

PWP

WILDFIRE MITIGATION PLAN

2021 INFORMATIONAL RESPONSE

**RESPONSES TO WILDFIRE SAFETY ADVISORY
BOARD'S 2021 GUIDANCE ADVISORY OPINION**

June 28, 2021

I. PURPOSE OF THIS 2021 INFORMATIONAL RESPONSE

The California Wildfire Safety Advisory Board (WSAB) issued the *Guidance Advisory Opinion for the 2021 Wildfire Mitigation Plans of Electric Publicly Owned Utilities and Cooperatives* (“2021 WSAB Guidance Advisory Opinion”) on December 15, 2020. PWP provides this document to the WSAB in order to respond to each of the recommendations included in the 2021 WSAB Guidance Advisory Opinion. PWP will provide a narrative response and/or a cross reference to the location in PWP’s Wildfire Mitigation Plan (WMP) where the topic is addressed. Where the recommendation is not applicable to PWP, the response will provide a brief description supporting this conclusion.

II. CONTEXT SETTING INFORMATION

WSAB requested that POU provide an informational table to assist the Staff and Board member in understanding the unique characteristics of each POU.

Table 1: Context-Setting Information

| Utility Name | Pasadena Water and Power | |
|--|---|---|
| Service Territory Size | 23.02 square miles | |
| Owned Assets | X Transmission X Distribution X Generation | |
| Number of Customers Served | 67,440 electric customer accounts (approximately 100,000 total utility customers) | |
| Population Within Service Territory | 144,842 people | |
| Customer Class Makeup | <i>Number of Accounts</i> | <i>Share of Total Load (MWh)</i> |
| | 86.8% Residential; .5% Government; 0% Agricultural; 12.6% Small/Medium Business; .2% Commercial/Industrial | 32.3% Residential; 1.2% Government; 0% Agricultural; 39.2% Small/Medium Business; 27.4% Commercial/Industrial |
| Service Territory Location/Topography¹ | .22% Agriculture .48% Barren/Other .06% Conifer Forest 0% Conifer Woodland .81% Desert .11% Hardwood Forest 4.69% Hardwood Woodland | |

¹ This data shall be based on the California Department of Forestry and Fire Protection, California Multi-Source Vegetation Layer Map, depicting WHR13 Types (Wildlife Habitat Relationship classes grouped into 13 major land cover types) available at: <https://www.arcgis.com/home/item.html?id=b7ec5d68d8114b1fb2bfbf4665989eb3>.

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| | 1.13% Herbaceous 6.76% Shrub 85.46% Urban .27% Water |
| Service Territory Wildland Urban Interface² (based on total area) | 14.47% Wildland Urban Interface; .88% Wildland Urban Intermix; |
| Percent of Service Territory in CPUC High Fire Threat Districts (based on total area) | X Includes maps Tier 2: 14.40% Tier 3: 7.07% Additional Voluntary inclusion of Tier 2: 4.53 % |
| Prevailing Wind Directions & Speeds by Season | <input type="checkbox"/> Includes maps The prevailing wind direction is from the west. |
| Miles of Owned Lines Underground and/or Overhead | Overhead Dist. (17kV and lower): 167.04 miles Overhead Trans. (34.5kV): 16.76 miles Underground Dist. (17kV and lower): 500.21 miles Underground Trans. (34.5kV): 99.38 miles |
| | Explanatory Note 1 - Methodology for Measuring "Miles": This is the distance in Line Miles. |
| Percent of Owned Lines in CPUC High Fire Threat Districts | <i>Overhead Distribution Lines as % of Total Distribution System (Inside and Outside Service Territory)</i> |
| | Tier 2: 15.30% Tier 3: .32% |
| | <i>Overhead Transmission Lines as % of Total Transmission System (Inside and Outside Service Territory)</i> |
| | Tier 2: 0% Tier 3: 0% |
| | Explanatory Note 4 – Additional Relevant Context: [e.g., explain any difference from data reported in WMP due to different numerator used for this form] |
| Customers have ever lost service due to an IOU PSPS event? | <input type="checkbox"/> Yes X No |
| Customers have ever been notified of a potential loss of service to due to a forecasted IOU PSPS event? | <input type="checkbox"/> Yes X No |
| Has developed protocols to pre-emptively shut off electricity in response to elevated wildfire risks? | <input type="checkbox"/> Yes X No |

² This data shall be based on the definitions and maps maintained by the United States Department of Agriculture, as most recently assembled in *The 2010 Wildland-Urban Interface of the Conterminous United States*, available at https://www.fs.fed.us/nrs/pubs/rmap/rmap_nrs8.pdf.

