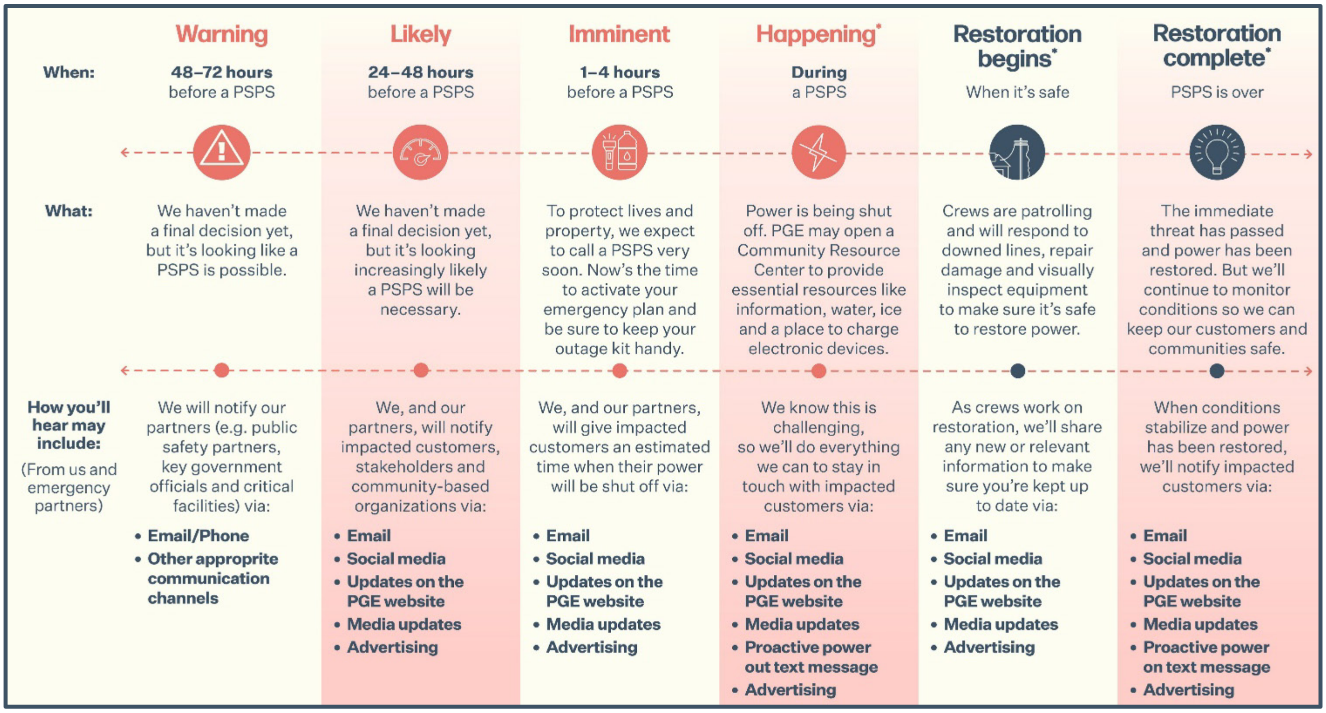


Figure 12-4: PSPS Notification Strategy

Throughout the PSPS event, PGE provides the elements of notification information required by OAR 860-300-0050 to Public Safety Partners, Adjacent Public Safety Partners, operators of utility-identified critical facilities, and customers as summarized in Table 12-2. PGE leverages the IMT role of Notification Execution Manager (NEM) for PSPS events to track that notifications required by rule and by PGE practice are sent to the required audience at the prescribed times and intervals.

Table 12-2: Notification Information

Notification Information	Public Safety Partners, Adjacent Public Safety Partners, Stakeholders	Utility-Identified Critical Facilities	Customers
Date and time PSPS will be executed	✓	✓	✓
Estimated duration of PSPS	✓	✓	✓
Notice of when re-energization efforts will begin and when re-energization is expected to be complete	✓	✓	
At a minimum, status updates at 24-hour intervals until service has been restored	✓	✓	✓
Number of customers impacted by PSPS	✓		

Notification Information	Public Safety Partners, Adjacent Public Safety Partners, Stakeholders	Utility-Identified Critical Facilities	Customers
The PSPS Area, which would include GIS shapefile(s) depicting current boundaries of the area subject to de-energization	✓	✓	
When feasible, the Public Utility will support Local Emergency Management efforts to send out emergency alerts	✓		
A statement of impending PSPS execution, including an explanation of what a PSPS is and the risks that the PSPS would be mitigating			✓
A 24-hour means of contact customers may use to ask questions or seek information			✓
How to access details about the PSPS via the Public Utility's website, including education and outreach materials disseminated in advance of the annual fire season			✓

12.3 Results

The 2025 continued PSPS investments and activities provide improvements to PGE's ability to respond to and support customers during PSPS events. These investments have allowed additional data visibility into PSPS planning and decision making and allowed medical batteries for eligible vulnerable customers. Lessons learned from previous events and exercises will guide additional refinements and investments in 2026–2028[49].

12.3.1 PSPS Readiness (PSPS-01)

In 2025, PGE implemented ICS role-specific basic and advanced training developed by an outside vendor. This ICS training supports PSPS and wildfire-related activities as well as storm and other outage events, so the funding was split evenly between PGE's current base rates as established in PGE's last General Rate Case (GRC) and PGE's wildfire recovery mechanism. Additional details on this program are included in Section 11.3.3.

[49] Portland General Electric 2022 PSPS Annual Report

12.3.1.1 PSPS Exercises

PGE conducted three internal PSPS exercises and one Public Safety Partner PSPS exercise. The following summarizes the exercise observations, which informed 2025 in-season improvements and the 2026-2028 continuous improvement plan:

- **Areas of Strength:** updated plans & procedures, effective operational coordination between IMT and field personnel, public information processes, situational assessment, effective response processes utilizing the PSPS bell curve, and customer focus
- **Areas for Improvement:** assessment process, operational coordination, public information, situational assessment, planning, training & exercise, and documentation

12.3.1.2 PSPS Planning

PGE updated the 2025 PSPS Master Plan and 21 PSPS sub-plans. Detailed planning for PSPS implementation across all HFRZs, EFRZs, and transmission entailed developing 67 cutsheets, patrol documents and patrol maps.

12.3.1.3 PSPS Customer Outage Experience

As part of the Customer Outage Experience improvement project, PGE enhanced the PSPS Web experiences when a customer address is included in a zone impacted by a PSPS:

- **Customer Logged-In Experience:** pictorials, outage maps with a toggle menu, PSPS FAQ, unique PSPS information for the stages of:
  - Likely (24 – 48 hours before a PSPS)
  - Imminent (1-4 hours before a PSPS)
  - Happening (during a PSPS event)
  - Restoration Begins (with restoration status and situational assessment)
- **Customer Logged-Out Experience:** map shows overlay by either a quick menu toggle or map option showing various outage types, alert status, link to notifications, PSPS FAQ, Outage FAQ, various current stats, and the ability to report an outage.
- **Customer Resource Centers (CRC):** map with a toggle menu showing CRC locations, available resources, current outage information, Outage FAQ, and the ability to report an outage.

12.3.2 Medical Battery Support (PSPS-02)

The program continued into 2025, serving 90 total customers since its inception through June 30, 2025. In response to OPUC Order 25-204, PGE ended the contract with Meals on Wheels in Spring of 2025, instead offering customers the option to receive the batteries via direct ship from the manufacturer. Similarly, the planned IT improvements to streamline the enrollment process did not take place in 2025 to reduce overall PGE budget spend.

PGE achieved an 82 percent enrollment rate through Q2 2025, surpassing the target enrollment rate of 75 percent.

12.3.3 Well Water Research (PSPS-03)

PGE completed its planned well water research for 2025 and updated the information for customers on portlandgeneral.com to support planning for well water and other impacts. Subsequent research related to food storage has been paused in response to OPUC Order 25-204.

12.3.4 PSPS Notification Management (PSPS-04)

PGE updated the Notification Execution Plan and order of operations based on feedback from non-PSPS storm learnings. To prepare for 2025 fire season, PGE delivered PSPS notification training which included requirements, cadence, and content outlined in the OARs, to employees responsible for sending notifications and employees assigned the NEM role in the IMT.

12.4 Initiatives and Targets

PGE's Public Safety Power Shutoff category includes initiatives designed to track costs associated with PSPS readiness, customer support programs, and notification management.

12.4.1 Initiative Summary Table

Table OPUC 12-1: Public Safety Power Shutoff Initiative Cost Summary in Thousands

Initiative Activity	Tracking ID	Target Unit	2026 Target	2026 Forecast ($1,000)	2027 Target	2027 Forecast ($1,000)	2028 Target	2028 Forecast ($1,000)	Three-Year Forecasted Total ($1,000)	Section
PSPS Readiness	PSPS-01	N/A	N/A	$580	N/A	$617	N/A	$645	$1,842	12.2
Medical Battery Support	PSPS-02	# of batteries	64	$92	66	$81	70	$90	$262	12.4.2.2
Well Water Research	PSPS-03	N/A	N/A	$0	N/A	$0	N/A	$0	$0	12.3.3
PSPS Notification Management	PSPS-04	# of annual trainings	1	$90	1	$94	1	$98	$282	12.4.2.3
PSPS IT	PSPS-05	N/A	N/A	$670	N/A	$705	N/A	$746	$2,121	12.4.3

Note:
1. Forecasts and Three-Year Totals provided in $/thousands.
2. All initiative Forecasts and Three-Year Totals include capital cost and operations and maintenance expense.

12.4.2 Initiative Details

12.4.2.1 PSPS Readiness (PSPS-01)

PSPS Readiness is an on-going program to capture costs associated with procedure updates, and training to prepare PGE and partners for effective execution of a PSPS to mitigate ignition risk under extreme fire weather conditions and reduce PSPS consequence. Details on this program are included in Section 12.2.

12.4.2.2 Medical Battery Support (PSPS-02)

PGE's Medical Battery Support program reduces PSPS consequence by providing a portable battery at no cost to vulnerable, eligible customers in HFRZs. PGE monitors and contacts newly eligible customers on a monthly basis. PGE will continue to make this offer available to eligible customers as part of the three-year plan. Goals for 2026 include:

- Scope alternative IT integrations to streamline the customer experience and reduce internal manual processes. Exploring integration with PGE's marketplace website to improve the order and delivery process.
- Leverage bulk battery bulk purchases to keep costs as low as possible.
- Increase enrollment levels of eligible customers above 2025 enrollment levels.
- Contingent upon OPUC approval of the forecast for recovery shared in PGE's 2026-2028 WMP, PGE will expand this program to EFRZ eligible customers as detailed in Table 12-3. Customers in both HFRZs and EFRZs are most likely to be impacted by a PSPS compared to other parts of PGE's service area.

Table 12-3: Medical Battery Support Program

Area	2026 Quantity	2026 Amount ($ 1,000)	2027 Quantity	2027 Amount ($1,000)	2028 Quantity	2028 Amount ($1,000)	2026-2028 Total ($ 1,000)
HFRZ	37	$59	34	$41	41	$53	$154
EFRZ	27	$32	32	$40	29	$37	$109
Total	64	$92	66	$81	70	$90	$262

12.4.2.3 PSPS Notification Management (PSPS-04)

PSPS Notification Management is a program to capture costs associated with procedure updates, and training related to PSPS notification execution to reduce PSPS consequence. Details on this program are included in Section 12.2.4.

12.4.3 PSPS Information Technology (PSPS-05)

This initiative was started in 2025 to track information technology (IT) investments that enable Emergency Preparedness and PSPS initiatives.

12.4.3.1 PSPS Notification Management IT

PSPS events require coordination across various departments managing customer notifications, public safety partner communications, regulatory reporting, and internal operational updates throughout PSPS de-energization and restoration processes. Current notification tracking capabilities through collaboration tools are approaching end-of-support, requiring a new solution that supports numerous concurrent users with real-time status updates, evidence capture capabilities, and compliance reporting functionality. The platform will provide systematic tracking of notification completion status across customer segments, public safety partners, regulatory agencies, and internal stakeholders, enabling coordination teams to identify gaps, manage escalations, and maintain compliance with notification timing requirements.

Target: By 12/31/2026, evaluate alternative Notification Execution Plan tracking solutions and select a new solution for implementation.

12.4.3.2 PSPS Decision Support Tool IT

This effort will provide systematic analytics capabilities to enhance expert judgment with data-driven feeder-level risk assessment, spatial analysis supporting targeted scoping decisions, and comprehensive documentation of decision rationale for regulatory compliance.

PGE has consolidated critical data sources including WRF model predictions, Pyrologix fire behavior data, Fire Potential Index analysis, and outage prediction analytics that provide the foundational inputs for systematic PSPS scoping analysis. The 2026 initiative establishes an integrated spatial analysis platform that consolidates these data sources into unified risk assessment supporting feeder-level scoping decisions, enabling meteorologists and operations teams to identify de-energization areas with greater precision while documenting the analytical basis for each decision. The platform provides capabilities for drawing impact polygons capturing spatial extent of elevated fire risk, automatically identifying affected distribution feeder and devices within scoped areas, generating device lists supporting operational coordination, and capturing real-time weather conditions alongside decisions rationale for regulatory compliance and post-event analysis.

The toolset will have a phased implementation focused first on establishing core scoping and analytical capabilities that directly support operational decision-making, with subsequent expansion to comprehensive decision documentation and archiving functionality. This approach delivers immediate operational value through the following data flow improvements:

- **Data Collection/Procurement:** WRF weather model predictions providing high-resolution forecasts for temperature, humidity, wind speed, and fuel moisture conditions; Pyrologix fire behavior data capturing real-time fire activity and spread modeling; PGE outage prediction analytics estimating customer impact and system restoration complexity; customer data supporting impact analysis and notification requirements.
- **Data Integration/Conditioning:** Spatial analysis platform consolidating weather predictions, fire behavior data, and FPI into unified risk assessment; feeder-level risk aggregation combing multiple data inputs for systematic scoping analysis.
- **Data Analysis:** Risk-based feeder identification analyzing to identify circuits meeting de-energization criteria thresholds; polygon-based impact scoping enabling meteorologist and operations teams to define spatial boundaries for elevated fire risk areas; automated device selection identifying all distribution equipment within scoped impact polygons; decision threshold analysis evaluating weather conditions, fire risk metrics, and operation constraints against established PSPS criteria.
- **Delivery:** Scoped feeder lists and device inventories delivered to support de-energization; decision documentation capturing weather conditions, threshold data, risk assessment results, and decision-maker rationale for each PSPS event; records for OPUC reporting and post-event review; real-time dashboard providing visibility into decisions, affected customers, and

operational status; post-event analysis reports supporting continuous improvement and program refinement.

12.5 Incremental Initiatives

PGE will commence work on incremental initiatives contingent upon likely and timely recovery of costs.

12.5.1 Medical Battery Support (PSPS-03)

Medical Battery Support is an ongoing program that will continue in HFRZs with proposed expansion to EFRZs. Details on this program are included in Section12.4.2.2.

12.6 Continuous Improvement

12.6.1 Program Maturity

From 2022 to 2025, PGE saw moderate maturation in the PSPS-related category scores of the IWRMC Maturity Model, which are addressed in the Emergency Preparedness and Grid Operations and Protocols. Throughout this plan cycle, continuous improvement within the PSPS portfolio will emphasize:

- Evaluating procedures for readiness, notification, and consequence mitigation
- Assessing opportunities for scalability

PGE will assess lessons learned from the model as well as 2024–2025 events and exercises to enhance coordination, communication consistency, and restoration prioritization.

12.6.2 Programmatic Improvements

- **Procedure Evaluation/Refinement:** All PSPS sub-plans and master plan are updated annually by owners, stakeholders. and program management for PSPS readiness. The process begins with the annual HFRZ analysis and updates, and ends with plans updated prior to the beginning of PSPS exercises and fire season. Following each PSPS activation, PGE conducts structured AARs with internal teams and Public Safety Partners. PSPS related corrective actions are documented and tracked to closure. These corrective actions refine and enhance sub-plans and the master plan.
- **Restoration Prioritization:** PGE utilizes and continues to refine a resource-driven estimated restoration time (ERT) calculator, a PSPS damage assessment process that runs in parallel with non-damage restoration work.
- **Scalability:** A PSPS can occur anywhere across PGE's service area and may span a single HFRZ or all HFRZs and adjacent EFRZs. Each PSPS plan process owner plans for this scalability with continual improvements to support diverse PSPS scopes, including emergent PSPS processes that enable efficient PSPS execution outside HFRZs or EFRZs.
- **Metrics and Tracking:** PGE will maintain a PSPS performance dashboard that tracks PSPS quantity, duration, customer impact, notification success, and restoration time.

- **Three-Year Review Cycle:** Continuous-improvement findings inform the next Multiyear WMP updates under OAR 860-300-0001(1). PGE will document lessons learned, PSPS-related program adjustments, stakeholder recommendations, and customer/community needs.

12.6.3 Technical Improvements

- **Customer Outage Experience:** PGE will continue to review and refine the public facing outage maps based on feedback from either PSPS or other storm outage events.
- **Public Transparency:** The most recently issued PSPS Annual Report (if a PSPS is called), the PSPS Overview, the Five Steps of a PSPS, and Wildfire Mitigation Plans/Updates is provided on PGE's Wildfire Safety & Prevention website.

Table 12-4: Continuous Improvement Cycle

Phase	Action	Regulatory/Peer Reference
1. Event Review	Conduct an After-Action Review (AAR) following each PSPS activation or exercise. Evaluate meteorological conditions, decision timelines, outage footprint, and restoration performance.	OAR 860-300-0010(8)
2. Stakeholder Engagement	Present AAR outcomes to Public Safety Partners, emergency agencies, fire authorities, ESF-12 representatives and other key stakeholders to identify opportunities for improvement.	OAR 860-300-0010(7); OPUC Order 25-326 (App. A)
3. Metrics and Tracking	Maintain a PSPS performance dashboard tracking number, duration, customer impact, notification success, and restoration time.	CPUC WMP Metrics Guidelines; SCE 2021 PSPS Scorecard
4. Process Refinement	Incorporate findings into updated PSPS protocols, plans, training, and modeling. Document procedural changes in the next WMP update.	OPUC Order 25-326 ("iterative nature … ongoing evolution")
5. Benchmarking	Annually benchmark PGE's PSPS execution against Oregon and other IOUs to identify leading practices.	See Table 14-1 for more details

13 Community Outreach and Public Awareness

13.1 Overview

PGE implements a multi-channel, partnership-focused, and data-driven approach to community outreach and public awareness. The comprehensive strategy includes activities before, during, and after fire season to reach residential and business customers, elected officials, regulators, critical facility operators, community-based organizations (CBOs), public safety partners, and federal, state, Tribal, and local governments. This category reflects foundational principles and addresses PGE's third objective:

- **Objective #3:** Reduce wildfire and mitigation impacts to customers.

Key components to this strategy include:

- **Community Engagement:** CBO partnerships, community events, and PGE-hosted events.
- **Customer Awareness and Education:** Media engagement, website information, social media, paid advertising, and direct customer outreach.

The campaign underscores PGE's role in safety, reliability, and proactive wildfire prevention and empowers customers with the tools and information they need to prepare for emergencies and power outages. PGE will continue to engage communities across its service area, especially those that are most vulnerable.

Figure 13-1: PGE Personnel at Wildfire Ready Community Event

13.2 Strategy

13.2.1 Engagement and Outreach Planning

For the 2026–2028 plan years, PGE will expand the engagement program based on feedback received in 2025 as well as consultation with PGE's Equity Policy Council, the Community Benefits Impacts and Advisory Committee, and energy justice advocates engaged in wildfire policy. Strategy development will align to PGE's Community Engagement Strategy and will prioritize intentional engagement with organizations that serve English Language Learning communities and/or those that have less access to resources in the event of a wildfire or de-energization event.

PGE will focus on increasing engagement with communities adjacent to HFRZs and within EFRZs. As noted in Section 13.3.3, customer awareness of wildfire preparedness and PGE's mitigation activities is high among customers who live within HFRZs. Outside of those zones, customers are much less familiar as reflected in survey data. It is important that customers outside of HFRZs are also well prepared in the event of a wildfire or de-energization event.

The strategy development, evaluation, and refinement schedule will be as follows for each of the three years (2026–2028):

- **Quarter 1:** Strategy development in consultation with external organizations and partners based on previous year's data and feedback from communities.
- **Quarter 2-3:** Benchmarking of knowledge and awareness within target communities; implementation of strategy.
- **Quarter 4:** Evaluation of data, yearly reporting to OPUC, and identification of opportunities for refinement to meet intended goals and outcomes.

13.2.2 Community Access and Partnerships

PGE seeks to increase engagement with communities that have the most barriers to accessing information about wildfire preparedness. This strategy focuses on one-on-one meetings with organizations to identify partnership opportunities to reach communities served by the respective organizations. In addition to providing information on wildfire safety, conversations also cover the medical certificate and Income Qualified Bill Discount (IQBD) programs, invitations to PGE Wildfire Ready events, and a presentation in Spanish focused on wildfire preparedness, medical certificate, IQBD, and medical battery support programs. In alignment with best practice, CBOs providing consultation to PGE will be provided stipends for their time.

PGE's wildfire mitigation outreach employs a comprehensive multilingual approach to provide equitable access to critical safety information. Our website offers content in Spanish, while Public Safety Power Shutoff (PSPS) safety information is available in 14 different languages, including English, Spanish, Vietnamese, Arabic, Burmese, Chinese (simplified and traditional), Farsi, Japanese, Korean, Ruáinga, Romanian, Russian, Somali and Swahili. Communication efforts include bilingual outreach through emails and postcards in both English and Spanish. To maximize reach across diverse communities, we utilize targeted paid media campaigns on Google and Meta platforms in five languages: English, Spanish, Chinese (Mandarin), Vietnamese, and Russian.

PGE's 2026-2028 community engagement plan integrates learnings from the 2025 one-on-one meetings as described in Section 13.3.1. Most notably, energy justice advocates encouraged the expansion of the battery program. Today, a customer is eligible for a PGE provided battery if they live in an HFRZ and are enrolled in both the IQBD and Medical Certificate programs. For the 2026-2028 plan years, PGE will expand this program to customers who live within EFRZs contingent upon OPUC approval of inclusion of costs in the established wildfire cost recovery proceeding, see Section 12.4.2.2 for details.

13.2.3 Awareness, Education, and Outreach Campaign

PGE's 2026-2028 Wildfire Awareness, Education and Outreach Campaign is a comprehensive, multi-channel effort designed to build customer awareness, engagement, and trust around wildfire preparedness, prevention, and safety. Channels include:

- **Community Engagement (COPA-01)**
  - PGE hosts both in-person and virtual community Wildfire Ready Events leading up to fire season. PGE and community partners share information about wildfire mitigation activities, preparedness measures, and resources.
  - PGE participates in community outreach events across the service area to further awareness and partnerships that enable a collaborative approach to mitigating wildfire risk.
- **Media Engagement (COPA-02)**
  - Earned media enhances stakeholder trust and public confidence by providing independent validation of PGE's wildfire mitigation work.
  - Media buys play a direct role in the overarching awareness and education through social media ads (on Facebook and Instagram), online digital ads (on Google), and traditional print and radio ads.
- **Direct to Customer (COPA-03)**
  - Channels in support of awareness, education and outreach campaign and includes website content (both new and updates), customer emails, bill inserts, newsletters and letters.

13.2.4 Performance Monitoring

PGE evaluates the success of engagement and outreach efforts to inform campaign planning.

13.2.4.1 Community Engagement

PGE tracks the following metrics related to Community Engagement:

- Reach:
  - Number of engagements within different communities
  - Service area segments or zones engaged
  - Number of virtual events held/participated in reaching English Language Learners
  - Number of new community serving/community-based organization partnerships

- Effectiveness:
  - Community sentiment on surveys
  - Sentiment of public comments received through the OPUC
  - Percentage of eligible customers who have received a medical battery
  - Annual awareness survey

Figure 13-2: PGE Wildfire Ready Community Event

13.2.4.2 Customer Awareness and Education

To understand customer awareness around wildfire prevention efforts, PGE conducts bi-annual wildfire communication survey. See Appendix F for details.

PGE also analyzes the effectiveness of digital channels by tracking the following metrics that measure success generating awareness, sparking interest and deepening engagement.

- Reach: Did customers see PGE wildfire content?
- Clicks: Did they care enough to engage?
- Sessions: Did they stay engaged enough to learn more?

Total Reach: How many people saw the message.

Total Reach represents the number of individuals who were exposed to the campaign across all channels. This metric is critical because PGE cannot inform, influence, or engage with customers who have not first seen its message. Reach quantifies the size of the audience we connected with and serves as the foundation for building awareness, shaping reputation, and driving behavior change.

Total Clicks: How many customers were interested enough to take action.

Total clicks reflect the return on visibility - how effectively the investment translates into interest.

Total Web Sessions: How engaged customers were once they got there.

This is the total number of visits to PGE's website from those who clicked and how much time people actually spent time exploring the content. This is where interest turns into understanding. This is important because web sessions measure the depth of engagement, a sign the message didn't just grab attention, it held it, offering us the opportunity to educate customers.

Figure 13-3: PGE Mitigation Project Public Awareness

13.2.5 Best Practice Sharing

Information sharing and collaboration across utilities enables clear communication, so customers know where to find reliable updates, and are better prepared to respond during emergencies.

Over the past several years, communication professionals from utilities across the Western U.S. and Canada have convened at the Western Utilities Wildfire Communications Conference, a twice-annual event. The conference is a joint communications, public affairs, marketing, and advertising event where teams build relationships while exchanging communication and industry insights.

These sessions focused on sharing communication and engagement best practices, innovative tools and templates, and successful outreach case studies. The result is a growing network of professionals with a shared focus on supporting consistent public messaging across states and service areas.

13.3 Results

13.3.1 Community Access and Partnerships

In 2025, PGE had several one-on-one meetings with organizations to identify partnership opportunities to reach communities served by the respective organizations. The work completed in 2025 was a learning year, informing collaborations with organizations to increase engagement with communities that may otherwise not be engaged in other venues.

Table 13-1: Community-Based Organization Engagements

Date	Organization	Location
January 8, 2025	Mt. Hood Lion's Club	Welches
January 27, 2025	Upstream Access	Virtual
January 28, 2025	Familias en Accion	Portland
February 7, 2025	Centro Cultural	Hillsboro
February 12, 2025	Estacada Food Bank	Estacada
February 25, 2025	Familias en Accion	Virtual
March 7, 2025	Silverton Community Action Agency	Silverton
March 7, 2025	Silverton Sustainability	Silverton
March 10, 2025	Upstream Access	Virtual
March 13, 2025	Community Energy Project	Virtual
April 23, 2025	PGE Community Benefits & Impacts Advisory Group	Portland

13.3.2 Awareness, Education and Outreach Campaign

By achieving high engagement across multiple channels, PGE's 2025 campaign supported improved customer awareness and understanding of wildfire risks, translating to better prepared and more resilient communities, directly supporting public safety. The campaign's efficient use of digital advertising, email outreach, and bill inserts maximized reach while demonstrating responsible stewardship of resources. This approach was particularly effective in reaching customers living within HFRZs.

13.3.2.1 Community Engagement

PGE hosted six Wildfire Ready community events, four in person with a variety of community partners, and two virtual events. Compared to 2024, there was a 33 percent increase in Wildfire Ready Event attendance (approximately 200 attendees, up from 150).

Table 13-2: PGE Wildfire Ready Events

Date	Location	Partners
May 13th, 2025	Willamina	Upstream Access, Red Cross, ODHS, Yamhill County Emergency Management, ODF, OSU Extension, Polk Soil & Water Conservation District
May 15th, 2025	Estacada	Upstream Access, Red Cross, ODHS, Clackamas County Emergency Management, ODF, OSFM, USFS, Oregon Livestock Council, Estacada Fire Department, media
May 20th, 2025	Virtual	N/A
May 21st, 2025	Gaston	Upstream Access, Red Cross, ODHS, Washington County, OSFM, Oregon Division of Financial Regulation
May 22nd, 2025	Virtual	N/A
May 31st, 2025	Silverton	Upstream Access, Red Cross, ODHS, Marion County Emergency Management, Marion Soil & Water Conservation District, Firewise, Silverton Fire Department, Sustainable Silverton, Silverton Senior Center

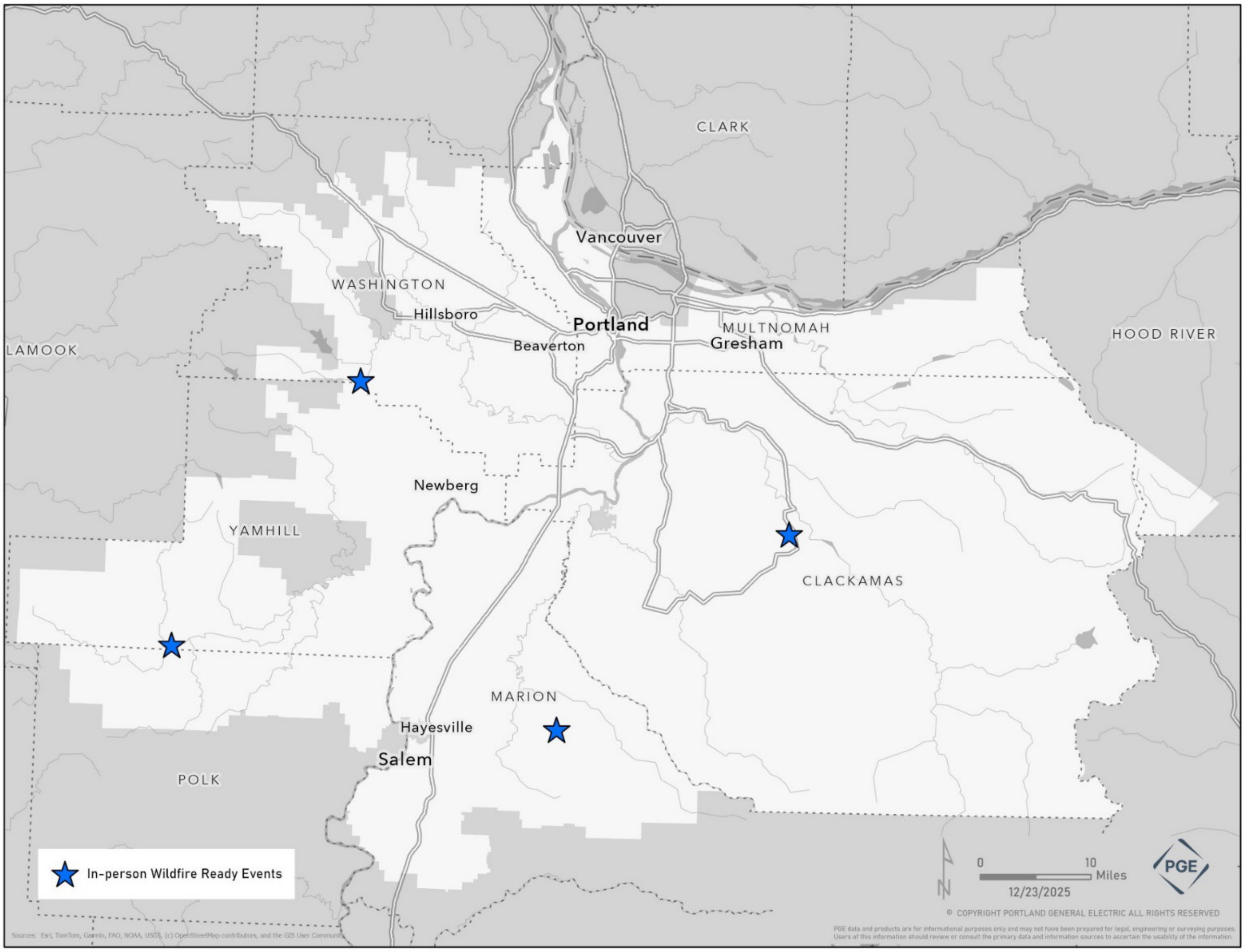


Figure 13-4: 2025 In-Person Wildfire Ready Events

In 2025, PGE supported 60 percent more public meetings, presentations and open houses compared to 2024. In addition to the PGE-hosted Wildfire Ready events listed above, Table 13-3 details the community events supported by PGE.

Table 13-3: Community Outreach Events

Date	Event Name	Location
January 8, 2025	Mount Hood Corridor Wildfire Partnership monthly meeting	Welches
January 8, 2025	PGE, AntFarm, and Timberline Rim HOA Site Visit	Welches
January 13, 2025	Clackamas Wildfire Collaborative-Fire Adapted Communities meeting	Clackamas County
January 27, 2025	Regional Disaster Preparedness Organization Public-Private Food Supply Chain Advisory meeting	Virtual
February 2, 2025	Oregon Burn Center Safety Fair	Portland
February 10, 2025	Clackamas Wildfire Collaborative - Landscape Resilience Team meeting	Portland

Date	Event Name	Location
February 12, 2025	Mount Hood Corridor Wildfire Partnership Monthly meeting	Welches
February 18, 2025	Upstream Access Prep-Ability Cohort Meeting	Portland
February 22, 2025	East County Learn Share Do Fair	Gresham
February 22, 2025	OSFM and OSU Extension Community Wildfire Resilience gathering	Oregon City
February 24, 2025	Regional Disaster Preparedness Organization Public-Private Food Supply Chain Advisory meeting	Virtual
February 26, 2025	Latino Network and MESA wildfire preparedness curriculum meeting	Virtual
February 26, 2025	Hamlet of Beavercreek board meeting	Beavercreek
February 27, 2025	Tualatin Soil and Water Conservation District Wildfire Ready, Documentary & Panel Discussion	Forest Grove
February 27, 2025	PGE, AntFarm, and Timberline Rim HOA Planning	Virtual
March 12, 2025	Mount Hood Corridor Wildfire Partnership monthly meeting	Welches
March 19, 2025	Clackamas Wildfire Collaborative-Fire Adapted Communities	Clackamas
March 20, 2025	Familias, PGE, & Pacific Power Workshop	Virtual
April 2, 2025	PGE, AntFarm, Timberline Rim HOA & Asplundh Wildfire & Workforce Development	Welches
April 9, 2025	Mount Hood Corridor Wildfire Partnership monthly meeting	Sandy
April 23, 2025	PGE Community Benefits Impacts and Advisory Group meeting	Portland
April 25, 2025	Fire Adapted Communities Network meeting	Virtual
May 3, 2025	West Multnomah Soil & Water Conservation District Wildfire Readiness Workshop	Portland
May 12, 2025	Field tour - Clackamas Wildfire Collaborative	Estacada
May 12, 2025	Hillsboro Fire and Rescue & PGE meeting regarding Community Wildfire Protection Plan	Hillsboro
May 14, 2025	Mount Hood Corridor Wildfire Partnership monthly meeting	Welches
May 17, 2025	Silverton Paws in the Park	Silverton
May 17, 2025	Mount Hood Corridor Wildfire Partnership Homeowners workshop	Firwood
May 22, 2025	Clackamas County Volunteer Organizations Active in Disaster meeting	Virtual
May 31, 2025	Firewise Celebration	Welches
June 3, 2025	PGE Springwater-Cazadero Open House	Estacada

Date	Event Name	Location
June 4, 2025	Family to Family Webinar	Virtual
June 7-June 8, 2025	Portland Fire & Rescue and Oregon State Fire Marshal Wildfire Preparedness Weekend	Portland
June 7, 2025	Mt Hood Lions Club Resource Fair	Hoodland
June 7, 2025	Corbett Pancake Breakfast	Corbett
June 16, 2025	Grand Ronde Elder Fair	Grand Ronde
June 17, 2025	Yamhill Soil and Water Conservation District	Virtual
June 17, 2025	Polk Soil and Water Conservation District	Virtual
June 18, 2025	City of Keizer Public Works Day	Keizer
June 23, 2025	Salem Center 50+ Energy Resource Fair	Salem
July 9, 2025	Mount Hood Corridor Wildfire Partnership monthly meeting	Welches
July 15, 2025	Yamhill County Employee Safety Fair	McMinnville
July 17, 2025	NE Multnomah County Community Association Meeting	Corbett
July 23, 2025	OSU Extension, Forestry & Natural Resources Partners	Beavercreek
August 13, 2025	Oregon Zoo Member Night	Portland
March 6, 2025	Mulino City Council	Mulino
August 27, 2025	OMSI After Dark	Portland
September 5, 2025	Forest Heights Safety Festival	Portland
September 13, 2025	Banks Wildfire Preparedness Community Event	Banks
September 18, 2025	Lake Oswego Emergency Preparedness Fair	Lake Oswego
September 20, 2025	Keizer Community Preparedness Fair	Keizer
September 20, 2025	Wilsonville Emergency Preparedness Fair	Wilsonville
October 1, 2025	Spirit Mountain Health and Safety Fair	Grand Ronde
October 4, 2025	Woodburn Fire Dept Open House	Woodburn
October 11, 2025	Hillsboro Fire Open House/Safety Fair	Hillsboro
October 11, 2025	Cornelius Emergency Preparedness Fair	Cornelius

13.3.2.2 Media Engagement

The 2025 earned media campaign delivered 52 PGE mentions across 24 news outlets, achieving nearly 5 million total reach and 94.3 percent positive sentiment. When news outlets cover PGE's initiatives, it demonstrates that PGE’s operations are transparent and subject to public scrutiny, which supports the Commission's documented interest in enhancing information flow and public trust.

The social media advertising component of the paid media campaign delivered 54,891 clicks to the website (37 percent above the 40K goal) via Facebook and Instagram while achieving substantial cost savings and efficiency improvements. 50 percent reduction in cost per click ($.95) while optimizing to deliver 33 percent more engagement than 2024. The digital advertising component of the paid media campaign—comprising YouTube, Google, streaming TV, print and radio ads—delivered impressions 100 percent above goal (49.3 million impressions vs. 24.6 million goal), and strong engagement across multiple languages and platforms.

13.3.2.3 Direct to Customer

PGE directly connected with over 740,000 customers through targeted email communications and postcard mailings, significantly increasing customer touchpoints throughout the service area. The 2025 campaign supported effective multi-channel engagement driving over 108,000 website visits. The diversified campaign increased awareness and customer satisfaction while identifying clear opportunities to better serve Spanish-speaking customers and business customers in 2026. In support of these efforts, PGE identified opportunities to optimize the wildfire-related webpages so customers could more easily access important safety and preparedness information. These updates provided a more relevant and effective online experience for customers who came to the site via digital ads, emails, and other outreach.

13.3.3 Awareness Survey Results

This year's surveys revealed that awareness of PSPS has stabilized at around 80 percent for customers in HFRZs. This represents a consistent trend since PGE initially deployed bi-annual surveys in 2023. Non-HFRZ customers showed a decrease in PSPS awareness likely due to the lower wildfire risk experienced this past summer.

While PSPS awareness remained stable, there was a 5 percent increase in customer awareness of PGE's broader wildfire prevention actions among HFRZ customers from last year's survey to this year. This broader awareness has proven correlated to customer confidence and satisfaction.

By achieving high engagement across multiple channels, the campaign supported improved customer awareness and understanding of wildfire risks, PGE's efforts to reduce those risks and actions they can take to be prepared. There is a strong correlation between customers' awareness, confidence, and satisfaction. The awareness-confidence-satisfaction relationship translates to better prepared and more resilient communities, directly supporting public safety.

This relationship was particularly pronounced among younger customers (18-44), whose satisfaction with PGE was more strongly tied to their awareness and confidence in PGE's wildfire prevention efforts. Older customers (65+) show stable satisfaction regardless of awareness, while younger customers' satisfaction is more closely tied to their understanding of PGE's actions.

The survey also revealed valuable insight into how customers prefer to receive information:

- Email remains the dominant preferred communication channel.
- The PGE app has emerged as the clear second choice for HFRZ customers.
- Text messaging ranked alongside email in likelihood of customer interaction, despite not being an option on the survey. Moving forward, we will list "text message" as a communication option.

Almost no customers reported that PGE communicated too much during fire season. This gives us latitude to increase communication frequency, knowing that more touchpoints throughout fire season can build greater awareness and, consequently, generate greater buy-in and preparedness actions by customers.

13.4 Initiatives and Targets

13.4.1 Initiative Summary Table

Table OPUC 13-1: Community Outreach and Public Awareness Initiative Cost Summary in Thousands

Initiative Activity	Tracking ID	Target Unit	2026 Target	2026 Forecast ($1,000)	2027 Target	2027 Forecast ($1,000)	2028 Target	2028 Forecast ($1,000)	Three-Year Forecasted Total ($1,000)	Section
Community Engagement	COPA-01	# of meetings	6	$377	6	$384	6	$402	$1,163	13.2.3
Media Buy	COPA-02	N/A	N/A	$191	N/A	$199	N/A	$208	$598	13.2.3
Direct to Customer	COPA-03	N/A	N/A	$140	N/A	$146	N/A	$153	$438	13.2.3

Notes:
1. Forecasts and Three-Year Totals provided in $/thousands.
2. All initiative Forecasts and Three-Year Totals include capital cost and operations and maintenance expense.

13.4.2 Initiative Details

13.4.2.1 Community Engagement (COPA-01)

Community Engagement is an on-going initiative to capture costs associated with designing, planning, and managing the overall community engagement program.

13.4.2.2 Media Engagement (COPA-02)

Media Engagement is an on-going initiative to capture costs associated with planning and managing wildfire-specific media, including the cost of wildfire-related Media Buys.

13.4.2.3 Direct to Customer (COPA-03)

Direct to Customer is an on-going initiative to capture costs associated with designing, planning and managing direct customer channels.

13.5 Continuous Improvement

13.5.1 Program Maturity

From 2022 to 2025, PGE saw moderate maturation (13 percent increase) in Community and Industry Engagement efforts based on corresponding category scores to the IWRMC Maturity Model. The 2025 maturity model identified opportunities to strengthen transparency and two-way communication with customers, communities, and local agencies. PGE will assess approaches to make public outreach materials more accessible and targeted, evaluate community feedback mechanisms, and improve internal coordination of outreach activities across programs. Lessons learned will guide improvements in documenting outreach effectiveness and aligning messages with other utilities and emergency partners.

13.5.2 Communication Insights

Analysis of PGE's wildfire communication efforts reveals valuable insights that can enhance outreach effectiveness going forward. PGE is exploring cost effective ways to develop improved targeted communications based on identified patterns in customer preference and engagement:

- **Demographic-tailored approach:** Findings show a generational divide in communication preferences, with younger customers strongly favoring digital channels (app, text) while older demographics continue to rely on traditional media sources like news and print.
- **Increased communication cadence:** With customer satisfaction linked to awareness of PGE's actions—and 2025 communications not perceived as overwhelming—a consistent stream of educational content during fire season would improve preparedness and highlight PGE's prevention efforts.
- **Website experience:** Digital performance metrics reveal high bounce rates, particularly for undergrounding ads, signaling a disconnect between advertising content and visitors' expectations of the website. Website content that delivers on ad promises would help maintain engagement after the initial click.
- **Multilingual outreach:** The modest 87 visits to Spanish wildfire pages suggests an untapped opportunity for expanded non-English language outreach to better serve PGE's diverse community.
- **Business customer engagement:** Limited engagement (203 visits) indicates opportunities to improve the current email and newsletter approach for engaging this critical segment, suggesting a need for targeted B2B tactics.
- **Text messaging expansion:** Text messaging emerged as particularly promising across multiple segments, indicating we should explore how to use this channel to communicate with customers.
- **App communication:** The PGE app is an effective information channel, particularly for younger customers who show strong preference for this platform.

14 Industry Engagement

14.1 Overview

To effectively reduce wildfire risk associated with our electric infrastructure, PGE recognizes that our efforts cannot succeed in isolation. Engagement with the wider industry—including peer utilities, vendors, technology developers, regulators, fire-safety professionals, and standards bodies, both nationally and internationally—is an essential element of our wildfire mitigation strategy. This section describes our approach to industry engagement: the objectives, key partners, methods, and how we measure and continuously improve our engagement to maintain expertise in leading edge technologies and operational practices.

14.2 Strategy

PGE's industry engagement focuses on four key areas:

- Participation in forums and sharing industry best practices or learnings
- Peer and agency collaboration
- Research and analysis to maintain expertise on emerging technologies/ practices
- Alignment with Oregon investor-owned utilities and OPUC Safety Staff

14.2.1 Participation in Forums/Sharing Industry Best Practices or Learnings

PGE participates in, and in some cases hosts, regional, statewide, and international utility-peer working groups that meet regularly to discuss comprehensive wildfire topics including, but not limited to, wildfire risk trends, emerging technologies, capital investments, operational practices, PSPS (public safety power shutoff) event coordination, and regulatory developments.

PGE engages regularly in the International Wildfire Risk Mitigation Consortium (IWRMC), an industry-sponsored collaborative to share wildfire risk mitigation insights and best practices. The collaborative leverages members across the global utility community to support ongoing sharing of data, information, technology, and practices, and proactively address the wildfire issues through learning, innovation, analysis, assessment, and collaboration. PGE is an active participant in all four working groups, Asset Management, Operations and Protocols, Risk Management, and Vegetation Management, and evaluates learnings to potentially accelerate delivery of mitigation strategies on behalf of customers faster and at a lower price. Additionally, the maturity model that Oregon IOUs utilize was developed by IWRMC membership. Results from PGE's 2025 maturity model assessment are included in Appendix G, Maturity Model Assessment, and will be one key element used to benchmark with peer utilities in 2026 to focus future program maturity efforts.

PGE maintains active coordination with other investor-owned utilities across the Pacific Northwest to advance consistent, effective wildfire-mitigation practices. Collaboration focuses on identifying and sharing best practices, communicating updates to wildland-fire strategies and staffing, and evaluating areas for mutual assistance or joint initiatives. PGE convenes a standing bi-weekly coordination call with PacifiCorp (Pacific Power), Puget Sound Energy (PSE), Idaho Power, and the

Bonneville Power Administration (BPA) to support continuous information exchange, strengthen inter-utility relationships, and improve regional preparedness and response to wildfire risk.

14.2.2 Peer and Agency Collaboration

PGE also collaborates with other IOUs and peer utilities directly to align with best practices. Potential changes to other initiative categories may be initiated from these discussions. For example, benchmarking with utilities on topics of dedicated agency representatives, real-time GIS data sharing, resilience zones, and community resource center strategy can inform improvements in PGE's Public Safety/Emergency Preparedness public safety partner coordination strategy activities.

Several utilities were willing to coordinate and share their time and knowledge with PGE this year in the space of wildfire mitigation through system hardening and capital investments. A snapshot of the information shared by each utility is highlighted below:

Pacific Gas and Electric: PG&E prioritizes its capital investments through a multi-layered approach that aligns risk reduction, operational efficiency, and long-term growth. Underground efforts are targeted to their highest and moderate threat districts, such as Tier 2 and Tier 3 locations. IT investments are required to optimize both capital investment and opportunity costs of their investments so as to target the most efficient investments to reduce risk. Scale and scope of their project planning is done at the circuit segment level (breaker to recloser, recloser to recloser, recloser to end) to maintain operational considerations in their electrical grid. PGE and PG&E also collaborated on Ground Level Distribution System information sharing, as PG&E has piloted this technology. PGE has begun to investigate the applications of this new technology because of this coordination.

Southern California Edison: SCE leverages risk and risk-spend efficiency to prioritize and direct their investments to targeted risk reducing areas of their territory. SCE has moved away from prioritizing investments at the circuit segment level as they look to analyze risk more granularly, leveraging tail risk indicators to understand the extremely high consequence, low probability events in their area. SCE leverages multiple projects and programs to reduce risk on their system in the short-, mid- and long-term horizons.

San Diego Gas and Electric: SDGE' risk assessment is conducted at the circuit segment level, examining sections between isolating devices. Risk is considered as Wildfire Risk, PSPS Risk, and PEDS (Protective Devices) Reliability Risk. These individual assessments are combined to calculate an overall reliability risk score. Circuit segments are bundled into larger sections for more efficient planning, considering potential PSPS impacts or alternative strategies. The risk assessment model provides three potential outputs: Undergrounding, Covered Conductor, or No mitigation required, validating an RSE greater than 1 and ensuring resources are allocated to address the highest-risk segments first.

Essential Energy (Australia): Essential Energy optimizes its capital investments through a Risk-Spend Efficiency framework, leveraging full RSE value within portfolio caps and prioritizing based on ignition risk reduction per dollar spent. Essential employs a complex prioritization methodology that incorporates asset risk models, including structures modeling and Weibull curves, all managed through portfolio optimization software. Additionally, EE strategically targets programs that enhance utility asset resiliency to maintain reliable service delivery across its network.

PGE developed its Public Safety Partner Collaboration and Coordination approach by reviewing practices documented in the wildfire mitigation plans of peer investor-owned utilities, including several West Coast investor-owned utilities. These utilities demonstrate the value of dedicated liaison roles, digital partner portals, GIS data sharing, structured notification protocols, and joint exercises. PGE has incorporated these leading practices into a model that is uniquely adapted to Oregon. This approach balances alignment with proven peer practices while fostering communications and coordination commitments reflect the needs and expectations of Oregon's emergency management partners.

The following table provides a summary of the PSPS related benchmarking PGE engaged in with peer utilities along with potential improvements under consideration for PSPS-01 through PSPS-06.

Table 14-1: PSPS Peer IOU Benchmarking

Topic	Peer IOU Examples	2026-2028 Changes Under Evaluation	Differentiation
Coordination phases	Peers generally use before/during/after fire season or pre-season/in-season/post-season.	Two-phase (fire season/off-season) structure with clear commitments tied to operations vs. planning.	New phrasing, simpler and more intuitive for fire agencies.
Dedicated liaison roles	Liaisons embedded for fire or PSPS. Utilities with larger service territories may have regional points of contact.	Public Safety Liaisons embedded in county/Tribal/state EOCs on request for fire or PSPS.	Adapted concept and tailored title/description for use in Oregon.
Exercises and AARs	Most IOUs commit to pre-season PSPS tabletop including after-action reporting.	At least one PSPS HSEEP-aligned tabletop per year; draft AAR in 30 days, final in 90 days, with joint review session.	Builds on peer leading practice and integrates specific timelines.
Partner-facing tools	Public safety partner portals provide GIS shapefiles and tactical intelligence to public safety partners to allow self-service of critical information during events.	Evaluating the proposal to include the Partner Portal in PSPS-related IT. The portal would provide GIS shapefiles, circuit lists, fire overlays, wire down locations, and de-energization and re-energization status.	Builds on peer leading practice and integrates into one comprehensive tool. Plain, direct language.

PGE's industry engagement includes peer benchmarking and lessons-learned workshops to share performance data, event-analysis outcomes, and mitigation program updates. This allows us to compare our maturity level and identify opportunities to mature our wildfire program. These opportunities may occur in both industry lead engagements and utility organized workshops.

PGE also is committed to sharing industry-relevant data such as fault-events, weather/vegetation triggers, PSPS performance, and mitigation program outcomes to promote collective industry learning through OPUC workshops.

Collaboration with both agencies and peers are integral factors in PGE's wildfire risk modeling and planning workstreams. How feedback from agency partners and land managers informs PGE's comprehensive risk framework and calibration with utility peers supports consistency for communities can be found in Section 4.8.2.

14.2.3 Research and Analysis to Maintain Expertise on Emerging Technologies/Practices

PGE collaborates with utility peers and technology providers to pilot and evaluate new solutions (e.g., sensor systems, predictive analytics, fault detection on energized lines). As a mid-sized utility, PGE must carefully consider investments in emerging technology and associated research expenses. As such, PGE leverages industry forums like the IWRMC to maintain expertise on emerging technologies as opposed to directly funding large-scale research and development efforts. As a result of industry engagement and demonstrated value by peer utilities, this 2026-2028 WMP reflects several pilots designed to evaluate the effectiveness and quantify the cost of emerging technologies or practices.

PGE has an ongoing partnership with Electric Power Research Institute (EPRI) to align on industry best practices, new engineering developments, and emerging technology. Engagement with EPRI enables PGE to manage costs by pooling resources and to discuss the impacts of research and development findings with peer utilities. Section 6.5.2, Industry Research provides an example of PGE's participation in the EPRI Conductor Burndown beyond Compact Single Phase Recloser Supplemental Project and lessons learned that will influence our mitigation strategy.

14.2.4 Alignment with Oregon Investor-owned Utilities and OPUC Safety Staff

The Oregon Public Utility Commission opened an investigation into wildfire planning requirements to facilitate a meaningful, transparent, and robust planning process which was adopted by OPUC Order No. 24-260 on August 7, 2024.

Phase 1 of this engagement was completed in 2024 and approved by OPUC Order No. 24-326 on September 23, 2024, including the following deliverables:

- Updated process to provide guidance on procedural steps for WMP evaluation
- Updated planning cycle to provide guidance on how to transition to multi-year planning
- Standardization of elements to develop data templates which identify the appropriate information and level of granularity for data required in the WMP

Phase 2 of this engagement was predicated on a high level of collaboration and coordination with OPUC Safety Staff, the Independent Evaluator, and the Oregon Joint IOUs Idaho Power Company, PacifiCorp, and Portland General Electric. This work spanned 2025 was planned to result in the deliverables identified in Table 14-2, Investigation into Guidelines for Wildfire Mitigation Plans – Phase 2.

Table 14-2: Investigation into Guidelines for Wildfire Mitigation Plans Phase 2

Effort Areas	Recommendation	Outcome	Leading
Standardization of Elements	Shared Terminology	Glossary of shared terminology that can be used across WMPs.	Utilities
	Shared Format	A format guide which adopts uniform chapter and section headings, as well as other agreed upon organizational features.	
Working Group	Risk Quantification and Risk-Spend Efficiency	Guidance on risk quantification and a uniform risk-spend valuation methodology.	Staff

Standardization of Elements, including the WMP Glossary of Shared Terminology and the Multi-year Wildfire Mitigation Plan Standardized format, was developed by the Joint IOU's and synchronized with Phase 1 efforts including the definitions, that were part of the original data template guideline, and filed for public comments on June 13, 2025. Stakeholder comments were incorporated into feedback that was incorporated into the Staff Report issued on August 14, 2025. Redline markups and clean copies of both the Shared Terminology and Shared Format were both approved by OPUC Order No. 25-326 dated August 20, 2025, and were utilized in development of PGE's 2026-2028 WMP.

The Risk Quantification and Risk-Spend Efficiency Working Group met beginning in April and ran through August of 2025, The Joint Oregon IOU's collaborated with OPUC Safety Staff and the Independent Evaluator to provide input into the elements used in the risk modeling assessment and current cost effectiveness calculations Staff was developing The twelve working group meetings PGE engaged in to support development of a common framework of Risk Quantification and Risk-Spend Efficiency is included in Table OPUC 14-1. OPUC Staff facilitated stakeholder engagement culminating in a public workshop held on September 17, 2025, to share progress of the work and solicit questions and feedback. The WMP Risk Spend Efficiency Workbook and Guidelines were approved by OPUC Order No. 25-346 on November 3, 2025, with direction to complete the following sections of the RSE Workbook by December 31, 2025:

- Section 1: HFRZ Exposure Risk Modeling
- Section 2: Outage/Fault Ignition Risk
- Risk Summary: summarized the base risk from sections 1-4 and highlight the highest risk
- Section 5: Mitigation Cost
- Section 6: Risk Spend Efficiency

14.3 Results

In Table OPUC 14-1 below, PGE shares the high-level results from industry engagement activities in 2025. Additionally, in 2025 PGE employees held leadership roles of Chair of the Risk Working Group and Co-chair of the Asset Management Working Group, both in the International Wildfire Risk Mitigation Consortium.

Table OPUC 14-1: Industry Engagements

Date	Meeting	Agency/ Organization	Topic	Key Takeaways	Program/Project/ Pilot Informed by Meetings
1/13/2025	Operations & Protocols Working Group Monthly Meeting	IWRMC	Technology presentation on pole wrap materials	Solution enhances structural integrity and is fire-resistant.	Fire Mesh Pole Wrap (GDSH-12)
1/14/2025	Asset Management Working Group Monthly Meeting	IWRMC	Drone and LiDAR use Early Fault Detection	Cost savings and improved accuracy achieved by in-house processing of data PGE Presentation	Inspect/Correct Program (IC-01) Inspect/Correct IT (IC-06) Early Fault Detection (SAF-04)
1/14/2026 – 1/16/2026	Fire Weather, Technology and Risk	American Meteorology Society Annual Meeting	Critical fire weather, air quality, and weather and climate risk issues facing wildland fire practitioners	Increasing number of solutions/vendors in the space; new novel approach to fire occurrence and sub-daily growth dataset; ember spread modeling PGE Co-chaired event	Situational Awareness and Forecasting (SAF-01)
1/15/2025	OWEC Meeting #11 - Assessing Risk Exposure and Mitigation Planning	Oregon Public Utility Commission	Assessing Risk Exposure and Mitigation Planning	Continued expansion of communication to support situational awareness and grid hardening investments. Mitigation maturity tiers for utilities continues to evolve.	Situational Awareness and Forecasting (SAF-01) Wildfire Mitigation Strategy Development (WMSD-01)
1/22/2025	Vegetation Management Working Group Monthly Meeting	IWRMC	Tree worker safety GIS advancements	Practice sharing for contractor and subcontractor safety programs. GIS and location intelligence is foundational to vegetation management maturity.	Advanced Wildfire Risk Reduction Program (VM-01) Vegetation Management IT (VM-06)
1/22/2025 – 1/24/2025	FireSense Tech Transfer Scoping Session	NASA	NASA was identifying Stakeholder needs in wildland fire management where their data and tools can inform and be applied	Multiple stakeholders need live fuel moisture for fire risk; PGE will supply their fuel moisture data to help efforts, and give feedback on tech/data	Situational Awareness and Forecasting (SAF-01) Live Fuel Moisture Sampling (SAF-06)
1/23/2025	Risk Management Working Group Monthly Meeting	IWRMC	Grants Vegetation spectroscopy	PGE presentation Use of multi-spectral satellite data can be leveraged to aid elevated fire risk identification.	Wildfire Risk Modeling and Planning (RMA-01)
2/7/2025	The Process of Co-Development: A FireSense Conversation	NASA	-Understand how NASA is encouraging the co-development of FireSense projects.	A better understanding of the methods used to engage with project stakeholders to develop projects across agencies and disciplines.	Situational Awareness and Forecasting (SAF-01)

Date	Meeting	Agency/ Organization	Topic	Key Takeaways	Program/Project/ Pilot Informed by Meetings
2/10/2025	Clackamas Wildfire Collaborative - Landscape Resilience Team	Clackamas Wildfire Collaborative - Landscape Resilience Team	Landscape resiliency	Determine how PGE can support the Collaboratives goal of developing a more resilient and fire adapted natural system while enhancing public awareness.	Community Outreach and Public Awareness (COPA-01)
2/10/2025	Ops & Protocols Working Group Monthly Meeting	IWRMC	Monitoring assets between the substation and smart meter using sensors and data analytics AI-enabled platform for customer engagement and emergency response	Important to integrate data from multiple platforms to provide a comprehensive risk assessment and operationalize real-time outcomes. Easier for agents to find things quickly with less training time, can be leveraged in emergency response, and automates actions	Early Fault Detection (SAF-04)
2/11/2025	Subgroup Office Hours - Option 1	PGE, PAC, BPA wildfire mitigation reps	Asset risk ranking demonstration, GIS data sharing process	Asset risk ranking demonstration, GIS data sharing process.	Fire Season Readiness (GOP-01)
2/11/2025	IWRMC Asset Management Working Group Monthly Meeting	IWRMC	Conductor failures Pole fleet analysis	Leading cause of equipment failure for peer utility and difficult to detect visually Successes and failures of specific pole inspection drills	Early Fault Detection (SAF-04) Inspect/Correct Program (IC-01)
2/17/2025	Subgroup Office Hours - Option 2	PGE, PAC, BPA wildfire mitigation reps	Asset risk ranking demonstration, GIS data sharing process	Asset risk ranking demonstration, GIS data sharing process.	Fire Season Readiness (GOP-01)
2/18/2025	Subgroup Office Hours - Option 3	PGE, PAC, BPA wildfire mitigation reps	Asset risk ranking demonstration, GIS data sharing process	Asset risk ranking demonstration, GIS data sharing process.	Fire Season Readiness (GOP-01)
2/19/2025	Resilience in the face of a changing climate	Oregon Chapter of the American Meteorological Society	Emergency preparedness, and meteorology at PGE	PGE Presentation	Situational Awareness and Forecasting (SAF-01)
2/19/2025	Vegetation Management Working Group Monthly Meeting	IWRMC	LiDAR and digital twin	Industry is leaning into usage of LiDAR data to create highly accurate digital twins of utility assets and vegetation to manage risk.	Remote Sensing (RMA-04)
2/20/2025	Risk Management Working Group Monthly Meeting	IWRMC	Captive insurance	Benefits, process, and how it can help manage risk	Wildfire Mitigation Strategy Development (WMSD-01)
2/25/2025	Region 6 – Power Generation & Transmission Fire Planning	USDA Region 6 staff, PGE, PAC, BPA wildfire mitigation reps	Critical infrastructure GIS data sharing with NIFC AGOL Group & Transmission Asset Criticality Ranking Pilot	Ongoing data share work with R6 staff, PGE, BPA, and PAC. Work offline with subgroups to provide data.	Fire Season Readiness (GOP-01)

Date	Meeting	Agency/ Organization	Topic	Key Takeaways	Program/Project/ Pilot Informed by Meetings
2/25/2025 - 2/26/2025	2025 Wildfire Mitigation for Utilities Conference	EUCI	Operational Excellence in Fire Prevention and Response	PGE Presentation	Fire Season Readiness (GOP-01)
2/27/2025	Wildfire Documentary & Panel Discussion	Tualatin Soil and Water Conservation District	Wildfire risk in Oregon and PGE programs that support wildfire risk assessment and mitigation	Incorporate learnings from recent wildfires into risk assessments; address urban conflagration risk.	Wildfire Risk Modeling and Planning (RMA-01)
3/3/2025 – 3/4/2025	Wildfire Planning + Mitigation	Western Energy Institute	Wildfire Risk Mitigation through modeling and operational planning	PGE presentation on leveraging RSE to make wildfire and reliability risk informed decisions. Utilities have developed de-energization encroachment policies Utilities are leveraging remote sensing for vegetation program. Cross-organizational partnerships for vegetation mitigation Varying levels of maturity in articulating business case value	Plan to have Asset Risk Management System to incorporate analytical abilities to de-energize due to encroachment. With remote sensing optimize a risk-based vegetation program that crews can effectively implement Wildfire Risk Modeling and Planning (RMA-01) Advanced Wildfire Risk Reduction Program (VM-01)
3/12/2025 – 3/13/2025	Western Utilities Wildfire Communications 2025 Workshop	Utility Collaborative	Wildfire communication strategies (shared across group of Western utility comms folks)	Sharing tools, communication strategies and methods, and lessons learned	Community Outreach and Public Awareness (COPA-01)
3/27/2025	Grid Resilience Planning for Wildfires Western Region Training for Public Utility Commissions and State Energy Offices	Berkeley Lab	Applying NARUC's new grid resilience planning framework to wildfires Components of resilience planning for wildfires Utility data, metrics, and analyses State wildfire planning processes and lessons learned to date Utility wildfire resilience plans and projects	Alignment with regulators, state agencies, and utilities on wildfire mitigation issues. Diversity of work utilities are undertaking and their common approaches in mitigating wildfire risk.	Wildfire Mitigation Strategy Development (WMSD-01) Emergency Preparedness (PSPS-06)
3/30/2025 – 4/2/2025	Annual Conference	IWRMC	Comprehensive wildfire mitigation topics across all working groups	Deploying an array of sensor technologies to address disparate risk and opportunities	Multi-sensor Fault Detection Pilot (SAF-08)
4/2/2025	Joint IOU Risk Spend Efficiency Meeting 1	OPUC	Fire Risk Data	Terrain, land-use, canopy fuels, surface fuels, short-term (fuels) and other physical data sets used in fire risk modeling.	Wildfire Risk Modeling and Planning (RMA-01)

Date	Meeting	Agency/ Organization	Topic	Key Takeaways	Program/Project/ Pilot Informed by Meetings
4/9/2025	Joint IOU Risk Spend Efficiency Meeting 2	OPUC	Weather Modeling	Short-term fuels (cont.) short-term (wind, weather, and derived variables), weather models, seasonal (weather), climatology, and other weather data sets used in fire risk modeling	Wildfire Risk Modeling and Planning (RMA-01)
4/16/2025	Joint IOU Risk Spend Efficiency Meeting 3	OPUC	Seasonal and Future State	Seasonality (drought severity, weather patterns, fuel loads, disturbances), climatology (historical and projections), future state data (land use, population, Structures and wildfire consequence), and other seasonal data sets used in fire risk modeling.	Wildfire Risk Modeling and Planning (RMA-01)
4/17/2025	Region 6 – Power Generation & Transmission Fire Planning (continued)	USDA Region 6 staff, PGE, PAC, BPA wildfire mitigation reps	Critical infrastructure GIS data sharing with NIFC AGOL Group & Transmission Asset Criticality Ranking Pilot	Ongoing data share work with R6 staff, PGE, BPA, and PAC. Draft one-pager/project overview language and solicit utility partner feedback.	Fire Season Readiness (GOP-01)
4/16/2025 – 4/17/2025	Utility Wildfire, Weather & Analytics Summit 2025	Utility Collaborative	Benchmarking, lessons learned	More meteorologist and fire weather expertise needed in utilities, even in Ern/Srn US	Situational Awareness and Forecasting (SAF-01)
4/21/2025 – 4/25/2025	Wildland Fire Investigation Subcommittee (WFISC)	National Wildfire Coordinating Group	Funding and Budget, Standard Operating Procedures, Class updates	Important to keep engaging with this subcommittee for investigation maturity	Ignition Management (RMA-02)
4/22/2025	Utility Counterpart Collaboration	PGE, PAC	Utility SME wildfire response and operations collaboration	Collaboration kick-off, counterpart introductions, contacts exchange, program updates & roundtable.	Fire Season Readiness (GOP-01)
4/23/2025	Joint IOU Risk Spend Efficiency Meeting 4	OPUC	Ignition Probability and Future State	Risk event data (outages, wire down events, and ignitions), probability of ignitions (fuels, terrain, canopy, wind, aridity derived indices, asset characteristics, methods, and others), and fire potential index (fuels, terrain, wind, aridity, derived indices, wildfire consequences, planning horizon, categories/levels, and other) data sets used in fire risk modeling	Wildfire Risk Modeling and Planning (RMA-01)
4/23/2025	Operations & Protocols and Asset Management Joint Working Group Monthly Meeting	IWRMC	Annual Conference Feedback Working Group Planning for 2025	Running most of the meetings as a full group was beneficial.	Industry Engagement (IE-01)

Date	Meeting	Agency/ Organization	Topic	Key Takeaways	Program/Project/ Pilot Informed by Meetings
4/23/2025 – 4/24/2025	EEI Wildfire Tech Summit	Edison Energy Institute	Multiple	EPSS is the primary operational mitigation for non-wind related risk. Utilities are starting to see an increase in service drop ignitions.	Enhanced Powerline Safety Settings (GOP-02) Breakaway Service Drop Pilot (GDSH-14)
4/30/2025	Joint IOU Risk Spend Efficiency Meeting 5	OPUC	Ignition Drivers	Reviewing risk event drivers (contamination, equipment deterioration, equipment error, equipment environmental, equipment other, fire, public contact, wildlife contact, vegetation, wire-to-wire, unknown, and other), and relative sub-drivers associated with ignition risks.	Wildfire Risk Modeling and Planning (RMA-01)
4/30/2025	Vegetation Management Working Group Monthly Meeting	IWRMC	Annual Conference Feedback	Incorporate vegetation management utility discussions in future meetings	Advanced Wildfire Risk Reduction Program (VM-01)
5/1/2025	Risk Management Working Group Monthly Meeting	IWRMC	Bushfire risk modeling	Change management is crucial when increased risk is driven by consequence values	Wildfire Risk Modeling and Planning (RMA-01)
5/1/2025	2nd Annual PGE Meteorology Partners Meeting	Utility Collaborative	Utility Meteorology with emphasis on Fire Weather	Benchmarking and lessons learned, change from WIMS to FEMS	Situational Awareness and Forecasting (SAF-01, 03, 06)
5/6/2025	Utility Counterpart Collaboration	PGE, PAC, BPA	Utility SME wildfire response and operations collaboration	High-level program overviews to identify benchmark opportunities and adding other IOU wildfire reps, program updates & roundtable.	Fire Season Readiness (GOP-01)
5/6/2025 – 5/8/2025	2025 Wildfire Mitigation Conference	Pacific Gas & Electric	Sharing learnings on strategic outreach and communication efforts with regulators, stakeholders and customers	Importance of meaningful dialogue and actionable insights that advance wildfire mitigation strategies, resiliency and strategic outreach and communication efforts across the industry	Community Outreach and Public Awareness (COPA-01)
5/7/2025	Joint IOU RSE Development Meeting 6	OPUC	Wildfire Consequences	Wildfire spread (data inputs and methods) and wildfire consequences outputs.	Wildfire Risk Modeling and Planning (RMA-01)
5/9/2025	PNUCC board meeting	Pacific Northwest Utility Conference Committee	Monthly Board Meeting;	PGE Presentation on Weather Data and Support for Pacific Northwest	Situational Awareness and Forecasting (SAF-01)
5/20/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power	Utility SME wildfire response and operations collaboration	Joint coordination and support to enhance situational awareness, planning, and communications, program updates & roundtable.	Fire Season Readiness (GOP-01)

Date	Meeting	Agency/ Organization	Topic	Key Takeaways	Program/Project/ Pilot Informed by Meetings
5/20/2025	Operations & Protocols and Asset Management Joint Working Group Monthly Meeting	IWRMC	Drones and AI Maturity Model Refresh	Standardized templates used for capturing required images and AI learning. AI being piloted for quality control, but scope will expand over time. AI is reducing time on repetitive for inspectors such as counting inventory. Plan for a model refresh and results update planned for 2025	Inspect/Correct Program (IC-01) Distribution Drone Inspections Pilot (IC-07) Transmission Drone Inspections Pilot (IC-08) Inspect/Correct IT (IC-06) WMP Strategy & Program Development (WMSD-01)
5/28/2025	Joint IOU RSE Development Meeting 7	OPUC	Mitigation Effectiveness	Reviewed various system hardening options such as; undergrounding, covered conductor, pole replacements, equipment updates, vegetation management, operational practices (such as sensitive settings, installation of camera detection and weather stations), transmission system improvements, and other mitigations options.	Wildfire Risk Modeling and Planning (RMA-01)
5/28/2025	Joint IOU RSE Development Meeting 8	OPUC	Mitigation Selection and Costs	Utilities current methods identifying how mitigation programs and projects are selected. What are the utilities current RSE calculations. Average mitigation cost based on the type of mitigation.	Wildfire Risk Modeling and Planning (RMA-01)
5/28/2025	Vegetation Management Working Group Monthly Meeting	IWRMC	Vegetation management practices review	Dedicated hazard tree program. Moving toward AI and remote sensing driven vegetation management program.	Advanced Wildfire Risk Reduction Program (VM-01)
6/3/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power	Utility SME wildfire response and operations collaboration	Pre-season preparedness and roundtable topics, program updates & roundtable.	Fire Season Readiness (GOP-01)
6/4/2025	GridFWD Wildfire Symposium	GridFWD	Multiple	Updates on situational awareness and risk modeling tools like remote sensing and ignition detection cameras from vendors, utilities, and regulators	WMP Strategy & Plan Development (WMSD-01)
6/16/2025	Operations & Protocols Working Group Quarterly Meeting	IWRMC	Enhanced Powerline Safety Settings – Australia and US	Similar approaches are used to reduce ignition risk.	Enhanced Powerline Safety Settings (GOP-02)

Date	Meeting	Agency/ Organization	Topic	Key Takeaways	Program/Project/ Pilot Informed by Meetings
6/17/2025	Asset Management Working Group Quarterly Meeting	IWRMC	Utilizing AMI Data for Early Fault Detection	Edge analytics is becoming increasingly important. Variance in meter capabilities. Smart meter alarms best used with AMI trend data	Early Fault Detection (SAF-04)
6/17/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power	Utility SME wildfire response and operations collaboration	Active incident status updates across utility territories, program updates & roundtable.	Fire Season Readiness (GOP-01)
6/18/2025	OWEC Meeting #12 - Assessing Risk Exposure and Mitigation Planning	Oregon Public Utility Commission	Situational Awareness and Ignition Consequence Reduction	2025 Fire Season Outlook. Assimilating Fire Weather Resources for Situational Awareness and Operational Decision-Making. Importance of stakeholder and agency engagement in managing wildfire risk.	Situational Awareness and Forecasting (SAF-01) Wildfire Mitigation Strategy Development (WMSD-01)
6/25/2025	Vegetation Management and Risk Management Joint Working Group Monthly Meeting	IWRMC	Tree flammability	Vegetation becomes more flammable beyond a defined water stress threshold.	Advanced Wildfire Risk Reduction Program (VM-01)
7/1/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power	Utility SME wildfire response and operations collaboration	Active incident status updates across utility territories, program updates & roundtable.	Fire Season Readiness (GOP-01)
7/15/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power	Utility SME wildfire response and operations collaboration	Active incident status updates across utility territories, program updates & roundtable.	Fire Season Readiness (GOP-01)
7/15/2025	Operations & Protocols and Asset Management Joint Working Group Monthly Meeting	IWRMC	Powerline Inspections Survey Field Worker Certification and Competency Analysis	Majority of utilities adjust transmission inspection practices in wildfire-prone areas. Utilities are beginning to align frequency with risk modeling to optimize resources.	Inspect/Correct (IC-01)
7/17–7/18/2025	PacifiCorp Wildfire Intelligence Center (WIC) Site Visit	PGE, PAC	PAC Wildfire Intelligence Center site visit and operational demonstration	Advanced Monitoring Systems: PacifiCorp's integration of multi-layered detection technologies (satellite, camera networks, and weather stations) provides comprehensive real-time wildfire monitoring capabilities that could be adapted for PGE's service area.	Wildfire Intelligence Center (GOP-04)
7/23/2026	Joint IOU RSE Development Meeting 9	OPUC	Introduction of RSE workbook to Utilities	Staff introduced the first draft of the RSE Workbook. Staff outlined sections one and two worksheets to IOUs.	Wildfire Risk Modeling and Planning (RMA-01)

Date	Meeting	Agency/ Organization	Topic	Key Takeaways	Program/Project/ Pilot Informed by Meetings
7/23/2025	Vegetation Management Working Group Monthly Meeting	IWRMC	Vegetation management practices review	Utility employs satellite imagery, LiDAR drones, and predictive analytics to optimize program.	Advanced Wildfire Risk Reduction Program (VM-01)
7/29/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power	Utility SME wildfire response and operations collaboration	Active incident status updates across utility territories, program updates & roundtable.	Fire Season Readiness (GOP-01)
7/30/2026	Joint IOU RSE Development Meeting 10	OPUC	RSE Data Discussion	Staff began discussions with IOUs to work to develop average values for ignition probability by fault type and mitigation ignition risk reductions by risk event drivers.	Wildfire Risk Modeling and Planning (RMA-01)
8/6/2025	Joint IOU RSE Development Meeting 11	OPUC	IOU RSE Discussion	Continued discussion on values for ignition risk, mitigation effectiveness and costs.	Wildfire Risk Modeling and Planning (RMA-01)
8/11/2025	Operations & Protocols Working Group Monthly Meeting	IWRMC	Strategic underground program Evolving utility meteorological services	Executed for co-benefits of wildfire risk and reduced storm restoration times. Utility shared advances in their program as they shift from manual to automated processes.	Underground (GDSH-02) Situational Awareness and Forecasting (SAF-01)
8/12/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power	Utility SME wildfire response and operations collaboration	Active incident status updates across utility territories, program updates & roundtable.	Fire Season Readiness (GOP-01)
8/12/2025	Asset Management Working Group Monthly Meeting	IWRMC	Applying Asset Management Principles to Wildfire Risk EPRI 2026 Wildfire Research Focus Areas	Four resilience capabilities tie to wildfire risk (monitoring, learning, anticipating, responding). Focus areas are ignition prevention, downed conductor detection, covered conductor, and data-driven resiliency analysis.	Wildfire Risk Modeling and Planning (RMA-01) Multi-sensor Fault Detection Pilot (SAF-08)
8/20/2025	Vegetation Management Working Group Monthly Meeting	IWRMC	Vegetation management practices review	PGE Presentation.	Advanced Wildfire Risk Reduction Program (VM-01)
8/21/2025	Risk Management Working Group Monthly Meeting	IWRMC	Tail risk discussion	Two risks may share similar average values, but their tail risk can differ dramatically.	Wildfire Risk Modeling and Planning (RMA-01)
8/26/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power	Utility SME wildfire response and operations collaboration	Active incident status updates across utility territories, program updates & roundtable.	Fire Season Readiness (GOP-01)
8/27/2025	IOU RSE Development Meeting 12 PGE	OPUC	PGE RSE Review	Focused discussion with PGE internal data for the development of average values for ignition probability by fault type, mitigation ignition risk	Wildfire Risk Modeling and Planning (RMA-01)

Date	Meeting	Agency/ Organization	Topic	Key Takeaways	Program/Project/ Pilot Informed by Meetings
				reductions by risk event drivers and the mitigation costs, saving and lifespan.	
9/8/2025	Operations & Protocols and Asset Management Joint Working Group Monthly Meeting	IWRMC	Roundtable on ignition reduction	Fast protection settings are effective and have gaps in detecting events. Power BI tools can be leveraged for advanced analysis like chain event sequences that result in failures.	Enhanced Powerline Safety Settings (GOP-02)
9/9/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power	Utility SME wildfire response and operations collaboration	Active incident status updates across utility territories, adding PSE, program updates & roundtable.	Fire Season Readiness (GOP-01)
9/9/2025 – 9/11/2025	Trees & Utilities Conference	International Society of Arboriculture	Vegetation management topics for North American electric utilities	Remote sensing technology is improving all the time and can be very beneficial to planning and operations. There is a nationwide effort to improve tree-related outage tracking that PGE would benefit from joining.	AWRR/Vegetation Risk Index/Tree-related Outage Survey
9/17/2025	Vegetation Management Working Group Monthly Meeting	IWRMC	Vegetation management practices review	Increased inspections, leveraging data to modify the program, and investing in data from LiDAR to drive changes by leveraging AI.	Advanced Wildfire Risk Reduction Program (VM-01)
9/23/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power, PSE	Utility SME wildfire response and operations collaboration	PSE introductions, active incident status updates across utility territories, program updates & roundtable.	Fire Season Readiness (GOP-01)
9/25/2025	Risk Management Working Group Monthly Meeting	IWRMC	Review of tail risk	Traditional modeling fails to fully account for low-probability, high-consequence events.	Wildfire Risk Modeling and Planning (RMA-01)
10/7/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power, PSE	Utility SME wildfire response and operations collaboration	Active incident status updates across utility territories, program updates & roundtable.	Fire Season Readiness (GOP-01)
10/21/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power, PSE	Utility SME wildfire response and operations collaboration	Post-season discussion, lessons learned, 2026 in-person meeting planning, program updates & roundtable.	Fire Season Readiness (GOP-01)
10/22/2025-10/23/2025	Drones Cross-utility Collaboration Event	Southern California Edison	Aerial Digital Inspections	Rightsizing Inspection Form Requirements; Tag Priority & Remediation; Imagery Visualization & Workflow Tools; Shot Sheet Journey; the quality of aerial inspections drives higher volume of findings; Labor Requirements; Starting/Initial Funding for	Inspect/Correct (IC-01) Distribution Inspections Pilot (IC-07) Transmission Inspections Pilot (IC-08)

Date	Meeting	Agency/ Organization	Topic	Key Takeaways	Program/Project/ Pilot Informed by Meetings
				Aerial Program; BVLOS; AI/ML Data and Model Sharing Platform Governance	
10/15/2025	Operations & Protocols, Asset Management, Vegetation Management, and Risk Management Joint Working Group Monthly Meeting	IWRMC	Regulatory/Legislative Update	Approaches vary, but utilities across the world face similar themes of funding challenges, regulatory balance, and human element of fire preparedness.	WMP Strategy & Program Development (WMSD-01)
10/21/2025	Marmon (Hendrix) Spacer Cable Demonstration JWJATC	Marmon Utility	Hendrix Spacer Cable use cases, installation demonstration, training	Change Management, Standards, training for Spacer Cable installation	Spacer Cable Pilot (GDSH-13)
10/27/2025-10/30/2025	2025 Western Protective Relay Conference	SEL Washington State University	Wildfire mitigation research and possible solutions for power systems. Protection Methods Used to Reduce Wildfire Risks Broken-Conductor Detection High Impedance Fault location and testing	Relay algorithms, high impedance fault detection, use of communicating faulted circuit indicators to control upstream reclosers Uni-grounded neutral distribution systems offer better opportunities for risk mitigation conversion is cost prohibitive. HIF detection finding more series faults than shunt faults associated with downed conductors. Results of staged fault testing showing highly variable results.	Enhanced Powerline Safety Settings (GOP-02) Protection Practice Improvements (GOP-05)
11/3/2025	Operations & Protocols Working Group Monthly Meeting	IWRMC	Equipment Exemption and Standard Process Fast Curve Setting Discussion	Utilities are continuing to evaluate fast curve settings and the benefits or impacts of intentional delays	Enhanced Powerline Safety Settings (GOP-02) Protection Practice Improvements (GOP-05)
11/4/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power, PSE	Utility SME wildfire response and operations collaboration	2026 in-person meeting planning, adding Avista, program updates & roundtable.	Fire Season Readiness (GOP-01)
11/4/2025	Asset Management Working Group Monthly Meeting	IWRMC	Equipment failure as a proxy for ignitions	Exploring equipment failure database as proxy for potential fire starts	Risk Methodology and Assessment (RMA-01)
11/7/2025	PGE/Xcel Wildfire Meet and Greet	PGE, Xcel Energy	Utility wildfire program benchmarking	High-level program overviews to identify benchmark opportunities, contacts exchange	Fire Season Readiness (GOP-01)
11/12/2025	Vegetation Management Working Group Monthly Meeting	IWRMC	Vegetation management practices review	Fuel clearing work has evolved from reactive to programmatic and engagement with land manager engagement has	Advanced Wildfire Risk Reduction Program (VM-01)

Date	Meeting	Agency/ Organization	Topic	Key Takeaways	Program/Project/ Pilot Informed by Meetings
				improved systematic fuels work.	
11/12-11/14/2025	Ridetop to Rooftop - Creating a Wildfire Resilient Oregon, 2025 Summit	ODF, OSFM	Utility representation at a statewide gathering of fire SMEs, agency leaders, and other utility partners to engage on the approach to wildfire resilience in Oregon	Provided utility insite to aid in the development of mitigation priorities to reduce catastrophic impacts of wildfire; to apply practical insights on implementation, communication, and monitoring; to share lessons learned from successes and failures; to engage the next generation in wildfire resilience efforts; and to develop a roadmap for continued collaboration and action.	Fire Season Readiness (GOP-01)
11/18/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power, PSE, Avista	Utility SME wildfire response and operations collaboration	Avista introductions, program updates & roundtable.	Fire Season Readiness (GOP-01)
11/21/2025	PGE/Xcel Wildfire Program Benchmarking	PGE, Xcel Energy	WF situational awareness platforms, products, and services experience.	Continue benchmarking	Fire Season Readiness (GOP-01)
12/2/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power, PSE, Avista	Utility SME wildfire response and operations collaboration	Group purpose discussion, R-6 data and criticality ranking updates, OSFM/ODF/PNW IMT meeting opportunities, 2026 WA conference attendance/utility representation, 2026 Utility Wildfire Program Collaboration Summit	Fire Season Readiness (GOP-01)
12/4/2025	Workshop #13 -- Advanced Technologies and Procedures to Mitigate Utility Ignitions	Oregon Public Utility Commission	Advanced Technologies and Procedures to Mitigate Utility Ignitions	OPUC has increasing reporting requirements required by legislature. Engagement with local emergency managers is critical. Sensitive setting impacts to customers are causing outreach efforts to evolve.	WMP Strategy & Program Development (WMSD-01) Emergency Preparedness (PSPS-06) Enhanced Powerline Safety Settings (GOP-02) Community Outreach and Public Awareness (COPA-01)
12/12/2025	PGE/Xcel WF Program Benchmarking (continued)	PGE, Xcel Energy	Utility wildfire program benchmarking	Wildfire intelligence center and program maturity lessons learned	Fire Season Readiness (GOP-01)
12/16/2025	Utility Counterpart Collaboration	PGE, PAC, BPA, ID Power, PSE, Avista	Utility SME wildfire response and operations collaboration	2026 Summit planning and PNW incident management team	Fire Season Readiness (GOP-01)

Date	Meeting	Agency/ Organization	Topic	Key Takeaways	Program/Project/ Pilot Informed by Meetings
				meeting presentation opportunities	

14.4 Initiatives and Targets

14.4.1 Initiative Summary Table

Table OPUC 14-2: Industry Engagement Initiative Cost Summary in Thousands

Initiative Activity	Tracking ID	Target Unit	Year 1 Target	Year 1 Forecast ($1,000)	Year 2 Target	Year 2 Forecast ($1,000)	Year 3 Target	Year 3 Forecast ($1,000)	Three-Year Forecasted Total ($1,000)	Section
Industry Engagement	IE-01	# ongoing forums	4	$117	4	$121	4	$125	$363	14.2

Notes:
1. Forecasts and Three-Year Totals provided in $/thousands.
2. All initiative Forecasts and Three-Year Totals include capital cost and operations and maintenance expense.

14.4.2 Initiative Details

14.4.2.1 Industry Engagement (IE-01)

IE-01 includes PGE's comprehensive work across the Industry Engagement Initiative Category. While PGE typically has a wide range of engagements each year, the targets for this initiative are focused on PGE's participation in *ongoing* industry engagements, including but not limited to the following:

- International Wildfire Risk Mitigation Consortium (IWRMC)
- Edison Electric Institute (EEI)
- Western Energy Institute (WEI)
- Oregon Joint IOU wildfire collaboration

14.5 Continuous Improvement

14.5.1 Program Maturity

From 2022 to 2025, PGE saw moderate maturation (13 percent increase) in Community and Industry Engagement efforts based on corresponding category scores to the IWRMC Maturity Model. PGE will continue to evaluate how participation in working groups through IWRMC and with other IOUs across the Western United States can yield measurable program benefits. Continuous improvement will focus on tracking lessons learned from peer utilities and integrating relevant practices into internal procedures. PGE will also assess opportunities to streamline how best practices are shared across departments and externally reported through OPUC engagement and filings.

Appendix A Definition of Terms

Unless otherwise expressly stated, the following words and terms, for the purposes of these Guidelines, have the meanings shown in this appendix.

Table A-1: Definitions

Term	Acronym	Definition
Access and functional needs populations		Per Oregon Code 411-425-0055, Oregon Needs Assessment/OR Dept of Human Services Access and functional needs populations includes individuals with developmental disabilities, physical disabilities, chronic conditions, limited English proficiency and low income.
Active Growth Period	AGP	**Additional term.** Annual spring period, typically April through June, when patrols are conducted in accordance with OAR 860-024-0018(4) to identify rapidly growing or damaged vegetation that may violate clearance requirements before fire season.
All Aluminum Alloy Conductor	AAAC	**Additional term.** A type of overhead power line conductor made from a high-strength aluminum alloy.
After Action Review	AAR	A structured process used to analyze actions after a project or event to identify what worked well, what didn't, and how to improve in the future.
Aluminum Conductor, Steel Reinforced	ACSR	**Additional term.** A high-strength, high-capacity stranded cable used for overhead power lines.
Area of Interest	AOI	Identified area which is being observed as elevated risk but has not been incorporated into the utility's HFRZs.
Artificial Intelligence	AI	The simulation of human intelligence in machines.
Asset (utility)		Electric lines, equipment, or supporting hardware.
Authority Having Jurisdiction	AHJ	**Additional term.** The official entity (government agency, office, or individual) responsible for enforcing codes, standards, and safety regulations
Basic Insulation Level	BIL	**Additional term.** A standardized measure, expressed in kilovolts (kV), of the ability of electrical equipment insulation to withstand short-duration, high-voltage impulse surges—such as those caused by lightning or switching events—without breakdown.
Biglow Canyon Wind Farm	BCWF	**PGE-specific term.** PGE Wind farm located in Wasco, OR.
Bonneville Power Administration	BPA	A federal agency and a major supplier of electricity and transmission services in the Pacific Northwest, part of the United States Department of Energy.
Bureau of Land Management	BLM	An agency within the United States Department of the Interior responsible for administering United States. federal lands.

Term	Acronym	Definition
Burning Index	BI	**Additional term.** A key wildfire prediction tool in the National Fire Danger Rating System (NFDRS), representing the potential difficulty of fire containment.
California-Oregon Intertie	COI	**Additional term.** Three major 500 kV transmission lines connecting the Pacific Northwest power grid with Northern California's grid.
Circuit miles		The total length in miles of separate transmission and/or distribution circuits, regardless of the number of conductors used per circuit (i.e., different phases). !f different circuits are co-located on structures each circuit's length is separately accounted for. This factor may be referenced to create context for risk footprint as well as when addressing mitigations like reconductor or underground conversion.
Communications		Media that communicate voice, data, text, or video over a distance using electrical, electronic, radio, microwave, or light wave transmissions.
Community Based Organization	CBO	A public or private nonprofit organization that is representative of a community or significant segments of a community and engaged in meeting that community's needs in the areas of social, human, or health services. Per OAR 410-180-0305, see also OAR 581-017-0651.
Community Outreach & Public Awareness	COPA	A WMP initiative category to capture how utilities are building partnerships, understanding communication styles, and addressing community needs.
Community Resource Center	CRC	Facilities that provide critical information to customers impacted by outages. The CRC may also provide impacted customers with access to other services such as device charging, internet access, clean water, and ice.
Consequence		The adverse effects from an event; may consider the hazard intensity, community exposure, local vulnerability or other factors.
Contact by object ignition likelihood		The likelihood that a non-vegetative object (such as a balloon or vehicle) may contact utility-owned equipment and result in an ignition.
Contact by vegetation ignition likelihood		The likelihood that vegetation may contact utility-owned equipment and result in an ignition.
Contractor		Any individual in the temporary and/or indirect employ of the electrical utility whose limited hours and/or time- bound term of employment are not considered "full-time" for tax and/or any other purposes.
Cost per line mile	CPLM	**Additional term.** A normalized cost metric that represents the total cost of a program, activity, or investment divided by the number of electric line miles

Term	Acronym	Definition
		affected, used to compare efficiency and inform prioritization decisions.
Critical facilities and infrastructure		Facilities and infrastructure that operate at the community level and are essential to public safety and that require additional assistance and advance planning to ensure resiliency during PSPS events. These include the following: Emergency services sector: Police stations, Fire stations, Emergency operations centers, Public safety answering points (e.g., 9-1-1 emergency services) Government facilities sector: Schools, Jails and prisons Health care and public health sector: Public health departments, medical facilities, including hospitals, skilled nursing facilities, nursing homes, blood banks, health care facilities, dialysis centers, and hospice facilities (excluding doctors' offices and other non-essential medical facilities) Energy sector: Public and private utility facilities vital to maintaining or restoring nominal service, including, but not limited to, interconnected publicly owned electrical utilities and electric cooperatives Water and wastewater systems sector: Facilities associated with provision of drinking water or processing of wastewater, including municipal facilities that pump, divert, transport, store, treat, and deliver water or wastewater Communications sector: Communication carrier infrastructure, including selective routers, central offices, head ends, cellular switches, remote terminals, and cellular sites Chemical sector: Facilities associated with manufacturing, maintaining, or distributing hazardous materials and chemicals Transportation sector: Facilities associated with transportation for civilian and military purposes: automotive, rail, aviation, maritime, or major public transportation
Customer		A person who has applied for, been accepted, and is currently receiving electric service.
Customer-meters		Delivery point from electric utility to customer receiving service.
Customer Average Interruption Duration Index	CAIDI	The average time required to restore service.
Customer hours interrupted		Sum of customer minutes of interruption divided by 60 (e.g., of power outage).
Copper Conductor	Cu	**Additional term.** Electrical wires made from copper.
Dead fuel		Fuel with no living tissue in which moisture content is governed almost entirely by atmospheric moisture

Term	Acronym	Definition
		(relative humidity and precipitation), dry-bulb temperature, and solar radiation.
Detailed inspection		Detailed inspections include, but are not limited to, visual checks, pole test and treat programs (only required for pole Owners), or practical tests of all facilities, to the extent required to identify violations of Commission Safety Rules. Where facilities are exposed to extraordinary conditions (including High Fires Risk Zones) or when an Operator has demonstrated a pattern of non-compliance with Commission Safety Rules, the Commission may require a shorter interval between inspections. Per OAR 860-024-0011 (1)(b).
Distribution line		Refers to all lines below or equal to 34.5 kV unless otherwise noted.
Department of Energy	DOE	A federal agency in the United States responsible for developing and implementing national energy policy and managing the country's nuclear infrastructure.
Early Fault Detection	EFD	Identification of potential equipment or system faults on the power grid before outages or major failures occur.
Edison Electric Institute	EEI	A trade association that represents all U.S. investor-owned electric companies.
Electrical utility		Every corporation or person owning, controlling, operating, or managing any electric plant for compensation within Oregon. "Reporting Operator" means an Operator that serves 20 customers or more within Oregon.
Electric Power Research Institute	EPRI	An organization in the United States that conducts research, development, and demonstration projects for the benefit of the public.
Elevated Fire Risk Zone	EFRZ	**PGE-specific term**, see Area of Interest
Emergency		Any incident, whether natural, technological, or human caused, that requires responsive action to protect life or property but does not result in serious disruption of the functioning of a community or society. (FEMA/UNDRR.)
Emergency Management Team	EMT	A group of individuals responsible for coordinating activities to mitigate, prepare for, respond to, and recover from emergencies and disasters.
Emergency Operation Center	EOC	**Additional term.** An Emergency Operations Center (EOC) is a central command facility for coordinating large-scale emergency responses, providing strategic direction, managing information, and ensuring continuity of operations for governments, companies, or organizations during disasters or crises, serving as a hub for decision-making, resource allocation, and communication

Term	Acronym	Definition
Emergency Support Function-12	ESF-12	Indicates the Public Utility Commission of Oregon's role in supporting the State Office of Emergency Management for energy utilities' issues during an emergency.
Enhanced Power Safety Settings	EPSS	See Sensitive Settings.
Energy Release Component	ERC	A number related to the available energy per unit area within the flaming front at the head of a fire. It is a calculated output of the NFDRS. ERC is used to estimate the potential heat output of a fire and is an important factor in predicting fire behavior.
Equipment ignition likelihood		The likelihood that utility-owned equipment will cause an ignition through either normal operation (such as arcing) or failure.
Estimated Restoration **or** **Estimated Time of Restoration**	ERT ETR	The projected time when power or other services are expected to be restored after an outage.
European Centre for Medium-Range Forecasts	ECMWF	An independent intergovernmental organization supported by most of the nations of Europe to provide accurate global weather forecasts.
Evaporative Demand Drought Index	EDDI	EDDI is a drought monitoring and early warning guidance tool that measures atmospheric evaporative demand (also known as the thirst of the atmosphere).
Exercise		An instrument to train for, assess, practice, and improve performance in prevention, protection, response, and recovery capabilities in a risk-free environment. (FEMA).
Fall-in hazard		A term used to describe a tree that has the potential to impact powerlines and other equipment.
Federal Energy Regulatory Commission	FERC	**Additional term.** An independent agency that regulates the interstate transmission of electricity, natural gas, and oil.
Fire		A sustained chemical reaction that occurs when fuel, oxygen, and heat come together in an exothermic reaction. A fire can go through several stages, including growth, fully developed, and decay. Ignition is the process of starting a fire, while fire is the sustained chemical reaction that occurs when fuel, oxygen, and heat join together.
Fire High Consequence Area	FHCA	See High Fire Risk Zone.
Fire intensity		A general term relating to the heat energy released by a fire.
Fire Potential Index	FPI	Landscape scale index used as a proxy for assessing real- time risk of a wildfire under current and forecasted weather conditions.
Fire Season		The time of year when wildfires are most likely for a given geographic region due to historical weather conditions, vegetative characteristics, and impacts of

Term	Acronym	Definition
		climate change. Each electrical corporation defines the fire season(s) across its service territory based on a recognized fire agency definition for the specific region(s).
Fire Weather		Weather conditions that influence fire ignition, behavior and suppression.
Fire Weather Watch	FWW	Issued by the NWS when the combination of dry fuels and weather conditions support extreme fire danger within the next 72 hours.
Frequency		The anticipated number of occurrences of an event or hazard over time.
Frequent PSPS events		More than one PSPS event per calendar year per line circuit.
Frequently Asked Question	FAQ	A list of common questions and their answers.
Functional Exercise	FE	Exercises that examine or validate coordination, command, and control between various agencies. FE exercises are larger scale, last much longer (e.g., multiple days), require significantly more planning and coordination, and include deployment of resources to practice protocols and processes.
Geographical Area Coordination Center	GACC	**Additional term.** GACCs are interagency regional operations that coordinate wildland fire and other incident management resources throughout the geographic area.
Geographical Designated Area (ID and Name)		Geographical subareas which the utility identifies as having a level of fire risk above non-HFRZs (including areas of interest). The geographical areas are often contained within a single boundary/polygon or a localized grouping of areas. These areas may highlight specific area mitigation projects based on risk analysis for the given location. Examples of previous Geographical Designated Areas provided in utility filed WMPs include Idaho Power Company's (Austin Junction, OR, or Halfway, OR), PacifiCorp's (Hood River, Roseburg), PGE's (Zone 1, or Zone 5).
Geographic Information System	GIS	A computer system that analyzes and displays geographically referenced information.
Global Forecast System	GFS	**Additional term.** A National Centers for Environmental Prediction (NCEP) weather forecast model that generates data for dozens of atmospheric and land-soil variables, including temperatures, winds, precipitation, soil moisture, and atmospheric ozone concentration.
Goals		The electrical corporation's general intentions and ambitions related to their Wildfire Mitigation Plan, unless noted otherwise.
Great Basin Coordination Center	GBCC	The focal point for coordinating resources for wildland fire and other incidents through the Great Basin.

Term	Acronym	Definition
Grid Design & System Hardening	GDSH	A WMP initiative category to capture how utilities are designing and strengthening distribution, transmission, and substation infrastructure to reduce ignition risk, potential wildfire impacts, and potential PSPS impacts.
Grid hardening		Actions (such as equipment upgrades, maintenance, and planning for more resilient infrastructure) taken in response to the risk of undesirable events (such as outages) or undesirable conditions of the electrical system to reduce or mitigate those events and conditions, informed by an assessment of the relevant risk drivers or factors.
Grid Operations & Protocols	GOP	A WMP initiative category to capture how utilities are implementing operations and protocols to reduce wildfire risk across their systems. Other Grid Operations & Protocols not relevant to wildfire risk reduction are not included within this initiative category.
Grid topology		General design of an electric grid, whether looped or radial, with consequences for reliability and ability to support PSPS (e.g., ability to deliver electricity from an additional source).
Hazard		A condition, situation, or behavior that presents the potential for harm or damage to people, property, the environment, or other valued resources.
Hazard Exposure		The presence of people, infrastructure, livelihoods, environmental services and resources, and other high-value assets in places that could be adversely affected by a hazard.
HFRZ Ignition Prevention Inspection		See Ignition Prevention Inspection.
HFRZ-Sub-area		If the reporting utility has more than one subarea distinction for levels of Wildfire Risk indicating elevation of fire risk, for example Tier 1, Tier 2 or Tier 3, or Yellow and Red Risk Zones HFRZ.
HFRZ Zone ID		To identify specific utility-defined HFRZ zones. Zones are typically HFRZ areas specific to a select geographic location. For example, Oregon City, Medford, Halfway, Zone 1. In the Data Template Workbook this is identified as an HFRZ Geographic Indicator.
High Fire Risk Zone **Fire High Consequence Area** **or** **Wildfire Risk Zone**	HFRZ FHCA WRZ	Geographic areas identified by Operators of electric facilities in their risk-based wildfire plans per OAR 860-024-0018, as areas potentially subject to heightened fire risk relative to other areas in the utility's service territory. Each IOU has its own naming convention for these areas. HFRZ: Portland General Electric

Term	Acronym	Definition
		FHCA: PacifiCorp WRZ: Idaho Power
High Wind Warning	HWW	Issued for the expectation of sustained wind of 40 to 57 mph or higher for >2 hours within a 12-hour period, or for any non-convective gust to 58 mph within a 12-hour period. This includes issuance for structural/natural damage from said winds. Generally issued within 12 to 24 hours of a causative event.
High Wind Warning and Red Flag Warning	HWW & RFW	Used in the WMP Data Template Workbook to indicate that a High Wind Warning and a Red Flag Warning were both in effect at a given time and location.
High Wind Warning Only	HWW Only	Used in the WMP Data Template Workbook to indicate that a High Wind Warning was the only wind status in effect at a given time and location.
High-risk species		Species of vegetation that (1) have a higher risk of either coming into contact with powerlines or causing an outage or ignition, or (2) are easily ignitable and within close proximity to potential arcing, sparks, and/or other utility equipment thermal failures. The status of species as "high-risk" must be a function of species and specific characteristics including growth rate, failure rates of limbs, trunk, and/or roots (as compared to other species), height at maturity, flammability, and vulnerability to disease or insects.
Hot Line Hold	HLH	**Additional term.** An electrical safety procedure for live-line work, ensuring an energized line won't automatically re-energize if it trips.
HWW Only/OH circuit mile day		Used in the WMP Data Template Workbook to indicate that a High Wind Warning was the only wind status in effect at a given time and location. Sum of OH circuit miles of utility grid subject to a HWW each day within a given time period, calculated as the number of OH circuit miles under a HWW multiplied by the number of days those miles are under said HWW. For example, if 100 OH circuit miles are under a HWW for one day, and 10 of those miles are under the HWW for an additional day, then the total HWW OH circuit mile days would be 110.
Ignition		The process of starting combustion or catching fire. Ignition can be caused by an external heat source, such as a spark, pilot flame, or hot surface. The fuel and air must reach a certain temperature, known as the ignition temperature, for the combustion reaction to occur.
Ignition likelihood		The total anticipated number of ignitions resulting from utility-owned assets at each location in the electrical utility's service territory. This considers probabilistic weather conditions, type and age of equipment, and potential contact of vegetation and other objects with utility assets. This can be expressed

Term	Acronym	Definition
		for specific time periods (i.e., fire season, quarters or rates).
Ignition prevention findings		A violation of Commission Safety Rules which poses a risk of fire ignition identified by an HFRZ Ignition Prevention Inspection or safety patrol in an HFRZ that shall be subject to correction timeframes per OAR 860-024-0018(5).
Ignition Prevention Inspection	IPI	An inspection that identifies potential sources of electrical ignition on any utility pole, structure, duct, or conduit owned by either the Owner or an Occupant in a High Fire Risk Zone. The inspection may be combined with other safety or detailed inspections that may be required by rule, per OAR 860-024-0001(6) and 860-024-0018(3)(a).
Ignition probability		The relative possibility that an ignition will occur, quantified as a number between zero percent (impossibility) and 100 percent (certainty). The higher the probability of an event, the more certainty there is that the event will occur. (Often informally referred to as likelihood or chance).
Ignition risk		The total anticipated annualized impacts from ignitions at a specific location. This considers the likelihood that an ignition will occur, the likelihood the ignition will transition into a wildfire, and the potential consequences considering hazard intensity, exposure potential, and vulnerability-the wildfire will have on each community it reaches.
Incident Command System	ICS	**Additional term.** A standardized emergency management system for coordinating incident response across jurisdictions.
Incident Commander	IC	**Additional term.** Designated individual responsible for the overall management of an incident, determines which Command or General Staff positions to staff in order to maintain a manageable span of control and ensure appropriate attention to the necessary incident management functions.
Incident Management Team	IMT	A rostered group of qualified personnel responsible for responding to incidents and emergencies.
Industrial Fire Precaution Levels	IFPL	**Additional term.** A tiered system used primarily in the Pacific Northwest to restrict logging and industrial activities during fire season.
Industry Engagement	IE	A WMP initiative category to capture how utilities are participating in forums, sharing best practices or learnings, and conducting research and analysis related to emerging technologies/practices.
Initiative		Measure or activity, either proposed or in process, designed to reduce the consequences and/or probability of wildfire or PSPS.