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| Has previously pre-emptively shut off electricity in response to elevated wildfire risk? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, then provide the following data for calendar year 2020: <i>Number of shut-off events:</i> [____] <i>Customer Accounts that lost service for >10 minutes:</i> [____] <i>For prior response, average duration before service restored:</i> [____] |
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III. CROSS REFERENCE TO STATUTORY REQUIREMENTS

WSAB requested that POU provide a clear roadmap as to where each statutory requirement is addressed within the POU WMP.

Table 2: Cross References to Statutory Requirements

| Requirement | Statutory Language | Location in WMP |
|----------------------------------|---|----------------------|
| Persons Responsible | PUC § 8387(b)(2)(A): An accounting of the responsibilities of persons responsible for executing the plan. | Section 4 Page 6 |
| Objectives of the Plan | PUC § 8387(b)(2)(B): The objectives of the wildfire mitigation plan. | Section 3 Page: 5 |
| Preventive Strategies | PUC § 8387(b)(2)(C): A description of the preventive strategies and programs to be adopted by the local publicly owned electric utility or electrical cooperative to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of dynamic climate change risks. | Section 6 Page 10 |
| Evaluation Metrics | PUC § 8387(b)(2)(D): A description of the metrics the local publicly owned electric utility or electrical cooperative plans to use to evaluate the wildfire mitigation plan’s performance and the assumptions that underlie the use of those metrics. | Section 8 Page 16 |
| Impact of Metrics | PUC § 8387(b)(2)(E): A discussion of how the application of previously identified metrics to previous wildfire mitigation plan performances has informed the wildfire mitigation plan. | Section 8 Page 16 |
| Deenergization Protocols | PUC § 8387(b)(2)(F): Protocols for disabling reclosers and deenergizing portions of the electrical distribution system that consider the associated impacts on public safety, as well as protocols related to mitigating the public safety impacts of those protocols, including impacts on critical first responders and on health and communication infrastructure. | Section 6 Page 14 |
| Customer Notification Procedures | PUC § 8387(b)(2)(G): Appropriate and feasible procedures for notifying a customer who may be impacted by the deenergizing of electrical lines. The procedures shall consider the need to notify, as a priority, critical first responders, health care facilities, and operators of telecommunications infrastructure. | Section 6 Page 15 |

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| Vegetation Management | PUC § 8387(b)(2)(H): Plans for vegetation management. | Section 6 Page 11 |
| Inspections | PUC § 8387(b)(2)(I): Plans for inspections of the local publicly owned electric utility's or electrical cooperative's electrical infrastructure. | Section 6 Page 13 |
| Prioritization of Wildfire Risks | <p>PUC § 8387(b)(2)(J): A list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks, throughout the local publicly owned electric utility's or electrical cooperative's service territory. The list shall include, but not be limited to, both of the following:</p> <p>(i) Risks and risk drivers associated with design, construction, operation, and maintenance of the local publicly owned electric utility's or electrical cooperative's equipment and facilities.</p> <p>(ii) Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the local publicly owned electric utility's or electrical cooperative's service territory.</p> | Section 5 Page 8 |
| CPUC Fire Threat Map Adjustments | PUC § 8387(b)(2)(K): Identification of any geographic area in the local publicly owned electric utility's or electrical cooperative's service territory that is a higher wildfire threat than is identified in a commission fire threat map, and identification of where the commission should expand a high fire threat district based on new information or changes to the environment. | Section 5 Page 10 |
| Enterprisewide Risks | PUC § 8387(b)(2)(L): A methodology for identifying and presenting enterprisewide safety risk and wildfire-related risk. | Section 5 Page 8 |
| Restoration of Service | PUC § 8387(b)(2)(M): A statement of how the local publicly owned electric utility or electrical cooperative will restore service after a wildfire. | Section 7 Page 15 |
| Monitor and Audit | <p>PUC § 8387(b)(2)(N): A description of the processes and procedures the local publicly owned electric utility or electrical cooperative shall use to do all of the following</p> <p>(i) Monitor and audit the implementation of the wildfire mitigation plan.</p> <p>(ii) Identify any deficiencies in the wildfire mitigation plan or its implementation, and correct those deficiencies.</p> <p>(iii) Monitor and audit the effectiveness of electrical line and equipment inspections, including inspections performed by contractors, that are carried out under the plan, other applicable statutes, or commission rules.</p> | Section 8 Page 16 |

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| <p style="text-align: center;">Qualified Independent Evaluator</p> | <p>PUC § 8387(c): The local publicly owned electric utility or electrical cooperative shall contract with a qualified independent evaluator with experience in assessing the safe operation of electrical infrastructure to review and assess the comprehensiveness of its wildfire mitigation plan. The independent evaluator shall issue a report that shall be made available on the Internet Web site of the local publicly owned electric utility or electrical cooperative, and shall present the report at a public meeting of the local publicly owned electric utility’s or electrical cooperative’s governing board.</p> | <p style="text-align: center;">Section 9 Page 17</p> |
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IV. WSAB GUIDANCE ADVISORY OPINION RECOMMENDATIONS