Term	Acronym	Definition
Inspect/Correct	I/C	A WMP initiative category to capture how utilities are implementing systematic field inspections and corrections to identify and mitigate wildfire ignition risks associated with utility infrastructure.
Institute of Electrical and Electronics Engineers	IEEE	A technical professional organization dedicated to advancing technology for the benefit of humanity
Integrated Reporting of Wildland Fire Information	IRWIN	An interagency system that provides a single source of truth for wildland fire occurrence data across federal, state, and local agencies.
International Organization for Standardization	ISO	A non-governmental organization that develops and publishes international standards related to technology and manufacturing.
International Wildfire Risk Mitigation Consortium	IWRMC	A global collaborative utility effort to share data, information, and practices related to wildfire risk mitigation.
Investor-Owned Utility	IOU	An investor-owned entity acting as a public utility.
Lawrence Berkley National Laboratory	LBNL	**Additional term.** A U.S. Department of Energy national laboratory developing science and technology for wildfire mitigation, focusing on understanding fire impacts on water, air, and ecosystems, improving prediction, and creating innovative tools for response, resilience and community preparedness.
Light Detection and Ranging	LiDAR	A remote sensing method that uses light in the form of a pulsed laser to measure ranges to earth.
Line miles **or** **Pole miles**		The number of miles of transmission and/or distribution circuits in linear miles, regardless of the number of circuits. Primarily referenced in the context of planning circuit routes and vegetation management.
Local community		Any community of people living, or having rights or interests, in a distinct geographical area.
Local emergency management		Refers to city, county, and Tribal emergency management entities.
Medically vulnerable customers		A medically vulnerable customer is a person who is critically dependent on electrically powered equipment. Such customers may be particularly vulnerable due to advanced age or physical, sensory, intellectual or mental health that they may need life protecting devices and assistive technologies to support independent living and may possess a medical certificate as dictated under OAR 860-021-0410.
Minimum Vegetation Clearance Distance	MVCD	**Additional term.** The minimum standards for conductor clearances from vegetation to provide safety for the public and utility workers, reasonable service continuity, and fire prevention.

Term	Acronym	Definition
Mitigation		Activities to reduce the loss of life and property from natural and/or human-caused disasters by avoiding or lessening the impact of a disaster and providing value to the public by creating safer communities.
Momentary Average Interruption Frequency Index	MAIFI	The total number of customer momentary interruptions divided by the total number of customers served.
National Centers for Environmental Prediction	NCEP	**Additional term.** A U.S. government agency that delivers national and global weather, water, climate, and space weather guidance, forecasts, warning, and analysis to government agencies and private users.
National Fire Danger Rating System	NFDRS	A fire assessment system used in the United States to provide a measure of the potential for wildfires based upon current and predicted conditions.
National Incident Management System	NIMS	A systematic, proactive approach to guide all levels of government, nongovernment organizations, and the private sector to work together to prevent, protect against, mitigate, respond to, and recover from the effects of incidents. NIMS provides stakeholders across the whole community with the shared vocabulary, systems, and processes to successfully deliver the capabilities described in the National Preparedness System. NIMS provides a consistent foundation for dealing with all incidents, ranging from daily occurrences to incidents requiring a coordinated federal response.
National Interagency Fire Center	NIFC	A facility in Boise, Idaho, where employees of multiple national and state agencies work together to ensure wild land fire personnel across the United States receive the support and information they need.
National Lightning Detection Network	NLDN	**Additional term.** A commercial lightning detection network.
National Oceanic & Atmospheric Administration	NOAA	A science-based federal agency within the United States Department of Commerce with regulatory, operational, and information services responsibilities related to the earth's environment.
National Weather Service	NWS	A government agency that provides weather, water, and climate forecasts and warnings for the United States, its territories, adjacent waters, and ocean areas.
Near term wildfire risk		Elements of wildfire risk that are expected to fluctuate on a daily or weekly basis. Examples include temperature, humidity, and wind.
Nelson Dead Fuel Moisture Model		Physical-based numerical model that uses equations for heat and moisture transfer to estimate the moisture content and temperature of dead wildland fuels.
Non-High Fire Risk Zone	Non-HFRZ	An area that is not designated as an HFRZ.

Term	Acronym	Definition
Non-routine vegetation management		Vegetation management removal or treatment programs conducted as non-cycle work, not generally associated with clearance compliance with OAR 860-024-0016.
Northwest Coordination Center	NWCC	The geographic coordination center for the Northwest Region, including Oregon and Washington. The center serves as the focal point for interagency resource coordination, logistics support, aviation support, and predictive services involved in wildfire fire management and suppression.
Notification Execution Manager	NEM	**PGE-specific term.** A centralized function or system responsible for coordinating, initiating, and tracking customer and stakeholder notifications related to operational events, such as wildfire mitigation actions or service interruptions.
Notification Execution Plan	NEP	**PGE-specific term.** A notification execution plan is a detailed, documented set of procedures and communication strategies for sending out alerts or information.
Operations and Maintenance	O&M	A set of activities involved in managing and maintaining facilities.
Oregon Administrative Rule	OAR	Rules adopted by Oregon's agencies, boards, and commissions to implement and interpret relevant responsibilities per their statutory authority.
Oregon Department of Emergency Management	OEM	A state agency that leads statewide efforts to develop and enhance preparedness, response, recovery, and mitigation capabilities.
Oregon Department of Fish and Wildlife	ODFW	**Additional term.** A state agency that performs a variety of functions to protect and enhance fish and wildlife and their habitats for use and enjoyment by present and future generations
Oregon Department of Forestry	ODF	A state agency that performs a variety of functions related to the management, regulation, and protection of public and private lands.
Oregon Department of Human Services	ODHS	A state agency that provides services to help Oregonians achieve well-being and independence.
Oregon Department of Transportation	ODOT	A state agency that provides a safe and reliable multimodal transportation system.
Oregon Joint Use Association	OJUA	An association comprised of pole owners and pole users representing electric utilities, communications companies, and government agencies.
Oregon Public Utility Commission	OPUC	The agency responsible for rate regulation of Oregon's investor-owned electric utilities, natural gas utilities, telephone service providers, as well as select water companies. The PUC enforces electric and natural gas safety standards, handles utility-related

Term	Acronym	Definition
		dispute resolution, and participates in the Oregon Emergency Response System.
Other risk category		Risk category used by some electric utilities to define an area that is not identified as a HFRZ; however, the utility has deemed the area with some fire risk beyond the non-HFRZ classification. These areas may signify areas in which the utility feels it is necessary to provide some wildfire mitigation work.
Outlying Fire Risk Zone	OFRZ	**PGE-specific term.** Geographic area within PGE's right of way for transmission assets or a generation facility located outside of PGE's service area that is at a higher risk of wildfire.
Overhead	OH	Typically used to differentiate overhead electrical circuits from underground circuits.
Outage Management System	OMS	**Additional term.** A utility information system used to detect, analyze, and manage electric service outages by integrating data from meters, operational systems, and field resources to support outage restoration and reporting.
Patrol inspection		An Operator of electric supply facilities or an Operator of communication facilities must: Construct, operate, and maintain its facilities in compliance with the Commission Safety Rules per OAR 860-024-0011(1)(a); Conduct detailed inspections of its overhead facilities to identify violations of the Commission Safety Rules per OAR 860-024-011(1)(b); and perform routine safety patrols of overhead electric supply lines and accessible facilities for hazards consistent with Good Utility Practice and of detection quality materially equivalent to onsite inspection per OAR 860-024-0011(2)(c).
Performance metric		A quantifiable measurement that is used by an electrical corporation to indicate the extent to which its WMP is driving performance outcomes.
Pole		Any pole that carries distribution or transmission lines and that is owned or controlled by a public utility, telecommunications utility, or consumer-owned utility.
Pole miles		See Line miles.
Preparedness		A continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action in an effort to ensure effective coordination during incident response. Within the NIMS, preparedness focuses on planning, procedures and protocols, training and exercises, personnel qualification and certification, and equipment certification.
Priority A findings		A violation of the Commission Safety Rules that poses an imminent danger to life or property must be repaired, disconnected, or isolated by the Operator

Term	Acronym	Definition
		immediately after discovery per OAR 860-024-0012(1). Within Priority A findings, if subclassifications exist to prompt immediate response, (such as coding the finding as an I priority) the utility may utilize its own methods to identify findings that meet this category.
Priority B findings		The Operator must correct violations of Commission Safety Rules no later than two years after discovery. Two Year Correction, Priority B, OAR 860-024-0012(2). Each utility may utilize its own methods to identify findings that meet this category.
Priority C findings		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 to correction during the next major work activity. (a) In no event shall a deferral under this section extend for more than ten years after discovery. Deferral, Priority C, OAR 860-024-0012(3)(a). Each utility may utilize its own methods to identify findings that meet this category.
Priority I findings		A corrective finding which requires immediate response for Imminent Conditions.
Property		Private and public property, buildings and structures, infrastructure, and other items of value that may be destroyed by wildfire, including both third-party property and utility assets.
Protective equipment and device settings		The electrical corporation's procedures for adjusting the sensitivity of grid elements to reduce wildfire risk, other than automatic reclosers (such as circuit breakers, switches, etc.) For example, "sensitive settings".
Public Information Officer	PIO	The individual responsible for providing information to the public related to an organization or incident.
Public safety partners		Emergency Support Function-12, Local Emergency Management, and Oregon Department of Human Services (ODHS). Per OAR 860-300-0010(7).
Public Safety Power Shutoff	PSPS	Proactive de-energization of a portion of a Public Utility's electrical network, based on the forecasting of and measurement of extreme wildfire weather conditions.
PUC Staff		Regulatory employees of the State Public Utility Commission, excluding commissioners and Administrative Law Judges. Staff serves as an advocate for the public interest and participates in proceedings.
PSPS/Emergency Preparedness		A WMP initiative category to capture how utilities are preparing for and executing emergency operations to mitigate wildfire risk and maintain public safety, including through Public Safety Power Shutoff (PSPS) events and broader emergency readiness strategies.

Term	Acronym	Definition
PSPS event		A proactive de-energization of a portion of a Public Utility's electrical network, based on the forecasting of and measurement of extreme wildfire weather conditions. The period from notification of the first public safety partner of a planned public safety PSPS to re-energization of the final customer.
PSPS likelihood		The likelihood of a PSPS being required by a utility given a probabilistic set of environmental conditions.
Quality Assurance/Quality Control	QA/QC	The combination of proactive and reactive processes designed to prevent and correct defects.
Red Flag Warning	RFW	Issued by the NWS for conditions conducive to rapid or explosive growth of any wildfire that develops. Normally issued within 24 hours of expected occurrence. Red Flag Warnings are not issued for the probability of wildfire to start.
Regional Disaster Preparedness Organization	RDPO	A partnership of government agencies, non-governmental organizations, and private-sector stakeholders in the Portland Metropolitan Region collaborating to increase disaster resilience.
Remote Automated Weather Stations	RAWS	Self-contained, portable, and permanent, solar powered weather stations that provide timely local weather data used primarily in fire management. These stations monitor the weather and provide weather data that assists land management agencies with a variety of projects such as monitoring air quality, rating fire danger, and providing information for research applications.
Reportable Ignition		Per OAR 860-024-0050(4): Except as provided in section (6) of this rule, every reporting operator must, in addition to the notice given in sections (2) and (3) of this rule for an incident described in sections (2) and (3), report in writing to the Commission within 20 days of knowledge of the occurrence using Form 221 (FM221) available on the Commission's website. In the case of injuries to employees, a copy of the incident report form, that is submitted to Oregon OSHA, Department of Consumer and Business Services, for reporting incident injuries, will normally suffice for a written report.
Reporting period		"Reporting period" is defined as the actual period of time the data is relevant. For example, the 2030 WMP filing should include the reporting period year of 2029.
Reporting year risk designation		This attribute is used by the reporting utility to identify distinction levels of Wildfire Risk for the given reporting period year. (For example, Tier 1 or Tier 2, or HFRZ and Areas of Interest.) HFRZ areas and relevant subcategories, if applicable, as defined by the utility.

Term	Acronym	Definition
RFW only/OH circuit mile day		Used in the WMP Data Template Workbook to indicate that a Red Flag Warning was the only wind status in effect at a given time and location. Sum of OH circuit miles of utility grid subject to RFW each day within a given time period, calculated as the number of OH circuit miles under RFW multiplied by the number of days those miles are under said RFW. For example, if 100 OH circuit miles are under RFW for one day, and 10 of those miles are under RFW for an additional day, then the total RFW OH circuit mile days would be 110.
Right-of-way	ROW	The legal right, established by usage or grant, to pass along a specific route through grounds or property belonging to another.
Risk		A measure of the anticipated adverse effects from a hazard considering the consequences and frequency of the hazard occurring.
Risk component		A part of an electric corporation's risk analysis framework used to determine overall utility risk.
Risk event		An event with probability of ignition, such as wire down, contact with objects, line slap, event with evidence of heat generation, or other event that causes sparking or has the potential to cause ignition. The following all qualify as risk events: ignitions, outages not caused by vegetation, outages caused by vegetation, wire-down events, faults, and other events with potential to cause ignition.
Risk map		A collection of data sufficient to represent the spatial distribution (e.g., across a geography) of a given type of risk (i.e., the probability of an event and its consequence) and the spatial representation thereof.
Risk mapping algorithm		A risk mapping algorithm is a methodology for calculating risk levels from data inputs across a spatial display (i.e., map of geography).
Risk Methodology & Assessment	RMA	A WMP initiative category to capture how utilities are developing and using tools and processes to assess the risk of wildfire and PSPS across their service territory and/or other facilities.
Risk Spend Efficiency	RSE	Used by utilities to quantify and compare cost effectiveness of mitigation measures based on the ratio of the risk reduction to the mitigation cost. It is similar to a cost/benefit analysis using risk points and is calculated as Risk Reduction x Lifetime of Benefit/Total Cost.
Routine non-wildfire vegetation management		Vegetation management removal or treatment programs conducted as cycle work, generally associated with clearance compliance with OAR 860-024-0016.

Term	Acronym	Definition
Routine wildfire vegetation management		Vegetation management removal or treatment programs conducted programmatically that are intended to mitigate vegetation risks that could result in wildfire and are generally in excess of that required for compliance with OAR 860-024-0016.
Rural		Per IEEE 1782-2024 3.3 System characterization: Utility circuits (and systems) generally fall into one of the three categories below, which are defined by customer density. Rural (less than 31 customers per circuit kilometer or 50 customers per circuit mile).
Sensitive Settings **Enhanced Safety Settings** **or** **Enhanced Protection Settings** **or** **Enhanced Powerline Safety Settings**	 ESS EPS EPSS	Advanced safety settings implemented by electric utilities on electric utility powerlines to reduce wildfire. While electric utility programs are similar, this does not imply identical enhanced protection settings for the devices performing these functions. Enhanced Safety Settings (ESS): PacifiCorp. Enhance Protection Settings (EPS): Idaho Power. Enhanced Powerline Safety Settings (EPSS): Portland General Electric.
Severe Fire Danger Index	SFDI	**Additional term.** A spatial fire danger index that can be used to assess historical events, forecast extreme fire danger, and communicate those conditions to both firefighters and the public.
Situation Awareness & Forecasting	SAF	A WMP initiative category to capture how utilities are leveraging real-time data, environmental intelligence, and predictive analytics to monitor and respond to wildfire conditions in order to reduce ignition risk and enhance operational readiness.
Slash		Branches or limbs less than four inches in diameter, and bark and split products debris left on the ground as a result of utility vegetation management.
Span		The space between adjacent supporting poles or structures on a circuit consisting of electric lines and equipment. "Span level" refers to asset-scale granularity.
Subject Matter Expert	SME	A professional who has advanced knowledge in a specific field.
Suburban		Per IEEE 1782-2024 3.3 System characterization: Utility circuits (and systems) generally fall into one of the three categories below, which are defined by customer density. Suburban (31 to 93 customers per circuit kilometer or 50 to 150 customers per circuit mile).
Supervisory Control and Data Acquisition	SCADA	A system of hardware and software that enables an organization to control and monitor equipment, systems, and processes.
System Average Interruption Duration Index	SAIDI	The total number of minutes (or hours) of interruption the average customer experiences.

Term	Acronym	Definition
System Average Interruption Frequency Index	SAIFI	How often the average customer experiences an interruption.
Tabletop exercise		An activity in which key personnel, assigned emergency management roles and responsibilities, are gathered to discuss, in a non-threatening environment, various simulated emergency situations.
Target		A forward-looking, quantifiable measurement of work to which an electrical corporation commits to in its WMP. Electrical corporations will show progress toward completing targets in subsequent reports.
Transmission & Distribution	T&D	Designation typically used to identify equipment, systems, and other assets used to transmit or distribute electricity.
Transmission line		Refers to all lines at or above 50 kV unless otherwise noted. Per OAR 860-024-0018(3)(b).
Tree Attachment		Utility supply conductors shall not be attached to trees and should only be attached to poles and structures designed to meet the strength and loading requirements of the National Electrical Safety Code. This section does not apply to customer-supplied equipment at the point of delivery. Compliance with this section must be achieved prior to December 31, 2027. OAR 860-024-0018(2).
Tree Health Index	THI	**Additional term.** A composite metric used to assess the condition and vitality of trees based on factors such as species, structure, stress, and environmental conditions, to inform vegetation management and wildfire risk mitigation decisions.
Tree inspection non-routine vegetation management		Vegetation management inspection programs conducted as non-cycle work, not generally associated with clearance compliance with OAR 860-024-0016.
Tree inspection routine vegetation management		Vegetation management inspection programs conducted as cycle work, generally associated with clearance compliance with OAR 860-024-0016.
Tribes/Tribal Nations		This term is used collectively to describe federally recognized Tribes within the Pacific Northwest.
United States Forest Service	USFS	An agency within the United States Department of Agriculture that administers the nation's national forests and grasslands.
Urban		Per IEEE 1782-2024 3.3 System characterization: Utility circuits (and systems) generally fall into one of the three categories which are defined by customer density. Urban (more than 93 customers per circuit kilometer or 150 customers per circuit mile).
Utility-Identified Critical Facilities	UICF	Facilities the Public Utility identifies that, because of their function or importance, have the potential to threaten life safety or disrupt essential socioeconomic activities if their services are interrupted.

Term	Acronym	Definition
		Communications facilities and infrastructure are to be considered Critical Facilities.
Utility-related ignition		See Reportable Ignition.
Value of Service	VOS	**PGE-specific term.** Pertains to the National Interruption of Power Survey.
Vegetation Management	VM	Trimming and removal of trees and other vegetation at risk of contact with electric equipment. OAR 860-024-0016 and OAR 860-024-0017. Also, a WMP initiative category to capture how utilities are implementing vegetation management programs to reduce ignition risk.
Vegetation Risk Index	VRI	**Additional term.** A composite metric that evaluates wildfire risk posed by vegetation based on factors such as fuel load, proximity to assets, and environmental conditions, used to prioritize vegetation management and mitigation actions.
Vulnerability		The propensity or predisposition of a community to be adversely affected by a hazard, including the characteristics of a person, group, or service and their situation that influences their capacity to anticipate, cope with, resist, and recover from the adverse effects of a hazard.
Weather Research & Forecasting	WRF	A state-of-the-art mesoscale numerical weather prediction system designed for both atmospheric research and operational forecasting applications.
Wildfire hazard		The combination of ignition risk and fire spread resulting in a wildfire consequence. Each utility may provide additional explanation to inform stakeholders of how this designation is quantified within their WMPs.
Wildfire Mitigation Plan	WMP	Same as a "wildfire protection plan" and refers to the document filed with the Commission relating to an electric utility's risk-based plan designed to protect public safety, reduce the risk of utility facilities causing wildfires, reduce risk to utility customers, and promote electric system resilience to wildfire damage. Per OAR 860-300-0010{11).
Wildfire mitigation strategy		Overview of the key mitigation initiatives at enterprise level and component level across the electrical corporation's service territory, including interim strategies where long-term mitigation initiatives have long implementation timelines. This includes a description of the enterprise-level monitoring and evaluation strategy for assessing overall effectiveness of the WMP.
Wildfire Mitigation Strategy Development	WMSD	A WMP initiative category to capture how utilities are developing and using processes for deciding on a portfolio of mitigation initiatives. This initiative includes

Term	Acronym	Definition
		WMP development, reporting, and compliance related activities.
Wildfire risk		The likelihood of a wildfire occurring and the potential impact a wildfire could have.
Wildfire Risk Area	WRA	**PGE-specific term.** Geographic area within PGE's service area with underlying wildfire risk, including areas of wildfire risk with no existing PGE overhead utility assets.
Wildfire Risk Zone	WRZ	See High Fire Risk Zone.
Wildfire Threat Index	WTI	**PGE-specific term.** Part of the Wildfire Risk Score. See Figure 4-12.
WTI Right Tail Risk	WTR	**PGE-specific term.** Part of the Wildfire Risk Score. See Figure 4-12.
Wildland-Urban Interface	WUI	The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetation fuels (National Wildfire Coordinating Group). Enforcement agencies also designate the WUI as the area at significant risk from wildfires, established pursuant to Title 24, Part 2, Chapter 7 A.
Wildfire Intelligence Center	WIC	**Additional term.** A centralized function that integrates near-real-time wildfire, weather, and system data to support situational awareness and operational decision-making.
Wire down		Instance where an electric transmission or distribution conductor is broken and falls from its intended position to rest on the ground or a foreign object.
Work Order	WO	A prescription for asset or vegetation management activities resulting from asset or vegetation management inspection findings.
Zone of Protection	ZOP	The area or segment of an electrical power system that is protected by a particular protective device or protection system.

Appendix B WMP Regulatory Compliance Checklist

The WMP Regulatory Compliance Index is to allow stakeholders and Staff to quickly identify where current information is located for each WMP requirement articulated in the OAR. At a minimum, the regulatory requirements checklist will include information shown in the example that follows.

Table B-1: Compliance Checklist

OAR / Order Citation	OAR Descriptions	WMP Section(s)	Initiative(s)
OAR 860-024-0018(1)	Operators must remove/de-energize abandoned electrical equipment in HFRZs during fire season.	7.2.3	IC-03
OAR 860-024-0018(2)	Utility conductors prohibited on trees; must attach to properly designed poles/structures only. Compliance by Dec 31, 2027.	7.2.5	IC-05
OAR 860-024-0018(3)(a)	Operators of electric facilities in HFRZs must conduct HFRZ Ignition Prevention Inspections following Good Utility Practice	7.2.1 7.2.2	IC-02
OAR 860-024-0018(3)(b)	Operators of electric facilities in HFRZs must for transmission systems ≥50,001 V, perform and document HFRZ Ignition Prevention Inspections that may include, but are not limited to, onsite climbing, drone or high-powered spotting scope to identify structural and conductor defects, as well as violations of Commission Safety Rules and other circumstances that could lead to electrical ignition. Inspections must include an in-person component except and to the extent remote technology can conduct an equivalent or enhanced inspection.	7.2.1 7.2.2.2 7.2.6.3	IC-02 IC-08
OAR 860-024-0018(4)	Public Utility Operators must conduct annual fire season safety patrols in HFRZs. Public Utility Operators of electric facilities shall perform and document fire safety patrols of overhead electric supply lines and accessible facilities for potential fire risks, including but not limited to, off right of way hazard trees, status of existing right-of-way access for first responders, seasonal vegetation damage, vegetation Cycle Buster clearance conditions as defined in OAR 860-024-0016(1)(a), potential equipment failures, and deteriorated supply or communication facilities.	7.2.2 8.2.2 8.2.4 8.2.6	IC-02 VM-08 VM-02 VM-04
OAR 860-024-0018(5)(a-c)	A violation of Commission Safety Rules which poses a risk of fire ignition identified by an HFRZ Ignition Prevention Inspection or safety patrol in an HFRZ shall be subject to the following correction timeframes: – Immediate repair/disconnection – Heightened fire ignition risk: ≤180 days – Other violations: per OAR 860-024-0012	7.1 7.2.3 7.2.4 8.2.1.2 8.2.3 8.2.5 8.2.7	IC-03 IC-04 VM-09 VM-03 VM-05
OAR 860-024-0018(6)	If an Operator of electric facilities discovers a violation identified in an HFRZ that correlates to a heightened wildfire risk, notice shall be provided to the pole owner or equipment owner within 15 days of discovering the violation. That notice shall state that the violation must be	7.2.1.3	IC-01

OAR / Order Citation	OAR Descriptions	WMP Section(s)	Initiative(s)
	repaired within the time frame set out in these rules; that time frame will begin on the day the violation was discovered or 15 days before the notice was sent, whichever is later.		
OAR 860-024-0018(7)	If owners fail to repair within timeframe, Operators may repair the equipment or replace the pole and seek reimbursement of all work related to correction or replacement of the reject pole or equipment including, but not limited to, administrative and labor costs related to the inspection, permitting, and replacement of the reject pole. The Operator of electric facilities is also authorized to charge the pole owner or equipment owner a replacement fee of 25 percent of the total amount of work.	7.2.1.3	IC-01
OAR 860-024-0018(8)	Note to Utility about obligation of Operator related to Joint Use		
OAR 860-024-0018(9)	Note to Utility about obligation of Operator related to Joint Use		
OAR 860-024-0018(10)	Note to Utility about rule intentions		
OAR 860-024-0050(3)	(3) As soon as practicable following knowledge of the occurrence, all investor-owned electric utilities must report by telephone, by facsimile, by electronic mail, or personally to the Commission fire-related incidents: (a) that are the subject of significant public attention or media coverage involving the utility's facilities or is in the utility's right-or-way; or (b) where the utility's facilities are associated with the following conditions: (A) a self-propagating fire of material other than electrical and/or communication facilities; and (B) the resulting fire traveled greater than one linear meter from the ignition point.	4.8.3.1	RMA-06
OAR 860-300-0020(1)(a)(A)+(B)	Identified areas that are subject to a heightened risk of wildfire, including determinations for such conclusions, and are: (A) Within the service territory of the Public Utility, and; (B) Outside the service territory of the Public Utility but within the Public Utility's right-of-way for generation and transmission assets.	4.2.2	RMA-01
OAR 860-300-0020(1)(b)	Identified means of mitigating wildfire risk that reflects a reasonable balancing of mitigation costs with the resulting reduction of wildfire risk.	4.2.6 4.6 5.2.1	RMA-01 WMSD-01
OAR 860-300-0020(1)(c)	Identified preventative actions and programs that the utility will carry out to minimize the risk of the utility's facilities causing wildfire.	2.1 5.1	WMSD-01

OAR / Order Citation	OAR Descriptions	WMP Section(s)	Initiative(s)
OAR 860-300-0020(1)(d)	Discussion of the outreach efforts to regional, state, and local entities, including municipalities, regarding a protocol for the de-energization of power lines and adjusting power system operations to mitigate wildfires, promote the safety of the public and first responders, and preserve health and communication infrastructure.	11.2.5 13.2	PSPS-06 COPA-01
OAR 860-300-0020(1)(e)	Identified protocol for the de-energization of power lines and adjusting of power system operation to mitigate wildfires, promote the safety of the public and first responders, and preserve health and communication infrastructure, including a PSPS communication strategy consistent with OAR 860-300-040 through 860-300-0050.	10.2.2 10.2.4 12.2	GOP-02 GOP-05 PSPS-06
OAR 860-300-0020(1)(f)	Identification of the community outreach and public awareness efforts that the utility will use before, during, and after a wildfire season, consistent with OAR 860-300-040 through OAR 860-300-050.	13.2	COPA-01 COPA-02 COPA-03
OAR 860-300-0020(1)(g)	Description of the procedures, standards, and timeframes the Public Utility will use to inspect utility infrastructure in areas it has identified as heightened risk of wildfire, consistent with OAR 860-024-0018.	7.1 7.2	IC-01
OAR 860-300-0020(1)(h)	Description of the procedures, standards, and timeframes that the utility will use to carry out vegetation management in areas it has identified as heightened risk of wildfire, consistent with OAR 860-024-0018.	8.1 8.2	VM-01
OAR 860-300-0020(1)(i)	Identification of the development, implementation, and administrative costs for the Plan, which includes discussion of risk-based cost and benefit analysis as well as considerations of technologies that offer co-benefits to the utility's system.	2.1.1 4.2.5 4.2.6 5.2	RMA-01 WMSD-01
OAR 860-300-0020(1)(j)	Description of participation in national and international forums, including workshops identified in section 2, chapter 592, Oregon Law 2021, as well as research and analysis the utility has undertaken to maintain expertise in leading-edge technologies and operational practices, including how such technologies and operational practices have been used to develop and implement cost-effective wildfire mitigation solutions.	14.2 14.3	IE-01
OAR 860-300-0020(1)(k)	Description of ignition inspection programs, as described in Division 24 of these rules, including how the utility will determine and instruct its inspectors to determine conditions that could pose an ignition risk on its own equipment and pole attachments.	7.1 7.2	IC-01 IC-02
OAR 860-300-0020(2)	Plan and supplement filing requirement		
OAR 860-300-0020(3)	Plan approval by Commission		

OAR / Order Citation	OAR Descriptions	WMP Section(s)	Initiative(s)
OAR 860-300-0020(4)	Note regarding plan approval		
OAR 860-300-0030(1)(a)(A)	Description of baseline wildfire risk, including fixed factors such as topography, vegetation, existing utility equipment, and climate in and near utility rights-of-way.	4.2.1	RMA-01
OAR 860-300-0030(1)(a)(B)	Description of seasonal wildfire risk, including dynamic multi-month factors like precipitation, weather, drought status, and fuel moisture within utility rights-of-way.	9.2.1	SAF-01
OAR 860-300-0030(1)(a)(C)	Description of risks to residential areas served, focusing on wildfire threats to populated communities within the utility's service territory and rights-of-way.	4.2.1.1.D	RMA-01
OAR 860-300-0030(1)(a)(D)	Description of risks to substations or powerlines owned by the utility, addressing wildfire threats to critical infrastructure within service areas and rights-of-way.	4.2.1.5.E	RMA-01
OAR 860-300-0030(1)(b)	Description of how areas of heightened wildfire risk are identified using the utility's most current and reputable available data sources.	4.2.1	RMA-01
OAR 860-300-0030(1)(c)(A-B)	Description of data sources used to model wildfire risk, update frequency, and plans to maintain current topographic, weather, and equipment-related data.	4.2.1 4.2.3.4 9.2.1	RMA-01 SAF-01
OAR 860-300-0030(1)(d)(A)	Description of how wildfire risk models inform decisions on Public Safety Power Shutoffs (PSPS) within the utility's service territory and rights-of-way.	9.2.1.3	SAF-01
OAR 860-300-0030(1)(d)(B)	Description of how wildfire risk models inform vegetation management decisions within the utility's service territory and transmission or generation rights-of-way.	4.2.2 4.2.3.3 5.2.1 8.1.1 8.4.3.1	RMA-01 WMSD-01 VM-01 VM-06
OAR 860-300-0030(1)(d)(C)	Description of how wildfire risk models inform system hardening decisions to reduce ignition risk across utility-owned infrastructure and rights-of-way.	4.2.2 4.2.5 5.2.1 6.1	RMA-01 WMSD-01 GDSH-01
OAR 860-300-0030(1)(d)(D)	Description of how wildfire risk models inform investment decisions related to wildfire mitigation across utility assets and rights-of-way.	4.2.2 4.2.5 5.2.1	RMA-01 WMSD-01
OAR 860-300-0030(1)(d)(E)	Description of how wildfire risk models inform operational decisions affecting utility practices within service areas and transmission or generation rights-of-way.	4.2.2 5.2.1 9.2.1	RMA-01 WMSD-01 SAF-01
OAR 860-300-0030(1)(e)	Description of changes to baseline, seasonal, and near-term wildfire risk since the prior plan, including the utility's response to those changes.	3.3 4.2.4 4.2.6 5.2.1	RMA-01 WMSD-01 SAF-01

OAR / Order Citation	OAR Descriptions	WMP Section(s)	Initiative(s)
		9.3.1.1	
OAR 860-300-0030(2)	Description of utility coordination with state agencies, where practicable, to support evaluation of wildfire risk analysis in the mitigation plan.	4.2.1.3 4.2.1.6	RMA-01
OAR 860-300-0040(1)(a)(A-B)	Description of engagement strategy, including public forums and follow-up opportunities to collaborate with public safety partners, local communities, and customers before plan filing.	11.2.5 13.2	PSPS-06 COPA-01
OAR 860-300-0040(1)(b)	Description of how the engagement strategy was designed to be inclusive and accessible, including multilingual outreach and access for functional needs populations.	13.2.1 13.2.2	COPA-01 COPA-02 COPA-03
OAR 860-300-0040(2)(a)(A-D)	Description of community outreach and public awareness plan, including PSPS education, wildfire strategy, emergency preparedness, and utility contact information.	13.2.3	COPA-01 COPA-02 COPA-03
OAR 860-300-0040(2)(b)(A-C)	Description of outreach methods, frequency, and equity considerations, including multilingual and multi-platform communication to ensure inclusive public access.	13.2.2 13.2.3	COPA-01 COPA-02 COPA-03
OAR 860-300-0040(3)	Description of metrics used to evaluate effectiveness and equity of community outreach and public awareness efforts across the utility's service area.	13.2.4	COPA-01 COPA-03
OAR 860-300-0040(4)(a-c)	Description of Public Safety Partner Coordination Strategy, including meeting plans, tabletop exercises, and after-action reporting aligned with partner timelines.	11.2.5	PSPS-06
OAR 860-300-0050(1)(a)	Description of priority notification procedures for PSPS events, including advance notice to Public Safety Partners, critical facility operators, and adjacent local agencies.	12.2.4	PSPS-04
OAR 860-300-0050(1)(b)(A-H)	Description of PSPS notification content for Public Safety Partners, including zone maps, timing, duration, customer impacts, updates, and re-energization details.	12.2.4	PSPS-04
OAR 860-300-0050(1)(c)(A-E)	Description of PSPS notifications to critical facilities, including timing, duration, status updates, re-energization, and detailed GIS files for communications operators.	12.2.4	PSPS-04
OAR 860-300-0050(1)(d)	Note about ESF-12 notification responsibilities		
OAR 860-300-0050(2)(a)(A-C)	Description of customer PSPS notifications using web and media platforms, with accessibility considerations, multilingual content, and mobile-friendly boundary information.	12.2.4	PSPS-04
OAR 860-300-0050(2)(b)(A-G)	Description of direct customer PSPS notifications, including purpose, timing, duration, contact info, website access, 24-hour updates, and re-energization timing.	12.2.4	PSPS-04
OAR 860-300-0050(3)(a-c)	Description of PSPS notification timeline, prioritizing partners 48–72 hours out, followed by customer notifications 24–48 hours and 1–4 hours before de-energization.	12.2.4	PSPS-04

OAR / Order Citation	OAR Descriptions	WMP Section(s)	Initiative(s)
OAR 860-300-0050(4)	Note to Utility that this rule does not replace emergency alerts.		
OAR 860-300-0050(5)	Note to Utility that this rule allows for additional communication beyond stated rule.		
OAR 860-300-0060(1)	Description of required PSPS web interface with real-time location, outage duration, and re-energization estimates, accessible during events.	12.2.4	PSPS-04
OAR 860-300-0060(2)	Description of publicly posted PSPS decision criteria, including wind, weather, ignition triggers in high-risk zones, and other extreme fire hazard conditions.	11.2.4	PSPS-06
OAR 860-300-0060(3)	Description of website bandwidth requirements to ensure functionality during high traffic periods caused by PSPS events.	11.2.4	PSPS-06
OAR 860-300-0060(4)	Description of efforts to provide real-time PSPS geographic data compatible with Public Safety Partner GIS platforms.	12.2.4	PSPS-04
OAR 860-300-0070(1)	In the event of a PSPS event, PGE will file with OPUC an annual report(s) on de-energization lessons learned, no later than December 31.		
OAR 860-300-0070(2)	The non-confidential versions of PGE's annual reports filed with the OPUC will be made available on PGE's website.		
IWRMC Maturity Model Results		Appendix G	WMSD
OPUC UM 2208 Order 25-234	Wildfire Mitigation Plan: Portland General Electric 2025 Wildfire Mitigation Plan Update	Appendix C	WMSD
OPUC UM 2340 Order 25-326	Investigation into Guidelines for Wildfire Mitigation Plans: Phase 2 WMP Standardization of Elements: Shared Terminology and Format for Multi-year Wildfire Mitigation Plans	Appendix A + all sections	WMSD
OPUC UM 2340 Order 25-429	Investigation into Guidelines for Wildfire Mitigation Plans: WMP 2025 Data Template and Guidelines Update	Data Template Workbook	WMSD
OPUC UM 2340 Order 25-436	Investigation into Guidelines for Wildfire Mitigation Plans: WMP Risk Spend Efficiency Workbook and Guidelines	RSE Workbook	RMA

Appendix C Areas of Additional Improvement

C.1 Improvement 24-232_3

- **Recommendations:** Explicitly identify how PGE has incorporated climate change into its current fire risk modeling.
- **Utility Response:** Section 4.2.3.4 provides information as to how PGE has incorporated climate change into its current fire risk modeling.

C.2 Improvement 24-232_4

- **Recommendations:** Provide a risk ranking by circuit, zone of protection, circuit segment or asset, and explain its use in advancing risk mitigations.
- **Utility Response:** The detailed risk register is provided with CONFIDENTIAL Appendix L. The following sections provide information about PGE's risk ranking and use in advancing risk mitigations:
  - Section 4.2.4 Circuit Wildfire Risk Results
  - Section 5.2.1 Mitigation Selection

C.3 Improvement 24-232_5

- **Recommendations:** Provide details for selected mitigation measures, including capital and operational expenses and program level spending with estimated costs, units, and risk reduction by year.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326.
  - Each section of the standard Multi-year WMP template includes an Initiative Summary Table the details the annual target and forecasted costs by year.
  - Appendix E details the risk benefits of each planned mitigation.

C.4 Improvement 24-232_17

- **Recommendations:** Discuss and demonstrate the use of ignition risk driver analysis and ignition historic analysis to determine optimal timing and completion of inspection and correction activities.
- **Utility Response:** PGE updates the Ignition Prevention Inspection criteria to reflect newly identified ignition risk, including those identified through Industry Engagement as well as through PGE's Ignition Management program. Additionally, PGE utilizes a risk-based prioritization method to schedule inspections. Starting in 2026, ignition risk analysis will also be used to assign a risk-based correction prioritization to inspection findings, thus informing the correction schedule. By integrating observed ignition data, asset-level risk modeling, and subject matter expertise, PGE's correction prioritization strategically focuses on minimizing risks from identified hazards. This data-driven approach delivers more flexible, targeted and efficient resource allocation, addressing highest-risk conditions first based on factors including asset location and condition type and severity. For more information, see the following sections:
  - Section 4.8.3, Ignition Management
  - Section 7.2.2.5, Risk-Based Inspection Prioritization

C.5 Improvement 24-232_21

- **Recommendations:** Continue to engage in industry learning, identify lessons shared, and the role of industry collaboration in advancing technology. Include a description of individual pilots considered and their potential benefits for reducing wildfire risk in future WMPs. Provide data, metric, or other criteria that led to the dismissal or implementation of a new pilot technology, including any effectiveness assumptions and pilot costs.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326.
  - Section 5.6, Pilot Technology Summary
  - Section 14, Industry Engagement

C.6 Improvement 24-232_23

- **Recommendations:** Evaluate and provide evidence regarding effectiveness of inspection program, particularly focusing on ignition prevention inspections, including costs per inspection, conditions discovered, timeframe for corrections, and adherence to internal or regulatory deadlines.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326.
  - Table OPUC 7-1: Asset Inspection Programs
  - Table OPUC 7-2: Asset Correction Types
  - Table OPUC 7-3: HFRZ Asset Correction Summary
  - Table OPUC 7-4: Inspect/Correct Initiative Cost Summary in Thousands
  - CONFIDENTIAL Appendix M: Inspection Unit Cost

C.7 Improvement 24-232_24

- **Recommendations:** PGE continue to align its ignition inspection and root cause analysis processes with IOUs as well as other peers.
- **Utility Response:** PGE's ignition root cause analysis (RCA) process is a systematic investigation method that includes incident documentation, evidence collection, and data analysis. This process identifies causal factors related to ignitions and informs corrective actions and change implementation. PGE actively learns from IOUs and other peers by carefully studying peer investigation reports, participating in working groups, and implementing enhanced investigation techniques and documentation standards based on industry best practices. PGE continues to learn from other IOUs and peers to improve its RCA process and understand why ignitions occur and implement measures to prevent similar incidents in the future. For example, as part of efforts to enhance ignitions incident documentation and field data capture (Section 4.7.3.1), PGE is refining reporting forms by incorporating best practices and lessons learned from industry peers, including PG&E's Fire Incident Data Collection Plan and Reporting Procedure.

C.8 Improvement 24-232_C

- **Recommendations:** All utilities should participate in a joint utility effort to move towards use of shared terminology throughout the WMPs. The utilities must agree upon and use a standard WMP glossary which articulates shared terminology, and any differences in use of terminology between the utilities in the 2026 Plans.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326.
  - Appendix A, Definition of Terms; terms added by PGE are designated with "additional term" or "PGE-specific term"

C.9 Improvement 24-232_D

- **Recommendations:** All utilities should provide WMPs in a standard format which adopts uniform chapter and section headings, as well as other agreed upon organizational features.
- **Utility Response:** As part of UM 2340, Investigation into Guidelines for Wildfire Mitigation Plans, Phase 2 WMP Standardization of Elements, PGE, PacifiCorp, and Idaho Power worked collaboratively with OPUC Safety Staff to develop a Shared Format to be incorporated into the 2026-2028 Wildfire Mitigation Plan. The Shared Format document, approved by OPUC Order No. 25-326, is utilized as the basis of PGE's 2026-2028 WMP.

C.10 Improvement 24-232_H

- **Recommendations:** All utilities should provide industry engagement information though a standard reporting template which outlines participation in industry forums & expected information to be shared in such forums, including results from pilots prior to widescale adoption, and pilot valuation methods.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326.
  - Table OPUC 14-1: Industry Engagements

C.11 Improvement 24-232_I

- **Recommendations:** All utilities should provide pilot technology information though a standard reporting template which includes: details of pilot projects, goals for the pilot, status of the pilot (planning, development, implementation), the current penetration and saturation across the system, envisioned application, milestones for determining usefulness of pilot, expected capital costs, expected O&M costs, expected timeframe for pilot implementation and lifespan. At minimum this level of detail is needed for the following pilot technologies:
  - Communicating Fault Circuit Indicators (CFCI)
  - Fuel load reduction projects
  - Wildfire detection cameras
  - Early fault detection
  - Drone inspection pilot
  - Distribution fault anticipation
  - Covered conductor or spacer cable
  - Infrared patrols
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326.

  Table OPUC 5-2: Pilot Technology Summaries addresses the following pilot technologies:
  - Fuel load reduction projects: AWRR Clearance Pilot (VM-07)
  - Drone inspection pilot: Distribution Aerial Digital Inspection Pilot (IC-07) and Transmission Aerial Digital Inspection Pilot (IC-08)
  - Distribution fault anticipation: Multi-sensor Fault Detection Pilot (SAF-08)
  - Covered conductor or spacer cable: Spacer Cable Pilot (GDSH-13)

  PGE has existing programs to deploy the following technologies:
  - Wildfire detection cameras (SAF-02)
  - Early fault detection (SAF-04)

  PGE is not currently piloting the following technologies as part of the 2026-2028 WMP:
  - Communicating Fault Circuit Indicators (CFCI)
  - Infrared patrols (although infrared inspections are conducted on 230 kV and 500 kV transmission lines during PGE's transmission patrols)

C.12 Improvement 24-232_J

- **Recommendations:** Staff foresees the working group allowing participation the public, including Public Safety Partners, wildfire experts, and impacted communities. Staff has chosen not to include more detailed information on Work Group meeting schedules or plans at this time and intends these would be developed in consultation with the Utilities and stakeholders if the Joint Recommendations are approved. All utility risk maps should originate from a foundational utility risk map which considers the logical set of variables. Short range outlooks, as well as midrange outlooks may inform the foundational map. After developing the foundational map, a utility risk map can consider and overlay a variety of conditions, such as response times and locale as well as locations where mitigations have taken place, or recent fuel has been removed. Any adjustments made to the foundational risk maps or the outlooks, should be explicitly identified and recorded as to what variable caused the change and what new information supported this change.
- **Utility Response:** PGE's Baseline Wildfire Risk Assessment is described in Section 4.2.1, which starts with the foundational Wildfire Threat Index (WTI). PGE adjusts WTI to incorporate right tail risk, suppression difficulty, utility assets, and agency feedback as required by OAR 860-300-0030(2).

  In accordance with OPUC Recommendation UM2340_2501, PGE modified the foundational risk map to "take into account risks factors…not yet incorporating the utility's assets and ignition drivers". After incorporating the 2025 recommendation, PGE's foundational risk map reflects inherent wildfire risk in the environment not associated with PGE's assets and no longer reflects a "foundational utility risk map" as described in this 2024 recommendation.

  PGE appreciates the intent of this recommendation and believes that the details provided in Section 4.2.1, paired with the UM 2340 Phase 2 deliverables, provide the desired transparency and clarity.

C.13 Improvement 24-232_K

- **Recommendations:** All utilities should collaborate to calibrate their risk modeling methods and identify the underlying assumptions in determining line segment risk. Some of the assumptions might include fire spread modeling periods, probability being considered, fire weather history, and inclusion of response likelihood. This work approach would result in fundamental agreement on a specific modeling method for which each utility would produce its current asset register, as well as GIS and tabular data identifying the risk scoring for each asset.
- **Utility Response:** As part of UM 2340, Investigation into Guidelines for Wildfire Mitigation Plans, Phase 2 WMP Working Group, PGE, PacifiCorp, and Idaho Power worked collaboratively with OPUC Safety Staff to develop a common understanding of risk methodologies and an initial standard Risk and RSE Methodology. The RSE Workbook, approved by OPUC Order No. 25-436, will be filed along with PGE's 2026-2028 WMP.

C.14 Improvement 24-232_L

- **Recommendations:** The WMP working group should adopt Risk Mitigation and Cost Valuation (RSE) as its part of its area of focus. This Staff led working group should propose risk quantification guidelines to the Commission for implementation in the 2026 WMPs. RSE should reflect granular data for electric assets which quantify risk that is derivative of operational data (include outage and device state information), observational data (inspections), temporal data (snapshots in time related to peripheral systems) and should fully comprise all the facilities that are part of the utility's HFRZs. Consistency of terminology, data sources and their confidence, and expected calculation processes should be prepared by the utilities but performed consistent with guidance by the PUC. In addition, RSE needs to recognize the manner in which "risk" is quantified by the utility, and generally, result in an agreed-upon method for the quantification and the way that the reduced risk will be measured. This could leverage PacifiCorp's "composite risk" or one of the other IOU's risk quantification methods.
- **Utility Response:** As part of UM 2340, Investigation into Guidelines for Wildfire Mitigation Plans, Phase 2 WMP Working Group, PGE, PacifiCorp, and Idaho Power worked collaboratively with OPUC Safety Staff to develop a common understanding of risk methodologies and an initial standard Risk and RSE Methodology. The RSE Workbook, approved by OPUC Order No. 25-436, will be filed along with PGE's 2026-2028 WMP.

C.15 Improvement 24-232_M

- **Recommendations:** All utilities should regularly participate in a cross-utility effort, via working group or other format, to share experience, learnings, and industry best practices, surrounding system reliability. At minimum, this effort should include discussion of sophisticated protection control equipment and its application to sensitive settings, consideration of impact to reliability, in particular the response during elevated risk season with repeated outages to customers when "self-healing" is not in place (resulting in them experiencing nuisance trips). This group should not only consider impacts to system level reliability but consider impacts of momentary interruptions and longer sustained outages to remote customers, particularly those which may be less able to sustain during poorer reliability periods.
- **Utility Response:** Recommendation 24_232_M was identified in OPUC Order No. 24-232 as an additional topic that may be appropriate for the joint working group after the 2026 WMPs to be directed at the Commission discretion. This area for additional improvement has not been included in subsequent orders.
  - Although the Oregon specific working group has not been developed, PGE routinely engages in cross-utility efforts to understand the latest experiences, learnings, and industry best practices surrounding system reliability. PGE continues to learn about opportunities to expand data collection, leverage additional protection capabilities from existing devices, and explore how integrating real-time data from other investments may be able to reduce risk and optimize customer reliability. This work is included in proposed initiative GOP-05 Protection Practice Improvements.

C.16 Improvement 24-232_N

- **Recommendations:** All utilities should regularly participate in a cross-utility effort, via working group or other format, to share experience, learnings, and industry best practices, for identifying and coordinating with Public Safety Partners, building on the ground relationships and communication, developing livestream/recorded multi-language community meetings, and coordinate with local communities to participate in safety fairs.
- **Utility Response:** Recommendation 24_232_N was identified in OPUC Order No. 24-232 as an additional topic that may be appropriate for the joint working group after the 2026 WMPs to be directed at the Commission discretion. This area for additional improvement has not been included in subsequent orders.
  - PGE concurs with the recommendation that it should regularly participate in a cross-utility forum—whether through a formal working group or a comparable structure—to strengthen coordination with Public Safety Partners and enhance community-facing wildfire-mitigation engagement. This approach is consistent with the intent of Oregon's wildfire-mitigation framework, which emphasizes proactive collaboration, clear communication, and continuous improvement across the sector.

  OPUC wildfire-mitigation rules (OAR 860-300) establish the importance of coordinated engagement with Public Safety Partners, defined to include ESF-12, Local Emergency Management entities, and the Oregon Department of Human Services (ODHS). These rules require utilities to maintain ongoing communication with these partners throughout wildfire-season preparation, PSPS planning, and plan development. Furthermore, Order 25-326 (UM 2340) reinforces the Commission's expectation that utilities present stakeholder-facing information in a manner that improves transparency and supports a shared understanding of wildfire risk and mitigation activities across communities and agencies.

  To meet these expectations and to advance sector-wide learning, PGE will continue to participate in a recurring cross-utility working group designed to facilitate the exchange of operational experience, lessons learned, and industry best practices relevant to Public Safety Partner coordination. Participation in such a forum aligns with the industry collaboration commitments already reflected in multiple utility wildfire-mitigation plans.

  Through this coordinated structure, PGE will actively support the development and refinement of common practices for:

  - **Identification and coordination with Public Safety Partners**, including consistent application of statewide definitions and expectations.
  - **Establishing and maintaining durable, on-the-ground relationships** with fire agencies, emergency management officials, Tribal partners, and other critical stakeholders.
  - **Developing and delivering livestreamed and recorded community meetings** in multiple languages to enhance accessibility and alignment with OPUC engagement requirements.
  - **Coordinating participation in local safety fairs**, preparedness events, and wildfire-awareness campaigns in partnership with local jurisdictions and community organizations.

PGE views this collaborative framework as a core component of adaptive wildfire-mitigation planning. By engaging consistently with peer utilities and Public Safety Partners—and by jointly developing shared community-facing tools and outreach practices—PGE will strengthen regional preparedness, enhance communication before and during critical fire-weather events, and improve alignment of wildfire-mitigation activities across the service area. This commitment also supports the ongoing evolution of sector-wide standards envisioned by the Commission in adopting the shared WMP format, providing communities and stakeholders with receive clear, consistent, and actionable information.

In summary, PGE supports and will actively participate in a recurring cross-utility coordination effort that advances the collective understanding, communication, and public engagement practices essential to effective wildfire-mitigation across Oregon and the region.

C.17 Improvement 24-232_O

- **Recommendations:** All utilities should collaborate to develop consistent content (and should conform to generally consistent language) to inform customers, communities and public safety partners about operational protocols which can impact their power reliability and power system operations. As a complement to these approaches, utilities should perform analysis regarding the location-specific impacts to reliability, including the increase in customer complaints internally as well as those recorded by the OPUC consumer services division, and develop methods to quickly react to heightened operations impacting customers' reliability. Customers and communities may benefit from awareness of other outage causes (beyond weather), which impact reliability and during "sensitive settings" or "fire season" period or which could result in unusual reliability.
- **Utility Response:** Recommendation 24_232_O was identified in OPUC Order No. 24-232 as an additional topic that may be appropriate for the joint working group after the 2026 WMPs to be directed at the Commission discretion. This area for additional improvement has not been included in subsequent orders.
  - PGE has reviewed customer reliability complaints for customers subject to EPSS during fire season and has received zero complaints in both 2024 and 2025.
  - The implementation of EPSS does not necessarily increase the number of outages. However, outages that may have been momentary would become sustained during the most conservative sensitive setting mode (EFR) and restoration time for sustained outages may be longer due to additional patrol requirements during fire season. PGE adjusts estimated restoration times (ERT) during fire season for customers in areas subject to EPSS to account for the additional patrol time to provide transparency to customers.
  - PGE communicates information through web, social, and during in-person events with customers, communities, and public safety partners around potential impacts to power reliability during fire season.

C.18 Improvement 24-232_P

- **Recommendations:** All utilities should collaborate to develop a "template" for reporting PSPS details during the execution of a PSPS, and Staff would appreciate participating in these sorts of collaborative development efforts.
- **Utility Response:** Recommendation 24_232_P was identified in OPUC Order No. 24-232 as an additional topic that may be appropriate for the joint working group after the 2026 WMPs to be directed at the Commission discretion. This area for additional improvement has not been included in subsequent orders.

  PGE will continue to review publicly available PSPS reporting templates of utilities who have had to call Public Safety Power Shutoffs, both inside and outside of Oregon for important elements to share in a potential PSPS annual report. PGE looks forward to future collaboration with PacifiCorp, Idaho Power and OPUC Staff when development of a template for reporting PSPS details during the execution of a PSPS becomes a priority for the joint working group. PGE will continue to attend the Joint IOU meetings where this Area for Additional Improvement/Recommendation citation will be discussed.

C.19 Improvement 25-234_PGE_2501

- **Recommendations:** PGE should explain how it has addressed outage data quality, including its use of limited record set (only six years) and reduced set of outage records (only including vegetation and equipment failure categories). PGE should also explain how it plans to transition reporting consistent with IEEE 1782 without post-processing of outage data.
- **Utility Response:** PGE is working to continuously improve outage data quality through several initiatives. Existing outage data QAQC processes, automation, and training for pertinent teams have been reviewed and enhanced. PGE has improved field outage data collection tools and updated outage data collection protocols. Additionally, PGE launched a new Outage Correction Automation Project in 2025. This project has put code in place that automates existing workflows and business rules, pulling data from the OMS and AMI systems to recommend corrections.
  - In 2025 PGE made a change to use 10 years of historical equipment, vegetation, and weather outage data instead of only 6 yrs. for asset and geographic risk modelling. Exponential smoothing was applied to weight the more recent years outage data. PGE's current approach specifically focuses on equipment, wildlife, vegetation, and weather-caused outages for asset and geographic risk modelling. Equipment degradation follows more predictable failure curves based on age and condition, and vegetation/weather risks correlate with geographical and seasonal patterns. Other causes are excluded like public-related incidents or loss of supply. These causes are often random events driven by human behavior that could introduce statistical noise weakening the model's ability to identify meaningful patterns in assets and geographic specific risk. Because of the statistical noise, currently excluded causes are being analyzed independently and will fold into the risk modelling in the future.
  - PGE has completed an initial assessment of system, technical, business process, and downstream impacts of updating the current Outage Management System (OMS) to align to 1782 cause categories and sub-categories. PGE is currently engaging with Oracle, the OMS vendor, for technical feasibility and best practices for implementing this change. PGE will be evaluating necessary change management, addressing needed business process improvements, and technical adjustments across all PGE's related outage management systems going into 2026. If cost recovery is received for PGE's incremental initiatives, PGE will begin work to implement cause codes in OMS as discussed in Section 4.7.4.

C.20 Improvement 25-234_ALL_2502

- **Recommendations:** Undertake the International Wildfire Risk Mitigation Consortium (IWRMC) Maturity Model assessment on an annual basis in December and submit results concurrent with annual WMP filings. For transparency, Maturity Model results should be publicly available.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326. PGE undertook the complete IWRMC Maturity Model in 2025, which is the first time since 2022. Results are interwoven into the main text of the 2026-2028 WMP in addition to Appendix G, all of which will be publicly available. PGE will incorporate this model and the analysis of its results into the annual rhythm of work as part of continuous improvement efforts.

C.21 Improvement 25-234_ALL_2503

- **Recommendations:** Work with Staff to improve the value of the data reporting template, including creating needed definitions and ensuring sufficient details are captured to limit non-descriptive information (i.e., the use of "Other") and show alignment with administrative rules or industry guidelines or standards.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-429. PGE has worked with other IOUs and Staff to improve the value of the data reporting templates, in alignment with administrative rules as well as industry guidelines and standards. This coordination has occurred through participation in meetings and comment submission for the WMP template and terminology, the Data Template Workbook, and the Risk Spend Efficiency Workbook. To incorporate this effort, Staff published WMP 2025 Data Template and Guidelines Update, which was approved by Order 25-429.

C.22 Improvement 25-234_ALL_2504

- **Recommendations:** Provide an explanation for current and future approaches for establishing associations between legacy outage data and ignition risk drivers. This should include providing any lookup tables or graphic and tabular depictions that clarify how the relationships are established until more direct relationships between outage management system data and the Risk and Ignition Event Categorization in the WMP Data Template. To the extent that the utility uses comments or other sources to identify "wire down events" or other values that better report on wildfire risk events, it should clarify the process used.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326.
  - Section 4.3, Outage Risk Driver Analysis and Results

C.23 Improvement 25-234_ALL_2505

- **Recommendations:** Greater analysis and exploration of outage causes and their correlation to ignition risk drivers should be quantified, ideally at a fault rate per unit length in the conductors/zones of protection. Each company should participate in a process designed to explore correlations between ignition risk drivers and how they vary.
- **Utility Response:** PGE is committed to participating in the collaborative UM 2340 process examining correlations between outages and wildfire ignition risk factors. Currently, PGE quantifies ignition probability through Coefficient of Ignition Probability (KIP) values, which represent the likelihood that a failure will result in ignition given it caused an outage.

  Furthermore, PGE looks forward to sharing learnings regarding vegetation-related fault rates per conductor length. Over the last few years, PGE has determined that within its service area, vegetation density and span-to-span variations are more significant drivers of failure probability than the physical length of conductors alone.

C.24 Improvement 25-234_ALL_2506

- **Recommendations:** Work with Staff to determine how best to produce information demonstrating the areas of utility risk that can be used by regulators, customers and PSPS. This should include tabularly, circuit or circuit segments including, at minimum, the following information: (1) Circuit ID by a circuit segment, (2) percent within Utility Wildfire Fire Risk Area, (3) circuit or circuit segment risk scores(4) ignition risk drivers resulting in score (with explanation of how the score was calculated), (4) the operating area, (5) the town or general location (6) HFRZ named area, (7) total overhead circuit length, (8) total underground circuit length and (9) the status of any project (such as under evaluation, ongoing, completed, or none).
- **Utility Response:** PGE is committed to collaborating with Staff and peer utilities through UM 2340 to develop optimal methods for presenting utility risk information that will be valuable to regulators, customers, and Public Safety Power Shutoff (PSPS) operations.

  PGE anticipates that the planned joint initiative in 2026 to enhance the RSE Workbook will address most or all of these recommendations, creating a comprehensive framework for risk assessment and communication.

C.25 Improvement 25-234_ALL_2507

- **Recommendations:** Provide in the 2026 WMP, a table of all current and planned mitigation work investments. Include the following details: (1) Circuit ID or circuit segment, (2) Risk Score prior to and (3) after improvement, (4) RSE Score, (5) the historic ignition driving risk driver (historical outage records, weather or landscape changes), (6) Capital investment Cost, (7) Expense (O&M) Cost, (8) target date for engineering, (9) target date for construction, (10) target date for completion, (11) Improvement Units (miles of conductor changes, or equipment installed), and (12) comments on any year over year changes to the above.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326.

  See Appendix E Current and Planned Mitigation Investments

C.26 Improvement 25-234_ALL_2508

- **Recommendations:** Include grant details in the WMPs for any new, or updated, approved grants for current and future receipts. Details shall include the project it benefitted, the awarding agency(s), amount awarded, timeline, and funding status. The Company should demonstrate how each grant impacts project costs and customer rates, as well as how the Company will manage reimbursement, and any adjustments due to funding delays.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326.

  Section 2.2, WMP Grants, provides the following details for any new, or updated, approved grants for current and future receipts:

  – The project it benefitted, the awarding agency(s), amount awarded, timeline, and funding status.

  – Demonstration of how each grant impacts project costs and customer rates, as well as how the Company will manage reimbursement, and any adjustments due to funding delays.

C.27 Improvement 25-234_ALL_2509

- **Recommendations:** Provide additional information when there are changes to work currently queued up for implementation. If a project is delayed, explain whether the delay will be resolved within the year or if delays are expected to continue into future years. For delays expected to continue into future years, note how the delay may affect risk reduction for the system.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326.
  - Section 2.3.1 WMP Program Delivery Target Updates

C.28 Improvement 25-234_ALL_2510

- **Recommendations:** In the Multi-year and Update WMP Plans, track the historical and forecasted annual equipment upgrades (such as number of CFCI's installed, miles of spacer cable, miles of covered conductor (not spacer cable), miles of underground conductor, cameras installed, pole replacements, poles wrapped, etc.) including a comparison of projected and actual unit completion amounts by year.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326.
  - Table OPUC 2-3 Asset Unit Delivery

C.29 Improvement 25-234_ALL_2511

- **Recommendations:** Include a list of any WMP-relevant surveys conducted during the year. Details should include the languages that the survey was offered in, the total responses, and an outline of each question asked and what the available responses were. Outline any lessons learned or program shifts as a result of the survey responses.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326.
  - Appendix F Community Outreach and Public Awareness Surveys
  - Section 13.3.3 Awareness Survey Results

C.30 Improvement 25-234_ALL_2512

- **Recommendations:** In the 2026 WMP, describe the utility's capability for real-time communication during a PSPS event to customers and public safety partners, in the appropriate languages, the following information: what the current PSPS forecast is, where the PSPS is to take place, how long it is expected to last, when restoration is expected to begin, and for public safety partners, how they can receive GIS files for the areas.
- **Utility Response:** PGE's capabilities for real-time communication during a PSPS event to customers and public safety partners, languages included, and forecast, location, duration, and restoration start time can be found Section 12.2.4.

  PGE will continue to provide the PSPS web layer service to public safety partners, compatible with their GIS systems, as part of the notification information plan summarized in Table 12-2.

C.31 Improvement 25-234_ALL_2513

- **Recommendations:** Work with Staff to develop content regarding inspection program details, clearly associated with relevant governing codes, in addition to utility- specific inspection programs (such as infrared inspections, etc.). Further details provided should include an annual summary of general findings and correction plan results of those findings.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326.
  - Table OPUC 7-1: Asset Inspection Programs
  - Table OPUC 7-2: Asset Correction Types
  - Table OPUC 7-3: HFRZ Asset Correction Summary
  - Table OPUC 7-4: Inspect/Correct Initiative Cost Summary in Thousands

C.32 Improvement 25-234_ALL_2514

- **Recommendations:** Work with Staff to develop content regarding industry engagement activities including pilot program development and deployment. The content should describe current, proposed or piloted program changes, outlining any cross-utility collaborations and/or industry learnings which directed the change.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326.
  - Table OPUC 14-1 Industry Engagements
  - Table OPUC 5-2 Pilot Technology Summary

  PGE and the Joint IOUs will continue to work with Staff to finalize the expectations on this Area for Additional Improvement for inclusion in the 2027 WMP Update template.

C.33 Improvement 25-234_UM2340_2501

- **Recommendations:** The Multi-Year Wildfire Mitigation Plan (WMP) should include a section that describes the models used to determine areas of heightened risk with the areas as defined in OAR 860-300-0020 (1)(a)(A)+(B). The models shall take into account risks factors mentioned below not yet incorporating the utility's assets and ignition drivers.
  - This section includes references to risk quantification processes and terminology used in UM2340 work to harmonize risk quantification among the IOUs.
  - IOUs should incorporate aspects being detailed in the models, including explicitly demonstrating landscape risk, fire ignition and spread modeling methods and their impact to inclusion of areas with elevated landscape risk, and subsequently exposing the ignition/spread modeling to various credible climate conditions (including the basis for their selection).
  - Each of these steps should be distinctly supported with a detail description of the geospatial and tabular dataset used in the analysis encompassing the areas as defined in OAR 860-300-0020 (1)(a)(A)+(B).
  - The utilities shall provide at a minimum the details below outlining the processing element for the geospatial and tabular datasets used in the baseline/environmental risk analysis. This information could be provided in a detailed data table.
  - Provide information on the data source, spatial resolution, temporal resolution, timeframe of data, and data units.
  - If applicable, include a description of any probability density functions, percentiles, or other ranking methods used.
  - Describe any methods taken to bin or group individual datasets into various extreme, moderate and limited risk.
  - Anytime datasets are combined to create a new dataset, include a description of how each dataset is combined and/or weighted to create the new dataset.
  - Utilities shall provide an explanation and the rational for any datasets which are used more than once within the analysis.
  - Once results are compiled into a final baseline/environmental geospatial risk file please detail how the Company analyzes the data into various extreme, moderate and limited risk. Include details of the company's basis for this determination (for instance, should IPC continue to define yellow and red risk zones, detail how such a determination is supported by the quantified or subjective inputs).
  - Include details of how the company performs sensitivity analyses, quality assurance, and stress testing to ensure accuracy.
  - Include maps of the company's service territory and its existing or new HFRZ areas as well as its Utility Wildfire Risk Areas.

- **Utility Response:** PGE's 2026–2028 WMP discusses the models used to determine areas of heightened risk, specifically those defined in OAR 860-300-0020(1)(a)(A)+(B), in the following sections:
  - Section 4.2.1 Baseline Wildfire Risk Assessment (HFRZ Analysis)
  - Section 4.2.2 Fire Risk Zone Results

  The general process for HFRZ development involved the creation of a novel composite wildfire risk score dataset, followed by use of GIS tools to create WRAs and subsequently HFRZs. As noted in Section 4.2.1.5.A, PGE performed polygon clustering to develop WRAs, along with refinements using the following processes:
  - The composite wildfire risk scores, calculated as provided in Section 4.2.1.4.D, were filtered to keep values at a threshold determined by filtering to a range of values and viewing the spatial distribution of the data relative to the 2025 HFRZs.
  - PGE performed a clustering analysis with the filtered data using the ArcGIS Pro tool Aggregate Points to create polygons using a 500-meter search radius.
  - The resultant polygon data of 1,000 acres and smaller were filtered out consistent with wildfire modeling practices noted in Section 4.2.1.5.A.
  - The resultant polygon dataset was smoothed using two ArcGIS Pro tools: Simplify Polygon and Smooth Polygon:
    - Simplify Polygon used the Retain Weighted Effective Areas (Zhou-Jones) simplification algorithm with a 330-meter simplification tolerance and no minimum area.
    - Smooth Polygon used the Polynomial Approximation with Exponential Kernel (PAEK) simplification algorithm and a 330-meter smoothing tolerance.
  - The 330-meter simplification and smoothing tolerances were determined by applying a range of values and evaluating the resultant polygon refinements against the underlying composite risk scores to achieve consistency and relative conformity with the spatial distribution of relatively high values.
  - To address areas of low-risk encapsulated by high risk areas, PGE implemented the ArcGIS Pro tool Eliminate Polygon Part with a threshold of 1,000 acres consistent with wildfire modeling practices noted in Section 4.2.1.5.A.
  - PGE performed precision boundary refinements to exclude identified low-risk enclaves using manual boundary adjustments informed by a review of the underlying composite risk score data and asset line segment data.
  - HFRZs are developed from WRAs based upon PGE's Asset Review noted in Section 4.2.1.5
  - PGE performs stress testing of developed HFRZs by engaging fire suppression and land management agencies.

C.34 Improvement 25-234_UM2340_2502

- **Recommendations:** The utilities should evaluate current and planned mitigation projects against the results of the modified RSE method currently under development in UM 2340. A crosswalk of these projects should be contrasted against the Phase 2 RSE results. Utilities should provide an evaluation of the findings in an effort to help guide the future modifications to the RSE process.
- **Utility Response:** PGE is committed to jointly learning in the UM 2340 process, which dovetails with PGE's more targeted mitigation strategy for selecting wildfire mitigation investments noted in Section 5.2.1.

  PGE has begun implementing this more targeted approach to Grid Hardening and System Design projects as detailed in Section 6.4.2.2.A. PGE modified the Willamina-Buell project scope in late 2025 based on updated risk modeling findings. By further segmenting the project and applying the mitigation selection process described in Section 5.2.1, PGE identified a six-mile section of the 34-mile project that no longer requires the overhead to underground conversion originally planned for 2026.

  In the first half of 2026, PGE plans to review all current and planned projects in light of this more targeted mitigation strategy to verify PGE is funding projects in the highest-risk areas that maximize safety benefits across the entire service area while prioritizing affordability for customers.

  PGE will explore the differences between PGE's methodology and the Standard Methodology in future UM 2340 workshops. Key differences are identified in Table 4-1, with the following recommendations:

  - **Aggregate Risk Calculation:** Update the risk calculation method to multiply ignition likelihood by exposure risk score. This approach would prioritize the truly highest-risk areas by considering both how likely an ignition is to occur and the potential consequences.
  - **Reliability Impacts:**
    - Grid Hardening and System Design investments typically improve reliability for customers; PGE recommends including reliability benefits when evaluating project RSE.
    - In the RSE workbook, PSPS and equipment settings and grid response mitigations typically rank above vegetation and inspection mitigations. PGE believes this ranking occurs because reliability impacts are not currently factored into the analysis. PGE recommends incorporating reliability impacts when evaluating short-term mitigation evaluation.
  - **Monetized Consequences:** PGE recommends adopting a monetized exposure score to reflect a benefit-to-cost calculation that allows comparison with other utility investments.
  - **Time Horizon:** PGE recommends evaluating more than one year of risk to allow assessment of investment impact on escalating risk due to climate change and asset age.
  - **Outage and Ignition Likelihood:** PGE recommends incorporating probability modeling to determine the likelihood of outages and ignitions rather than relying solely on historical

events. Past events provide valuable data; however, they do not account for important factors such as asset characteristics, current equipment condition, or vegetation threats that may result in a higher or lower likelihood compared to historical average.

- **System Automation Equipment:** PGE recommends the RSE workbook support the evaluation of additional SCADA-enabled devices that increase circuit segmentation; currently the workbook is limited to evaluating existing devices.

C.35 Improvement 25-234_UM2340_2503

- **Recommendations:** All utilities should calculate utility risk at a zone of protection or circuit segment level derived from pre-mitigation measure risk and post mitigation measure risks; this calculation should not be used to redefine their service territory which was designated as HFRZ.
- **Utility Response:** Incorporated into 2026-2028 Multi-year Plans by Order 25-326 and into RSE Workbook by Order 25-436
  - Appendix E Current and Planned Mitigation Investments
  - CONFIDENTIAL Appendix L Risk Register
  - RSE Workbook

C.36 Improvement 25-234_UM2340_2504

- **Recommendations:** Utilities should collaborate jointly to establish peer-reviewed methods for calculating the ignition risk driver reductions for various mitigation initiatives, building upon work being conducted in docket UM 2340. Elements which should be evaluated include: the percentage of effectiveness for the ignition risk driver, the duration for which the effectiveness is assumed to be applied, whether the effectiveness varies over its life, what the expected life of the measure is. Since this is expected to evolve over time, provide the underlying assumptions of effectiveness and the basis for that estimation as an Appendix to the WMP Multi-year Plan. Should any calculations for mitigation initiative effectiveness estimates be developed using utility-specific values, identify the utility-general values and explain the basis for the variation chosen by the utility.
- **Utility Response:** PGE is committed to the UM 2340 process and working collaboratively to learn from peers on the mitigation effectiveness values. PGE has provided as an Appendix the mitigation effectiveness used in PGE's RSE methodology along with the basis for the values selected.
  - Appendix K Mitigation Effectiveness

C.37 Improvement 25-234_UM2340_2505

- **Recommendations:** The utilities should clearly identify their method of public safety partner administration, including: (1) who they define as public safety partners (PSP) (and its adherence or variance from OAR 860-024-0060), (2) how they maintain contact lists for each of those partner organizations, (3) how often they meet with those representatives, (4) how they augment the PSP contacts incorporating the unique characteristics of the communities being served, (5) the feedback regarding the effectiveness of any interactions including workshops, tabletops etc., (6) where appropriate, their use of Community Based Organizations (CBOs) or other community organizations to complement any PSPs for the locale, and (7) how they leverage all community outreach relationships to improve its communication effectiveness.
- **Utility Response:**
  - PGE uses the definition provided in OAR 860-3-0010(7) for Public Safety Partner which is ESF-12, Local Emergency Management, and Oregon Department of Human Services (ODHS).
  - The Oregon Department of Emergency Management maintains the contact list for Local and Tribal Emergency Managers on their website. PGE's BCEM Manager is responsible for maintaining contact information with ESF-12 and ODHS. BCEM updates ESF-12 of any contact changes quarterly during scheduled meetings.
  - PGE meets with representatives from partner organizations at a minimum bi-annually (pre-fire season and post fire season), as well as monthly meetings that are hosted by Regional Disaster Preparedness Organization (RDPO) or PSP.
  - The Public Safety Partner list is augmented by CBOs, Fire Defense Board, and RDPO contacts maintained by PGE business units.
  - Feedback from interactions including workshops, tabletops, etc. are included in Table 12-4 in Section 12.6 of PGE's 2026-2028 WMP. The PSPS tabletop for PSP is performed by the end of quarter 2 and the After Action Report will be completed within 30 days.
  - PGE engaged with a variety of community organizations and CBOs during 2025 to reach and communicate with groups of customers that may not be effectively reached through other communication methods. A list of all engagements can be found in Section 13.3.
  - Details on how PGE leverages all community outreach relationships to improve communication effectiveness can be found in Section13.2.2.

C.38 Improvement 25-234_UM2340_2506

- **Recommendations:** Discuss how the Company considers outage impacts for vulnerable customer segments including ones who use electricity to power medical devices and those that are considered critical customers. Include how the company models those locations against HFRZs and how the utility considers critical facilities in its risk modeling and mitigations approaches.
- **Utility Response:** PGE implements a comprehensive approach to addressing outage impacts on vulnerable populations, with particular emphasis on customers with medical needs and critical facilities within HFRZs or areas experiencing significant outage events.
  - **Risk Modeling & Mitigation Planning:** As discussed in Section 4.2.1.1.D, PGE's Baseline Wildfire Risk Assessment uses the U.S. Census based SVI to calculate wildfire consequences for vulnerable populations and HVRA data to account for critical facilities. The potential wildfire risk exposure directly influences the establishment and refinement of HFRZ boundaries, ensuring vulnerable populations and critical infrastructure receive appropriate prioritization in mitigation planning.
    - In 2026, PGE plans to participate in a multi-year VOS study, and will be exploring opportunities to quantify power outages impact to vulnerable customer populations
  - **Outreach:** PGE identifies vulnerable customers through structured monthly outreach, targeted customer engagement calls, media communications, customer feedback surveys, direct customer notification systems, and collaborative partnerships with public safety agencies and community-based organizations.
    - PGE has established a Medical Certificate program that identifies and supports customers with medical dependencies through multiple communication channels including monthly outreach. Customer Service Advisors are trained to recognize indicators of medical equipment dependency during customer interactions. Information is disseminated to community-based organizations during formal training sessions and outreach events. PGE also participates in public preparedness forums to provide HFRZ and Medical Certificate program information.
    - Section 13.2 outlines PGE's pre-event protocols, which include outreach to communities and community-based organizations serving vulnerable populations. The communication strategy aims to enhance awareness of wildfire risk, familiarize stakeholders with HFRZ boundaries, and foster preparedness for potential outage and PSPS events.
  - **Outage Response:** Customers enrolled in the Medical Certificate program are recorded in PGE's GIS database and critical facilities are documented in OMS, enabling targeted communications and restoration prioritization during outage events.
    - During active outages, PGE implements proactive communication with Medical Certificate customers, including status updates and welfare checks. The company conducts needs assessment and resource coordination through established escalation pathways, along with systematic outreach to public safety organizations, community-based organizations, and critical facility operators. PGE coordinates with county and city

emergency management programs to facilitate access to support services for vulnerable customers during large-scale outages and PSPS events.

- For PSPS events, PGE's notification process discussed in Section 12.2.4 includes direct communication with Medical Certificate customers in HFRZs or areas designated for de-energization 48-24 hours prior to implementation, with continued 24-hour communication cycles throughout the duration of the event. PGE also establishes Community Resource Centers to provide essential services and information in impacted areas, coordinates information dissemination through established media channels, and maintains ongoing collaboration with public safety partners, community-based organizations, and critical facility stakeholders.

C.39 Improvement 25-234_UM2340_2507

- **Recommendations:** The companies shall utilize work developed in UM 2340 and any subsequent risk quantification efforts to determine how to evaluate the cost-effectiveness, cadence, location and timing of inspection programs, including Ignition Prevention Inspections as well as other inspection types to establish proper risk/reward activities are being conducted.
- **Utility Response:** PGE is committed to the collaborative UM 2340 process, including collectively learning and sharing its approach for developing risk-based inspection and correction programs.

  As described in Section 7.2.2.5, PGE uses a risk-informed approach to prioritize Ignition Prevention Inspections leveraging the mean risk score from HFRZs and other operational considerations. This approach enables PGE to prioritize inspection based on areas within PGE's service area that is at higher risk for wildfire. In 2027, PGE will further evolve the Ignition Prevention Inspections prioritization by layering in asset failure probability and ignition probability enabling prioritization based on risk of PGE asset failures resulting in a wildfire.

  To enable PGE asset wildfire risk-informed inspection prioritizations and risk-based corrections, PGE took steps in 2025 to mature its ignition probability algorithm described in Section 4.2.3, resulting in updated ignition probability assumptions for PGE equipment and attachments. The 2025 program achieved an RSE of approximately 9.3, see Section 4.2.6 and Appendix E for 2026-2028 RSE. Additionally, with the implementation of Neara, PGE will more effectively provide risk-based correction prioritization, correlating violations to unique failure and ignition probabilities.

  Outside of wildfire mitigation, PGE has experience in determining optimal inspection cadences for various distribution assets by comparing risk reduction benefits against costs and developed operationally feasible recommendations that provide positive net benefits to customers. PGE plans to apply this same methodology to wildfire inspection programs to effectively target the highest value work.

C.40 Improvement 25-234_UM2340_2508

- **Recommendations:** The utilities and Staff will work together to determine whether consistent vegetation inspection and correction procedures can be achieved, depending upon the relevant jurisdiction or land manager restrictions. This could result in consistent identification of line miles and locations needing to be trimmed, specific trees needing removal, areas where herbicides or other treatments should be performed, urgency of each of these actions, and estimated costs, etc. After inspection efforts are completed include, work done in response to inspection findings, when the work was performed or if additional or less work was completed and the basis for that action and actual costs.
- **Utility Response:** PGE supports the Commission's objective of improving consistency, clarity, and transparency in vegetation inspection and correction practices across Oregon's investor-owned utilities. As noted by Staff, the utilities and Staff will work together to determine whether consistent vegetation inspection and correction procedures can be achieved, recognizing that vegetation conditions, land-use constraints, and jurisdictional requirements vary across service territories.

  At this time, the IOUs have not yet begun joint development of shared procedures. PGE anticipates convening with the other utilities and OPUC Staff after the new year to begin scoping this work. Initial discussions are expected to focus on identifying areas where alignment is feasible and beneficial, while also documenting where utility-specific operational or environmental factors may require differentiated approaches.

  As the collaborative effort progresses, potential areas of alignment may include:

  - Common definitions and criteria for identifying line miles requiring trimming, individual tree removals, and locations where herbicide or other treatments may be appropriate.
  - Shared urgency categories for corrective actions, where practicable given differing system designs and vegetation profiles are used.
  - Approaches for estimating and reporting vegetation-related work volumes and costs.

  Post-inspection reporting elements, such as work completed in response to findings, timing of that work, rationale for any variances from original findings, and associated actual costs.

  - PGE's participation in this effort will be grounded in two principles. First, any shared framework must be compatible with Oregon jurisdictional requirements, land manager restrictions, and utility safety standards. Second, consistency across utilities should not diminish each utility's ability to manage risk effectively within its unique service area.
  - Because the joint utility work has not yet begun, PGE is not proposing specific procedures, timelines, or commitments in this WMP. As collaborative discussions advance, PGE will evaluate the outcomes for inclusion in future wildfire mitigation planning cycles and will continue to coordinate with Staff on implementation feasibility and regulatory expectations.

C.41 Improvement 25-234_UM2340_2509

- **Recommendations:** The utilities should continue to work with communities regarding the importance of healthy trees that do not pose risks to overhead electric assets, including the provision of information that helps.
- **Utility Response:** PGE acknowledges Staff's recommendation and agrees that healthy, well-sited trees play an important role in both community value and wildfire risk reduction. PGE's customer-facing vegetation information, including updated web content on planting near overhead lines and Right-Tree–Right-Place principles, is intended to help customers choose and maintain trees that do not create conflicts with electric facilities. In addition, PGE foresters provide case-by-case guidance in the field and, where appropriate, support customers in selecting replacement trees that are better suited to growing near electric infrastructure.

  PGE also engages directly with communities through its AWRR outreach and Wildfire Ready events, where staff discuss vegetation safety, defensible space, and the relationship between trees, reliability, and wildfire risk. These existing channels provide opportunities both to share information and to hear customer concerns, and PGE expects to draw on that experience when considering additional approaches to vegetation-related education in future Wildfire Mitigation Plan cycles, including the 2027 filing.

C.42 Improvement 25-234_UM2340_2510

- **Recommendations:** The IOUs shall participate in Staff-facilitated periodic wildfire mitigation best practice meetings. During these meetings, subject matter experts will be asked to outline their current practices for various topics. These discussions will include detailed descriptions of the manner in which the utility is conducting the topic work and will enable increased knowledge of the various activities and their relationship to mitigating wildfire. Specific topics could include covered conductor installations and challenges, the role of advanced coordination in reducing wildfire risk while maximizing reliability, vegetation management, risk modeling methods and current and future data needs, rapid deployment strategies and mitigation measures which support such an approach, etc.
- **Utility Response:** On March 10, 2020, Governor Brown issued Executive Order 20-04, which directs the 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. The Oregon Wildfire & Electric Collaborative (OWEC) is a series of workshops intended to enhance collaboration in Oregon regarding wildfire-related operational and policy issues.

  In 2025, there were three OWEC workshops as follows:

No.	Workshop Title	Date	PGE role
11	Assessing Risk Exposure and Mitigation Planning	January 15, 2025	Participant
12	Situational Awareness and Ignition Consequence Reduction	June 18, 2025	Presenter
13	Advanced Technologies and Procedures to Mitigate Utility Ignitions	December 4, 2025	Participant

On June 18, 2025, PGE presented on Daily Situational Awareness shared the how the following wildfire season situational awareness goals are achieved:

- Maintain awareness of fire weather conditions
- Maintain awareness of fuels conditions
- Maintain awareness of wildfire risk
- Maintain awareness of active wildfires

PGE looks forward to continued engagement in this valuable forum that benefits all Oregon utilities and has volunteered to present and share at OWEC's first workshop in 2026.

C.43 Improvement 25-234_UM2340_2511

- **Recommendations:** The company shall include in its Multi-Year WMP a detailed description of how it tracks and investigates reportable and non-reportable ignition events. The company shall include details regarding any root cause analysis performed, equipment failure findings, at a minimum as required in FM 221. The utility may choose to evaluate other ignition events which may inform its wildfire risk insights but should explain how those not required by OARs are incorporated into their ignition risk estimations.
- **Utility Response:** Section 4.8.2, Ignition Management, shares ignition investigation and process and corresponding details of root cause analysis.

Appendix D Detailed HFRZ Maps

To provide additional clarity on the designation of HFRZs and their relationship with electrical assets, PGE prepared regional maps that depict HFRZs and the associated transmission and distribution assets.

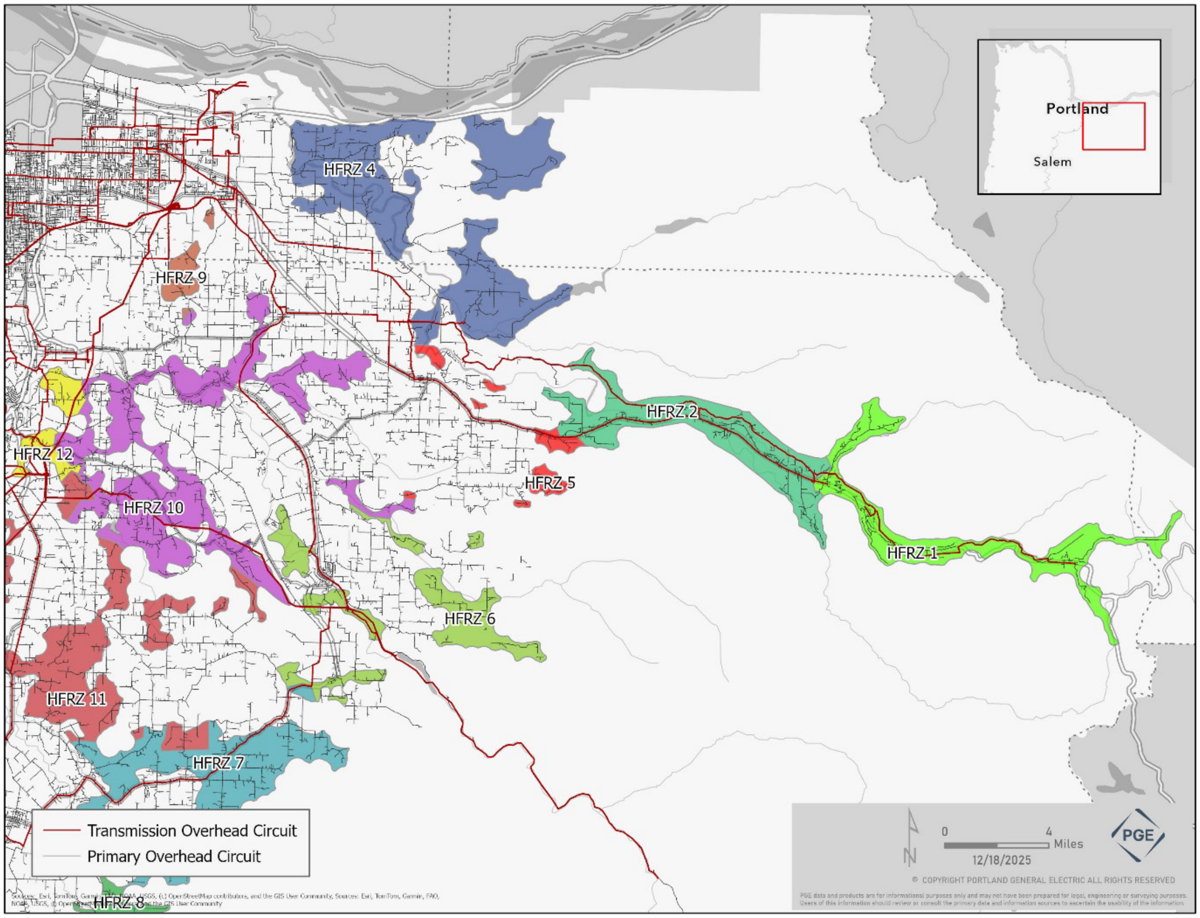


Figure D-1: Detailed HFRZ Map: Northeastern Region

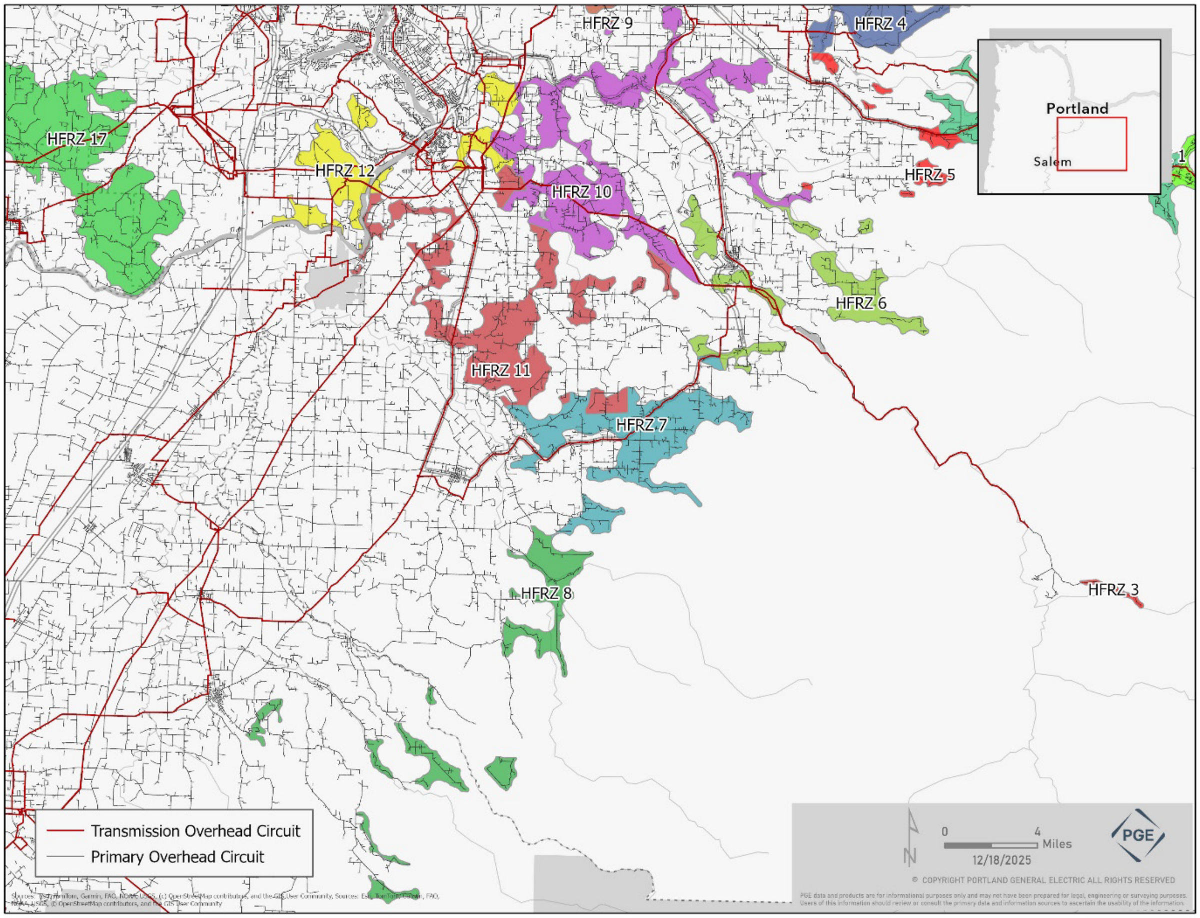


Figure D-2: Detailed HFRZ Map: Southeastern Region

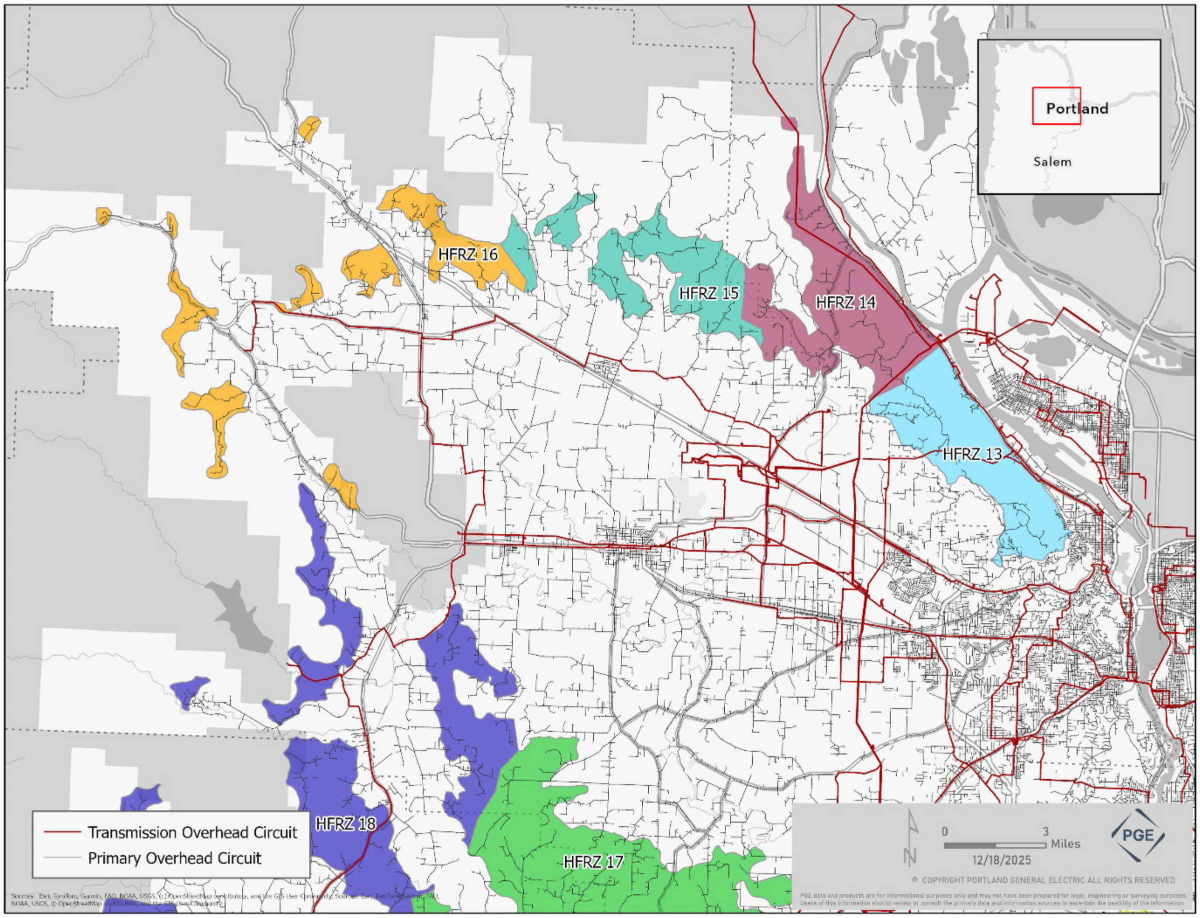


Figure D-3: Detailed HFRZ Map: Northwestern Region

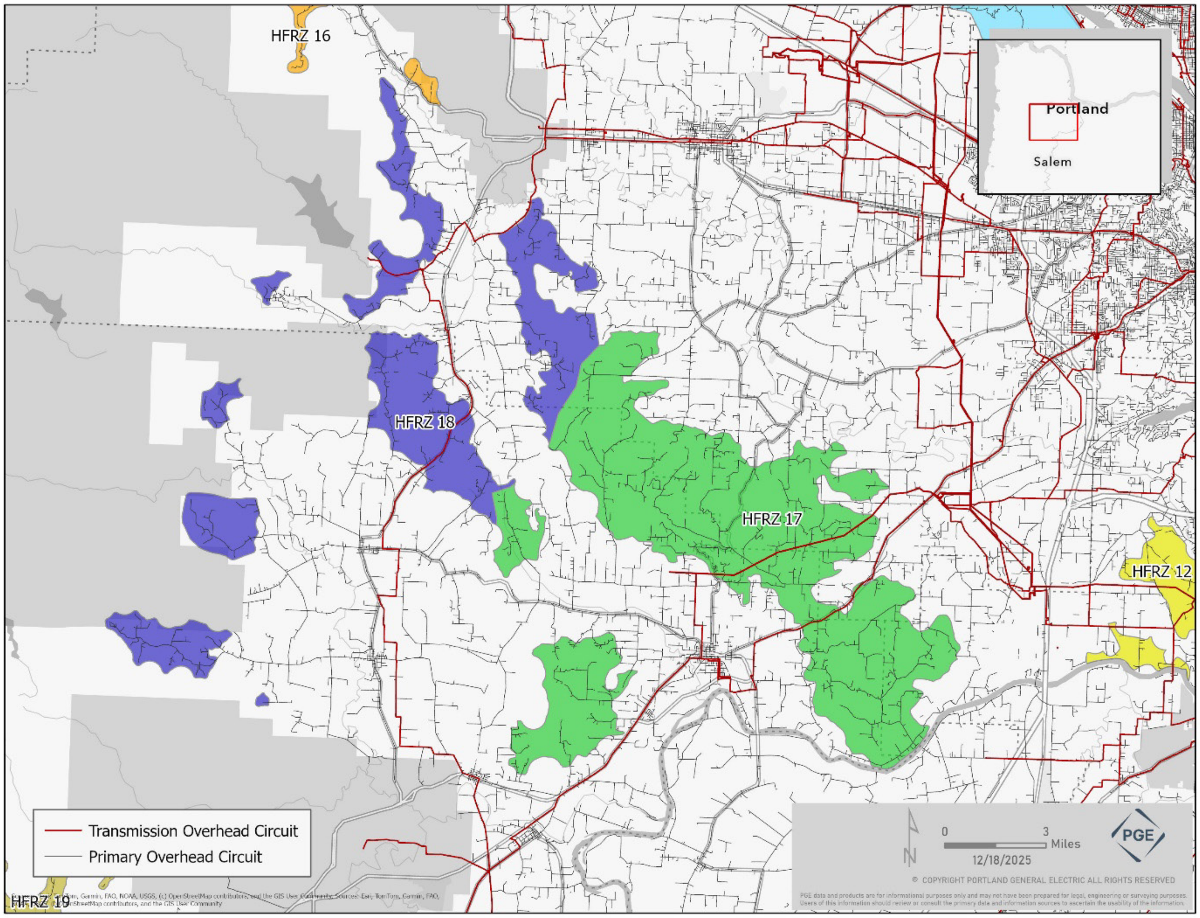


Figure D-4: Detailed HFRZ Map: Western Region

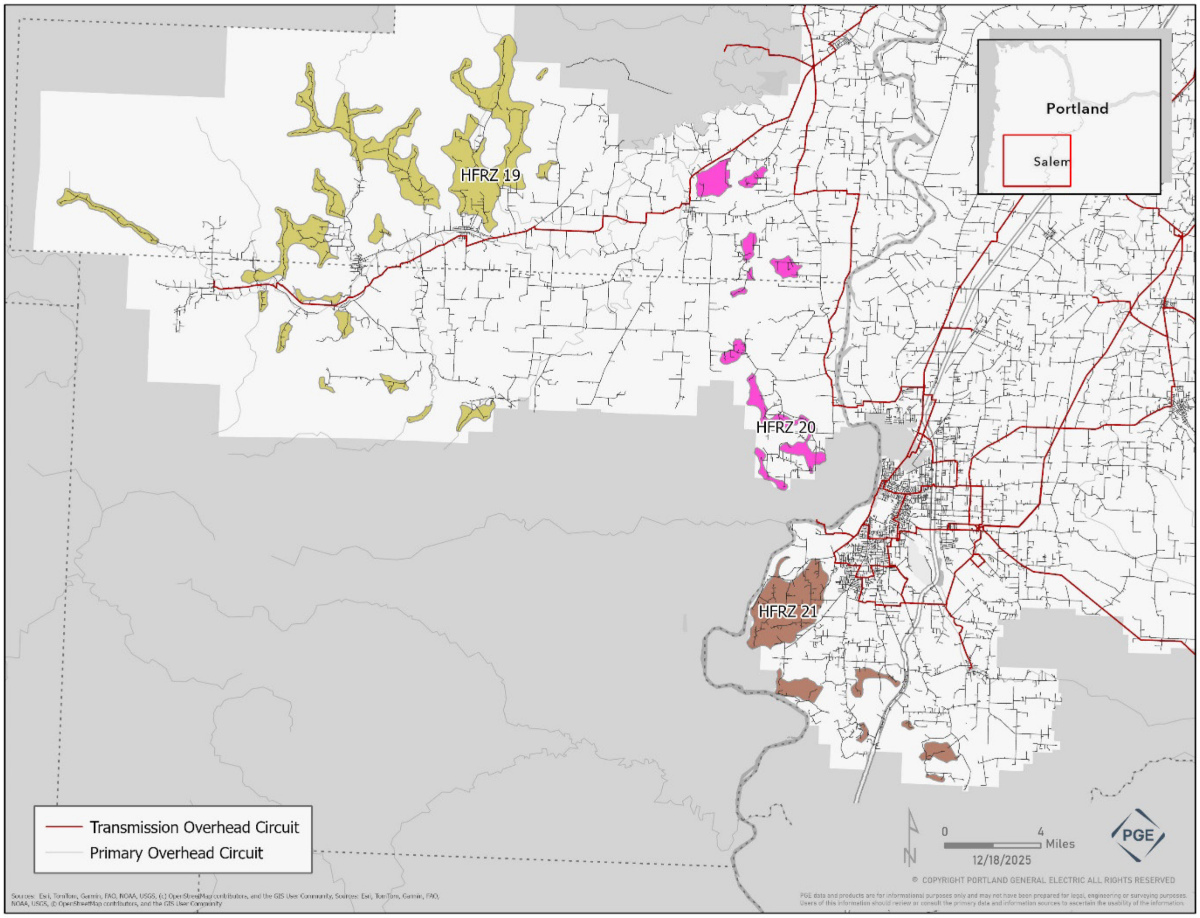


Figure D-5: Detailed HFRZ Map: Southwestern Region

Appendix E Current and Planned Mitigation Investments

Table E-1 provides public, non-confidential information for current and planned mitigation investments.