The WSAB Guidance Advisory Opinion identifies 14 specific recommendations that POUs are requested to address in their 2021 WMPs. As specified in Public Utilities Code § 8387(b)(1), each POU is required to perform a comprehensive revision to the POU’s WMP at least once every three years. Pursuant to this guidance, the POUs will be updating their WMPs based on the direction of their local governing boards within this 3-year cycle. Because the WSAB’s recommendations have been provided after the initial WMP submission, the POUs will have varying capacities to fully address each recommendation in their 2021 WMP. This Section IV restates each of the WSAB recommendations and provides an opportunity for each POU to do one or more of the following: (1) provide a narrative response to the recommendation; (2) provide a cross reference to where in the POU’s WMP this topic is addressed; (3) describe why the recommendation is not applicable to the POU; or (4) inform the WSAB of the POU’s intent to address the recommendation at the point of the POU’s next comprehensive revision, occurring in either the 2022 or 2023 WMP.

A. Plan Structure

WSAB Recommendation #1: Provide context-setting information about the POU and provide a simple guide to where the statutory requirements are addressed within the WMP.

PWP Response: See Sections II and III above.

WSAB Recommendation #2: Provide a short description of the POU’s public review and approval (if required) for the WMP. This description may also include a brief explanation of the funding mechanisms for wildfire mitigation efforts.

PWP Response: The WMP plan is presented annually during a council meeting where the public has an opportunity to provide questions and comments. If the City Council is satisfied that the current year's plan adequately addresses the city's wild fire risks, they will approve the plan.

WSAB Recommendation #3: Identify where the POU has posted the most recent Independent Evaluator (IE) Report and if your POU plans to enhance future IE reports, please summarize in what ways.

PWP Response: PWP requested that the Pasadena Fire Department provide feedback for its independent review, the Pasadena Fire Department provided comments resulting in the inclusion of the Tier 2 Voluntary Fire Risk Area. They did not produce a report, so it is not posted to PWP's website. An Independent Evaluator will be contracted for review of PWP's 2021 WMP plan and a report will be posted to PWP's website when it becomes available.

WSAB Recommendation #4: Develop, in collaboration with POU industry associations, WMP guidelines for future WMPs, understanding that it may take multiple cycles for POU to integrate these recommendations into the WMPs.

PWP Response: This document is intended to include, as appropriate, responses to the recommendations in the WSAB's Guidance Advisory Opinion for PWP's 2021 WMP. This document also represents the combined effort of the POU industry associations to further the development of a template to respond to the WSAB's Guidance Advisory Opinion in a future reporting WMP cycle.

B. Customer Impacts

WSAB Recommendation #5: Describe the potential impact investor-owned utilities (IOU) public safety power shutoff (PSPS) events could have on POU customers and how the POU manages these impacts. For POU that are also balancing authorities, describe the criteria for wildfire related de-energizations. Responses shall only provide aggregated information that does not provide customer-specific information or other potentially sensitive data.

PWP Response:

PWP's customers may be impacted by the PSPS events ordered by SCE. One of the SCE facilities that provides service to PWP has been shut down due to PSPS. When PWP Dispatch personnel receive notice of potential shutoff they dispatch generation assets to cover the potential loss of the remaining transmission line. The following provides responses to specific questions included in the WSAB's 2021 WSAB Guidance Advisory Opinion:

- What is the relationship between the IOU and the POU during PSPS events?

PWP Response: SCE provides notice of potential shutoff events and keeps staff updated as issues progress.

Does the POU receive advance notification?

PWP Response: Generally yes

• Is the POU affected at the transmission or distribution level?

PWP Response: Transmission Level

• Is the POU implementing a mitigation strategy for IOU PSPS?

PWP Response: Yes, PWP dispatches generation.

• Does the POU have its own permanent or temporary generation, (or customer provision of same) allowing it to withstand an IOU PSPS?

PWP Response: PWP has permanent generation however depending on the time of the year, PWP may not be able to provide power to its entire service territory.

• Does the POU distribute back-up generators to customers?

PWP Response: No

• Does the POU deenergize their own lines when a wildfire threat looms, even if it is not labelled a PSPS?

PWP Response: If there was eminent threat of wildfire or the Pasadena Fire department requests it, PWP reserves the right to deenergize lines.

• In the above instance, what customer communication takes place?