Confidential information, including *Risk Score Prior to Mitigation* and *Risk Score Post Mitigation*, pursuant to General Protective Order No. 23-132 is provided as a separate file in CONFIDENTIAL Appendix E.

Table E-1: Current and Planned Mitigation Investments–Non-Confidential

Project	Circuit ID	RSE Score with PSPS Benefits	RSE Score without PSPS benefits	Historic Ignition Driving Risk	Capital Investment Cost ($1000)	Operation & Maintenance Cost ($1000)	Target Date for Engineering Completion	Target Date for Construction	Target Date for Completion	Mitigation Type and Units	Mitigation Target
AWRR 2026	All HFRZ Circuits	5.2	5.2	Vegetation contact		$29,673	Not Applicable	Not Applicable	2026	VM-01-VM-05 + VM-07: Vegetation Management-Line Miles	1,171
AWRR 2027	All HFRZ Feeders	7.1	7.1	Vegetation contact		$26,561	Not Applicable	Not Applicable	2027	VM-01-VM-05 + VM-07: Vegetation Management-Line Miles	1,143
AWRR 2028	All HFRZ Feeders	7.9	7.9	Vegetation contact		$28,468	Not Applicable	Not Applicable	2028	VM-01-VM-05 + VM-07: Vegetation Management-Line Miles	1,165
Distribution Pole Replacements 2026	Feeders in HFRZ	1.8	1.8	Equipment / facility failure or damage	$819		Ongoing	Ongoing	2026	GDSH-05: Distribution Pole Replacements-Structures	52
Distribution Pole Replacements 2027	Feeders in HFRZ	1.9	1.9	Equipment / facility failure or damage	$2,739		Ongoing	Ongoing	2027	GDSH-05: Distribution Pole Replacements-Structures	172
Distribution Pole Replacements 2028	Feeders in HFRZ	1.8	1.8	Equipment / facility failure or damage	$2,927		Ongoing	Ongoing	2028	GDSH-05: Distribution Pole Replacements-Structures	170
EFD 2026	Sandy-Wildcat Leland-Carus	135.4	135.4	Equipment / facility failure or damage	$3,063		Feb-26	Apr-26	Jul-26	SAF-04: Early Fault Detection-Feeders	2
EFD 2027	Springbrook-Zimri Newberg-Chehalem Scoggins-Laurelwood Hillsboro-Laurel Scholls Ferry-Rainbow Cornelius-13	1186.8	1186.8	Equipment / facility failure or damage	$2,319		Feb-27	Apr-27	Jul-27	SAF-04: Early Fault Detection-EFD Installed	6
EFD 2028	North Plains - 13 North Plains - Mason Hill Rock Creek - Newberry Estacada-North Fork (PA 1)	401.6	401.6	Equipment / facility failure or damage	$1,246		Feb-28	Apr-28	Jul-28	SAF-04: Early Fault Detection-Feeders	4
EPSS Breaker and Relay Replacement 2026	Hogan South-Lawrence Hogan North-13 E-13144 Bethany-Springville Colton-Grays Hill	12.5	12.5	Other	$711		Aug-26	Oct-26	Dec-26	GDSH-10: Protection and Automation-Protection Systems	5
Estacada-North Fork Project Area 1 UG	Estacada-North Fork	3.3	3.3	Vegetation contact	$8,114		Nov-26	Feb-27	Aug-27	GDSH-02: Underground-Primary Overhead Circuit Miles Removed	9.16
Estacada-North Fork Project Area 2	Estacada-North Fork	0.9	0.8	Vegetation contact	$22,734		Mar-27	2027-2028	2028	GDSH-02: Underground-Primary Overhead Circuit Miles Removed	10.52
Estacada-North Fork Project Area 1 OH	Estacada-North Fork	2.2	2.2	Vegetation contact	$38,680		Apr-27	2027-2028	2028	GDSH-04: Covered Conductor-Circuit Miles	32.73

Project	Circuit ID	RSE Score with PSPS Benefits	RSE Score without PSPS benefits	Historic Ignition Driving Risk	Capital Investment Cost ($1000)	Operation & Maintenance Cost ($1000)	Target Date for Engineering Completion	Target Date for Construction	Target Date for Completion	Mitigation Type and Units	Mitigation Target
Estacada-North Fork Project Area 3	Estacada-North Fork	3.7	3.5	Vegetation contact	$59,432		Mar-28	2028-2029 Project is in development.	2029	GDSH-02: Underground-Primary Overhead Circuit Miles Removed	38
Fire Safe Fuses 2026	Sandy-Wildcat Sylvan-Patton	155.5	155.5	Equipment / facility failure or damage	$1,455		Mar-26	May-26	Jul-26	GDSH-08: Fire Safe Fuses-feeders	2
Fire Safe Fuses 2027	Molalla-Marquam Springbrook-Zimri Newberg-Chehalem	88.4	88.4	Equipment / facility failure or damage	$6,302		Mar-27	May-27	Jul-27	GDSH-08: Fire Safe Fuses-Feeders	3
Fire Safe Fuses 2028	Scoggins-Laurelwood Hillsboro-Laurel Scholls Ferry-Rainbow Cornelius-13	40.1	40.1	Equipment / facility failure or damage	$7,465		Mar-28	May-28	Jul-28	GDSH-08: Fire Safe Fuses-Feeders	4
Grand Ronde-Agency	Grand Ronde - Agency	4.9	1.0	Vegetation contact	$8,488		Complete	Ongoing	Apr-26	GDSH-02: Underground-Primary Overhead Circuit Miles Removed	10.04
Ignition Prevention Inspections 2026	All HFRZ Circuits	5.9	5.9	Equipment / facility failure or damage		$3,957	Not Applicable	Within Year	2026	IC-01-IC-03: Inspection & Correction	All HFRZ structures
Ignition Prevention Inspections 2027	All HFRZ Circuits	6.3	6.3	Equipment / facility failure or damage		$4,218	Not Applicable	Within Year	2027	IC-01-IC-03: Inspection & Correction	All HFRZ structures
Ignition Prevention Inspections 2028	All HFRZ Circuits	6.8	6.8	Equipment / facility failure or damage		$4,399	Not Applicable	Within Year	2028	IC-01-IC-03: Inspection & Correction	All HFRZ structures
Leland-Carus	Leland-Carus	5.3	5.3	Vegetation contact	$32,570		Complete	Apr-26	Apr-26	GDSH-04: Covered Conductor-Circuit Miles	43.69
North Plains-Mason Hill	North Plains-Mason Hill	15.2	15.2	Equipment / facility failure or damage	$6,606		Complete	Ongoing	Apr-26	GDSH-03: Reconductor-Circuit Miles	16
Orient-Oxbow	Orient-Oxbow	139.0	137.6	Vegetation contact	$21,748		Complete	Ongoing	Nov-26	GDSH-02: Underground-Primary Overhead Circuit Miles Removed	19.75
Rock Creek-Newberry	Rock Creek-Newberry	2.8	2.8	Equipment / facility failure or damage	$2,567		May-26	Oct-26	Apr-27	GDSH-03: Reconductor-Circuit Miles	3.9
Summit-13	Summit-Summit 13	51.3	51.3	Vegetation contact	$15,654		Complete	2026-2027	Nov-27	GDSH-02: Underground-Primary Overhead Circuit Miles Removed	6.7
Summit-Meadows	Summit-Meadows	41.0	41.0	Vegetation contact	$19,846		Nov-27	2028-2029 Project is in development.	2029	GDSH-02: Underground-Primary Overhead Circuit Miles Removed	4.4
Transmission Pole Replacements 2026	Transmission Lines in HFRZs/OFRZs	2.2	2.2	Equipment / facility failure or damage	$603		Ongoing	Ongoing	2026	GDSH-06:Transmission Structure Replacements-Structures	20
Transmission Pole Replacements 2027	Transmission Lines in HFRZs/OFRZs	2.2	2.2	Equipment / facility failure or damage	$1,528		Ongoing	Ongoing	2027	GDSH-06:Transmission Structure Replacements-Structures	51
Transmission Pole Replacements 2028	Transmission Lines in HFRZs/OFRZs	2.2	2.2	Equipment / facility failure or damage	$923		Ongoing	Ongoing	2028	GDSH-06:Transmission Structure Replacements-Structures	31
Tree Attachments	BRIGHTWOOD 13, BRIGHTWOOD-NORTH BANK, DUNNS CORNER 13, ESTACADA-NORTH FORK, MOLALLA-MARQUAM, ORIENT-OXBOW, REDLAND-HENRICI, REDLAND-REDLAND 13, SANDY 13, SANDY-WILDCAT, SYLVAN-PATTON, WELCHES 13, WELCHES-ZIG ZAG	0.4	0.4	Vegetation contact	$710		Aug-27	Dec-27	Dec-27	IC-05: Tree Attachments-Attachments Removed	130
Wildfire Reclosers 2026-2028	Abernethy-Oregon City, Amity-Amity 13, Barnes-Commercial, Barnes-Sunnyside, Bethany-Springville, Boring-Telford,	158.4	158.4	Other	$9,958		2026-2028	2026-2028	2026-2028	GDSH-07: Points of Isolation-Reclosers Installed	120

Project	Circuit ID	RSE Score with PSPS Benefits	RSE Score without PSPS benefits	Historic Ignition Driving Risk	Capital Investment Cost ($1000)	Operation & Maintenance Cost ($1000)	Target Date for Engineering Completion	Target Date for Construction	Target Date for Completion	Mitigation Type and Units	Mitigation Target
	Boring-Telford / Eagle Creek-River Mill, Clackamas-Gladstone, Dayton-East, Dayton-Lafayette, Dayton-Southwest, Dunns Corner-Dunns Corner 13, E-13144, Eagle Creek-River Mill, Estacada 13, Estacada-Faraday, Hogan North 13, Hogan South-Lawrence, Leland-Beavercreek, Leland-Carus, Liberty-Rosedale, Liberty-Skyline, McGill-Horsetail, Molalla-Marquam, Mt Pleasant-Mt View, Mt Pleasant-South End, Mulino-South, Newberg-Chehalem, Newberg-Dundee, North Plains-Mason Hill, Orient-Barlow, Orient 13, Pleasant Valley 13, Redland-Henrici, Rock Creek-Forrest Park, Rock Creek-Newberry, Rosemont-Hidden Springs, Sandy 13, Scholls Ferry-Rainbow, Scoggins-Laurelwood, Sheridan-Kadell, Silverton-South, Six Corners-13359, Six Corners-Borchers, Six Corners-Chapman, Springbrook-Fernwood, Springbrook-St Paul, Sullivan-Willamette, Turner-Cascade, Twilight-Bremer, Unionvale 13, Wallace 13, Wilsonville-Boeckmen, Wilsonville-West, Yamhill 13										
Willamina-Buell	Willamina-Buell	2.6	2.0	Vegetation contact	$21,514		Complete	Ongoing	Apr-26	GDSH-02: Underground-Primary Overhead Circuit Miles Removed	21.93

Appendix F Community Outreach and Public Awareness Surveys

PGE conducts bi-annual surveys to capture the knowledge level of our customers around PGE communications related to severe weather and wildfire. A list of PGE Community Outreach and Public Awareness WMP relevant surveys delivered in 2025 is provided in Table F-1.

Table F-1: 2025 Residential Wildfire Messaging Awareness Survey Summary

Survey	Timeframe	Languages Offered	Total Responses	Survey Outline/ Responses
Pre-Season Residential Wildfire Messaging Awareness Survey	April, 2025	English Spanish	528	Table F-2
Post-Season Residential Wildfire Messaging Awareness Survey	October, 2025	English Spanish	466	Table F-3

An outline of each question asked and the options available for responses for PGE's Residential Wildfire Messaging Awareness Surveys for both Pre-season and Post-season surveys is provided in the tables below.

Table F-2: 2025 Pre-Season Residential Wildfire Messaging Awareness Survey

Question	Response Options
How satisfied are you with your overall experience as a customer of PGE?	1 Very dissatisfied 2 3 4 5 Very satisfied
Before today, have you ever heard of the term Public Safety Power Shutoff, or PSPS?	▪ Yes ▪ No
Would you say you know enough about the term Public Safety Power Shutoff to explain it to others?	▪ Yes ▪ No ▪ Maybe
Could you give a brief example of the explanation you'd give about Public Safety Power Shutoffs? One or two sentences would be fine.	Text box
What follows is a brief definition from PGE: "A Public Safety Power Shutoff (PSPS) is a safety precaution when PGE temporarily turns off power during extreme weather conditions to reduce the risk of wildfire." Based on this definition, what are some examples of conditions you would expect PGE to call a Public Safety Power Shutoff?	Text box
Based on the definition in the previous question, where do you think PGE is able to call a PSPS?	▪ Only within a certain radius of active fires ▪ Only within specified High Fire Risk Zones (Check link above) ▪ Anywhere in the PGE service area ▪ It's unclear from the definition

Question	Response Options
How prepared do you feel for the upcoming fire season?	1 Not unprepared 2 3 4 5 Very prepared 6 Not sure
Which of the following have you done to prepare for a severe weather event or outage?	▪ Purchased gas-powered generator ▪ Purchased solar-powered generator ▪ Purchased portable battery to charge or power devices ▪ Purchased light sources (flashlight, lamp, camping light, etc.) ▪ Stored extra batteries for smaller devices (e.g., AA, AAA, etc.) ▪ Stored extra water ▪ Stored extra food ▪ Cleared brush and yard debris ▪ Pre-packed "Go Bag" for quick evacuation ▪ Made a plan to relocate in case of emergency ▪ Updated contact information with PGE for outage notifications ▪ Other, please specify ▪ Haven't made any preparations yet
Were any of the preparations you made a direct result of something you heard from PGE?	▪ Yes ▪ No ▪ I don't remember
Which preparations were made as a result of something you heard from PGE?	Based on prior question being answered "Yes", selection from two questions prior
How would you prefer to get information from PGE about wildfire prevention and safety?	▪ Email from PGE ▪ Story in the news (print, radio, or video) ▪ PGE's website ▪ PGE Wildfire Townhall or Webinar ▪ In-person community events ▪ Bill insert or print newsletter ▪ PGE app ▪ Social media (Facebook, Instagram, TikTok, etc.) ▪ Other, please specify ▪ I am not interested in wildfire information from PGE
How frequently would you like communication from PGE about wildfire prevention and safety?	▪ At the beginning of fire season ▪ 4-6 times a year ▪ Once a month ▪ More frequently than once a month
In a previous question, you did not select "PGE Wildfire Townhall or Webinar" as a place you would prefer to get information about wildfire prevention and safety. Could you select a reason why?	▪ There haven't been events close to me ▪ Don't want to attend an in-person event ▪ Don't want to attend a virtual event ▪ Haven't heard about these events before ▪ Other, please specify ▪ Prefer not to say

Question	Response Options
What would be the maximum distance you'd feel motivated to travel to attend a PGE Wildfire Townhall?	▪ 0–5 miles ▪ 6–10 miles ▪ 11–20 miles ▪ More than 20 miles ▪ I would only attend a webinar ▪ I would not attend any event, townhall nor webinar
Before today, have you heard about specific actions PGE has taken to help prevent wildfire?	▪ Yes ▪ No
What actions do you expect PGE to take to help prevent wildfire?	Text box
How confident are you in PGE's ability to help prevent wildfire?	1 Not very confident 2 3 4 5 Very confident
We've asked about communication and prevention. Is there anything else you'd like to share with PGE about your expectations during fire season?	Text box
Just a few more questions to help us ensure we have a representative sample of PGE customers. After you've completed this section, you'll have the opportunity to enter our sweepstakes. What is your age?	▪ 18-24 ▪ 25-34 ▪ 35-44 ▪ 45-54 ▪ 55-64 ▪ 65 or over ▪ Prefer not to say
Which of the following best describe(s) you?	▪ African American or Black ▪ American Indian or Alaska Native ▪ Asian (Chinese, Vietnamese, Asian Indian, etc.) ▪ Caucasian or White ▪ Native Hawaiian or Pacific Islander ▪ Middle Eastern or North African ▪ Hispanic or Latino ▪ Slavic ▪ Self-describe ________________ ▪ Prefer not to say
Including yourself, how many people live in your home year-round?	Dropdown with numbers from 1-12+
What is your household's total annual income?	▪ Less than $20,000 ▪ $20,000-$39,999 ▪ $40,000-$59,999 ▪ $60,000-$79,999 ▪ $80,000-$99,999 ▪ $100,000-$149,999 ▪ $150,000-$199,999 ▪ $200,000 or more ▪ Prefer not to say
What is the highest degree or level of education you have completed?	▪ Elementary school ▪ Some high school ▪ Graduated high school (or GED)

Question	Response Options
	▪ Trade or technical school ▪ Some college, but no degree ▪ Associates degree ▪ Bachelor's degree ▪ Master's degree ▪ Doctorate or professional degree ▪ Prefer not to say
Would you like to enter our sweepstakes for a chance to win a $100 gift card?	▪ Yes ▪ No
Thank you again for taking the time to participate in our survey. We sincerely appreciate your feedback! To enter for a chance to win one of five $100 Amazon gift cards, please fill in the information below. Your personal information will be protected and will not be used for any other purpose. For sweepstakes rules, click here to view PDF. After you've filled out the form below, please click "Finish" at the bottom of this page to submit your survey and sweepstakes entry.	▪ Name: _____________ ▪ Email: _____________

Table F-3: 2025 Post-Season Residential Wildfire Messaging Awareness Survey Details

Question	Response Options
How satisfied are you with your overall experience as a customer of PGE?	1 Very dissatisfied 2 3 4 5 Very satisfied
Before today, have you ever heard of the term Public Safety Power Shutoff, or PSPS?	▪ Yes ▪ No
Would you say you know enough about the term Public Safety Power Shutoff to explain it to others?	Text box
Do you recall where you heard about Public Safety Power Shutoffs most recently?	▪ Email from PGE ▪ Story in the news (print, radio, or video) ▪ PGE's website ▪ PGE Wildfire Ready event (in-person or virtual) ▪ In-person community events ▪ Bill insert or print newsletter ▪ PGE app ▪ From PGE on social media ▪ On social media (not from PGE) ▪ Other, please specify ▪ None of the above

Question	Response Options
How helpful was the information about Public Safety Power Shutoffs you heard from PGE?	1 Not very helpful 2 3 4 5 Very helpful
What follows is a brief definition from PGE: "A Public Safety Power Shutoff (PSPS) is a safety precaution when PGE temporarily turns off power during extreme weather conditions to reduce the risk of wildfire." Based on this definition, what are some examples of conditions you would expect PGE to call a Public Safety Power Shutoff?	Text box
Based on your previous knowledge or the definition in the previous question, where do you think PGE is able to call a PSPS?	▪ Only within a certain radius of active fires ▪ Only in areas at greater risk of wildfire ▪ Anywhere in the PGE service area ▪ It's unclear from the definition
In the future, what ways would you prefer to get information about Public Safety Power Shutoffs?	▪ Email from PGE ▪ Story in the news (print, radio, or video) ▪ PGE's website ▪ PGE Wildfire Townhall or Webinar (in-person or virtual) ▪ In-person community events ▪ Bill insert or print newsletter ▪ PGE app ▪ Social media (Facebook, Instagram, TikTok, etc.) ▪ Other, please specify ▪ Not interested in this information
Please rank the sources you selected in the previous question based on your likelihood to interact with the information through that source. With (1) being "most likely to interact with".	Based on selection from previous question
Before today, have you heard about specific actions PGE has taken to help prevent wildfire?	▪ Yes ▪ No
Have you heard about any of the following ways or technology PGE uses to help prevent wildfire?	▪ Fire detection cameras ▪ Weather stations ▪ Early fault detection on power lines ▪ Enhanced Powerline Safety Settings ▪ Public Safety Power Shutoffs (would be asked about earlier in the survey) ▪ Other, please specify ▪ None of the above
How confident are you in PGE's ability to help prevent wildfire?	1 Not very confident 2 3 4 5 Very confident

Question	Response Options
Over the past six months, how would you rate PGE's frequency of communication about wildfire prevention and safety?	▪ Too much communication ▪ About the right amount ▪ Not enough communication ▪ Don't recall any communication
Which of the following have you experienced in the past 6 months? Please select all that apply.	▪ An outage lasting less than 1 hour ▪ An outage lasting 1-5 hours ▪ An outage lasting 6-12 hours ▪ An outage lasting longer than 12 hours ▪ None of the above
In the past 6 months, have you taken any steps to prepare for a severe weather event or outage? Preparations could be as simple as updating your contact information with PGE for outage notifications, or purchasing batteries for a flashlight.	▪ Yes, I've made preparations in the past 6 months ▪ No, I've made preparations longer than 6 months ago ▪ No, I have not made preparations
Which of the following have you done to prepare for a severe weather event or outage?	▪ Purchased gas-powered generator ▪ Purchased solar-powered generator ▪ Purchased portable battery to charge or power devices ▪ Purchased light sources (flashlight, lamp, camping light, etc.) ▪ Stored extra batteries for smaller devices (e.g., AA, AAA, etc.) ▪ Stored extra water ▪ Stored extra food ▪ Cleared brush and yard debris ▪ Pre-packed "Go Bag" for quick evacuation ▪ Made a plan to relocate in case of emergency ▪ Updated contact information with PGE for outage notifications ▪ Other, please specify
Were any of the preparations you made a direct result of something you heard from PGE?	▪ Yes ▪ No ▪ I don't remember
Which preparations were made as a result of something you heard from PGE?	Based on selection from two questions prior
Just a few more questions to help us ensure we have a representative sample of PGE customers. After you've completed this section, you'll have the opportunity to enter our sweepstakes. What is your age?	▪ 18-24 ▪ 25-34 ▪ 35-44 ▪ 45-54 ▪ 55-64 ▪ 65 or over ▪ Prefer not to say
Which of the following best describe(s) you?	▪ African American or Black ▪ American Indian or Alaska Native ▪ Asian (Chinese, Vietnamese, Asian Indian, etc.) ▪ Caucasian or White ▪ Native Hawaiian or Pacific Islander ▪ Middle Eastern or North African ▪ Hispanic or Latino ▪ Slavic

Question	Response Options
	▪ Self-describe ________________ ▪ Prefer not to say
Including yourself, how many people live in your home year-round?	Dropdown with numbers from 1-12+
What is your household's total annual income?	▪ Less than $20,000 ▪ $20,000-$39,999 ▪ $40,000-$59,999 ▪ $60,000-$79,999 ▪ $80,000-$99,999 ▪ $100,000-$149,999 ▪ $150,000-$199,999 ▪ $200,000 or more ▪ Prefer not to say
What is the highest degree or level of education you have completed?	▪ Elementary school ▪ Some high school ▪ Graduated high school (or GED) ▪ Trade or technical school ▪ Some college, but no degree ▪ Associates degree ▪ Bachelor's degree ▪ Master's degree ▪ Doctorate or professional degree ▪ Prefer not to say
Would you like to enter our sweepstakes for a chance to win a $100 gift card?	▪ Yes ▪ No
Thank you again for taking the time to participate in our survey. We sincerely appreciate your feedback! To enter for a chance to win one of five $100 Amazon gift cards, please fill in the information below. Your personal information will be protected and will not be used for any other purpose. For sweepstakes rules, click here to view PDF. After you've filled out the form below, please click "Finish" at the bottom of this page to submit your survey and sweepstakes entry.	▪ Name: ____________ ▪ Email: ____________

Appendix G Maturity Model Assessment

G.1 Background

In 2025, PGE undertook its first full wildfire risk maturity model assessment since 2022, applying the International Wildfire Risk Mitigation Consortium (IWRMC) framework across nine categories and forty-five capabilities. The exercise built upon the pilot work PGE initiated in 2024, focused on grid design and system hardening, and created space to evaluate current capabilities as well as to inform program development, initiative prioritization, and strategic planning.

Subject matter experts (SMEs) from across PGE were asked to respond to the model. In instances where a multi-disciplinary response was needed, multiple SMEs contributed, providing a balanced response. Once the responses were collected, Wildfire Operations convened a session to review the results, confirm their accuracy, and align them with PGE's operational realities. This session provided space to "ground truth" the findings, discuss areas of strength and weakness, and identify how the results should shape both near-term program execution and longer-term wildfire mitigation strategy. Subsequent conversations aimed at program development and WMP target integration took place during the initial development of the 2026-2028 WMP.

The 2025 assessment offered valuable temporal comparison of capabilities, as the 2022 and 2025 v1 frameworks remained substantially similar, allowing direct progress measurement and identification of growth areas requiring additional resources. PGE also implemented the 2025 v2 model providing a layered analysis of program evolution since 2022 and future maturity pathways. As an annual requirement, this assessment will continue informing wildfire mitigation program development and serving as a cost-benefit measurement tool.

G.2 Findings

The assessment shows a utility that has strong foundations with an overall maturity rating of medium high, though room for improvement still exists. All categories saw growth between 2022 and 2025. Risk Mapping and Simulation and Situational Awareness and Forecasting saw the greatest maturation between years whereas Vegetation Management and Inspection and Grid Operations and Protocols showed the least. The area with the highest overall maturity is Risk Mapping and Simulation and the lowest maturity rating overall is Resource Allocation Methodology.

- **High Maturity Results**
  - **Risk Mapping and Simulation:** PGE demonstrates strong performance in ignition probability estimation and consequence modeling. This aligns with commitments in the WMP to strengthen risk maps, refine consequence modeling, and apply these outputs to PSPS decisions and investment prioritization. High capability in this category provides a reliable foundation for targeted mitigation and resource deployment.
- **Moderate (Medium) Maturity Results**
  - **Situational Awareness and Forecasting:** PGE has mature processes for weather data collection and forecasting but identified gaps in wildfire detection integration. Planned expansion of cameras, sensors, and data processing in the 2025 WMP Update will address these areas.

- **Grid Design and System Hardening:** PGE has strong system design practices, including sectionalizing and prioritization by risk. Opportunities remain in demonstrating cost-effectiveness and applying risk-based justification consistently across investments.
- **Vegetation Management:** Mature inventory and inspection practices are in place. Improvements are needed in predictive modeling and third-party validation, consistent with WMP commitments to expand data-driven vegetation analytics and accelerate hazard tree removal.
- **Asset Management and Inspections:** Inspection and QA/QC processes are established, but further modernization of condition assessment and independent audits is needed to support risk-based asset replacement decisions.
- **Grid Operations and Protocols:** PGE scored well in ignition prevention protocols but identified lower maturity in PSPS re-energization procedures and incorporation of risk in real-time control. The WMP includes commitments to improve re-energization processes through advanced inspection methods and operational automation.

▪ **Low-Medium Maturity Result**

- **Resource Allocation Methodology:** This category reflects the greatest opportunity for improvement. PGE identified gaps in portfolio-wide innovation and benefit-cost verification. Planned improvements include refined allocation methods, transparency in decision-making, and pilot programs to validate new technologies.

Table G-1: 2025 PGE IWRMC Maturity Model Summary of Findings

Category	Rating	Key Strengths	Areas for Improvement	Related Initiatives
A. Risk Mapping and Simulation	High	Ignition probability modeling, consequence estimation	Estimation of wildfire and pre-emptive power shutoff risk reduction impacts	RMA-01 through RMA-05
B. Situational Awareness and Forecasting	Medium-High	Weather stations, fire cameras	Wildfire detection outside HFRZs	SAF-01 through SAF-05
C. Grid Design and System Hardening	High	Grid resiliency, cost-effectiveness analysis	Prioritization and justification of wildfire risk mitigation grid design & system hardening initiatives	GDSH-01 through GDSH-12
D. Asset Management and Inspections	Medium	Maintenance and repair	QA/QC processes	IC-01 through IC-03, IC-07, IC-08
E. Vegetation Management and Inspection	Medium-High	Inventory (9.03), QA/QC	Vegetation analytics and diagnostic effectiveness	VM-01 through VM-06, IC-05
F. Grid Operations and Protocols	Medium	Ignition prevention/suppression	Re-energization protocols	GOP-01 through GOP-04, PSPS-01, PSPS-05, GDSH-07
G. Resource Allocation Methodology	Low-Medium	Benefit cost assessment and scenario analysis	Portfolio-wide innovation in new wildfire initiatives	WMS-01, IC-01 through IC-08, IE-01

Category	Rating	Key Strengths	Areas for Improvement	Related Initiatives
H. Emergency Planning and Preparedness	High	Community engagement, learning from events	Process for continuous improvement after wildfire & pre-emptive power shutoffs	SAF initiatives, PSPS initiatives
I. Stakeholder Cooperation and Community Engagement	Medium	Collaboration with emergency response agencies.	External practice-sharing, disadvantaged population engagement	COPA initiatives, PSPS-02, PSPS-03, IE-01
Overall Weighted Score	Medium-High			

G.3 Continuous Improvement and Next Steps

Consistent with the approach taken in the 2024 Pilot Program, results demonstrate areas of strength and areas requiring further development. PGE will use the maturity model results to:

- Integrate improvements identified in the WMP Update, especially in wildfire detection, vegetation risk modeling, and PSPS re-energization.
- Prioritize process automation where feasible, consistent with higher-scoring industry practices identified in the pilot (e.g., automated reclosing limits, faster inspection cycles using drones or sensors).
- Advance transparency in resource allocation to demonstrate the risk-reduction value of mitigation investments.

The IWRMC Maturity Model has identified that PGE's advancement in wildfire mitigation encompasses a combination of sophisticated risk methodologies and capital investment alongside enhanced governance frameworks. Through the 2026-2028 WMP cycle, PGE will focus on these goals to increase maturity.

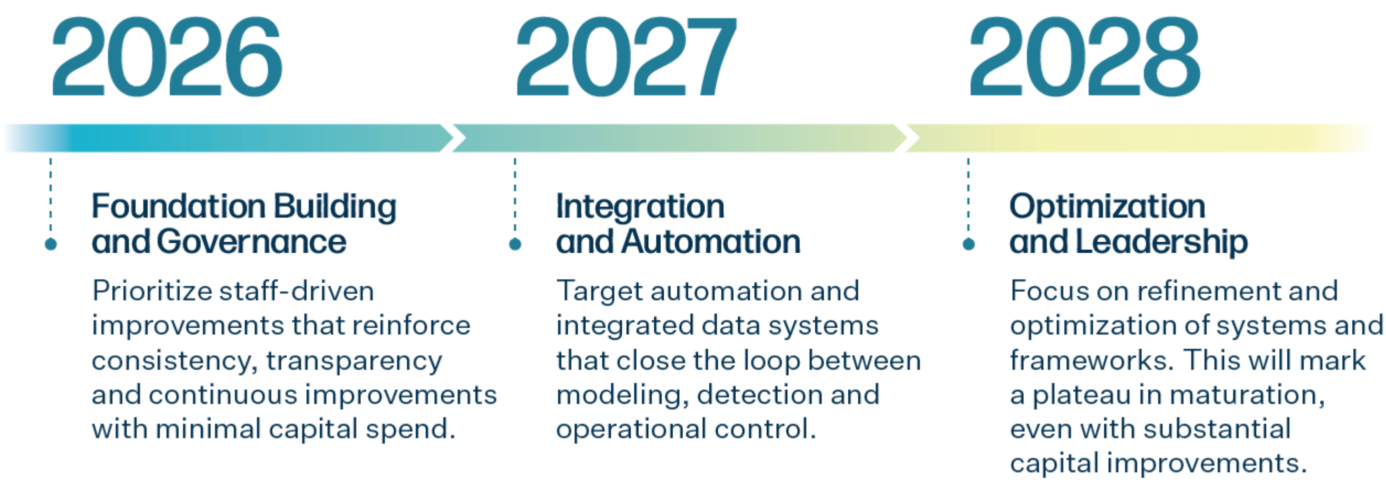


Figure G-1: IWRMC Maturity Model roadmap

PGE will reassess maturity progress every three years, using the IWRMC rubric as the framework for continuous improvement. The results will provide regulators and stakeholders with a consistent means of tracking progress, aligning investments with wildfire risk reduction, and driving PGE's program evolution in line with industry best practices.

Appendix H Generation Risk Assessment

H.1 Introduction

PGE conducts wildfire risk assessments for Oregon generation facilities. In compliance with Oregon Department of Energy (ODOE) Energy Facility Siting Council (EFSC) requirements under OAR 345-022-0115, PGE implements a sophisticated wildfire risk assessment for generation facilities with site certificates issued by EFSC, and for diverse generation assets.

The PGE assessment framework pairs the foundational wildfire risk modeling described in Section 4.2 with detailed facility-level evaluations to develop comprehensive wildfire risk profiles for each generation site. This dual approach enables identification of both environmental wildfire risk factors and asset-specific ignition sources across PGE's thermal, wind, solar, hydroelectric, and battery energy storage system (BESS) facilities.

The generation facility assessment process leverages the established wildfire risk modeling framework to identify HFRZs or OFRZs that intersect with generation assets. This classification determines whether facilities are located within areas of high wildfire concern.

Site-specific ignition potential is systematically evaluated through identification of potential ignition sources for operational equipment, assessment of proximity between potential ignition sources and burnable vegetation, analysis of fire spread pathways from facility infrastructure to wildland areas, and the evaluation of environmental wildfire risk the designations of HFRZs or OFRZs.

The resulting site profiles integrate both ignition source analysis and baseline wildfire risk factors to establish risk characterizations that inform targeted mitigation strategies.

PGE implements a multi-layered approach to wildfire risk mitigation across the generation portfolio:

- **Site Design:** Strategic facility layouts that isolate potential ignition sources from wildland areas through buffer zones, non-combustible materials, and engineered fire barriers.
- **Inspections and Corrections:** Rigorous inspection protocols that identify and resolve potential ignition risks and compliance issues through systematic assessment and corrective action processes.
- **Vegetation Management:** Strategic vegetation control practices that maintain defensible space around critical infrastructure and prevent vegetation encroachment that could lead to equipment damage and subsequent ignition.
- **Emergency Procedures:** Comprehensive emergency response plans with clearly defined protocols for ignition detection, notification procedures, and coordinated response actions
- **Fire Suppression Systems:** Tailored onsite fire suppression infrastructure designed to rapidly contain and extinguish potential ignitions before they can spread to surrounding vegetation at thermal and hydroelectric generation sites.
- **System Protection:** Implementation of EPSS at interconnection points to proactively reduce ignition risk through rapid fault detection as detailed in Section 10.2.2.

- **Detection and Notifications:** Integration with PGE's network of 38 AI-enabled wildfire detection cameras, monitored by over 100 fire suppression agencies, providing enhanced early detection capabilities for numerous generation sites.

Each generation facility maintains detailed emergency response documentation that outlines specific detection and response procedures for addressing ignitions and onsite fires. Additionally, all facilities follow established protocols for the inspection, maintenance, and operation of firefighting equipment to support operational readiness during potential fire events.

H.2 Baseline Wildfire Risk

PGE's wildfire risk assessment framework pairs foundational baseline wildfire risk modeling with detailed facility-level evaluations of asset ignition risk to develop comprehensive wildfire risk profiles for each generation site. The baseline wildfire risk assessment factors in existing asset risk drivers and wildfire risk factors such as topography, aspect, slope, vegetation, and historical weather and fuels conditions. The combination of existing risk drivers, a detailed site analysis, and baseline wildfire risk provides a comprehensive picture of ignition potential and wildfire risk. The baseline wildfire risk assessment process is presented in Section 4.2. Data elements specific to each generation facility include topography, vegetation, climate, and existing infrastructure are presented for each site below.

H.3 Seasonal Wildfire Risk

Seasonal wildfire risk is assessed based on factors that are anticipated to remain consistent for several months but may vary throughout the year and over time. The seasonal risk assessment involves monitoring weather and fuels, drought indices, industry partner wildfire forecast products, and wildfire response community readiness. We monitor conditions year-round to identify a need to declare fire season and for periods of heightened wildfire risk to implement mitigation measures as needed. The seasonal wildfire risk assessment process is presented in Section 9.2.1.2. Data elements specific to each generation site including precipitation and fuel moisture content are presented below.

H.4 Areas of Heightened Risk

In compliance with ORS 345-022-0115(1)(a)(C), PGE evaluates areas of heightened wildfire risk using the analysis approach presented in Section 4.2. The result of this analysis is the identification of HFRZs, OFRZs, and EFRZs.

PGE equates areas of heightened risk with EFRZs. Additional details on the designation and development of EFRZs are presented in Section 4.2.2.4. EFRZs are shown in site-specific maps presented below.

H.5 High-Fire Consequence Areas

In compliance with ORS 345-022-0115(1)(a)(D), PGE evaluates high-fire consequence areas using the analysis approach presented in Section 4.2. We equate high-fire consequence areas to HFRZs or OFRZs which have comparable wildfire risk profiles. HFRZs are designated for areas within the PGE service area while OFRZs are designated in areas outside of the service area. Additional details on the designation and development of HFRZs are presented in Section 4.2.2.2, and details for OFRZs are presented in Section 4.2.2.3. The maps for each site presented below depict areas designated as HFRZs or OFRZs.

A summary of the assessment of HFRZs and OFRZs for each generation site is presented in Table H-1.

Table H-1: Generation Site Characteristics and Wildfire Risk Analysis

Generation Plant	Location	Type	Capacity (MW)	COD Year	OFRZ or HFRZ
Beaver	Near Mayger, OR	Thermal	510	1974	No
Beaver 8	Near Mayger, OR	Thermal	25	2001	No
Port Westward	Near Mayger, OR	Thermal	411	2007	No
Port Westward II	Near Mayger, OR	Thermal	225	2014	No
Carty	Boardman, OR	Thermal	438	2016	OFRZ
Coyote Springs	Port of Morrow, OR	Thermal	258	1995	No
Pelton	Madras, OR	Hydro	55	1958	OFRZ
Round Butte	Madras, OR	Hydro	172	1964	OFRZ
Sullivan	Oregon City, OR	Hydro	18	1895	No
Faraday	Near Estacada, OR	Hydro	46	1907	HFRZ
North Fork	Near Estacada, OR	Hydro	58	1958	HFRZ
River Mill	Near Estacada, OR	Hydro	25	1911	HFRZ
Oak Grove	Near Estacada, OR	Hydro	45	1924	HFRZ
Harriet	Near Estacada, OR	Hydro	0.68	2016	HFRZ
Timothy	Near Estacada, OR	Hydro	1	2018	No
Biglow Canyon	Sherman County, OR	Wind, Solar, Battery	450	2007, 2009, 2010	OFRZ
Wheatridge I	Morrow County, OR	Wind	100	2020	OFRZ
Constable	Hillsboro, OR	Battery	75	2024	No
Coffee Creek	Wilsonville, OR	Battery	17	2024	No
Seaside (PPA)	Portland, OR	Battery	200	2025	No
Integrated Operations Center (IOC)	Tualatin, OR	Battery/Solar	2	2024	No
Daimler Truck North America	Salem, OR	Battery	0.75	2024	No

Generation Plant	Location	Type	Capacity (MW)	COD Year	OFRZ or HFRZ
Camino del Sol Solar Facility (Baldock Solar)	Near Wilsonville, OR	Solar	1.75	2012[50]	No
Solar Highway Demonstration	Near Tualatin, OR	Solar	0.104	2009	No
PPS Solar	Portland, OR	Solar	1.2	2015	No

H.6 Wildfire Risk Assessment Methods

In compliance with ORS 345-022-0115(1)(a)(E), the baseline and seasonal wildfire risk assessments and their related modeling use current data from reputable sources. Methodologies for performing the baseline wildfire risk assessment and seasonal wildfire risk assessment are presented in Section 4.2 and Section 9.2.1.2, respectively. A detailed list of metrics and indices evaluated in the seasonal wildfire risk assessment is presented in Table 9-3. The methodologies used to develop HFRZs, OFRZs, and EFRZs are presented in Section 4.2, with details of data sources for the HVRAs provided in Section 4.2.1.1.

H.7 Wildfire Risk Mitigation for Public Health, Safety, and Resources

As an Oregon utility operating critical generation assets across diverse landscapes, PGE implements robust wildfire risk mitigation measures to protect public health, safety, and natural resources. PGE's generation facilities follow all Fire Season protocols as outlined in Section 10.2.1.

During fire season, PGE requires specific fire suppression equipment, safe work practices, and operational restrictions based on fire danger conditions. When fire danger elevates, stricter operational restrictions apply, and PGE may deploy supplemental mitigation measures for critical work that must continue. In addition to following all Fire Season protocols, Generation site personnel must also adhere to their site-specific Emergency Response Plans (ERPs). These ERPs include procedures adaptable to seasonal fire risks and established communication channels with local fire agencies.

H.8 Best Practices and Innovative Technologies for Wildfire Mitigation

In compliance with 345-022-0015(1)(b)(E), PGE commits to conducting comprehensive annual updates of the WMP to align with industry best practices and emerging technologies. This annual update process includes an evaluation of new and emerging technologies that enhance wildfire risk detection, prevention, and mitigation capabilities; assessments of technology deployment effectiveness; and engagement with industry partners, research institutions, and technology providers to identify innovations in wildfire mitigation.

[50] PGE acquired the project in 2019.

PGE has demonstrated a commitment to technological advancement through the evaluation and deployment of several wildfire mitigation technologies such as:

- **Early Fault Detection (EFD) Systems:** PGE has installed EFD technology at strategic high-risk locations to detect electrical anomalies before they develop into potential ignition sources. These systems monitor electrical infrastructure for early signs of failure, allowing for proactive maintenance and reducing ignition risk.
- **AI Camera Systems:** PGE has deployed advanced AI-powered camera systems that provide continuous monitoring of high-risk areas. These systems use artificial intelligence to quickly detect smoke or fire, significantly improving response times and situational awareness during high-risk weather conditions.

While not every technology for ignition risk reduction has broad application, the technologies listed above remain a backbone of the ongoing investment and innovation PGE continuously researches and deploys. Through this ongoing commitment to technological advancement, PGE will continue to evaluate, test, and implement new solutions to identify and mitigate utility wildfire risks.

H.9 Site-Specific Wildfire Mitigation Plans

PGE standardized language for Wildfire Mitigation Plans for any new Solar, Wind, or BESS generating location in compliance with OAR 345-022-0115(1)(b) in 2025. The requirements below, as detailed in OAR 345-022-0115(1)(b), are addressed specifically for each generation site. Although OAR 345-022-0115 requirements are specific to sites with site certificates with the State of Oregon, additional generating assets are addressed in this document. For those sites that do have a site certificate, this document may be supplemented with a site specific Operational WMP to address any information that ODOE expects based on their Operation WMP Template that is not otherwise covered by this WMP.

The requirements of OAR 345-022-0155 are also detailed for any new privately owned, operated, or built for interconnection under PGE's authority. This information is available for review under PGE's 2025 All-Source Request for Proposal to procure new, clean energy in the right locations. All future applicants will adhere to the same framework as addressed in this document. Full details of these requirements are available under Appendix M of Solar, Storage (BESS), and Wind Technical Specification PDFs, listed on PGE's Procuring Clean Energy website.[51]

H.10 Wildfire Risk Assessment for Generation Sites with Site Certificates

H.10.1 Biglow Canyon Wind Farm (BCWF)

H.10.1.1 Site Profile

BCWF, owned and operated by PGE, is located within an approved site boundary comprising 19,840.1 acres, about 2.5 miles northeast of the town of Wasco in Sherman County, Oregon. The BCWF operates under the Site Certificate from the Oregon Energy Facility Siting Council (Council or EFSC) as administered by the Oregon Department of Energy (ODOE). BCWF currently consists of

[51] See Section 3.0 Wildfire Mitigation Plan of each Appendix M (Solar Tech Spec, Storage Tech Spec, Wind Tech Spec) for additional details on 2025 All Source RFP Technical Specifications Wildfire Mitigation Plan requirements.

217 wind turbines, with a maximum blade tip height of 445 feet, and a peak generating capacity of 450 megawatts.

The wildfire study area is defined by PGE's GIS data for the generation site boundary and includes all areas within a 0.5-kilometer buffer around the generation site. The total area within the wildfire study areas equals 27,778.1 acres.

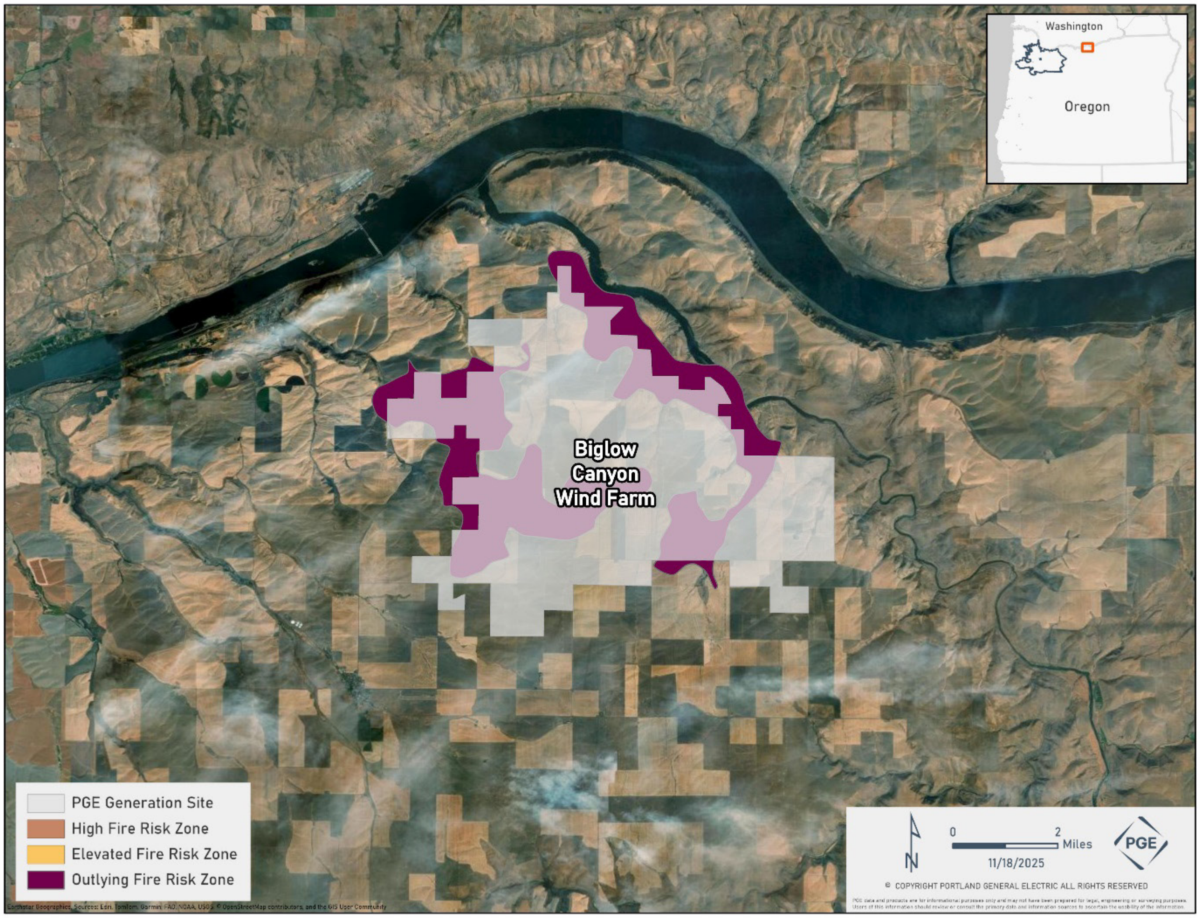


Figure H-1: Biglow Wind Farm Operating Area

H.10.1.2 Site-Specific Baseline Wildfire Risk

In addition to the baseline wildfire risk assessment processes detailed in Section 4.2, PGE evaluates site-specific wildfire risk factors expected to remain fixed for multiple years including topography, vegetation, climate, and existing infrastructure. Information specific to the BCWF site is presented below.

H.10.1.2.A Topography

PGE evaluates topography as an element of the baseline wildfire risk assessment. This assessment involves simulating wildfires on a 120-meter grid that allows for an assessment of impacts on Highly Valued Resources and Assets (HVRA) within and in proximity to the generation site. The wildfire simulation modeling uses data on topography, slope, and aspect derived from the LANDFIRE dataset at a 30-meter resolution. These factors directly affect wildfire behavior within the simulations to enable a precise understanding of fire growth and hazard exposure.

In 2025, PGE assessed the topography within the wildfire study area for the BCWF, presented in Table H-2.

Table H-2: Biglow Canyon Wind Farm Slope Profile

Slope (degrees)	Percent of Wildfire Analysis Area	Acres of Wildfire Analysis Area
0-25	94.0	26,117
25-50	4.5	1,251
50-75	1.4	384
75-100	0.1	26

Note: All quantities may not result in 100 percent due to rounding adjustments.

H.10.1.2.B Vegetation

The landscape within and adjacent to BCWF features undulating topography primarily used for dryland wheat agriculture, bisected by small tributary streams flowing to the Columbia and John Day Rivers. Limited areas of grassland, shrub-steppe, and upland and riparian trees occur within this predominantly agricultural setting. LANDFIRE 2024 (USGS, USDOI, USDA, 2013[52]) data initially identified Fuel Model (FM) 102—low load, dry climate grass—and FM 93—non-burnable agriculture—as the primary vegetation types. FM 102 represents approximately 54 percent of the area, while FM 93 accounts for roughly 36 percent. Across the broader wildfire analysis boundary, FM 102 (53 percent) and FM 93 (36 percent) remain the most prevalent fuel types.

However, the nominally "non-burnable" FM 93 designation does not accurately reflect landowner practices or the burnable nature of dryland wheat agriculture. According to NWCG (2024) guidance, agricultural fields containing cured grasses or crops should not remain classified as NB3 (FM 93) once curing occurs. Local agricultural operations—including dryland wheat production, fallowed fields, and limited irrigation—result in a significant portion of FM 93 functioning as actively burnable grass fuels rather than non-burnable cropland.

A refined analysis of FM 93 areas indicates that most of these fields align more closely with FM 102 (low-load grass), FM 104 (moderate-load grass), or FM 1 (short grass and stubble), with only a small portion remaining truly non-burnable and meeting FM 93 criteria. This refined classification better captures the wildfire potential in non-irrigated agricultural landscapes where stubble, cured grass, and fine fuels contribute to rapid rates of spread under wind-driven conditions. Therefore, actual wildfire risk within the area and the broader analysis area is likely higher than indicated by unadjusted LANDFIRE mapping.

[52] U.S. Department of the Interior, Geological Survey, and U.S. Department of Agriculture, *LANDFIRE Existing Vegetation Type layer*, last updated June 2013.

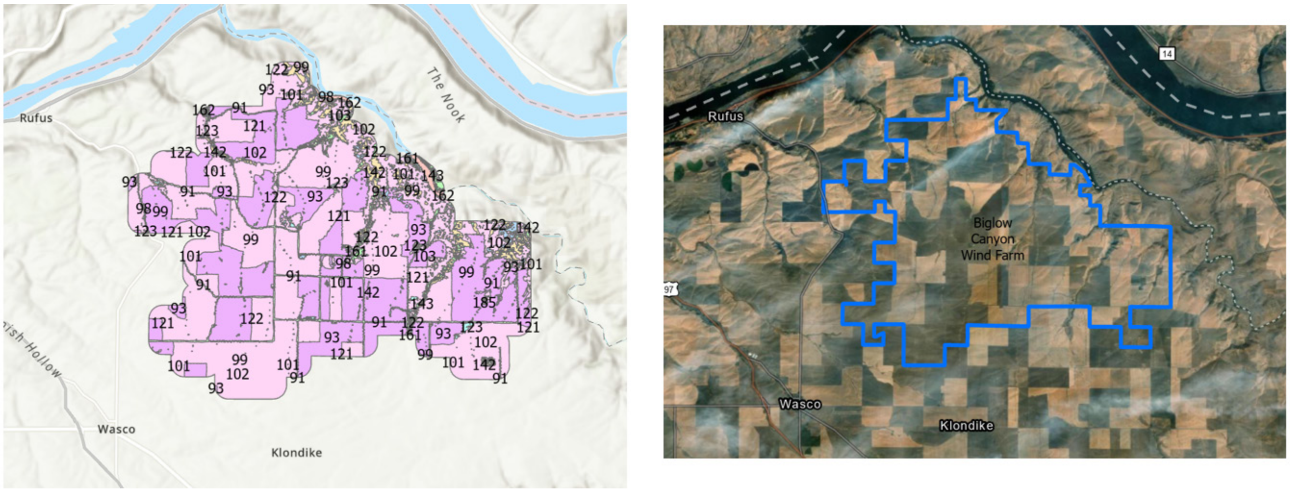


Figure H-2: Fuel Models at Biglow Canyon Wind Farm

Table H-3: Biglow Canyon Wind Farm Fuel Model Distribution

Fuel Model	Analysis Area (%)	Analysis Area (acres)
91	2.60%	730
93	36%	10,022
98	<1%	<1
99	<1%	266
101	3%	902
102	54%	14,993
103	<1%	11
121	<1%	191
122	2%	442
123	<1%	45
141	<1%	2
142	<1%	43
143	<1%	<1
147	<1%	12
161	<1%	5
162	<1%	6
183	<1%	<1
185	<1%	<1
188	<1%	<1

H.10.1.2.C Climate

Biglow Canyon Wind Farm, near Arlington, OR is located along the Columbia River in north-central Oregon. The location has a semi-arid climate characterized by cool winters, warm to hot summers, and relatively low annual precipitation. Seasonal temperature patterns are pronounced, with gradual warming from late winter into mid-summer and a rapid decline in temperatures through the fall.

Winter and early spring are the coolest periods of the year. Maximum temperatures range from 41°F in December to 57°F in March, with average temperatures remaining in the mid-30s°F to mid-40s°F. During these months, precipitation is at its highest, with1.66 inches in December, 1.47 inches in January, and 0.98 inches in February reflecting the region's typical winter storm pattern.

Temperature increases become more pronounced in late spring and early summer. By June, maximum temperatures reach nearly 80°F, climbing to a peak of 89.5°F in July, when average temperatures also reach their annual maximum of 76.3°F. These warm-season months coincide with the driest conditions of the year: July receives only 0.10 inches of precipitation and August just 0.15 inches, marking an extended period of highly limited moisture availability. The combination of warm temperatures, low humidity, and minimal precipitation contributes to rapid drying of fine fuels and elevated fire weather potential across the region.

Conditions begin to moderate in early fall. Maximum temperatures decline from 80°F in September to 66°F in October, while precipitation gradually increases. However, meaningful moisture recovery typically does not occur until November and December, with precipitation rising again above one inch per month. This seasonal lag leaves fuels susceptible to ignition into October, particularly during periods of offshore or downslope winds.

Table H-4: Monthly Normal Temperature and Precipitation at Arlington, OR (1991–2020)[53]

Month	Maximum Temp (°F)	Average Temperature (°F)	Precipitation (inch)
January	40.8	35.3	1.47
February	46.9	38.7	0.98
March	55.6	45.6	0.83
April	63.7	52.8	0.61
May	73.2	61.7	0.75
June	79.7	68.2	0.48
July	89.5	76.3	0.10
August	88.9	75.5	0.15
September	80.0	66.5	0.33
October	65.5	53.7	0.81
November	50.4	42.4	1.13
December	41.1	35.5	1.66

H.10.1.2.D Existing Infrastructure

The BCWF is an operational wind power facility that includes 217 wind turbines, three meteorological towers, collector lines, a Facility substation, transmission lines, O&M buildings, and access roads. Paved roads within the wildfire analysis area generally include Herin Lane, Emigrant

[53] National Oceanic and Atmospheric Administration. 2024a. U.S. Climate Normals Quick Access. Station: Arlington Station USC00350265.

Springs Lane, N Klondike Road, Medler Lane, Old Wasco Heppner Highway, and Klondike Road. There are many unnamed gravel turbine string roads within the wildfire analysis area that are currently in use for the BCWF. There are no hazardous liquid pipelines or gas transmission pipelines within 10 miles of the wildfire analysis area (NPMS 2024).

H.10.1.3 Site-Specific Seasonal Wildfire Risk

In addition to the seasonal wildfire risk assessment processes detailed in Section 9.2.1.2, PGE evaluates site-specific wildfire risk factors expected to remain fixed for multiple months that may be dynamic throughout the year. Site-specific elements include cumulative precipitation and fuel moisture content.

H.10.1.3.A Cumulative Precipitation

Table H-4: presents monthly precipitation data for the BCWF site.

H.10.1.3.B Fuel Moisture Content

A discussion on fuel moisture content is provided in Section H.10.1.2.B.

H.10.1.4 Site-Specific Asset Ignition Potential

Assets at Biglow Canyon with ignition potential include pad-mounted transformers, overhead 13.5 kV collector lines, and solar panels and BESS equipment to be installed in 2026.

H.10.1.4.A Generation Step-Up Transformers

Biglow Canyon has three GSU transformers located in the plant switchyard.

H.10.1.4.B Pad Mounted Transformers

Biglow Canyon has 217 pad-mounted transformers, each positioned adjacent to a wind turbine tower. The primary ignition risk driver at wind generation sites stems from pad-mounted transformer failures. Some transformers have been proactively replaced due to elevated Dissolved Gas Analysis (DGA) readings, oil leaks, failed fuses, and partial discharge readings. It is important to note that not every pad-mounted transformer failure presents an ignition risk.

H.10.1.4.C Overhead Power Lines

Biglow Canyon Wind Farm connects directly to two BPA transmission lines (Biglow Canyon-John Day #1 BPA and Biglow Canyon-Klondike BPA) at the substation. Collectors R and S, 13.5 kV overhead collector lines, are the only above-ground collectors on site, running from the turbines to the switchyard. All other power generated by the wind turbines flows through underground lines.

H.10.1.4.D Solar Arrays and Battery Energy Storage Systems

Construction of a new solar array and battery storage facility will begin in 2026. The new facilities will exist on roughly 1,445 acres and will feature up to 125 megawatts generating capacity from photovoltaic solar arrays and 125 megawatt hours in BESS capacity. Solar Components will include solar arrays, inverters, BESS facilities and their subcomponents (i.e., inverters), a collector substation, a total of approximately 0.25 miles of 230 kV generation tie transmission line, medium voltage collector lines, operations and maintenance (O&M) structures, site access roads, internal roads, perimeter fencing, facility entry gates, and temporary laydown areas.

H.10.1.5 Ignition Risk Mitigation Strategy

H.10.1.5.A Site Design Mitigation Measures

Pad mounted transformers are sited adjacent to each turbine and within an area covered by gravel. These transformers have varying offsets from agricultural land. Annual tillage encroaches on the gravel perimeter around the towers and PGE responds by reestablishing the 10-foot gravel perimeter. PGE conducts annual in-service DGA monitoring of pad-mounted transformers at Biglow.[54] Beginning in 2024, transformers with abnormal readings were proactively replaced. This active monitoring program evaluates transformer health through DGA analysis. The area around each tower where the pad mounted transformers are installed is covered by gravel within a minimum 10-foot radius[55], reducing ignition potential. Preliminary analysis indicates approximately 1% of pad-mounted transformer failures may present an ignition risk. Dissolved Gas Analysis (DGA) is performed on the Biglow Canyon GSUs every 6 months.

The GSU transformers present very low wildfire risk as they are located within a perimeter fence, surrounded by blast walls on three sides, and installed on concrete pads with gravel covering the remainder of the substation.

The operational site areas containing photovoltaic solar arrays and BESS facilities will feature buffer zones and defensible space, fire-resistant design features, and BESS-specific protections.

For the construction of the photovoltaic solar arrays and BESS assets, PGE will use qualified staff to install electrical equipment. The solar array will have shielded electrical cabling, as required by applicable code, to prevent electrical fires. All electrical equipment will meet National Electrical Code and Institute of Electrical and Electronics Engineers standards.

To mitigate risk of ignition sources reaching wildland areas, the site will include a 20-foot noncombustible buffer around the perimeter. Fire-resistant design features will include a 20-foot-wide access road within the solar area for emergency vehicle access, graveled areas around O&M buildings, substations, and BESS with no vegetation, and 50-foot setbacks from property lines for solar arrays, BESS, and associated components. The BESS assets will include additional protections to mitigate ignition risks. The assets will include temperature-controlled facilities with isolated battery modules, will use Lithium Iron Phosphate chemistry with lower fire risk, multiple enclosures with individual fire detection and protection systems, 24-hour monitoring with shutdown capabilities, and compliance with Underwriters Laboratories (UL) standards, National Fire Protection Association standards (specifically 855), and the National Electric Code. The batteries will be stored in completely contained, leak-proof enclosures. Additionally, PGE will install fire sensors, smoke and hydrogen and/or carbon monoxide detectors, alarms, emergency ventilation systems, and cooling systems within each battery enclosure.

H.10.1.5.B Inspection and Correction

Collectors R and S are inspected annually for vegetation risk.

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[54] Letter to ODOE 5-June-2023, "Pattern of Transformer Failures at Biglow Canyon Wind Farm"
[55] Site Certificate for Biglow Canyon Wind Farm – June 30, 2006, pg. 15, I (48)

The future solar and battery installations will be inspected annually and will undergo necessary preventative maintenance.

An in-place monitoring program promotes early detection of hazardous conditions, rapid response to developing faults, and sustained reduction of fire risk across substation assets. The program integrates thermal imaging surveys looking for overheating on electrical connection, transformer oil and gas monitoring, visual equipment inspections, asset health indexing, and alarm management. For transformers automatic tripping on rapid pressure rise, arc-flash detection, or extreme temperature alarms will take place.

H.10.1.5.C Vegetation Management

Wildland vegetation exists throughout the Biglow Canyon site. Ignitions from overhead power lines or failed pad-mounted transformers could potentially reach wildland areas, creating wildfire risk. Most of the landscape is dedicated to wheat farming, with landowners' active tillage practices serving as the vegetation management cycle adjacent to each wind generation location. Additionally, PGE contracts with Sherman County to control weeds throughout the project, including areas around towers, access roads, parking areas, and building grounds.[56]

PGE has active vegetation management design features and work practices to mitigate ignition risks in the photovoltaic solar arrays and BESS asset areas. Vegetation within the fence line and below the solar arrays will be maintained in accordance with the approved *Comprehensive Solar Revegetation and Soil Management Pla*n for the facility. Vegetation will be limited to a height of 10-12 inches with a 12-inch clearance from electrical equipment. Vegetation near, at, or taller than the maximum height shall be removed or mowed.

Mowing is performed in advance of fire season or in accordance with any fire restrictions. Cleared vegetation will be properly disposed of to prevent combustible burn piles. At no point will vegetation come into contact with electrical equipment. PGE will maintain vegetation free areas including 20-foot wide service roads of compacted soil or gravel withing the solar fence line, a 20-foot noncombustible buffer around the site perimeter, and graveled areas around the collector substation and O&M structures.

H.10.2 Carty Generating Station

H.10.2.1 Site Profile

Carty Generation Station is situated adjacent to the Carty reservoir in eastern Oregon, approximately 18 miles southwest of Boardman, Oregon. The main operational footprint encompasses 4,998.2 acres, excluding the settling ponds northeast of the site and the decommissioned Boardman site.

The wildfire study area is defined as the area within generation site boundary, as defined by PGE's GIS data, and areas within a 0.5-kilometer buffer around the generation site, the 500 kV Grassland-Slatt transmission lines, and the 230 kV Dalreed PACW-Carty transmission line. The total area within the wildfire study areas is 20,625.8 acres.

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[56] Purchase Order terms, "PGE_prop_2025.docx"

The facility operates as a combined cycle natural gas turbine with an associated steam turbine, featuring a nameplate capacity of 503.1 megawatts.[57]

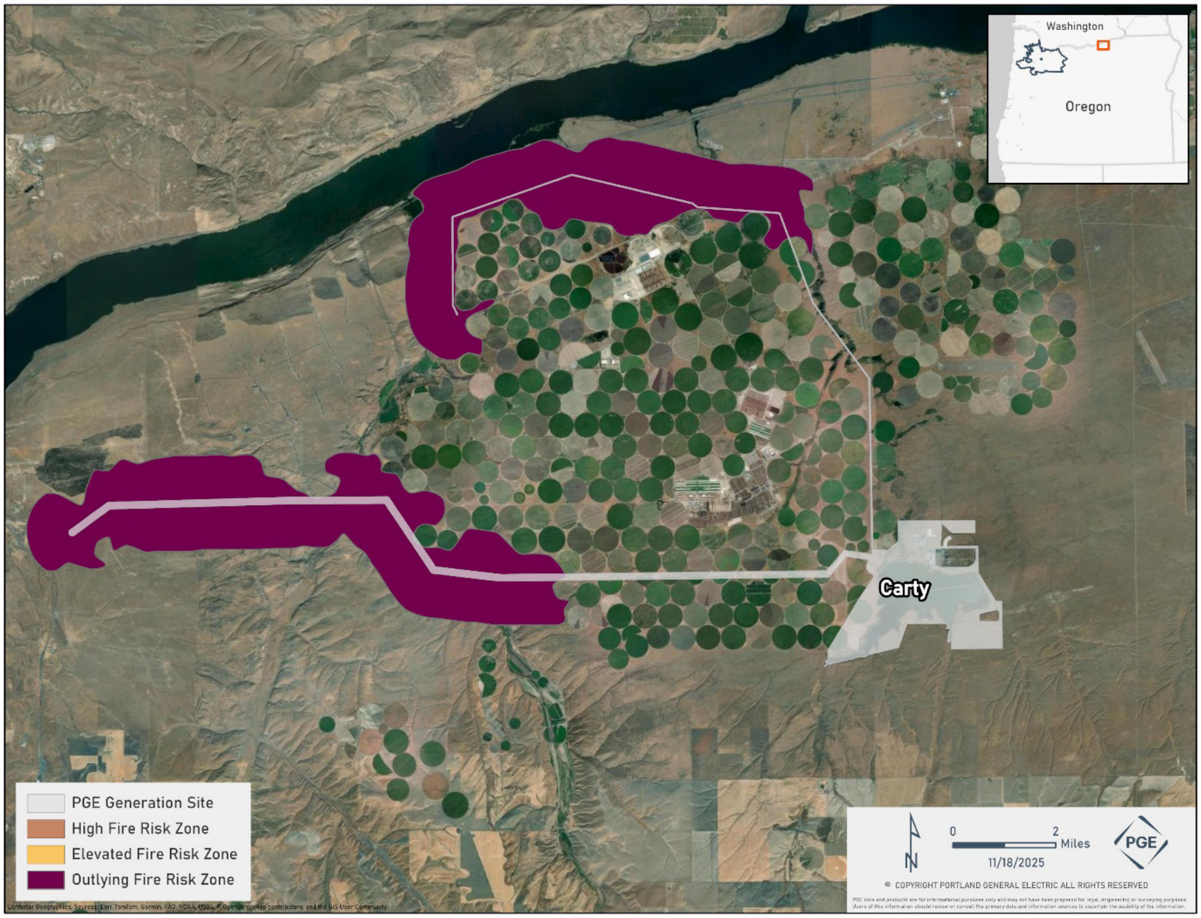

Figure H-3: Carty Operating Area

H.10.2.2 Site-Specific Baseline Wildfire Risk

In addition to the baseline wildfire risk assessment processes detailed in Section 4.2, PGE evaluates site-specific wildfire risk factors expected to remain fixed for multiple years including topography, vegetation, climate, and existing infrastructure. Information specific to the Carty generating site is presented below.

H.10.2.2.A Topography

PGE evaluates topography as an element of the baseline wildfire risk assessment. This assessment involves simulating wildfires on a 120-meter grid that allows for an assessment of impacts to Highly Valued Resources and Assets (HVRA) within and in proximity to the generation site. The wildfire simulation modeling uses data on topography, slope, and aspect derived from the LANDFIRE dataset at a 30-meter resolution. These factors directly affect wildfire behavior within the simulations to enable a precise understanding of fire growth and hazard exposure.

[57] 2024 FERC Form 1

In 2025, PGE assessed the topography within the wildfire study area for the Carty generation site, presented in Table H-5:.

Table H-5: Carty Generation Site Slope Profile

Slope (degrees)	Percent of Wildfire Analysis Area	Acres of Wildfire Analysis Area
0-25	81.4	16,796
25-50	14.7	3,040
50-75	3.6	747
75-100	0.1	17

Note: All quantities may not result in 100 percent due to rounding adjustments.

Vegetation

Vegetation conditions surrounding the Carty site reflect a mixed grassland–agricultural environment with interspersed shrublands and small patches of higher-load brush. Within the 0.5-kilometer wildfire analysis buffer, FM 102—low-load dry climate grass—represents the largest proportion of fuels at approximately 36 percent. Agricultural lands mapped as FM 93 account for 22 percent of the area, while other non-burnables represented by FM 98 and FM 99 constitute an additional 10 percent combined.

The presence of substantial grass-dominated fuels (FM 102) is consistent with the arid and semi-arid grassland systems typical of the region. These fuels exhibit fast-moving, wind-driven fire behavior with low to moderate flame lengths but potentially high rates of spread. The distribution of FM 122 and FM 142 (totaling 18 percent of the area) indicates patches of denser brush or more continuous grass-shrub complexes that could produce more intense fire behavior under extreme conditions.

Although FM 93 represents a notable portion of the area, field observations and regional agricultural practices suggest that some of these croplands may become burnable depending on irrigation status and crop curing cycles. Therefore, modeled wildfire risk should consider potential seasonal increases in flammability, particularly during late summer and early fall.

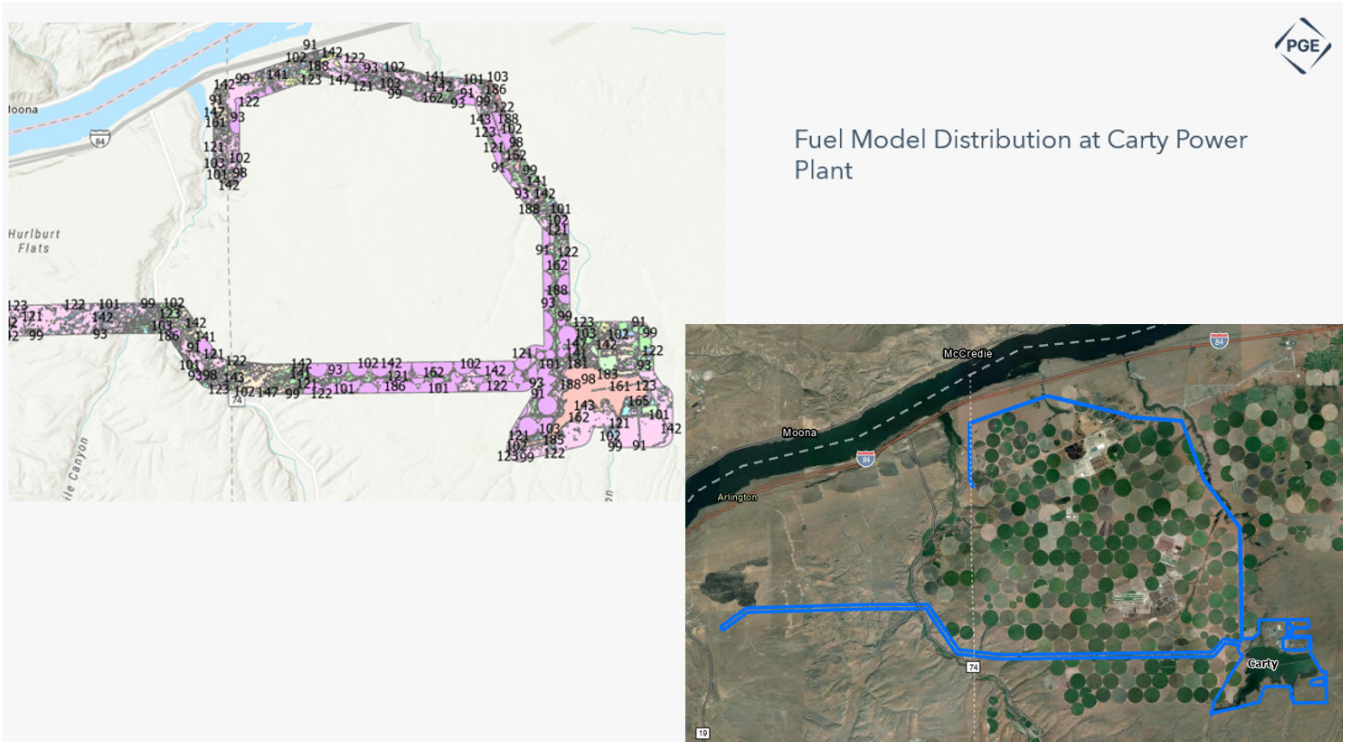

Figure H-4: Fuel Models at the Carty Generation Site

Table H-6: Carty Generation Site Fuel Model Distribution

Fuel Model	Wildfire Analysis Area (%)	Wildfire Analysis Area (acres)
91	3.5%	730
93	22%	4,601
98	6%	1,261
99	4%	874
101	<1%	143
102	36%	7,485
103	<1%	41
121	2.6%	540
122	11%	2,439
123	2.3%	490
141	<1%	31
142	7%	1,473
143	<1%	7
147	<1%	64
161	<1%	97
162	1.4%	292
165	<1%	<1
181	<1%	3

Fuel Model	Wildfire Analysis Area (%)	Wildfire Analysis Area (acres)
182	<1%	<1
183	<1%	9
185	<1%	<1
186	<1%	3
188	<1%	35

H.10.2.2.C Climate

The Carty Generation Site is located near Boardman, Oregon, within the Columbia Basin, and experiences a semi-arid climate characterized by hot, dry summers and cool winters with low annual precipitation. These pronounced seasonal patterns strongly influence fuel moisture conditions.

Winter and early spring (December–March) are the coolest and comparatively wettest periods of the year, though overall precipitation remains modest. Monthly precipitation during this period typically ranges from approximately 0.7 to 1.3 inches, with maximum temperatures generally remaining below 65°F. During this season, fine fuels retain higher moisture content due to cooler temperatures, shorter daylight hours, and limited evaporative demand.

Late Spring through Summer (April–September) marks a rapid transition to increasingly dry fuel moistures. Maximum temperatures rise steadily through late spring, exceeding 100°F from June through August and peaking near 110°F in July. Average temperatures increase from the mid-50s°F in spring to the mid-70s°F during summer months, reflecting strong solar heating and persistent clear-sky conditions typical of the Columbia Basin. At the same time, precipitation declines sharply; July receives approximately 0.1 inches, with August and September averaging only about 0.2 inches each. This extended period of heat and minimal rainfall drives rapid drying of fine fuels, prolonged curing of grasses, and elevated evaporative demand, resulting in low fuel moisture.

Early Fall (September-October) brings gradual moderation in temperatures, with maximums decreasing from around 100°F in September to approximately 90°F in October. However, meaningful precipitation often does not return until late fall or winter. As a result, fuels frequently remain dry and receptive to ignition well into October, extending the effective fire season beyond the peak summer months.

Overall, the combination of hot summers, minimal growing-season precipitation, and delayed fall moisture creates a long wildfire season in the Boardman area, characterized by persistent fine-fuel dryness and elevated fire behavior potential. These climatic patterns influence wildfire risk at the Carty Generation Site, as well as at the nearby Coyote Springs Generation Site and Wheatridge Renewable Energy Facility, all of which are subject to similar seasonal fuel and weather conditions. Therefore, all three sites share the same climatological profile and related data, presented in Table H-7:.

Table H-7: Monthly Normal Temperature and Precipitation at Boardman, OR (1991‑2020)[58]

Month	Max Temperature (°F)	Average Temperature (°F)	Precipitation (inch)
January	63	34.7	1.3
February	71	38.2	0.9
March	80	45.0	0.7
April	87	52.4	0.6
May	101	60.8	0.8
June	107	67.6	0.6
July	110	75.2	0.1
August	107	73.7	0.2
September	100	64.5	0.2
October	90	52.5	0.7
November	76	41.6	0.9
December	68	34.7	1.2

H.10.2.2.D Existing Infrastructure

The Carty generation facility operates as a combined cycle natural gas turbine with an associated steam turbine, featuring a nameplate capacity of 503.1 megawatts.[59] The assets with ignition potential include two overhead high voltage transmission power lines, several runs of overhead distribution power lines, switchgear, associated breakers, transformers, and a reservoir pumping station.

The plant maintains two overhead high voltage transmission power line interconnections with the BPA system:

- The primary 500 kV Grassland-Slatt transmission line originates at the plant and extends to the Grassland switchyard before continuing to the BPA Slatt substation.
- Alternate service is provided by the 230 kV Dalreed PACW-Carty line that runs east and then north to the Columbia River, terminating at PacifCorp's Dalreed substation.

H.10.2.3 Site-Specific Seasonal Wildfire Risk

In addition to the seasonal wildfire risk assessment processes detailed in Section9.2.1.2, PGE evaluates site-specific wildfire risk factors expected to remain fixed for multiple months that may be dynamic throughout the year. Site-specific elements include cumulative precipitation and fuel moisture content.

H.10.2.3.A Cumulative Precipitation

Table H-7: presents annual precipitation data for the Carty generation site.

[58] Northeast Regional Climate Center, Applied Climate Information System. Data for Boardman, OR from network ID: USC00350858 (Latitude 45.8472, Longitude -119.6933, Elevation: 279.9 feet or 85.3 meters). Data accessed 11/25/2025.
[59] 2024 FERC Form 1

H.10.2.3.B Fuel Moisture Content

Fuel moisture content is a primary variable when observing wildfire behavior. Fuel moisture content "is a measure of the amount of water in a fuel (vegetation) available to a fire and is expressed as a percent of the dry weight of that specific fuel" (Schroeder, 1970[60]). Fuel moisture content varies with weather, both seasonally and during short periods. The higher the fuel moisture content, the greater difficulty for fires to ignite and propagate. Living plants and dead fuels respond differently to weather changes; the drying and wetting processes of dead fuels is such that the moisture content of these fuels is strongly affected by weather changes. These moisture contents are influenced by precipitation, air moisture, air and surface temperatures, wind, cloudiness, as well as by fuel factors such as surface to volume ratio, compactness, and arrangement. Fuel moisture content within the wildfire analysis area is dependent on current weather conditions, fuel moisture data, and seasonal weather patterns.

Fuel moisture varies with vegetation type. For instance, annual grasses are highly flammable whereas broadleaf vegetation is less flammable. Additionally, live evergreen trees and shrubs can burn despite having a moisture content of over 100 percent.

H.10.2.4 Site Asset Ignition Potential

The assets with ignition potential include two overhead high voltage transmission power lines, several runs of overhead distribution power lines, switchgear, associated breakers, transformers, and a reservoir pumping station.

H.10.2.4.A Switchgear and Breakers, and Transformers

Ignition risk from switchgear, generator breakers, and the GSUs at Carty is low given all the equipment is located on or above gravel surfaces and is well set back from the surrounding vegetation beyond the perimeter. The GSU transformers are separated by blast walls and have deluge systems in place. All the equipment at the Grasslands switchyard is set back from the perimeter and the entire switchyard is covered by inflammable material.

H.10.2.4.B Overhead Power Lines

The plant maintains two overhead power line interconnections with the BPA system: 500 kV Grassland-Slatt transmission line and the 230 kV Dalreed PACW-Carty line. The Grassland-Slatt line traverses over grasses, sage brush, and agricultural lands. The Dalreed PACW-Carty line crosses grassland and agricultural areas. Both lines exist in areas designated as OFRZs.

Several runs of primary overhead distribution power lines supply plant infrastructure outside the main plant perimeter. These lines cross agricultural areas with interspersed wild grasslands, primarily along and to the east of the site.

H.10.2.4.C Pumping Station

The Carty reservoir pumping station is located at the eastern end of the reservoir adjacent to a canal. A PacifiCorp distribution line supplies power to a PGE transformer supporting pump

[60] Schroeder, M. and Buck, C. (1970). Fire weather : a guide for application of meteorological information to forest fire control operations. USDA Forest Service, Agriculture Handbook 360.

operations. This small area has minimal setbacks from surrounding vegetation. A project to underground the entire supporting electrical system is currently in the planning horizon.

H.10.2.5 Ignition Risk Mitigation Strategy

H.10.2.5.A Site Design Mitigation Measures

Onsite transformers, switchgear, and breakers benefit from strategic site design characteristics that minimize ignition risk. The GSU transformers feature separation by blast walls and full oil containment systems. GSUs, switchgear, and associated breakers are positioned at significant distances from vegetation, surrounded by gravel and asphalt surfaces within the site footprint. Smaller transformers are housed within the plant, protected by dedicated fire protection systems.

During declared east side fire seasons, the onsite power lines operate with protection settings that keep them de-energized once a fault is detected, limiting ignition potential during fault events.

H.10.2.5.B Inspection and Correction

The Carty-Grassland 500 kV transmission line and Dalreed PACW-Carty 230 kV transmission line undergo systematic inspection protocols. The Carty-Grassland line is patrolled twice a year by air and a ground and infrared patrol every five years. The Carty-Dalreed line is patrolled by air twice a year and receives a ground and infrared patrol every 5 years. The line is scheduled for a FITNES inspection every 10 years.

Forestry performs a ground audit annually with no more than 18 months between audits. The last ground audit was in May 2025. The most recent vegetation maintenance work occurred in April 2023. The lines are scheduled to be surveyed for work in the Spring of 2026.

The GSUs at Carty are tested for dissolved gas levels every six months and receive Doble testing every six years to assess the transformer health.

An in-place monitoring program promotes early detection of hazardous conditions, rapid response to developing faults, and sustained reduction of fire risk across substation assets. The program integrates thermal imaging surveys looking for overheating on electrical connection, transformer oil and gas monitoring, visual equipment inspections, asset health indexing, and alarm management. For transformers automatic tripping on rapid pressure rise, arc-flash detection, or extreme temperature alarms will take place.

H.10.2.5.C Vegetation Management

The overhead transmission and distribution lines traverse vegetation that is contiguous to wildland areas, presenting both ignition and wildfire risks. PGE's foresters manage vegetation clearances for these lines to minimize vegetation contacts and ignition potential.

H.10.3 Coyote Springs Generation Station

H.10.3.1 Site Profile

Coyote Springs Generation Station (CSGS) operates within a heavily industrialized zone. The plant consists of two units operated by PGE, though PGE owns only one of the combined cycle units and its steam turbine. The PGE-owned generation has a nameplate capacity of 296 megawatts. The entire site encompasses 22.0 acres.

The wildfire study area is defined by PGE's GIS data for the generation site boundary and includes all areas within a 0.5-kilometer buffer around the generation site. The total area within the wildfire study areas equals 366.5 acres.

Figure H-5: Coyote Springs Operating Area

H.10.3.2 Site-Specific Baseline Wildfire Risk

In addition to the baseline wildfire risk assessment processes detailed in Section 4.2, PGE evaluates site-specific wildfire risk factors expected to remain fixed for multiple years including topography, vegetation, climate, and existing infrastructure. Information specific to the Coyote Springs generating site is presented below.

H.10.3.2.A Topography

PGE evaluates topography as an element of the baseline wildfire risk assessment. This assessment involves simulating wildfires on a 120-meter grid that allow for an assessment of impacts to Highly Valued Resources and Assets (HVRA) within and in proximity to the generation site. The wildfire simulation modeling uses data on topography, slope, and aspect derived from the LANDFIRE dataset at a 30-meter resolution. These factors directly affect wildfire behavior within the simulations to enable a precise understanding of fire growth and hazard exposure.

In 2025, PGE assessed the topography within the wildfire study area for the Coyote Springs generation site, presented in Table H-8:.

Table H-8: Slope Profile for the Coyote Springs Generation Site

Slope (degrees)	Percent of Wildfire Analysis Area	Acres of Wildfire Analysis Area
0-25	84.6	310
25-50	9.5	35
50-75	5.3	19
75-100	0.4	1

Note: All quantities may not result in 100 percent due to rounding adjustments.

H.10.3.2.B Vegetation

Coyote Springs Generation Station (CSGS) is situated in an industrial area within the Port of Morrow, OR in a landscape heavily modified by past industrial and gravel mining activities. The surrounding area contains limited amounts of degraded grassland and sparse sagebrush habitat interspersed among mostly developed parcels. To the east lies a large pond and wetland area (Messner and Toadman Ponds) with Russian-olive dominated shrubby riparian habitat. The broader regional vegetation consists primarily of needle and thread grasses and bitter brush.[61]

The landscape surrounding the Coyote Springs Power Plant is characterized primarily by low-load grass and brush fuels typical of the Columbia Basin steppe environment. FM 91—which is a non-burnable Urban/Developed fuel model—dominates the analysis area, covering approximately 47 percent of the 0.5-kilometer buffer. FM 98— Non-burnable, Open Water (39 percent) represents the second highest portion of the buffer area and FM 147—Shrub fuel model, high load (4 percent) represents the shrub-grass complexes, indicating small portions of the landscape with abundant fine and moderate fuels adjacent to the non-burnable areas.

The limited presence of agricultural fuels (FM 93) and bare ground (FM 99) suggests relatively broken vegetation structure within the industrial area. These conditions create the potential for high rates of spread during wind events but would be limited in duration due to the non-burnable fuels in the area.

[61] https://geohub.oregon.gov/datasets/oregon-geo::historic-vegetation

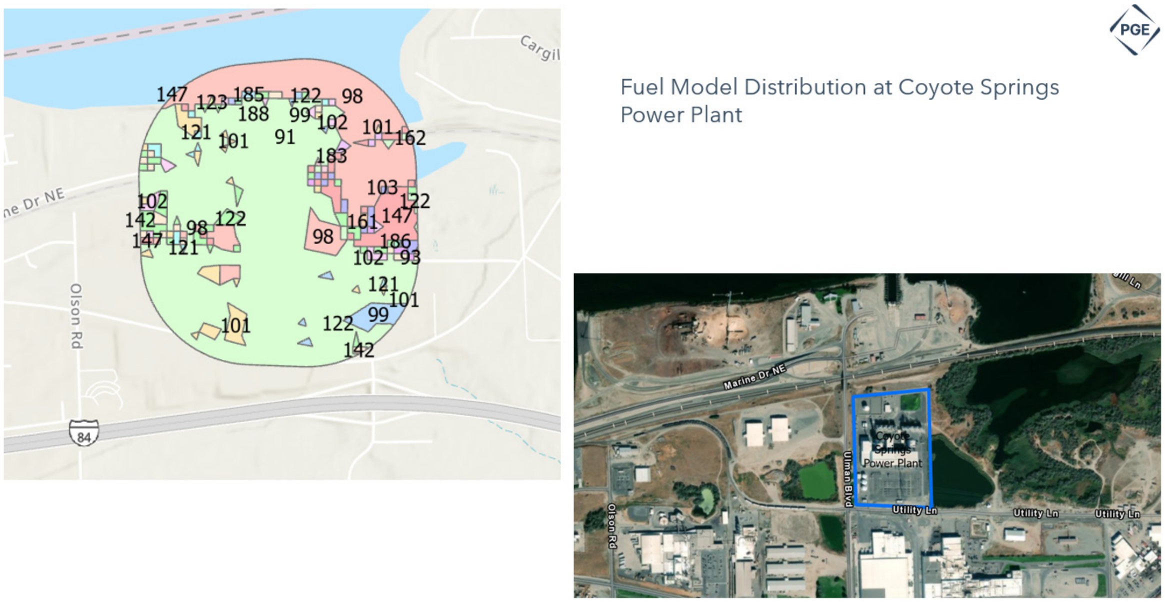

Figure H-6: Fuel Model Distribution at Coyote Springs Power Plant

Table H-9: Coyote Springs Fuel Model Distribution

Fuel Model	Percent of 5km Buffer Analysis Area	Acres of Wildfire Analysis Area
91	47%	226
93	<1%	1
98	39%	190
99	1%	6
101	2%	10
102	<1%	4
103	<1%	3
121	<1%	2
122	2%	11
123	<1%	<1
142	<1%	4
147	4%	17
161	<1%	<1
162	<1%	1
183	<1%	<1
185	<1%	<1
186	<1%	<1
188	<1%	<1

H.10.3.2.C Climate

The Carty generation site, the Coyote Springs generation site, and the Wheatridge Renewable Energy Facility all exist near Boardman, OR. Therefore, all three sites share the same climatological profile and related data, presented in Table H-7:.

H.10.3.2.D Existing Infrastructure

At Coyote Springs, assets with ignition potential include transformers, breakers, and switchgear. The site does not include any overhead power lines, photovoltaic solar arrays, or battery energy storage systems.

H.10.3.3 Site-Specific Seasonal Wildfire Risk

In addition to the seasonal wildfire risk assessment processes detailed in Section 9.2.1.2, PGE evaluates site-specific wildfire risk factors expected to remain fixed for multiple months that may be dynamic throughout the year. Site-specific elements include cumulative precipitation and fuel moisture content.

H.10.3.3.A Cumulative Precipitation

Table H-7: presents annual precipitation data for the Coyote Springs generation site.

H.10.3.3.B Fuel Moisture Content

Fuel moisture content is a primary variable when observing wildfire behavior. Fuel moisture content "is a measure of the amount of water in a fuel (vegetation) available to a fire and is expressed as a percent of the dry weight of that specific fuel" (Schroeder, 1970[62]). Fuel moisture content varies with weather, both seasonally and during short periods. The higher the fuel moisture content, the greater difficulty for fires to ignite and propagate. Living plants and dead fuels respond differently to weather changes; the drying and wetting processes of dead fuels is such that the moisture content of these fuels is strongly affected by weather changes. These moisture contents are influenced by precipitation, air moisture, air and surface temperatures, wind, cloudiness, as well as by fuel factors such as surface to volume ratio, compactness, and arrangement. Fuel moisture content within the wildfire analysis area is dependent on current weather conditions, fuel moisture data, and seasonal weather patterns.

Fuel moisture varies with vegetation type. For instance, annual grasses are highly flammable whereas broadleaf vegetation is less flammable. Additionally, live evergreen trees and shrubs can burn despite having a moisture content of over 100 percent.

H.10.3.4 Site Asset Ignition Potential

The assets with ignition potential switchgear, associated breakers, and transformers.

Assets that present ignition risk at Coyote are all well set back from the site perimeter and are sited over gravel surfaces. Transformers, switchgear, and circuit breakers pose ignition risks primarily due to electrical arcing, overheating, and insulation breakdown. When these components age or experience abnormal conditions, they can generate sparks or excessive heat that may ignite

[62] Schroeder, M. and Buck, C. (1970). Fire weather: a guide for application of meteorological information to forest fire control operations. USDA Forest Service, Agriculture Handbook 360.

surrounding flammable materials. Oil-filled transformers are particularly hazardous as the insulating oil can become combustible when equipment fails.

H.10.3.5 Ignition Risk Mitigation Strategy

H.10.3.5.A Site Design Mitigation Measures

Onsite transformers, switchgear, and breakers benefit from strategic site design characteristics that minimize ignition risk. GSU transformers for Units 1 and 2 feature separation by blast walls and full oil containment systems. The surrounding areas are covered with gravel or asphalt surfaces. Smaller transformers are housed within the plant and protected by dedicated fire protection systems.

The site benefits from the absence of contiguous vegetation or wildland areas adjacent to its perimeter. Ignition and wildfire risks are further reduced as all assets capable of causing ignitions are positioned over gravel or asphalt surfaces within the site boundary.

H.10.3.5.B Inspection and Correction

An in-place monitoring program promotes early detection of hazardous conditions, rapid response to developing faults, and sustained reduction of fire risk across substation assets. The program integrates thermal imaging surveys looking for overheating on electrical connection, transformer oil and gas monitoring, visual equipment inspections, asset health indexing, and alarm management. For transformers automatic tripping on rapid pressure rise, arc-flash detection, or extreme temperature alarms will take place.

H.10.3.5.C Vegetation Management

The Coyote Springs generation site wildfire risk profile benefits from the site existing in a largely industrial area. All assets with ignition potential exist over hardscape surfaces such as pavement or gravel. As such, there is no vegetation to be subject to formal periodic vegetation management practices, however, the plant does spray the perimeter as needed during the spring and summer.

H.10.4 Port Westward

H.10.4.1 Site Profile

The Port Westward generation complex is situated eight miles north of Clatskanie, OR on 25.4 acres adjacent to the Columbia River on land leased from the Port of Columbia. The wildfire study area is defined by PGE’s GIS data for the generation site boundary and includes all areas within a 0.5-kilometer buffer around the generation site. The total area within the wildfire study areas equals 382.8 acres.

This site represents a significant thermal generation location within PGE's generation portfolio, with distinctive environmental characteristics that inform its wildfire risk profile.

Port Westward began construction in 2005 and went into operation in 2007. The site includes Port Westward 1 Generating Station which is a G1-class natural-gas fired combined-cycle turbine with a generating capacity of 411-megawatts. Construction for Port Westward 2 Generating Station began in 2013 and went into operation in 2014. This plant includes 12 reciprocating 25,000-horsepower 50SG engines running on natural gas with a generating capacity of 225-megawatts.[63]

Port Westward also features one Battery Energy Storage System in two blocks. This 5-megawatt, two-hour energy storage system is coupled with PGE's Port Westward 2 Generating Station. The system was constructed, tested, and commissioned in 2021.[64]

Port Westward receives natural gas fuel through two delivery systems[65]: The Kelso-Beaver Pipeline, which is the primary gas delivery infrastructure, and the Northwest Natural Gas Distribution System which is the secondary supply source. PGE maintains gas safety policies governing operations at these facilities, with established protocols for leak detection, emergency response, and maintenance procedures to minimize ignition risk associated with natural gas infrastructure.

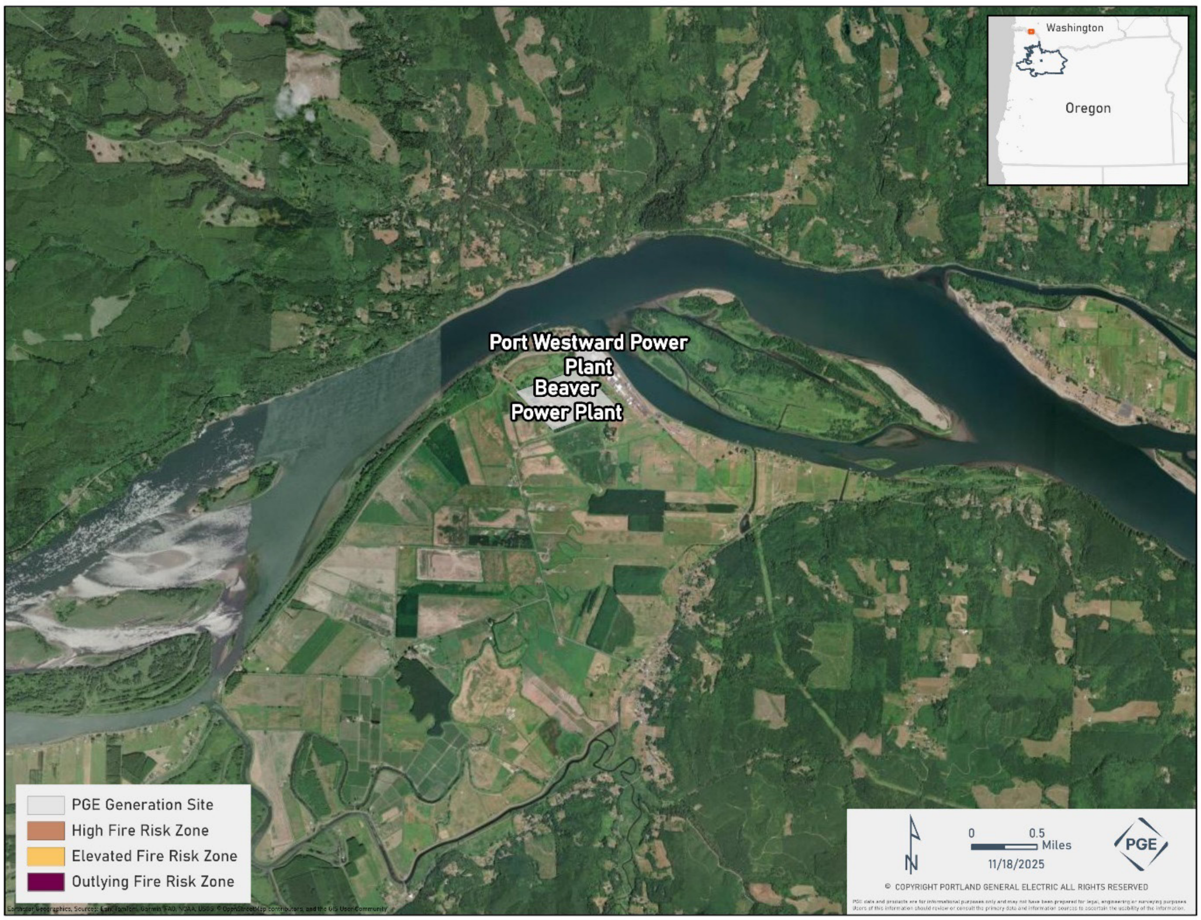

Figure H-7: Port Westward Operating Area

H.10.4.2 Site-Specific Baseline Wildfire Risk

In addition to the baseline wildfire risk assessment processes detailed in Section 4.2, PGE evaluates site-specific wildfire risk factors expected to remain fixed for multiple years including topography,

[63] Portland General Electric. *History: Port Westward*. Portland General Electric. Accessed November 26, 2025

[64] Portland General Electric. *PGE UM 1856 2024 Annual Energy Storage Update*. Public Utility Commission of Oregon; September 17, 2024. Accessed November 26, 2025.

[65] *Natural Gas Safety*, (GEN-PRC-ENG-0006)

vegetation, climate, and existing infrastructure. Information specific to the Port Westward generating site is presented below.

H.10.4.2.A Topography

PGE evaluates topography as an element of the baseline wildfire risk assessment. This assessment involves simulating wildfires on a 120-meter grid that allows for an assessment of impacts to Highly Valued Resources and Assets (HVRA) within and in proximity to the generation site. The wildfire simulation modeling uses data on topography, slope, and aspect derived from the LANDFIRE dataset at a 30-meter resolution. These factors directly affect wildfire behavior within the simulations to enable a precise understanding of fire growth and hazard exposure.

In 2025, PGE assessed the topography within the wildfire study area for the Port Westward generation site, presented in Table H-10.

Table H-10: Port Westward Generation Site Slope Profile

Slope (degrees)	Percent of Wildfire Analysis Area	Acres of Wildfire Analysis Area
0-25	88.6	339
25-50	8.1	31
50-75	3.1	12
75-100	0.1	<1

Note: All quantities may not result in 100 percent due to rounding adjustments.

H.10.4.2.B Vegetation

The surrounding landscape is dominated by managed grasslands with scattered groves of native riparian species including cottonwood, alder, and ash. The site wetland vegetation is typical of Columbia River lowlands which is shaped by frequent flooding, high soil moisture, tidal influence, and a mild wet maritime climate.

Vegetation surrounding the Port Westward facility reflects a more diverse fuel environment compared to the inland sites, with a mixture of grasslands, shrub/brush fuel types, and areas of agricultural and semi-developed land. FM 98—open water—accounts for the largest portion of the analysis area at 38 percent, while FM 91 represents an additional 31 percent. These models suggest a limited wildfire risk due to their non-burnable nature.

Agricultural fuels are less prominent here than at inland sites, although FM 122 accounts for 14 percent of the landscape and may represent areas of increased fuel loading. FM 161 (10 percent) and FM 183 (2 percent) indicate localized patches of higher-load or more complex fuel structures that may produce elevated flame lengths.

Overall, the Port Westward area exhibits low burn potential with a mixture of fine fuels, brush components, and scattered higher-load vegetation. Localized fuel complexity may impact fire behavior, particularly under influence of coastal wind patterns.

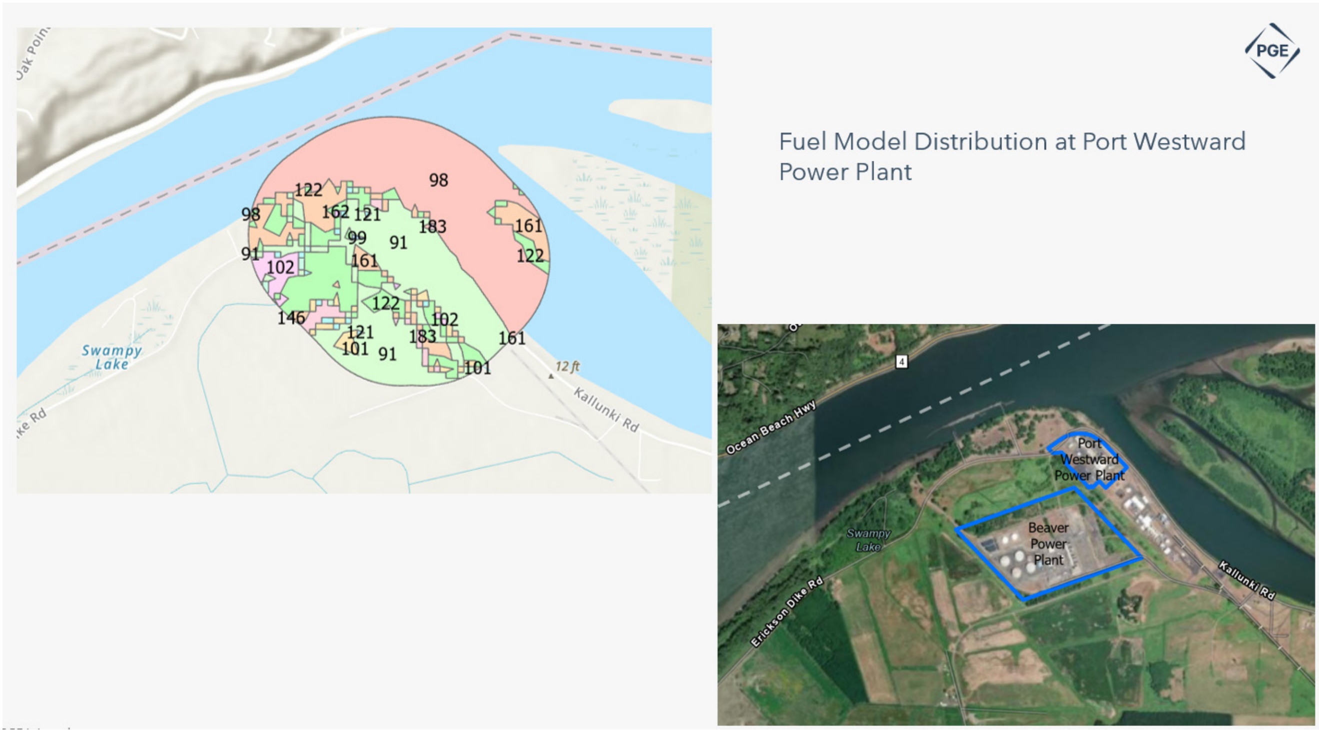

Figure H-8: Port Westward Fuel Model Distribution

Table H-11: Port Westward Fuel Model Distribution

Fuel Model	Percent of 5km Buffer Analysis Area	Acres of Wildfire Analysis Area
91	31%	118
98	38%	145
99	<1%	<1
101	2%	7
102	2%	9
121	<1%	3
122	14%	53
146	<1%	1
161	10%	37
162	<1%	<1
183	2%	6

H.10.4.2.C Climate

Port Westward is in the forested lowlands of the Lower Columbia River region, where a mild, wet maritime climate dominates much of the year. Winters are cool and very wet, while summers are warm and comparatively dry. This seasonal pattern directly influences local vegetation moisture, fuel curing, and fire-weather potential.

Temperatures remain moderate through winter and early spring, with monthly maximums ranging from 64–73°F in December through February and average temperatures in the 40s°F. These months coincide with the highest annual precipitation totals: 6.2 inches in January, 4.8 inches in February, and 7.2 inches in December, reflecting the strong influence of Pacific storm systems. November also contributes significantly to annual moisture with 6.6 inches of precipitation. This extended wet season typically maintains high fuel moisture and limits wildfire activity during late fall through early spring.

Spring and early summer bring a steady warming trend. Maximum temperatures rise from 82°F in March to 107°F in June, while precipitation drops sharply to 2.0 inches by June. By mid-summer, Port Westward experiences warm, very dry conditions; July receives only 0.7 inches of precipitation, and August remains low at 1.2 inches. Although temperatures in July and August typically average in the mid-60s°F, maximums can exceed 100°F, contributing to periods of accelerated drying in surface fuels, especially during offshore flow events.

In early fall, temperatures remain relatively cool—61°F in September and 54°F in October—but precipitation gradually increases to 4.1 inches by October. Full moisture recovery generally arrives by November as the rainy season resumes, restoring higher dead-fuel moisture and reducing ignition potential.

Table H-12: Monthly Normal Temperature and Precipitation at Longview, WA (1991–2020)[66]

Month	Max Temperature (°F)	Average Temperature (°F)	Precipitation (inch)
January	65	39.6	6.2
February	73	42.5	4.8
March	82	46.0	4.6
April	90	50.3	3.3
May	99	55.8	2.6
June	107	60.5	2.0
July	105	65.0	0.7
August	108	65.4	1.2
September	104	61.4	2.0
October	90	53.5	4.1
November	76	45.3	6.6
December	64	40.5	7.2

H.10.4.2.D Existing Infrastructure

At Port Westward, assets within the wildfire study area and in this analysis includes switchgear and associated breakers, transformers, and two overhead transmission lines (Port Westward-Trojan #1

[66] Northeast Regional Climate Center, Applied Climate Information System. Data for Longview, WA from network ID: USC00454769 (Latitude 46.13722, Longitude -122.97806, Elevation: 11.5 feet or 3.5 meters). Data accessed 11/25/2025.

and Port Westward-Trojan #2) – both are high-voltage 230 kV transmission lines. The site also houses one battery energy storage system composed of two blocks.

H.10.4.3 Site-Specific Seasonal Wildfire Risk

In addition to the seasonal wildfire risk assessment processes detailed in Section 9.2.1.2, PGE evaluates site-specific wildfire risk factors expected to remain fixed for multiple months that may be dynamic throughout the year. Site-specific elements include cumulative precipitation and fuel moisture content.

H.10.4.3.A Cumulative Precipitation

Table H-12 presents annual precipitation data for the Port Westward generation site.

H.10.4.3.B Fuel Moisture Content

Fuel moisture content is a primary variable when observing wildfire behavior. Fuel moisture content "is a measure of the amount of water in a fuel (vegetation) available to a fire and is expressed as a percent of the dry weight of that specific fuel" (Schroeder, 1970[67]). Fuel moisture content varies with weather, both seasonally and during short periods. The higher the fuel moisture content, the greater difficulty for fires to ignite and propagate. Living plants and dead fuels respond differently to weather changes; the drying and wetting processes of dead fuels is such that the moisture content of these fuels is strongly affected by weather changes. These moisture contents are influenced by precipitation, air moisture, air and surface temperatures, wind, cloudiness, as well as by fuel factors such as surface to volume ratio, compactness, and arrangement. Fuel moisture content within the wildfire analysis area is dependent on current weather conditions, fuel moisture data, and seasonal weather patterns.

Fuel moisture varies with vegetation type. For instance, annual grasses are highly flammable whereas broadleaf vegetation is less flammable. Additionally, live evergreen trees and shrubs can burn despite having a moisture content of over 100 percent.

H.10.4.4 Site Asset Ignition Potential

The assets with ignition potential include generation lead lines, switchgear and associated breakers, transformers, and two overhead transmission lines (Port Westward-Trojan #1 and Port Westward-Trojan #2) – both are high-voltage 230 kV transmission lines, and one battery energy storage system.

H.10.4.4.A Lead Lines, Switchgear and Breakers, and Transformers

Assets that present ignition risk at Port Westward are set back from the site perimeter and are sited over gravel surfaces. Transformers, switchgear, and circuit breakers pose ignition risks primarily due to electrical arcing, overheating, and insulation breakdown. When these components age or experience abnormal conditions, they can generate sparks or excessive heat that may ignite surrounding flammable materials. Oil-filled transformers are particularly hazardous as the insulating oil can become combustible when equipment fails.

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[67] Schroeder, M. and Buck, C. (1970). Fire weather: a guide for application of meteorological information to forest fire control operations. USDA Forest Service, Agriculture Handbook 360.

H.10.4.4.B Overhead Power Lines

The plant maintains two overhead high voltage transmission power lines: Port Westward-Trojan #1 and Port Westward-Trojan #2, both operate at 230 kVs. Both lines share a common right-of-way within the wildfire study areas that contain vegetation that is contiguous to wildland areas.

H.10.4.4.C Battery Energy Storage Systems

Utility-scale battery storage systems present specific ignition risks primarily due to thermal runaway, a process where battery cells overheat and trigger a self-sustaining reaction that can lead to fire or explosion. Lithium-ion batteries, commonly used in utility storage, are particularly susceptible when damaged, overcharged, or subject to manufacturing defects. Short circuits caused by internal cell failures or external damage can compromise battery integrity. Once compromised, the electrolyte in many batteries can release volatile gases. To mitigate these risks, PGE implements comprehensive safety systems including thermal monitoring, proper spacing between battery modules, and regular inspections to identify potential failure points before they escalate to ignition events.

H.10.4.5 Ignition Risk Mitigation Strategy

H.10.4.5.A Site Design Mitigation Measures

Port Westward features site design mitigation measures for assets identified as having ignition potential. Port Westward battery is installed on a concrete pad within a fenced substation on site. The site is also sprayed for weeds and other plant growth. Rather than having internal hardware to detect thermal runaway events, these battery racks are designed to burn in a safe, predictable manner.

Onsite transformers, switchgear, and breakers benefit from strategic site design characteristics that minimize ignition risk. The GSU transformers feature separation by blast walls and full oil containment systems and are installed on concrete pads. GSUs, switchgear, and associated breakers are positioned at significant distances from vegetation and are surrounded by gravel and asphalt surfaces. Smaller transformers are housed within the plant, protected by dedicated fire protection systems.

During declared west side fire seasons, the onsite power lines operate with protection settings that keep them de-energized once a fault is detected, limiting ignition potential during fault events.

The BESS battery racks do not have internal hardware dedicated to detecting thermal runaway events. The racks are designed to burn in a safe, predictable manner. The Bulk Energy Storage Systems group has an Emergency Action Plan that details how to respond to an ignition emergency. The BESS site is covered with gravel. An additional outer perimeter of cleared land further decreases wildland fire potential.

H.10.4.5.B Inspection and Correction

The Port Westward-Trojan #1 and Port Westward-Trojan #2 lines undergo systematic inspection protocols, including two air patrols annually, ground and infrared patrol every five years, and detailed inspection every 10 years. These inspections identify and resolve issues to reduce ignition risk.

H.10.4.5.C Transformers, Switchgear, and Breakers:

Port Westward performs annual BESS preventative maintenance. An in-place monitoring program promotes early detection of hazardous conditions, rapid response to developing faults, and sustained reduction of fire risk across substation assets. The program integrates thermal imaging surveys looking for overheating on electrical connection, transformer oil and gas monitoring, visual equipment inspections, asset health indexing, and alarm management. For transformers automatic tripping on rapid pressure rise, arc-flash detection, or extreme temperature alarms will take place.

H.10.4.5.C Vegetation Management

The overhead transmission and distribution lines traverse vegetation that is contiguous to wildland areas, presenting both ignition and wildfire risks. Vegetation management practices include annual monitoring with issues being resolved as they are discovered.

H.10.5 Wheatridge Renewable Energy Facility

H.10.5.1 Site Profile

Wheatridge Renewable Energy Facility is located near Lexington, Oregon, on a plateau south of the Columbia River. The site exists on 12,703.2 acres. The wildfire study area is defined by PGE's GIS data for the generation site boundary and includes all areas within a 0.5-kilometer buffer around the generation site. The total area within the wildfire study areas equals 19,400.8 acres.

The Facility includes a 300-megawatt wind farm from 120 wind turbines, which began operation in December 2020, a 50-megawatt solar facility and a 30-megawatt hours battery storage system, both of which began operation in the spring of 2022.[68] PGE's portion of the facility has an installed capacity of 100 megawatts,[69] consisting of 40 turbines and a portion of the substation.

[68] Portland General Electric. *Wheatridge Renewable Energy Facility.* Portland General Electric. Accessed November 26, 2025.
[69] 2024 FERC Form 1

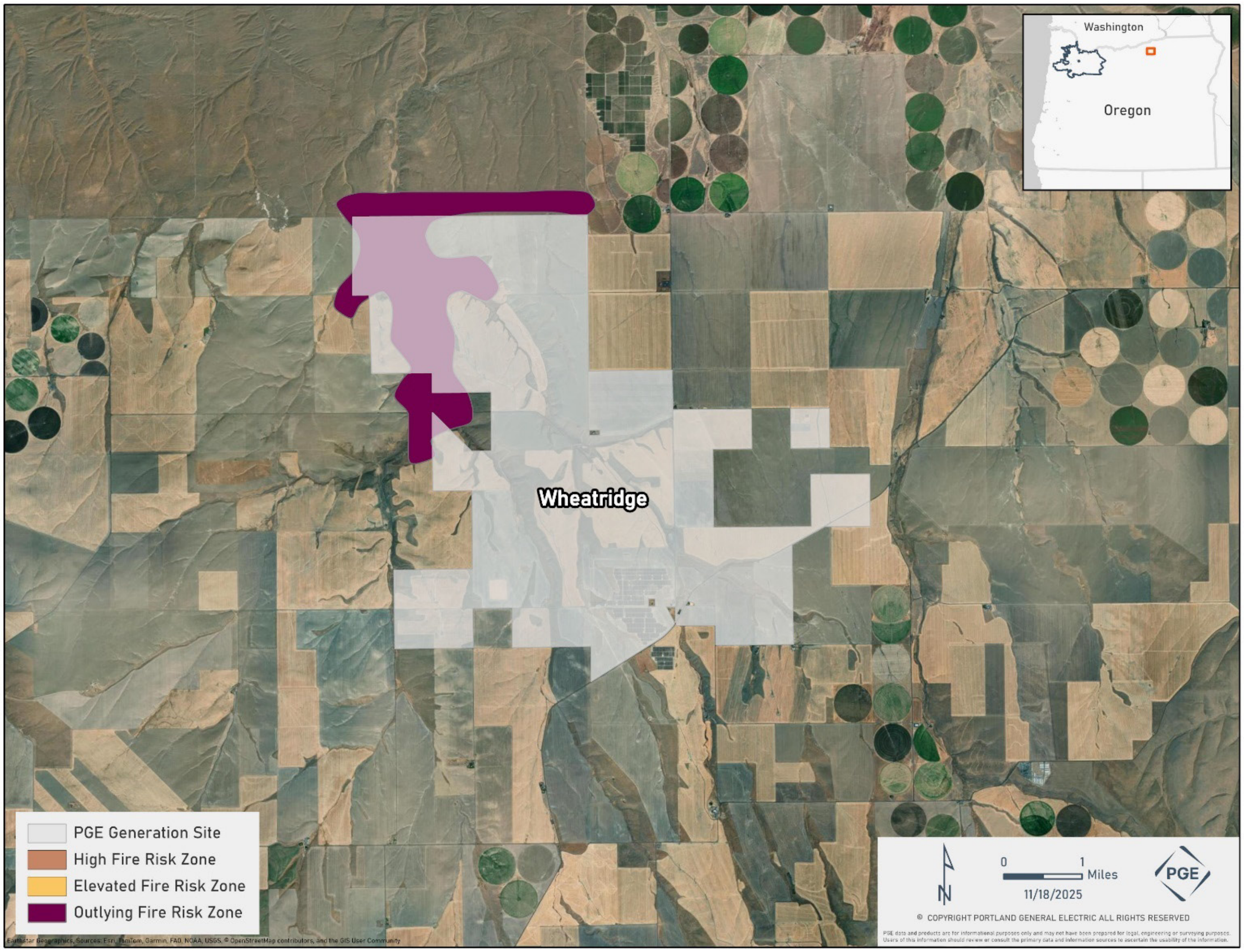

Figure H-9: Wheatridge Renewable Energy Facility Operating Area

H.10.5.2 Site-Specific Baseline Wildfire Risk

In addition to the baseline wildfire risk assessment processes detailed in Section 4.2, PGE evaluates site-specific wildfire risk factors expected to remain fixed for multiple years including topography, vegetation, climate, and existing infrastructure. Information specific to the Wheatridge Renewable Energy Facility (WREF) generating site is presented below.

H.10.5.2.A Topography

PGE evaluates topography as an element of the baseline wildfire risk assessment. This assessment involves simulating wildfires on a 120-meter grid that allows for an assessment of impacts to Highly Valued Resources and Assets (HVRA) within and in proximity to the generation site. The wildfire simulation modeling uses data on topography, slope, and aspect derived from the LANDFIRE dataset at a 30-meter resolution. These factors directly affect wildfire behavior within the simulations to enable a precise understanding of fire growth and hazard exposure.

In 2025, PGE assessed the topography within the wildfire study area for the Wheatridge Renewable Energy Facility, presented in Table H-13.

Table H-13: Wheatridge Renewable Energy Facility Slope Profile

Slope (degrees)	Percent of Wildfire Analysis Area	Acres of Wildfire Analysis Area
0-25	95.5	18,525
25-50	3.6	691
50-75	0.9	167
75-100	0.0	6

Note: All quantities may not result in 100 percent due to rounding adjustments.

H.10.5.2.B Vegetation

The landscape within and adjacent to the wind farm features undulating topography primarily used for dryland wheat agriculture, with smaller components of native grassland and shrub-steppe habitat.

The Wheatridge site is dominated by expansive dryland agricultural and grassland fuels typical of the Columbia Plateau. FM 102—low-load dry climate grass—makes up approximately 50 percent of the wildfire analysis area, while FM 93—agricultural land—constitutes 37 percent. Similar to Biglow Canyon, much of this agricultural land is likely dryland wheat or other non-irrigated crops that become highly flammable once cured.

Given the prevalence of continuous grass fuels and potentially burnable agricultural areas, the Wheatridge landscape exhibits high potential for fast-moving wildfires. Although shrub fuels (FM 142) are present in smaller patches (4 percent), these areas may produce elevated flame lengths capable of spotting into adjacent grasslands.

The combination of continuous fine fuels, large open fields, and strong regional winds creates conditions conducive to large-fire growth. As with other agricultural sites, refinement of FM 93 classifications may be necessary to accurately represent wildfire potential and align with NWCG guidance on burnable agricultural conditions.

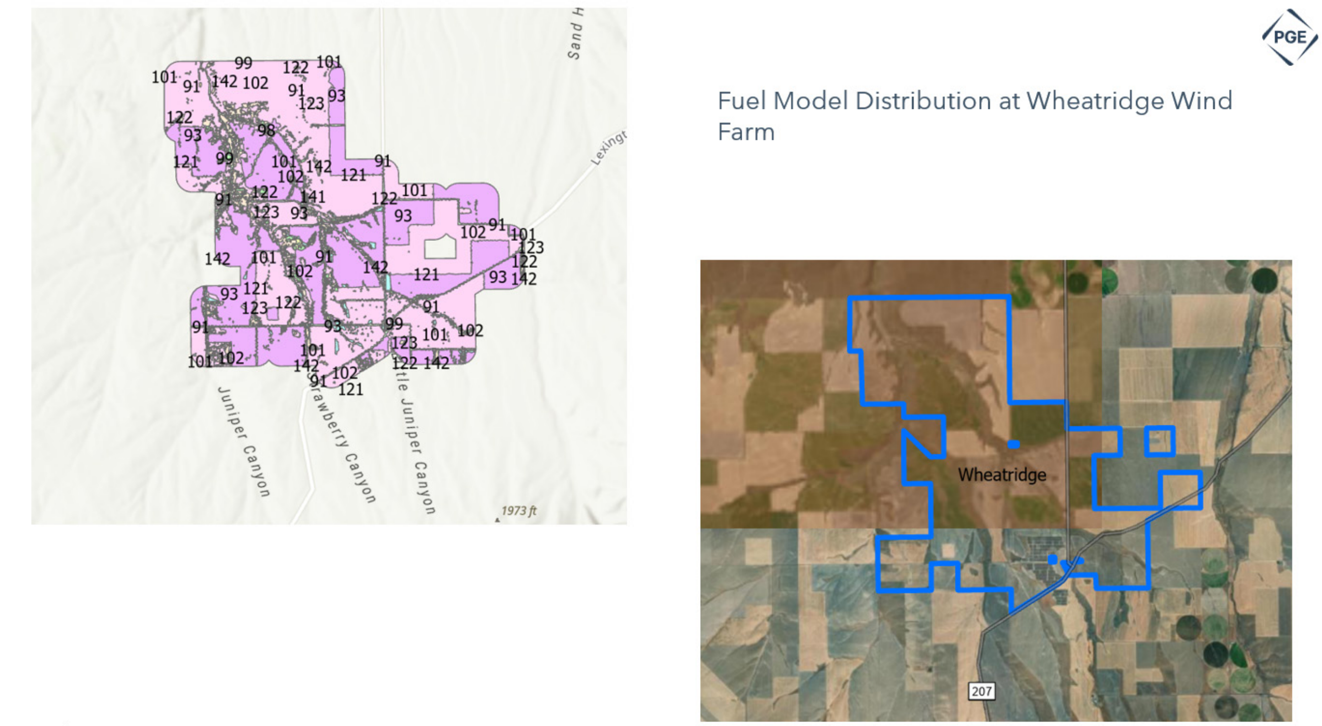

Figure H-10: Wheatridge Wind Farm Fuel Model

Table H-14: Wheatridge Wind Farm Fuel Model Distribution

Fuel Model	Percent of 5km Buffer Analysis Area	Acres of Wildfire Analysis Area
91	3.2%	620
93	37%	7,291
98	<1%	2
99	<1%	10
101	<1%	132
102	50%	9,807
121	2%	378
122	2%	395
123	<1%	61
141	<1%	1
142	4%	699

H.10.5.2.C Climate

The Carty generation site, the Coyote Springs generation site, and the Wheatridge Renewable Energy Facility all exist near Boardman, OR. Therefore, all three sites share the same climatological profile and related data, presented in Table H-7.

H.10.5.2.D Existing Infrastructure

PGE's portion of the facility includes 40 wind turbines, their related pad mounted transformers, and a portion of the substation. There are two PGE owned transformers in the substation and undergrounded distribution moving power from the pad mounted transformers to the switching yard.

H.10.5.3 Site-Specific Seasonal Wildfire Risk

In addition to the seasonal wildfire risk assessment processes detailed in Section 9.2.1.2, PGE evaluates site-specific wildfire risk factors expected to remain fixed for multiple months that may be dynamic throughout the year. Site-specific elements include cumulative precipitation and fuel moisture content.

H.10.5.3.A Cumulative Precipitation

Annual precipitation data is presented in Table H-7.

H.10.5.3.B Fuel Moisture Content

Fuel moisture content is a primary variable when observing wildfire behavior. Fuel moisture content "is a measure of the amount of water in a fuel (vegetation) available to a fire and is expressed as a percent of the dry weight of that specific fuel" (Schroeder, 1970[70]). Fuel moisture content varies with weather, both seasonally and during short periods. The higher the fuel moisture content, the greater difficulty for fires to ignite and propagate. Living plants and dead fuels respond differently to weather changes; the drying and wetting processes of dead fuels is such that the moisture content of these fuels is strongly affected by weather changes. These moisture contents are influenced by precipitation, air moisture, air and surface temperatures, wind, cloudiness, as well as by fuel factors such as surface to volume ratio, compactness, and arrangement. Fuel moisture content within the wildfire analysis area is dependent on current weather conditions, fuel moisture data, and seasonal weather patterns.

Fuel moisture varies with vegetation type. For instance, annual grasses are highly flammable whereas broadleaf vegetation is less flammable. Additionally, live evergreen trees and shrubs can burn despite having a moisture content of over 100 percent.

H.10.5.4 Site Asset Ignition Potential

Wheatridge ignition potential is the due to two transformers, 40 turbines and associated pad mounted transformers.

H.10.5.5 Ignition Risk Mitigation Strategy

H.10.5.5.A Site Design Mitigation Measures

Ignition potential for Wheatridge's GSU and station service transformer is limited by their location within a switchyard, which is enclosed by a secure fence with gravel ground cover.

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[70] Schroeder, M. and Buck, C. (1970). *Fire weather: a guide for application of meteorological information to forest fire control operations*. USDA Forest Service, Agriculture Handbook 360.

Each wind turbine features a pad-mounted transformer installed at the tower base, with gravel surrounding each turbine base limiting ignition potential.

H.10.5.5.B Inspection and Correction

NextEra Resources operates the entire Wheatridge project including PGE's share. Pad-mounted transformers are inspected annually. NextEra does not perform DGA analysis on the pad-mounted transformers.

H.10.5.5.C Vegetation Management

Vegetation management practices are detailed in the Noxious Weed and Revegetation plan. The site is currently in the fifth year of the revegetation plan which calls for spraying pads, roads, the substation grounds and all disturbed areas from construction. A contractor does monthly spot spraying as needed throughout the site to keep weeds low.

H.11 Wildfire Risk Assessment for Generation Sites without Site Certificates

H.11.1 Beaver Generation Site

H.11.1.1 Site Profile

Located on the Columbia River in Clatskanie, Oregon, the Beaver Generation Station is a 570.4-megawatt facility featuring six gas turbines that operate in either simple cycle mode or combined cycle configuration with the steam turbine. The facility also houses Unit 8, a standalone simple cycle gas turbine with a 24.9-megawatt nameplate capacity.

The core operational area encompasses approximately 0.13 square miles, including the tank farm but excluding the water intake structure and its right of way. The surrounding terrain is characterized by flat topography consisting of wetlands, marshes, and agricultural pastureland.

H.11.1.2 Site Asset Ignition Potential

The Beaver Generation Site contains several assets with potential ignition capabilities, including switchgear and associated breakers, transformers, two overhead powerlines, and an oil tank farm.

The site features two overhead powerline systems:

- The Beaver-Port Westward 230 kV transmission line, which interconnects generation at the Port Westward switchyard and extends approximately 2,800 feet from the Beaver switchyard. The primary ignition risk stems from an approximately 1,000-foot section traversing vegetated areas.
- A 13.5 kV distribution line that runs from the plant along an access road adjacent to pastures and terminates at the water intake dock.

The site also maintains an oil tank farm currently undergoing decommissioning, with some tanks still containing residual fuel oil that presents an ignition risk.

H.11.1.3 Ignition Mitigation Strategy

Overhead powerlines undergo routine inspections and vegetation management to reduce ignition potential. Vegetation management practices include annual monitoring by the PGE foresters with issues being resolved as they are discovered. Asset inspection and correction activities are performed on the 13.5 kV lines including safety patrols every two years and detailed inspections every 10 years. The Beaver-Port Westward 230 v transmission line undergoes two air patrols annually, ground and infrared patrol every five years, and detailed inspection every 10 years.

Transformer, breaker, and switchgear ignition risks are mitigated through strategic design features:

- 200-foot minimum setbacks from the plant perimeter
- Generation Step-Up (GSU) transformers physically separated by blast walls
- Full oil containment systems
- Concrete pad installations with surrounding areas covered by gravel or asphalt
- Smaller transformers located within the plant protected by the plant's fire protection system
- Switchgear and breakers positioned over non-burnable surfaces

The oil tank farm's ignition risk is mitigated through:[71]

- Rotary turrets equipped on each tank to dispense Cobra foam
- Internal foam dispensers to spread foam across floating lids
- Ongoing unit conversions that will eliminate fuel oil as a generator source

The facility maintains a Fire Protection Policy[72] and Firefighting and Response[73] procedure detailing various fire extinguishing systems, including:

- Fire Protection Piping Distribution System
- Fire Water Booster Pumps
- Foam Generating System
- Steam Turbine Building Fire Protection System
- Lube Oil Room Halon system
- Fire Alarm System
- Steam Turbine Bearing Deluge System
- Transformer Deluge System

The facility's Fire Prevention Policy[74] outlines preventative measures for combustible material storage, vegetation management, open flame restrictions, clearances for temporary buildings, and flammable materials disposal. Most operational areas are covered by gravel or asphalt, with no contiguous vegetation connecting to wildland areas in proximity to the plant.

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[71] BVR-TRN-SD-0016 Section 3.2.3
[72] BVR-TRN-SD-0016
[73] BVR-00-EMR-EAP-0010
[74] BVR-SAF-PS-0005

H.11.2 East Side Hydroelectric Generation Sites

East Side Hydro encompasses the Pelton and Round Butte generation sites. This region is characterized by bitterbrush, Wyoming big sagebrush, and basin big sagebrush vegetation.[75] The facilities are primarily situated in lower elevation settings within the Deschutes River Canyon, near canyon rims, and adjacent to shrub-steppe environments. The surrounding landscape features grassland, agriculture, and Ponderosa pine forest, with western juniper encroaching into natural habitat areas. The terrain varies significantly with deep canyons, plateaus, and buttes.

The Eastside project is connected by a 12.5 kV primary circuit running from the Warm Springs Power Enterprise offices (adjacent to the Re-Regulation dam) south along the canyon crest to the Round Butte dam. PGE operates the Re-Regulation dam via this 12.5 kV line.

The entire site covers between approximately 2.4 square miles and 26.7 square miles[76], including the right of way for the 12.5 kV system. This larger area encompasses the surface area of impounded water and extensive adjacent land. Pelton Dam has an installed capacity of 54.9 megawatts, while Round Butte Dam has an installed capacity of 372.5 megawatts.[77]

[75] Historic Vegetation. Oregon GEOHub. Map of historical vegetation for the state of Oregon, created by merging digital data from multiple sources to allow comparison between historical and current vegetation/land cover types. Oregon GEOHub, State of Oregon. Accessed October 15, 2025.
[76] GIS map layer, PGE_Generation_Boundaries (June 24, 2025). The FERC License issued June 21, 2005, puts the project area at 3,503.74 acres (5.47 mi^2), P-2030-036
[77] 2024 FERC Form 1

H.11.2.1 Pelton

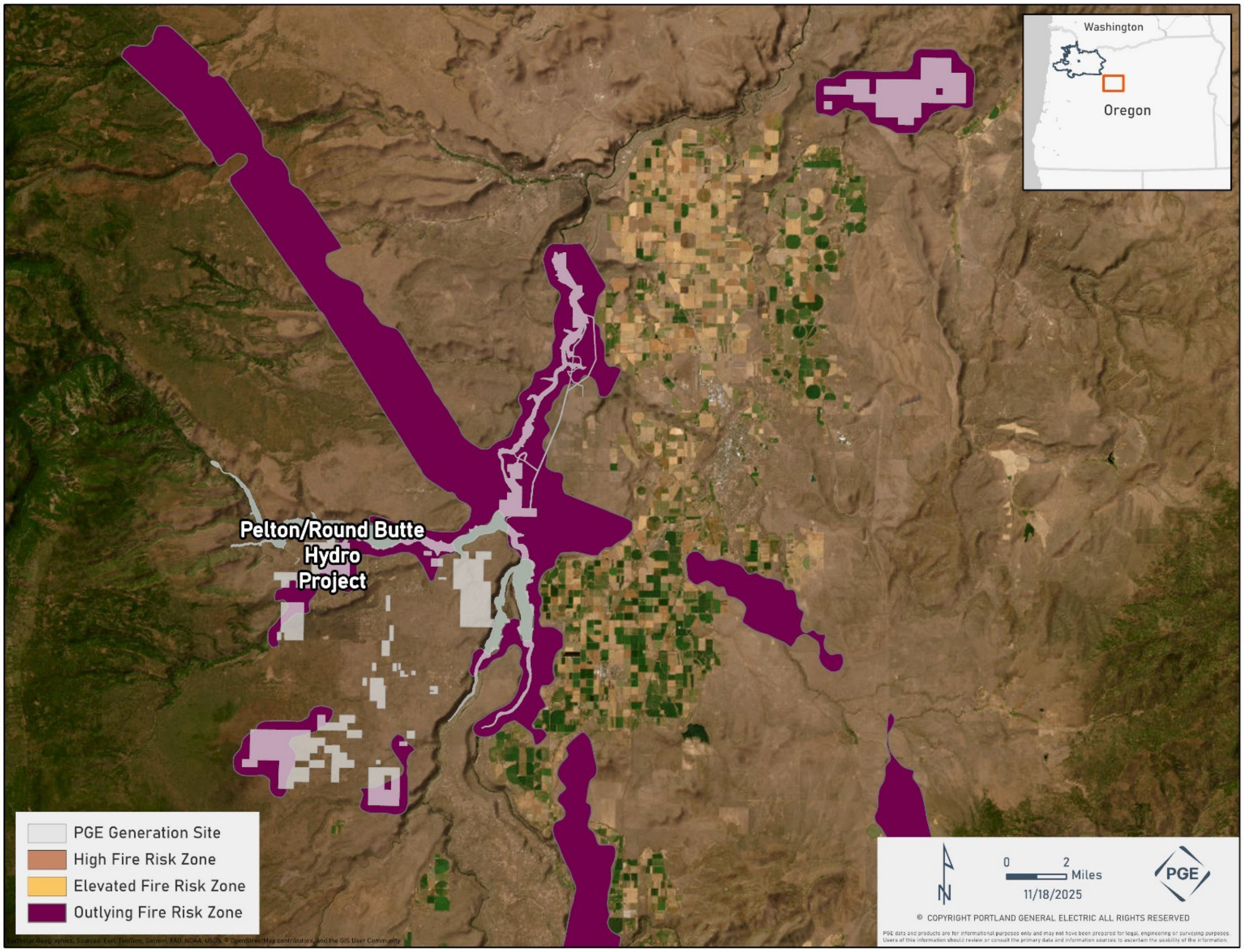

Figure H-11: Pelton and Round Butte Operating Areas

H.11.2.1.A Site Asset Ignition Potential

At Pelton, assets with ignition potential include overhead power lines and transformers.

Pelton operations are supported by a 12.5 kV line that runs parallel with PacifiCorp transmission and diverges to supply the Pelton dam and Pelton Park and Recreational Area south of the dam. The Pelton-Round Butte 12.5 kV system traverses vegetation in wildland areas.

H.11.2.1.B Ignition Mitigation Strategy

Transformer ignition risks are effectively mitigated through site setbacks and placement over non-combustible surfaces such as concrete and asphalt. Wildland vegetation is maintained at a safe distance from equipment and transformers.

The primary ignition risk in and adjacent to the Pelton site stems from overhead power lines traversing wildland vegetation. These transmission lines are maintained with safe clearances. Annual vegetation management reduces the likelihood of vegetation contacts and associated ignition risk.

Asset health for the 12.5 kV distribution lines is managed and operated by the generation plant. These lines receive safety patrols every two years and detailed inspections every 10 years. The 230 kV and 500 kV transmission lines receive two air patrols annually, an annual ignition prevention inspection, ground and infrared patrol every five years, and detailed inspection every 10 years. Issues identified during these inspections are promptly addressed to minimize ignition potential.

In 2024, PGE implemented a grid design and system hardening initiative to address risks presented by the 12.5 kV system.[78] This mitigation allows for EPSS during periods of elevated wildfire risk, which limits ignition potential through active sensor monitoring and rapid de-energization when a fault is detected. The transmission lines possess similar technology which actively monitors for faults and proactively de-energize lines when a fault is detected. During fire season, circuit breakers have increased sensitivity for fault detection and are set to prevent re-energization after fault detection.

Pelton transformers are positioned on the transformer deck between the powerhouse and dam structure, protected by blast walls and situated more than 50 feet from the nearest vegetation at the dam's foot. These transformers are monitored using Serveron and Eclipse systems to detect potential issues, with regular oil sampling to assess internal component health.

Plant transformers and switchgear are protected by concrete structures or installed on pads or gravel surfaces, with periodic monitoring and inspection. These physical assets present minimal ignition risk.

Eastside Hydro maintains a fire prevention plan outlining best practices to minimize fire risk around plant facilities.[79]

H.11.2.2 Round Butte

The Pelton-Round Butte 12.5 kV system in the Round Butte area supports plant operations office, dam operations, fish facilities, and the Round Butte overlook.

H.11.2.2.A Site Asset Ignition Potential

At Round Butte, assets with ignition potential include overhead power lines and transformers.

The plant operates an overhead 12.5 kV line traversing wildland vegetation contiguous to external site areas. Generated electricity is delivered to the Round Butte substation on the plateau above the canyon. PGE interconnections include the 230 kV Bethal-Round Butte line, 500 kV Grizzly-BPA-Round Butte, 230 kV Pelton Round-Butte, and 230 kV Redmond BPA-Round Butte line. These lines exist adjacent to vegetation contiguous to wildland areas.

Round Butte has three GSU transformers located at the dam's foot adjacent to the powerhouse, posing ignition risk should equipment damage or extreme conditions lead to failure.

H.11.2.2.B Ignition Mitigation Strategy

Ignition risks exist for overhead power lines at Round Butte due to their proximity to wildland vegetation. PGE implemented a grid design and system hardening initiative in 2024 to address the 12.5 kV system risk,[80] enabling EPSS during periods of elevated wildfire risk to limit ignition

[78] 2025_PGE_Wildfire_Mitigation_Plan_Update.pdf, 4.1.2.2
[79] *Plant Operations Key Control*, PRB-PRC-ADM-0701
[80] 2025_PGE_Wildfire_Mitigation_Plan_Update.pdf, 4.1.2.2

potential. These settings are activated during fire season and periods of heightened risk, increasing circuit breaker sensitivity for fault detection and preventing re-energization after fault detection. The transmission lines possess similar technology which actively monitors for faults and proactively de-energize lines when a fault is detected. During fire season, circuit breakers have increased sensitivity for fault detection and are set to prevent re-energization after fault detection.

Round Butte's three GSU transformers at the dam's foot are protected by concrete structures. The switchyard and plant equipment are properly isolated from surrounding vegetation by concrete structures and gravel or asphalt surfaces.

Pelton-Round Butte maintains a Fire Prevention Plan[81] applicable to the entire project, including standard practices for controlling ignition sources, placing temporary buildings, storing materials, managing vegetation, and disposing of flammable waste.

H.11.3 West Side Hydroelectric Generation Sites

PGE West Side Hydro consists of a collection of hydroelectric generation facilities located in the eastern portion of the service area. These facilities are generally situated in lower elevation landscapes along river valleys, surrounded by often steep, rugged terrain. The West Side Hydro projects and supporting infrastructure create a narrow plant footprint extending approximately 37 miles from Timothy Lake on the flanks of Mount Hood along the Clackamas River to the River Mill Hydro Project northwest of Estacada, Oregon.

The hydroelectric generation facilities include Timothy Lake Powerhouse, Harriet Powerhouse, Oak Grove Powerhouse and Frog Lake, North Fork Powerhouse, Faraday Powerhouse and Diversion Dam, River Mill Powerhouse, and T.W. Sullivan Powerhouse. The entire generation project footprint (excluding T.W. Sullivan on the Willamette River) is estimated to be 6.56 square miles, including Timothy Lake and impounded water behind each dam.[82]

These hydroelectric projects are connected by 115 kV transmission lines and a 12.5 kV station service distribution system supporting hydro and fish operations along the entire Clackamas River stretch.

The vegetation profile along the Clackamas River from Timothy Lake to Estacada begins with steep, rugged terrain covered by thick coniferous forest with old-growth Douglas fir, Englemann Spruce, and Mountain Hemlock extending to North Fork. Between North Fork and River Mill, the vegetation transitions to mixed-use lands with conifer stands and riparian corridors featuring deciduous trees and shrubs.

The T.W. Sullivan Generating Station is located on the west bank of the Willamette River, bounded on the northwest side by the Willamette Falls Lock at Oregon City, Oregon. Vegetation in this area consists of a mixture of grasses, shrubs, and scattered trees.

[81] *Fire Prevention Plan*, PRB-PRC-ADM-0701
[82] GIS map layer, PGE_Generation_Boundaries (June 24, 2025)

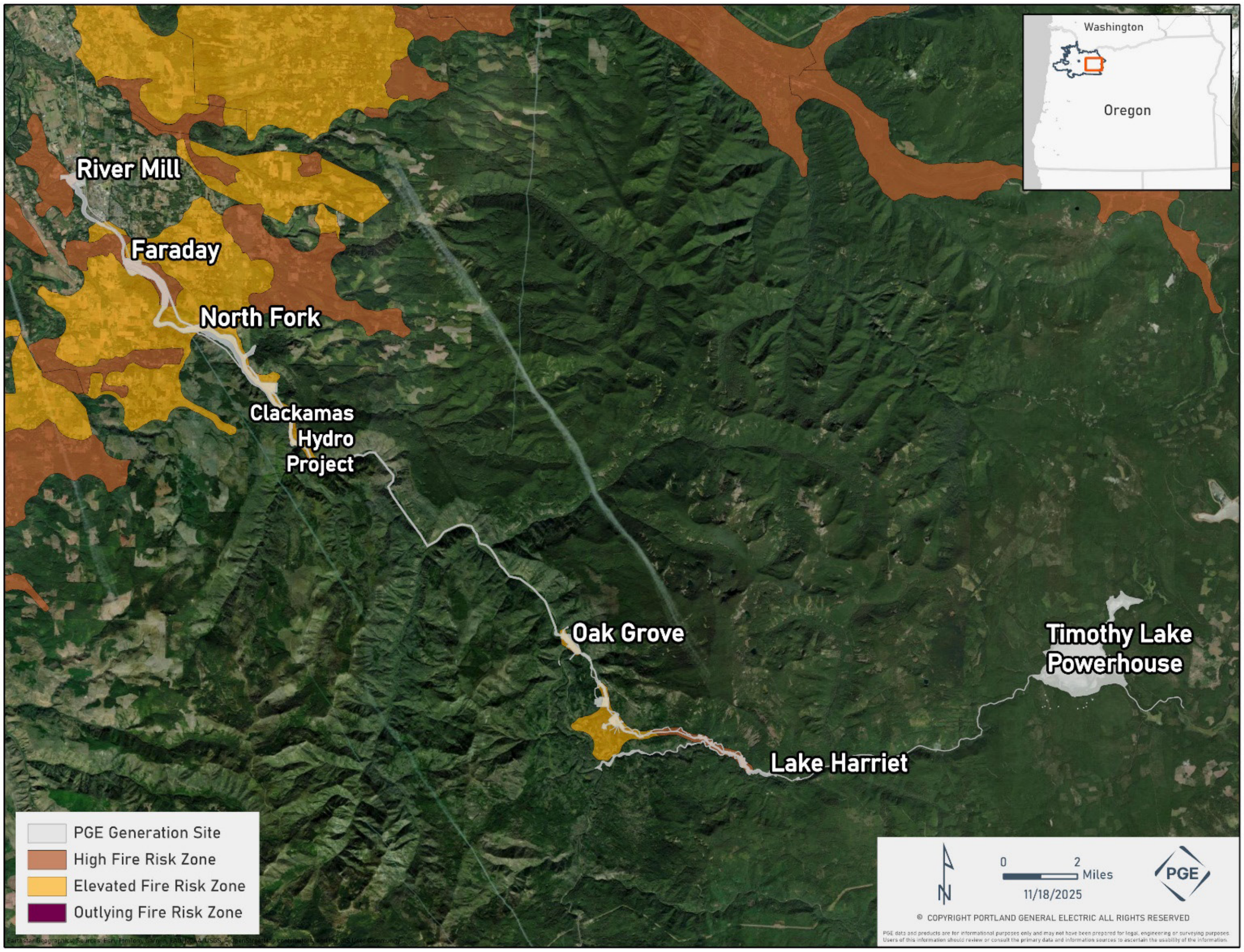

Figure H-12: West Side Hydro Operating Area

H.11.3.1 Timothy Lake Site Asset Ignition Potential

The Timothy Lake Powerhouse and Dam are served by underground circuits, presenting no ignition potential at this site from overhead power lines.

H.11.3.2 Harriet Powerhouse Site Asset Ignition Potential

The Harriet Powerhouse, Dam, and associated switchyard are served by Primary and Secondary overhead lines that present some ignition risk. The small substation contains a transformer and switching gear within a fenced perimeter. The ground is covered with gravel, limiting ignition potential.

H.11.3.3 Oak Grove Site Asset Ignition Potential

Oak Grove is in a deep canyon on the Clackamas River approximately 17 miles southeast of Estacada, Oregon. The landscape is dominated by Douglas Fir. The plant has two units with a total nameplate capacity of 51 megawatts.[83]

Transmission, Primary, and Secondary conduit present ignition risk at Oak Grove and Frog Lake. Additionally, smaller transformers supporting operational voltages present ignition risk. The large transformers at the Oak Grove site are in the switchyard on gravel surfaces set back from vegetation.

H.11.3.4 North Fork Hydro Project Site Asset Ignition Potential

The North Fork project consists of two turbines with a total installed capacity of 62.1 megawatts.[84]

Supporting infrastructure around the North Fork Hydro Project presents ignition risk from transmission and distribution overhead power lines and associated smaller transformers mounted on poles or concrete pads.

H.11.3.5 Faraday Powerhouse and Diversion Dam Site-Specific Asset Ignition Potential

Faraday has three turbines with a total installed capacity of 50 megawatts.[85]

Primary and secondary circuits, pole-mounted transformers, and pad-mounted transformers support operation of the Faraday dam. These assets are in densely forested areas.

H.11.3.6 River Mill Site Asset Ignition Potential

River Mill is located between Milo McIver State Park and the township of Estacada, Oregon. The plant has five turbines with a total installed capacity of 20.7 megawatts. Areas adjacent to the southwest of the plant are heavily wooded. The immediate area northeast of the site is trimmed to maintain vegetation clearances in the transmission right of way.

Ignition risks at this location include supporting Primary and Secondary conduit, small transformers, and Transmission from the substation.

H.11.3.7 T.W. Sullivan Site Asset Ignition Potential

The Sullivan Generation Station comprises 13 turbines with a total installed capacity of 16.9 megawatts.[86] The Sullivan project including Willamette Falls and old West Linn paper infrastructure is estimated to cover 0.16 square miles.[87] The Sullivan Hydroelectric Project is in a predominantly industrial setting at Willamette Falls on the Willamette River.

Ignition risk exists due to transmission and generation overhead power lines. Generation lead lines travel up an embankment with vegetation before entering the Sullivan substation. Vegetation on the riverside slopes above the project and upstream/downstream consists of Douglas fir, white oak, and early successional shrubby habitat with numerous invasive species, such as Himalayan blackberry

[83] 2024 FERC Form 1
[84] 2024 FERC Form 1
[85] 2024 FERC Form 1
[86] 2024 FERC Form 1
[87] GIS map layer, PGE_Generation_Boundaries (June 24, 2025)

and Scotch broom thickets. The area is bounded by Willamette Falls Drive and the Willamette River. If fire were to cross Willamette Falls Drive, I-205 provides an additional fire break.

H.11.3.8 West Side Hydro Ignition Mitigation Strategy

West Side Hydro has a PSPS Action Plan[88] to raise alert staff during shutoff events and enable resource planning. During PSPS events, the plant engages with multiple entities to support safe operation of parks, continued operation of fish facilities, and communication with FERC regarding dam safety.

All staff complete Observer and Wildfire training before the beginning of wildfire season. When Industrial Fire Protection Level (IFPL) 4 is declared, all work in vegetated areas is canceled.

West Side Hydro transformers are installed in yards at all locations, including T.W. Sullivan where the GSU is integrated into the Sullivan substation. Smaller transformers at Timothy and Harriet are located at the plant or switchgear building. All transformers are physically separated from surrounding equipment and feature oil containment systems. GSUs at all sites are situated on concrete pads with adjacent areas covered by gravel or asphalt. These non-combustible surfaces around assets limit ignition potential.

Vegetation in the immediate area of the Diversion dam transformer has been significantly cut back and ground vegetation treated to mitigate fire risk. The Faraday switchyard and associated transformers are within a fenced perimeter set back from surrounding vegetation, with the yard covered in gravel.

The 12.5 kV and 115 kV power lines exist in rights of way flanked by forested vegetation. Vegetation in these corridors is inspected and trimmed annually, and either every two or three years in non-HFRZ areas. Additional mitigation work in HFRZs includes removing hazard trees in poor health or dead condition, which lowers ignition risk.

These power lines receive regular patrols and inspections to identify wildfire risk or compliance issues. The 12.5 kV line in non-HFRZ areas receives a safety patrol every two years and detailed inspection every 10 years; in HFRZ areas, it receives annual ignition prevention inspection and detailed inspection every 10 years. The 115 kV line in HFRZ areas undergoes annual ignition prevention inspection, annual aerial or vehicle patrol, ground and infrared patrol every 10 years, and detailed inspection every 10 years; in non-HFRZ areas, it receives annual aerial or vehicle patrol, ground and infrared patrol every 10 years, and detailed inspection every 10 years. These activities mitigate ignition risks and reduce wildfire hazards.

PGE provides additional ignition protection by implementing EPSS at substation breakers. These settings reduce wildfire ignition risk by increasing circuit breaker sensitivity for fault detection and preventing re-energization after fault detection.

PGE has deployed PanoAI cameras providing coverage for most West Side Hydro generation areas. These cameras notify local fire agencies, potentially reducing response times and wildfire risk.

[88] See West Side Hydro PSPS Action Plan

PGE has implemented EPSS on power lines that proactively mitigate wildfire risk through improved fault detection and limited fault energy that could lead to ignition.

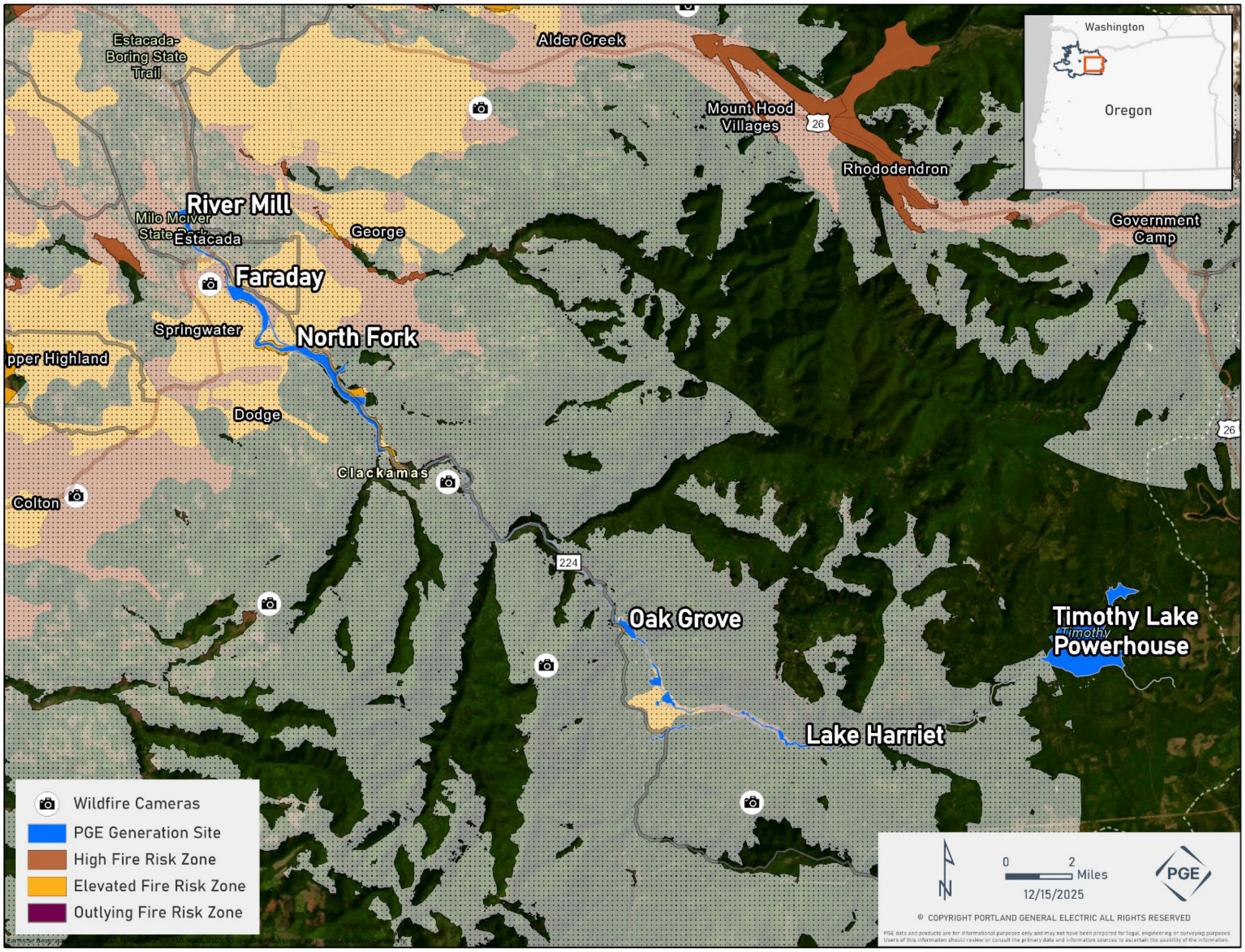

Figure H-13: West Side Hydro AI Camera Coverage

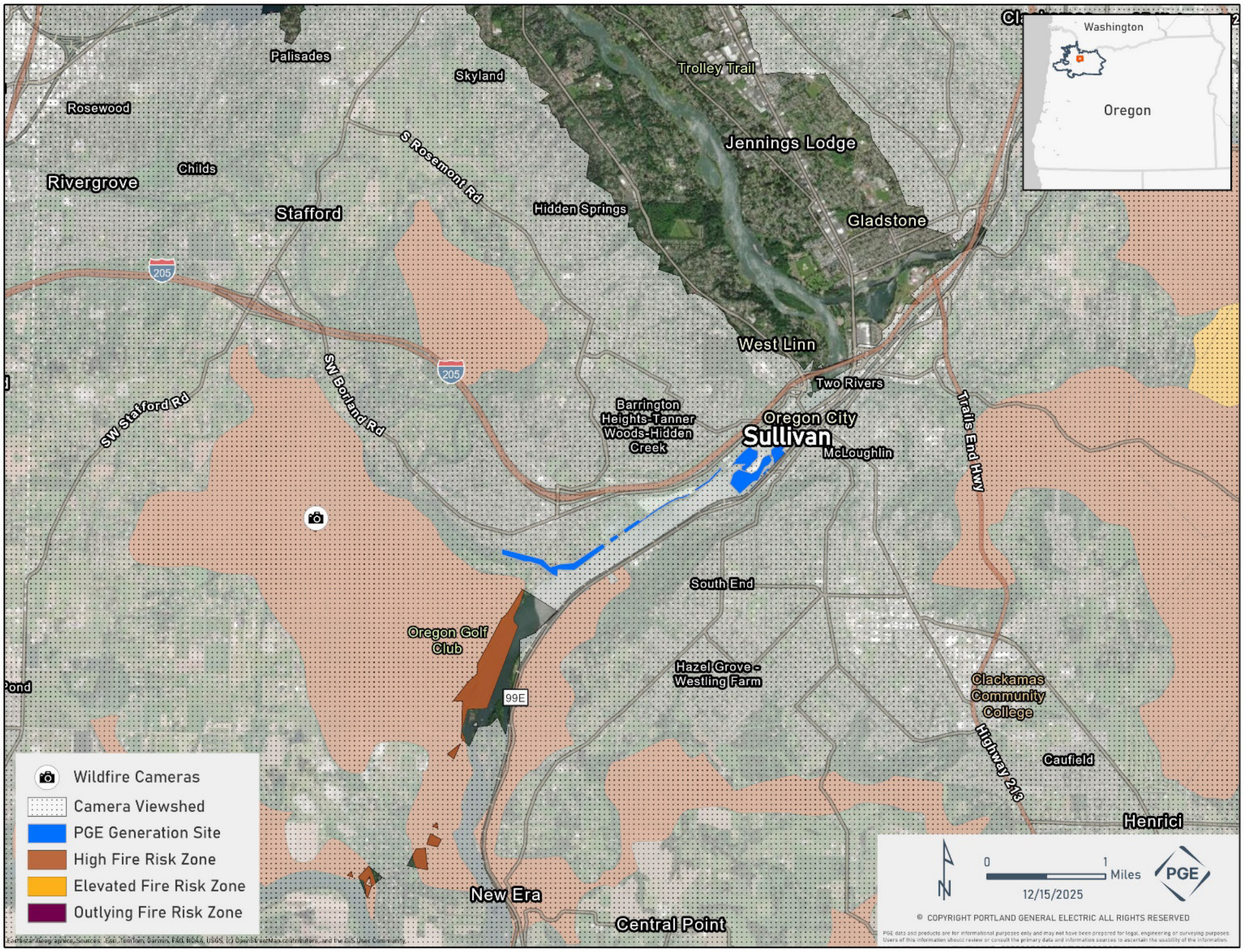

Figure H-14: AI Camera Coverage of Sullivan Hydro Project

Table H-15: PanoAI Camera with Viewsheds Covering Hydroelectric Facilities

West Side Hydro Site	PanoAI Camera Coverage
Timothy Lake Powerhouse	Oak Grove Butte
Harriet Powerhouse	Whale Head and Oak Grove Butte
Oak Grove and Frog Lake	Whale Head, Memaloose, and Oak Grove Butte
North Fork Hydro Project	Day Hill, Goat Mountain, Memaloose, Lenhart
Faraday Powerhouse and Diversion Dam	Day Hill, Goat Mountain, Memaloose, Lenhart
River Mill	Day Hill and Lenhart
T.W. Sullivan Plant	Pete's Mountain

H.12 Battery Energy Storage Systems and Solar Generation Facilities

Battery Energy Storage Systems (BESS) have become an important means of storing energy generated during low demand periods to support energy demand during high demand periods, during short-term drops in renewable generation, and to meet demands during sudden changes in supply. BESS sites are largely safe, with relatively few failures compared to the number in operation. There are a few well-documented cases of failures that led to ignitions and fires, notably a 300-megawatt array that failed in California in January 2025.[89]

PGE analyzed the annual likelihood of failure and ignition probability of batteries by leveraging "Insights from EPRI's Battery Energy Storage Systems Failure Incident Database."[90] The study notes a sharp decline in failure incidents, stating: "While recent fires afflicting some of these BESS have garnered significant media attention, the overall rate of incidents has sharply decreased,[91] as lessons learned from early failure incidents have been incorporated into new designs and best practices. Between 2018 and 2023, the global grid-scale BESS failure rate has dropped 97%."

As shown in Figure H-15 below, BESS failures by year from the Insights from EPRI's Battery Energy Storage Systems Failure Incident Database.

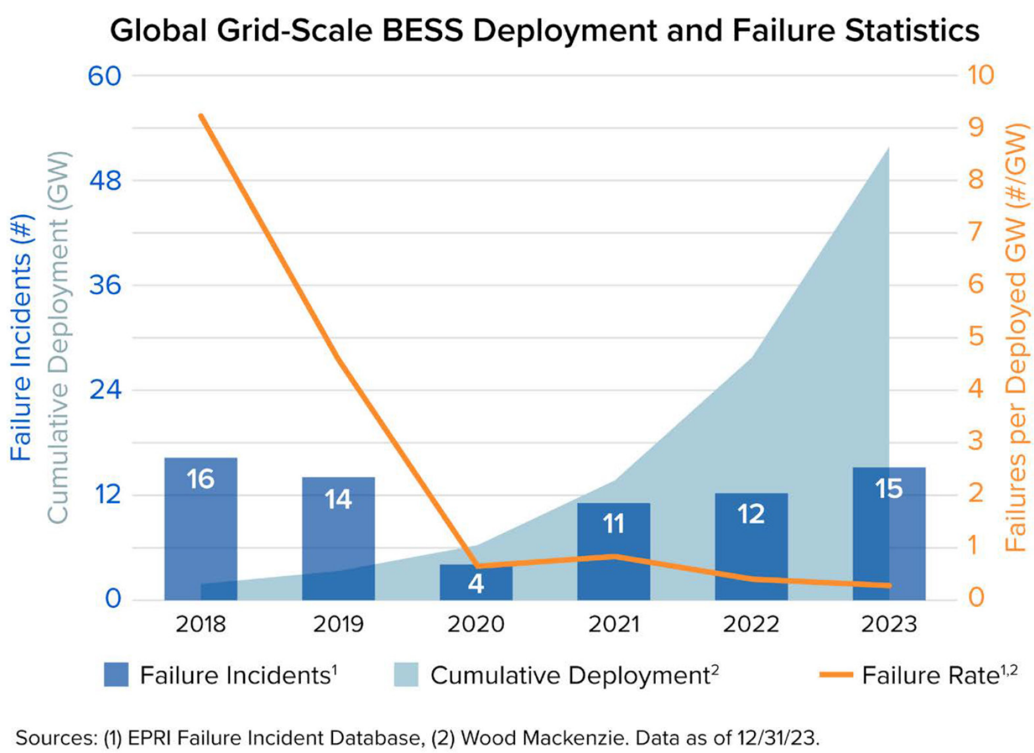

Figure H-15: Global Grid-Scale BESS Deployment and Failure Statistics

The batteries used at PGE's five BESS locations incorporate advancements in imminent failure detection. Historical battery failure rates as described in the EPRI study demonstrate that the potential for ignition failure exists. However, installation standards for these assets require them to be in buildings with fire suppression or contained yards with non-burnable surface material adjacent to the batteries, limiting the potential for self-propagating fire should failure occur.

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[89] U.S. Environmental Protection Agency. *Moss Landing Vistra Battery Fire*. EPA.
[90] Electric Power Research Institute. *EPRI Product 000000003002030360*. EPRI.
[91] Electric Power Research Institute. *EPRI Product 000000003002028411*. EPRI.

Additionally, these locations are all situated within favorable response and detection areas, further limiting fire growth potential.

PGE began investing in solar in 2009 (Solar Highway Demonstration in Tualatin) and, to date, has not experienced a wildfire ignition from its solar assets. This observation aligns with findings from the U.S. Department of Energy's "A Guide to Fire Safety with Solar Systems" that characterize the intrinsic ignition risk from properly installed photovoltaic systems as low. The guide notes that a photovoltaic system "spontaneously bursting into flames is an extremely rare occurrence" and that most structure fires originate from other electrical issues rather than the solar panel itself. Overall, utility-scale solar sites present a low wildfire ignition risk when designed, built, and maintained to code.

Table H-16: Site Statistics for BESS and Solar Sites Operated by PGE

BESS/Solar Site	Location	Type	Capacity (MWh)	Installation Year
Constable	Hillsboro, OR	Battery	75	2024
Coffee Creek	Wilsonville, OR	Battery	17	2024
Seaside	Portland, OR	Battery	200	2025
Sundial	Troutdale, OR	Battery	200	2025
Integrated Operations Center (IOC)	Tualatin, OR	Battery / Solar	2	2024
Daimler Truck North America	Salem, OR	Battery	0.75	2024
Camino del Sol Solar Facility (Baldock Solar)	near Wilsonville, OR	Solar	1.75	2012
Solar Highway Demonstration	near Tualatin, OR	Solar	0.104	2009
PPS Solar	Portland, OR	Solar	1.2	2015

H.12.1 Constable

H.12.1.1 Site Profile

Constable Bulk Electric Storage System is in Hillsboro, Oregon on the margins of an area with data centers and manufacturing. Open agricultural land dominates the north and western margins of the site. The plant has a nameplate capacity of 75-megawatts. The yard area covers 4 acres.[92] The site consists of 736 MC Cube batteries in 92 BESS Blocks and the adjacent substation.[93]

[92] BESS SharePoint site description.
[93] BESS SharePoint site description.

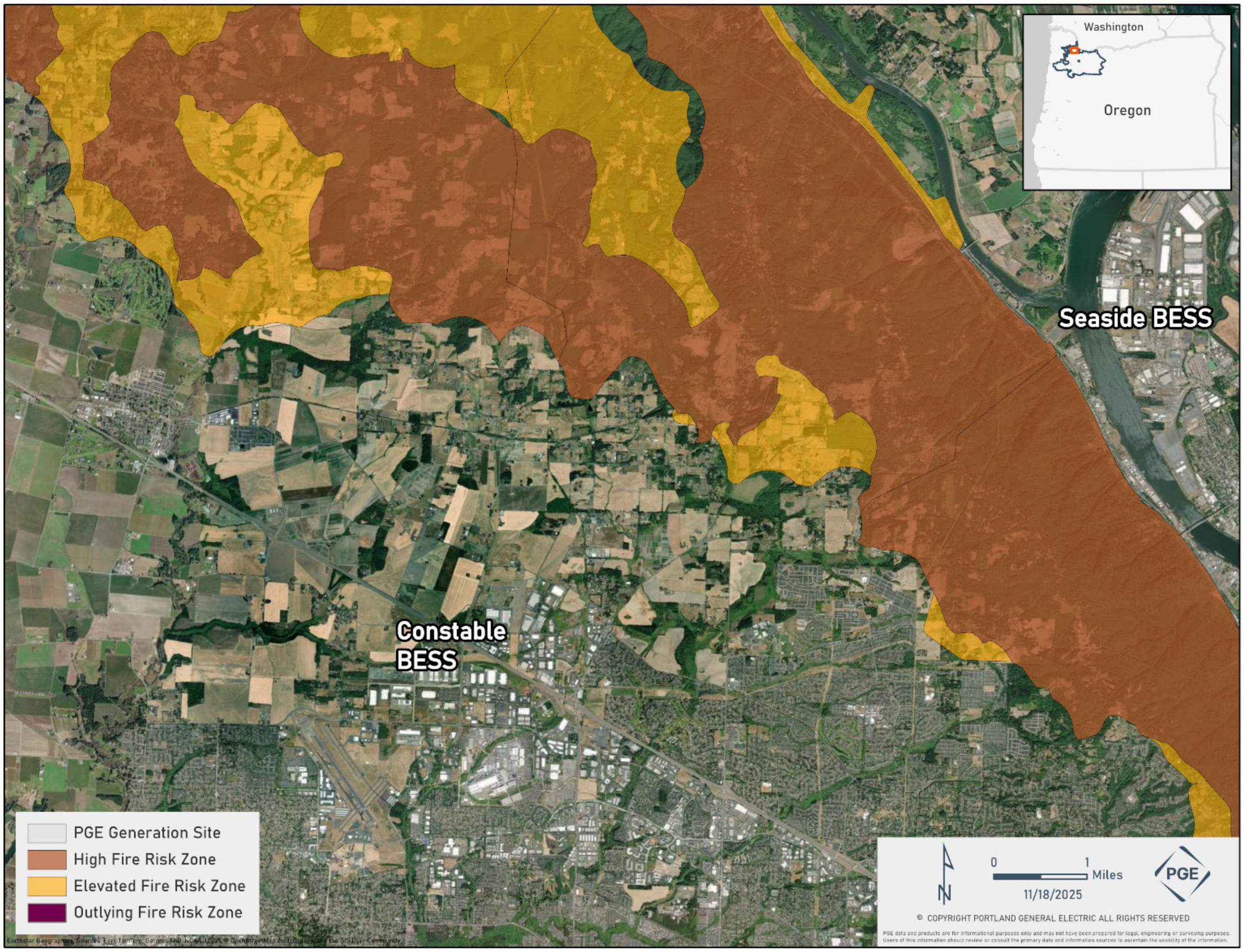

Figure H-16: Constable BESS Operating Area

H.12.1.2 Site Asset Ignition Potential

All BESS batteries are located within a perimeter fence on a non-burnable surface. There is some wildland vegetation to the north of the site approximately 50 feet from the nearest battery bank, although the areas surrounding the site are not identified as high wildfire risk.

H.12.1.3 Ignition Mitigation Strategy

Ignition risk is minimized through site design features and an active monitoring system. The Constable storage facility is equipped with smoke, gas, and heat sensors. The Bulk Energy Storage Systems group has an Emergency Action Plan that details how to respond to an ignition emergency. The site is surrounded by a perimeter fence, and the ground is covered with gravel. An additional outer perimeter of cleared land further decreases wildland fire potential.

H.12.2 Coffee Creek

H.12.2.1 Site Profile

Coffee Creek Bulk Electric Storage System is in Sherwood, Oregon on the margins of an area with mixed manufacturing, warehouse activity, and agricultural uses. The yard area is 1.29 acres. Six BESS power blocks provide 17-megawatt hours of nameplate capacity.

H.12.2.2 Site Asset Ignition Potential

The site consists of 132 Risen Golden Sigma Cabinets in six BESS Blocks and the associated substation. The area is characterized as a mix of agricultural land and industrial sites.[94] Wildland vegetation exists outside the site perimeter on all sides.

H.12.2.3 Ignition Mitigation Strategy

Ignition risk is mitigated through site and system design features, an active monitoring system, and a fire suppression system. The bulk electric storage system is sited in a gravel-covered yard within a protective fence. The site has a specific Emergency Action Plan.[95] PGE also commissioned a study to define hazards and mitigations.[96] The study evaluates the fire protection systems and details multiple failure modes and provides recommended mitigations for each.

Safety features at the site include smoke, gas, and heat sensors, a mechanical aerosol fire extinguisher, and a passive deflagration vent.

H.12.3 Seaside

H.12.3.1 Site Profile

This BESS site is in North Portland in an industrial area adjacent to the Willamette River. The installed capacity of the storage system is 200 megawatt-hours. The battery blocks are distributed over a site of 13.2 acres.

H.12.3.2 Site Asset Ignition Potential

The site consists of MC Cube 8+1 batteries in 252 BESS blocks with an associated substation. The site is in North Portland in a heavily industrialized area. While a narrow corridor of contiguous vegetation is located to the north of the site, the location has natural fire breaks due to the wetlands of Smith and Bybee Lakes to the east and the Willamette River to the west.

H.12.3.3 Ignition Mitigation Strategy

Ignition risk is minimized through site and system design features and an active monitoring system. PGE conducted a Hazard Mitigation Analysis[97] to identify risks and mitigating actions. The site is set back from surrounding vegetation, and the grounds are covered with gravel. Wildland ignition risk is extremely low. Safety features at the site include smoke, gas and heat sensors, and a powered exhaust vent.[98]

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[94] BESS SharePoint
[95] BESSEAPCoffeeCreekAppendix.pdf
[96] Hazard Mitigation Analysis - Coffee Creek.pdf
[97] Hazard Mitigation Analysis - Seaside.pdf
[98] BESS SharePoint

H.12.4 Integrated Operations Center (IOC)

H.12.4.1 Site Profile

This site is in Tualatin, Oregon. The site has a bulk electric storage system with a 2-megawatt hours installed capacity in two power blocks. The site also has a solar array installed above parking spaces and on the roof of the operations building. The site is located north of a sand and gravel extraction operation and is bounded on the north, east and west sides by commercial warehouse structures. All power to the site is underground.

H.12.4.2 Site Asset Ignition Potential

Both the solar array and BESS sites exist in areas with nearby wildland vegetation. The solar arrays are constructed over paved parking lots and on the roof of the building that are not adjacent to vegetation that is contiguous to wildland areas. The BESS batteries are within a contained area with high solid walls.

H.12.4.3 Ignition Mitigation Strategy

Ignition risk is minimized through site and system design features and fire suppression systems. All Battery Electric Storage Systems operated by PGE are subject to the group's Emergency Action Plan.[99] This plan details response to many types of emergencies including fire, fire suppression, and communications with emergency responders.

The solar and battery installations are on nonflammable surfaces and are equipped with fire suppression systems.

H.12.5 Daimler Truck North America

H.12.5.1 Site Profile

This BESS site is located on Swan Island in North Portland in area characterized by heavy industry and warehouse operations. The site has a small 0.75-megawatt hours capacity battery block.

H.12.5.2 Site Asset Ignition Potential

There is no vegetation near the site that is contiguous to wildland areas.

H.12.5.3 Ignition Mitigation Strategy

The site design and location minimize wildfire risk due to the presence of pavement and asphalt surfaces. The site has a fire suppression system.

H.12.6 Baldock Solar aka Camino del Sol Solar

H.12.6.1 Site Profile

The Baldock Solar site is located between agricultural fields and the French Prairie Safety Rest Area off Interstate 5. The 1.75-megawatt solar array sits on nearly seven acres of ODOT property. Service to the site is via underground conduit. The solar array is surrounded by a perimeter fence above grass fields. The parking area to the west of the site provides a firebreak however the other

[99] BESSEAP.pdf

quadrants of the facility are adjacent to treed areas in the rest stop or agricultural land. to the north of the site which could protect the treed area from ground fire.

H.12.6.2 Site Asset Ignition Potential

Ignitions from photovoltaic systems are extremely rare. Common causes are faulty components, overheating of components, weathering, and improper installations.[100] The site has vegetation that is contiguous to external wildland areas. A fire inside the perimeter could spread from the site to the adjacent properties.

H.12.6.3 Ignition Mitigation Strategy

Ignition risk at the site is mitigated by inspections and vegetation management. PGE mows the site periodically. The equipment is inspected 3–4 times a year. An in-place monitoring program allows early detection of hazardous conditions, rapid response to developing faults, and sustained reduction of fire risk across substation assets. The program integrates thermal imaging surveys looking for overheating on electrical connection, transformer oil and gas monitoring, visual equipment inspections, asset health indexing, and alarm management. For transformers automatic tripping on rapid pressure rise, arc-flash detection, or extreme temperature alarms will take place.

H.12.7 Solar Highway Demonstration Project

H.12.7.1 Site Profile

PGE maintains and operates a small solar installation at the junction of interstate highway 5 and interstate highway 205 near Wilsonville, Oregon with a capacity of 104-kilowatt hours.[101] The site is located inside the traffic interchange on grass and adjacent to a grove of trees. The roadworks surrounding the site form a fire break to the surrounding area.

H.12.7.2 Site Asset Ignition Potential

Ignitions from photovoltaic systems are extremely rare. Common causes are faulty components, overheating of components, weathering, and improper installations. The site has wildland vegetation in and on the periphery, although it is bounded by highways on all sides.

H.12.7.3 Ignition Mitigation Strategy

Ignition risk at the site is low due to professional installations, inspections, vegetation management, and a fire break due to nearby highways. PGE mows the site periodically. The equipment is inspected 3–4 times a year. The last complete inspection of all the panels was in 2021.

H.12.8 Portland Public Schools Solar

H.12.8.1 Site Profile

Portland Public Schools and PGE partnered in 2015 to place solar panels on the roof tops of six schools in the school district for a total capacity of 1.2 megawatts.

[100] Assessing Fire Risks in Photovoltaic Systems and Developing Safety Concepts for Risk Minimization.
[101] Via an agreement (51893-0) between Sunway 1, LLC and ODOT; expiry on 1/1/2029

H.12.8.2 Site Asset Ignition Potential

Ignitions from photovoltaic systems are extremely rare. Common causes are faulty components, overheating of components, weathering, and improper installations. Ignition potential at this site is low and there is no adjacent vegetation or contiguous wildland in the area.

H.12.8.3 Ignition Mitigation Strategy

PGE inspects the equipment at least twice a year. There is no vegetation in proximity to the solar panels and therefore wildfire risk is very low.

Appendix I PSPS Public Safety Partner Exercise Actions

The following improvement opportunities include recommendations for actions from the PSPS Tabletop after action review from the Public Safety Partners 2025 Spring Summit in Table I-1 and the Emergency Operations Center (EOC), Notification Execution Plan (NEP), and Operations Exercises in Table I-2. As appropriate, these actions have been incorporated throughout the 2026–2028 WMP.

Table I-1: Public Safety Partners Spring Summit Opportunities for Improvement

Opportunities for Improvement	
Public Information	PGE PIOs have processes for communicating with customers and partners. Utilize daily coordination call to share concerns or challenges with any hard to-reach areas and vulnerable populations to assist with as much outreach as possible. During an incident, PGE communicates with other utility partners and will continue to align as much as possible to reduce any confusion. This may be situation and location dependent, but PGE PIOs and Emergency Manager will utilize daily calls or email updates to provide current information to partners on PSPS events.
Mass Care Services	During a PSPS event, coordinate and communicate with partners about Community Resource Center locations and services. During the daily call with partners, share status information and invite the Customer Service Officer to participate when available.
Operational Coordination	Have BCEM review cadence and clarify times and purpose of partner meetings to support PGE response and PSP needs. When unable to move meeting times, partners can connect with Emergency Manager during an incident to follow-up on missed items and receive updates. During an incident, the PGE Emergency Manager will work to gather outage information to provide to PSP. Restoration times can depend on the situation and whether it's safe for PGE crews to get into area and begin assessment or recovery. Updates will include information such as whether there are any additional PSPS areas identified or other outages and updates on restoration. PGE will continue to develop a portal for external partners.
Planning, Training & Exercise	In future PSPS exercises with partners, begin with a Seminar Exercise to provide updates and information but move on to a more advanced exercise that includes scenarios and additional ways to validate and test across multiple jurisdictions.

Table I-2: EOC, NEP and Operations Exercises Opportunities for Improvement

Opportunities for Improvement	
Assessment Process	Have the Wildfire Mitigation group review the PAT process, along with other assessment tools, to drive effectiveness and coordination with attendees and overlap. With the current wildfire season underway, recommend waiting until fire season declared over.
Operational Coordination	BCEM and Logistics Section develop resource request process and include steps for when a request is submitted, approve and not able to be filled. ▪ BCEM and Logistics Section review Staging Plan and identify areas that can be utilized for staging sites. This includes coordinating with internal and external partners for prior approval and then working with Operations to verify sites will work. ▪ Wildfire Mitigation needs to develop and share documentation with Operations that has preliminary information for fire risk zones as soon as possible.
Public Information	When a PSPS event is initiated outside of a HFRZ, PIOs need to be notified quickly to develop messaging.

Opportunities for Improvement	
	▪ PIOs have messaging templates and currently work with partners for outreach with as many groups as possible. Continue process and notify IC of any challenges with outreach to specific populations. ▪ During a PSPS event, when another area has been added, PIOs makes messaging available to Command and General Staff to push out to teams and make sure they are tracking additional zones or areas.
Situational Assessment	BCEM, Incident Commander and Operations Section Chief coordinate and document processes for immediate field actions that don't require approval but still need IMT to be aware and supporting. ▪ Command and General Staff are ensuring the Incident Action Plan (IAP), which has an ICS 230 Daily Meeting Schedule, is being shared with all necessary staff involved in incident. ▪ Incident Commanders, BCEM and executive leadership to clearly define authority level for Incident Commander and provide training to staff for IMT staff.
Planning, Training & Exercise	▪ Look at updating plans earlier in order to provide time for training staff on updates and be able to exercise at the beginning of spring. ▪ Ahead of future wildfire seasons, look to develop different kinds of exercises that can be used to validate and challenge more. ▪ BCEM to work with sections to review current level of staff and support further increasing IMT staff as available. ▪ BCEM will work to provide training to IMT staff on IMT Hub, forms and tools, where they are saved and how they are utilized.
Documentation	▪ BCEM and Planning Section Chief to emphasize utilization of IMT Hub and folders where documents should be saved. This includes the ICS 214 Activity Log, ICS 233 Open Action Tracker and PSPS Hub that has the Notification Execution Plan (NEP) Tracker. ▪ BCEM to work with Planning Section to develop tracker for IMT members to share concerns to items to be addressed. BCEM will follow up with items on the tracker after the incident to review and take any necessary action. ▪ During a PSPS activation, the IAP will include an ICS 205 Incident Radio Communication Plan, which has radio information and other communication methods to utilize as needed.

Appendix J PGE Ignition Prevention Standards

The following table includes the conditions identified during Ignition Prevention Inspections requiring correction.

Table J-1: Ignition Prevention Conditions

Number	Ignition Prevention Conditions
1	Permanently out of service or abandoned electrical equipment
2	Blocked access roads to supporting structures
3	Abandoned/Coiled Service Wire Hanging from Pole
4	Broken Secondary Lashing Wire
5	Service/Primary Neutral Touching Guy, Transformer or Pole
6	Damaged, Broken or Frayed Power Conductor
7	Broken/Cut/Missing Ground
8	Broken Communication Mainline Lashing Wire
9	Broken Power Insulator or Tie Wire
10	Slack, Corroded, or Broken Power Guy
11	Anchor Pulled Loose / Not Holding
12	Crossarm Brace Damaged / Broken, Missing, or Loose
13	Damaged/Broken/Corroded/Loose Distribution Hardware and Connectors
14	Equipment Leaking Oil–Transformer, Regulator, etc.
15	Damaged/Broken Cutout, Lighting Arrestor, or Similar Pole-mounted Equipment
16	Damper Damaged, Slipped, or Missing
17	Service or conductor attached to tree
18	Midspan Horizontal Clearance to Unattached Pole per NESC requirements
19	Missing Cotter Key, Insulator Nut, or Other Line Hardware
20	Power hardware, including transmission, not properly grounded/bonded
21	Midspan Vertical (pole-to-pole)
22	Midspan Horizontal Primary (Conductor Close to Building or Sign per NESC Requirements)
23	Midspan Vertical
24	Low Transmission or Primary Conductor Close to Neutral, Secondary or Communications or Other Equipment/Conductors
25	Midspan Vertical–Power Over Drivable Surface
26	Midspan Vertical–Power over Driveway or Pedestrian Surface
27	Midspan Vertical–Communications over Drivable Surface
28	Overloaded Pole
29	Damaged or decayed pole
30	Severely leaning or washed-out pole

Number	Ignition Prevention Conditions
31	Vegetation: hazard trees, limbs laying on conductor, impaired clearances to vegetation, tree limbs burning or burned in
32	Crossarm Damaged/Broken
33	Automatic hardware in reduced tension spans

Appendix K PGE Mitigation Effectiveness

This appendix provides mitigation effectiveness details for Ignition Risk Groupings associated with Mitigations evaluated in the 2025 RSE workbook submittal.

Table K-1: GDSH – Undergrounding

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
Contamination[1]	99%	Baseline assumption	Y	Y
Equipment Deterioration/Failure	99%	Baseline assumption	Y	Y
Equipment Error (failure operated unexpectedly)	99%	Baseline assumption	Y	Y
Equipment Environmental (failure failed to operate as designed)	99%	Bas line assumption	Y	Y
Equipment Other	99%	Baseline assumption	Y	Y
Lightning	99%	Bas line assumption	Y	Y
Public Contact	90%	PGE subject matter experts lowered from baseline due to risk of dig-ins	N	Y
Vegetation	99%	Baseline assumption.	Y	Y
Wildlife Contact[1]	99%	Baseline assumption.	Y	Y
Wire-to-wire contact	99%	Baseline assumption	Y	Y
Other[2]	90%		N	Y
Unknown[2]	90%		N	Y

Notes:
1. Aligned contamination and wildlife assumptions due to contamination frequently related to animals.
2. Assumed the lowest effectiveness value for the corresponding mitigation.

Baseline Assumption: PGE subject matter experts believe effectiveness of undergrounding mitigates 99% of ignition risk.

Sources:	SDG&E Efficacy Studies Documentation Joint IOU CA-Grid-Hardening-Joint Studies Portland General Electric subject matter experts
Basis:	Per discussions with peer IOUs and review of regulatory filings, effectiveness of undergrounding is approximately 99% for majority of the risk drivers. The baseline for this work leveraged California investor-owned utilities: PG&E estimated the effectiveness of ignition risk of primary underground is 98%. SDGE conducted a study from 2019-2024 reviewing their strategic undergrounding and found it be to 99% effectiveness at mitigating distribution ignitions
Duration for which effectiveness is assumed to be applied:	65 years
Effectiveness variance over life of measure:	Decreases: Effectiveness of the mitigation decreases as an asset ages resulting in fault and outage risk increases. Constant: Effectiveness of moving from overhead conductor to underground service is assumed to have a constant mitigation in ignition risk.
Expected life of the measure:	65 years

Table K-2: GDSH – Tree Wire Covered Conductor (not all phases on legacy arms)

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
Contamination[1]	60%	Baseline assumption	Y	N
Equipment Deterioration/Failure	60%	Baseline assumption	Y	Y
Equipment Error (failure operated unexpectedly)	60%	Baseline assumption	Y	Y
Equipment Environmental (failure failed to operate as designed)	60%	Baseline assumption	Y	N

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
Equipment Other	60%	Baseline assumption	Y	Y
Lightning	10%	PGE subject matter experts lowered efficacy from baseline due to limited data. Assumed covered conductor would provide some lightning risk mitigation due to conductor being insulated	N	N
Public Contact	15%	PGE subject matter experts lowered efficacy from baseline due to limited data. Assumed covered conductor would provide some public contact risk mitigation due to stronger materials needed for covered conductor installation and ability to withstand collision	N	N
Vegetation	60%	Baseline assumption	Y	Y
Wildlife Contact[1]	60%	Baseline assumption	Y	N
Wire-to-wire contact	95%	PGE subject matter experts increased efficacy from baseline. Assumed one of the major intents of covered conductor is to prevent wire-to-wire contact	N	N
Other[2]	10%		N	N
Unknown[2]	10%		N	N

Notes:

1. Aligned contamination and wildlife assumptions due to contamination frequently related to animals.

2. Assumed the lowest effectiveness value for the corresponding mitigation.

Baseline assumption:	PGE subject matter experts believe effectiveness of covered conductor mitigates 60% of ignition risk.
Sources:	SDG&E Efficacy Studies Documentation Joint IOU CA-Grid-Hardening-Joint Studies Portland General Electric subject matter experts
Basis:	Per discussions with peer IOUs and review of regulatory filings, effectiveness of covered conductor ranges from 44%–67% from the various California investor-owned utilities
Duration for which effectiveness is assumed to be applied	60 years
Effectiveness variance over life of measure:	Decreases: Effectiveness of the mitigation decreases as an asset ages resulting in degradation of the insulating materials.
Expected life of the measure:	60 years

Table K-3: GDSH - Tree Wire Covered Conductor (on legacy arms)

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
Contamination[1]	79%	Baseline	Unknown	Y
Equipment Deterioration/Failure	70%	Baseline	Unknown	Y
Equipment Error (failure operated unexpectedly)	60%	Baseline	Unknown	Y
Equipment Environmental (failure failed to operate as designed)	38%	Baseline	Unknown	Y
Equipment Other	69%	Baseline	Unknown	Y
Lightning	50%	Baseline	Unknown	Y
Public Contact	73%	Baseline	Unknown	Y
Vegetation	67%	Baseline	Unknown	Y
Wildlife Contact[1]	74%	Baseline	Unknown	Y
Wire-to-wire contact	85%	Baseline	Unknown	Y
Other[2]	60%	Baseline	Unknown	Y
Unknown[2]	60%	Baseline	Unknown	Y

Notes:
1. Aligned contamination and wildlife assumptions due to contamination frequently related to animals.
2. Assumed the lowest effectiveness value for the corresponding mitigation.

Baseline assumption:	General Utility Effectiveness values from OPUC RSE Workbook
Sources:	OPUC RSE Workbook
Basis:	PGE does not currently have mitigation efficacy for covered conductor on legacy arms as this is not a standard mitigation for PGE. PGE has included the efficacy rates provided by the OPUC within the RSE workbook.
Duration for which effectiveness is assumed to be applied:	55 years
Effectiveness variance over life of measure:	Decreases: Effectiveness of the mitigation decreases as an asset ages, resulting in degradation of the insulating materials.
Expected life of the measure:	55 years

Table K-4: GDSH – Spacer Cable Covered Conductor

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
Contamination[1]	84%	Baseline	Unknown	Y
Equipment Deterioration/Failure	75%	Baseline	Unknown	Y
Equipment Error (failure operated unexpectedly)	63%	Baseline	Unknown	Y
Equipment Environmental (failure failed to operate as designed)	55%	Baseline	Unknown	Y
Equipment Other	80%	Baseline	Unknown	Y
Lightning	48%	Baseline	Unknown	Y
Public Contact	78%	Baseline	Unknown	Y
Vegetation	77%	Baseline	Unknown	Y
Wildlife Contact[1]	81%	Baseline	Unknown	Y
Wire-to-wire contact	86%	Baseline	Unknown	Y
Other[2]	70%	Baseline	Unknown	Y
Unknown[2]	70%	Baseline	Unknown	Y

Notes:
1. Aligned contamination and wildlife assumptions due to contamination frequently related to animals.
2. Assumed the lowest effectiveness value for the corresponding mitigation.

Baseline assumption:	General Utility Effectiveness values from OPUC RSE Workbook

Sources:	OPUC RSE Workbook
Basis:	PGE does not currently have mitigation efficacy for spacer cable as this is not a standard mitigation for PGE. PGE will be conducting a pilot on spacer cable to determine efficacy rates. PGE has included the efficacy rates provided by the OPUC within the RSE workbook
Duration for which effectiveness is assumed to be applied:	55 years
Effectiveness variance over life of measure:	Decreases: Effectiveness of the mitigation decreases as an asset ages resulting in degradation of the insulating materials.
Expected life of the measure:	55 years

Table K-5: GDSH – Installation of System Automation Equipment (non-field resources)

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
Contamination[1]	16%	Baseline	Y	N
Equipment Deterioration/Failure	16%	Baseline	Y	N
Equipment Error (failure operated unexpectedly)	16%	Baseline	Y	N
Equipment Environmental (failure failed to operate as designed)	16%	Baseline	Y	N
Equipment Other	16%	Baseline	Y	N
Lightning	16%	Baseline	Y	N
Public Contact	16%	Baseline	Y	N
Vegetation	16%	Baseline	Y	N
Wildlife Contact[1]	16%	Baseline	Y	N
Wire-to-wire contact	16%	Baseline	Y	N
Other[2]	16%	Baseline	Y	N
Unknown[2]	16%	Baseline	Y	N

Notes:
1. Aligned contamination and wildlife assumptions due to contamination frequently related to animals.
2. Assumed the lowest effectiveness value for the corresponding mitigation.

Baseline assumption:	PGE subject matter experts believe installation of system automation equipment (non-field resources) has an effectiveness of 16% on all risk drivers due to efficacy is related to trip speed irrespective of what caused the fault.

Sources:	2026-2028 WMP for SDGE Joint IOU CA-Grid-Hardening-Joint Studies Portland General Electric subject matter experts
Basis:	PGE completed a business case in Q2 2025 evaluating the effectiveness of Enhanced Powerline Safety Settings (EPSS). Key findings include: ▪ Base reduction: 20% estimated ignition probability reduction in protected sections with EPSS enabled ▪ Adjusted reduction: 16% annual ignition reduction (20% × 78%) – 78% represents the portion of PUC-reportable ignitions occurring during fire season (June-October) based on 4-year historical data. – The 20% reduction estimate was derived from peer utility data: ▪ SDGE: 3% ignition reduction (from 2026-2028 Wildfire Mitigation Plan) ▪ SCE: 38% ignition reduction (from 2026-2028 Wildfire Mitigation Plan) ▪ PG&E's 70% efficacy rate was excluded due to PGE's protection experts' concerns about differences in distribution system configuration that would make such high efficacy unattainable for PGE.
Duration for which effectiveness is assumed to be applied:	Seasonal
Effectiveness variance over life of measure:	None
Expected life of the measure	Seasonal

Table K-6: GOP – Equipment Settings and Grid Response (requires field resources)

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
Contamination[1]	16%	Baseline	Y	N
Equipment Deterioration/Failure	16%	Baseline	Y	N
Equipment Error (failure operated unexpectedly)	16%	Baseline	Y	N
Equipment Environmental (failure failed to operate as designed)	16%	Baseline	Y	N
Equipment Other	16%	Baseline	Y	N
Lightning	16%	Baseline	Y	N

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
Public Contact	16%	Baseline	Y	N
Vegetation	16%	Baseline	Y	N
Wildlife Contact[1]	16%	Baseline	Y	N
Wire-to-wire contact	16%	Baseline	Y	N
Other[2]	16%	Baseline	Y	N
Unknown[2]	16%	Baseline	Y	N

Notes:
1. Aligned contamination and wildlife assumptions due to contamination frequently related to animals.
2. Assumed the lowest effectiveness value for the corresponding mitigation.

Baseline assumption: PGE subject matter experts believe equipment settings and grid response has an effectiveness of 16% on all risk drivers due to efficacy is related to trip speed irrespective of what caused the fault.

Sources:
2026-2028 WMP for SDGE
Joint IOU CA-Grid-Hardening-Joint Studies
Portland General Electric subject matter experts

Basis: PGE completed a business case in Q2 2025 evaluating the effectiveness of Enhanced Powerline Safety Settings (EPSS). Key findings include:

- Base reduction: 20% estimated ignition probability reduction in protected sections with EPSS enabled
- Adjusted reduction: 16% annual ignition reduction (20% × 78%)
  - 78% represents the portion of PUC-reportable ignitions occurring during fire season (June-October) based on 4-year historical data.
  - The 20% reduction estimate was derived from peer utility data:
    - SDGE: 3% ignition reduction (from 2026–2028 Wildfire Mitigation Plan)
    - SCE: 38% ignition reduction (from 2026–2028 Wildfire Mitigation Plan)

PG&E's 70% efficacy rate was excluded due to PGE's protection experts' concerns about differences in distribution system configuration that would make such high efficacy unattainable for PGE.

Duration for which effectiveness is assumed to be applied: N/A

Effectiveness variance over life of measure: N/A

Expected life of the measure: N/A

Table K-7: IC – Inspect/Correct

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
Contamination[1]	17%	PGE subject matter experts increased efficacy from baseline. Assumed inspections would lead to animal mitigation corrections. PGE subject matter experts believes animal guards mitigate 17% of wildlife contact	N	N
Equipment Deterioration/Failure	15%	Baseline	N	N
Equipment Error (failure operated unexpectedly)	15%	Baseline	N	N
Equipment Environmental (failure failed to operate as designed)	15%	Baseline	N	N
Equipment Other	15%	Baseline	N	N
Lightning	1%	PGE subject matter experts lowered efficacy from baseline due to lightning risk unlikely to be mitigated by inspections	N	Y
Public Contact	5%	PGE subject matter experts lowered efficacy from baseline due to public contact risk unlikely to be materially impacted by inspection; however, assumed benefit for identification	N	Y

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
		& correction of clearance violations that could result in an ignition		
Vegetation	30%	PGE subject matter experts increased efficacy from baseline due to vegetation risk would be identified and mitigated from inspections. Baseline assumption is vegetation management mitigates 30% of vegetation risk	N	N
Wildlife Contact[1]	17%	PGE subject matter experts increased efficacy from baseline. Assumed inspections would lead to correction animal mitigation. PGE subject matter experts believes animal guards mitigate 17% of wildlife contact	N	N
Wire-to-wire contact	1%	PGE subject matter experts lowered efficacy from baseline due to wire-to-wire contact risk unlikely to be mitigated by inspections	N	Y
Other[2]	1%		N	N
Unknown[2]	1%		N	N

Notes:

1. Aligned contamination and wildlife assumptions due to contamination frequently related to animals.
2. Assumed the lowest effectiveness value for the corresponding mitigation.

Baseline assumption:	PGE subject matter experts inspection/correction mitigates 15% of ignition risk
Sources:	Portland General Electric subject matter experts
Basis:	The effectiveness of inspection depends on the time since the last inspection was performed along with the age and failure and ignition likelihood characteristics of the component. A typical inspection is 15% effective at reducing ignition risk.
Duration for which effectiveness is assumed to be applied:	1 year
Effectiveness variance over life of measure:	Decreases: The effectiveness of inspection decreases since time of the last inspection.
Expected life of the measure:	1 year

Table K-8: VM – Vegetation Management

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
Contamination[1]	15%	PGE subject matter experts lowered efficacy from baseline; however assumed some benefit due to less vegetation lowers likelihood of wildlife and contamination risk.	N	N
Equipment Deterioration/Failure	1%	PGE subject matter experts lowered efficacy from baseline due to equipment deterioration/failure risk unlikely to be mitigated by vegetation management	N	N
Equipment Error (failure operated unexpectedly)	1%	PGE subject matter experts lowered efficacy from baseline due to equipment error risk unlikely to be mitigated	N	N

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
		by vegetation management		
Equipment Environmental (failure failed to operate as designed)	1%	PGE subject matter experts lowered efficacy from baseline due to equipment environmental risk unlikely to be mitigated by vegetation management	N	N
Equipment Other	1%	PGE subject matter experts lowered efficacy from baseline due to equipment other risk unlikely to be mitigated by vegetation management	N	N
Lightning	1%	PGE subject matter experts lowered efficacy from baseline due to lightning risk unlikely to be mitigated by vegetation management	N	N
Public Contact	5%	PGE subject matter experts lowered efficacy from baseline; however, assumed some efficacy due to less vegetation lowers likelihood for public contact	N	N
Vegetation	30%	Baseline	N	N
Wildlife Contact[1]	15%	PGE subject matter experts lowered efficacy from baseline; however assumed some benefit due to less vegetation	N	N

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
		lowers likelihood of wildlife and contamination risk.		
Wire-to-wire contact	1%	PGE subject matter experts lowered efficacy from baseline due to wire-to-wire contact risk unlikely to be mitigated by vegetation management	N	N
Other[2]	1%		N	N
Unknown[2]	1%		N	N

Notes:

1. Aligned contamination and wildlife assumptions due to contamination frequently related to animals.
2. Assumed the lowest effectiveness value for the corresponding mitigation.

Baseline assumption:	PGE subject matter experts believe effectiveness of vegetation management mitigates 30% of ignition risk
Sources:	Portland General Electric subject matter experts
Basis:	PGE completed a study on the efficacy of its AWRR program and determined it resulted in a 30% reduction in vegetation risk.
Duration for which effectiveness is assumed to be applied:	1 year
Effectiveness variance over life of measure:	Decreases: the effectiveness of vegetation management assumed to be constant for 1 year and then decreases after 1 year.
Expected life of the measure:	1 year

Table K-9: PSPS – PSPS

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
Contamination[1]	100%	Baseline	N	N
Equipment Deterioration/Failure	100%	Baseline	N	N

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
Equipment Error (failure operated unexpectedly)	100%	Baseline	N	N
Equipment Environmental (failure failed to operate as designed)	100%	Baseline	N	N
Equipment Other	100%	Baseline	N	N
Lightning	100%	Baseline	N	N
Public Contact	100%	Baseline	N	N
Vegetation	100%	Baseline	N	N
Wildlife Contact[1]	100%	Baseline	N	N
Wire-to-wire contact	100%	Baseline	N	N
Other[2]	100%	Baseline	N	N
Unknown[2]	100%	Baseline	N	N

Notes:
1. Aligned contamination and wildlife assumptions due to contamination frequently related to animals.
2. Assumed the lowest effectiveness value for the corresponding mitigation.

Baseline assumption:	PGE subject matter experts believe PSPS is 100% effective across all ignition risk drivers
Sources:	PGE subject matter experts
Basis:	PGE subject matter experts believe that PSPS mitigates 100% of ignition risk because if PGE's assets are deenergized no fault can occur.
Duration for which effectiveness is assumed to be applied:	Duration of PSPS event
Effectiveness variance over life of measure:	None
Expected life of the measure:	Duration of PSPS event

Table K-10: Traditional Hardening

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
Contamination[1]	17%	PGE subject matter experts lowered efficacy from baseline. Assumed traditional	Unknown	N

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
		hardening installs animal guards and PGE subject matter experts believes animal guards mitigate 17% of wildlife contact.		
Equipment Deterioration/Failure	25%	Baseline	Y	N
Equipment Error (failure operated unexpectedly)	25%	Baseline	Y	Y
Equipment Environmental (failure failed to operate as designed)	25%	Baseline	Y	N
Equipment Other	25%	Baseline	Y	Y
Lightning	1%	PGE subject matter experts lowered efficacy from baseline due to lightning risk is unlikely to be mitigated by traditional hardening	Unknown	N
Public Contact	1%	PGE subject matter experts lowered efficacy from baseline due to public contact risk is unlikely to be mitigated by traditional hardening	Unknown	Y
Vegetation	1%	PGE subject matter experts lowered efficacy from baseline due to vegetation risk unlikely to be mitigated by traditional hardening	Unknown	N
Wildlife Contact[1]	17%	PGE subject matter experts lowered efficacy from baseline.	Unknown	N

Ignition Risk Grouping	Mitigation Effectiveness	Underlying Assumptions and Basis	Assumptions Aligned with California IOUs	Assumptions 5% within General Utility Effectiveness
		Assumed traditional hardening installs animal guards and PGE subject matter experts believes animal guards mitigate 17% of wildlife contact.		
Wire-to-wire contact	5%	PGE subject matter experts lowered efficacy from baseline due to wire-to-wire contact is unlikely to be materially mitigated by traditional hardening; however, slight benefit from re-framing	Unknown	N
Other[2]	1%		Unknown	N
Unknown[2]	1%		Unknown	N

Notes:
1. Aligned contamination and wildlife assumptions due to contamination frequently related to animals.
2. Assumed the lowest effectiveness value for the corresponding mitigation.

Baseline assumption: PGE subject matter experts believe effectiveness of traditional hardening mitigates 25% of ignition risk

Sources: SDG&E Efficacy Studies Documentation
Joint IOU CA-Grid-Hardening-Joint Studies
Portland General Electric subject matter experts

Basis: Per discussions with peer IOUs and review of regulatory filings, and PGE subject matter experts believe effectiveness of traditional hardening mitigates approximately 25% of ignition risk. Traditional hardening includes replacement of assets and installing bare wire instead of covered conductor. Unable to determine consistent definition of traditional hardening to compare across various California IOUs

- SDG&E conducted a study from 2013-2023 reviewing their traditional hardening and found it be to 40% effective.

Duration for which effectiveness is assumed to be applied (years):	60 years
Effectiveness variance over life of measure:	Decreases: Effectiveness of the mitigation decreases as an asset ages resulting in increases in ignition risk.
Expected life of the measure (years):	60 years

PGE Corporate Headquarters
121 SW Salmon Street | Portland, Oregon 97204
portlandgeneral.com