PWP Response: PWP will make every effort to provide advanced notice, but PWP does not anticipate deenergizing lines due to a wildfire risk.

• Is the POU a Balancing Authority Area? If yes, describe any applicable criteria for wildfire related de-energization.

PWP Response: No

WSAB Recommendation #6: Describe the utility customer communication plans with respect to wildfires and PSPS, and in particular describe the methods, content and timing used to communicate with the most vulnerable customers, such as Access and Functional Needs (AFN) customers, medical baseline customers, non-English speakers, and those at risk of losing water or telecommunications service.

PWP Response: PWP does not currently have plans to perform PSPS. Were PWP to make the decision to perform PSPS PWP would provide advanced notification through its Everbridge notification system if possible.

C. The Grid

WSAB Recommendation #7: Provide details on each POU's system hardening and grid design programs, including: (1) the goals of the programs and the risk any particular program is designed to mitigate; (2) approach to PSPS mitigation and prevention; and (3) identify any resource shortages.

PWP Response: PWP's approach to grid hardening is discussed in Section 6 of PWP's WMP. PWP deploys enhanced design criteria in the high fire-threat areas including more robust wind loading requirements, increased conductor spacing, covered conductor and undergrounding. The following provides responses to specific questions included in the WSAB's 2021 WSAB Guidance Advisory Opinion:

- Does the POU perform a circuit-by-circuit analysis to identify essential facilities (and whether they have backup power) like hospitals, communication centers, and community resource centers?

PWP Response: PWP maintains a map of critical facilities within its service territory. PWP does not have complete information about their back-up power capabilities.

- Does the POU assess system hardening measures that could be installed to prevent PSPS for those facilities?

PWP Response: PWP deploys system hardening measures in lieu of PSPS programs.

- In what way does the POU prepare these facilities for a PSPS or another wildfire related de-energization event?

PWP Response: While PWP does not engage in PSPS, it will de-energize if there is an immediate safety concern or is asked to by the fire department. In order to ensure that the minimum number of customers are impacted by de-energizations, PWP ensures it has a high number of isolation points and multiple back feed capabilities. For critical facilities, PWP does have ongoing communication with the utility's largest accounts and critical infrastructures (hospitals, schools, community centers, etc.) and annually communicates the importance of back-up power capabilities in the event there is an unplanned outage impact.

- For POUs that power water utilities or supply water themselves, if that water is used for drinking and firefighting, are certain projects being undertaken to harden the system for water delivery purposes?

PWP Response: PWP's Power Delivery Division is working with the Water Delivery Division to implement a back-up power plan for all the water facilities utilizing a shared mobile back-up generator and enhanced circuit ties.

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- Is supplemental generation available such as backup batteries or backup power facilities?

PWP Response: PWP has a back-up generator that can be deployed to critical facilities. Also several of PWP’s critical facilities have back-up power systems.

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- Are the majority installed by the customers themselves or the utility?

PWP Response: A majority of back-up power systems are owned and operated by customers.

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- Can the utility open and close taps? Can the utility back-feed?

PWP Response: PWP can open and close taps across its distribution networks, PWP can reroute power across sectionalizing switches to deliver energy to areas using alternative routes.

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- Are there wildfire related circumstances wherein either of these tactics would be useful?

PWP Response: PWP would open taps and feed areas with alternative delivery if sections of its distribution system were at risk of fire. PWP has many circuit ties that could prevent or minimize customer outages while mitigating fire risk.

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- Can the utility sectionalize in a localized fashion?

PWP Response: PWP has the capability to sectionalize locally across its distribution network.

WSAB Recommendation #8: Describe annual visual patrols on potentially impacted circuits and the risks the POU is inspecting for. Describe whether and how system inspections lead to system improvements. Describe line patrols before, during, and/or after a critical fire weather event, such as a Red Flag Warning with strong winds, or following a fire that burned in areas where electric facilities are or could have been impacted.

PWP Response: PWP personnel complete a visual patrol of its entire service territory once a year. Upon implementation of its WMP, PWP’s overhead assets within the Tier 2 and Tier 3 fire risk areas received a detailed inspection to look for damaged assets. PWP staff are looking for woodpecker damage, leaning poles or hollow sounds with a pole ring test. If staff discover problems with the infrastructure, they are referred for engineering and generally replaced. During a red Flag warning, reclosures that provide power to any high fire threat districts are placed on “one-shot” settings. After a Red Flag warning is lifted no additional patrol is performed before returning reclosures to standard settings.

WSAB Recommendation #9: Describe options considered by POU (including through the joint efforts of the POU associations) to identify previously unidentified risks that could lead to catastrophic wildfires.

PWP Response: PWP participates in the Southern California Public Power Association (SCPPA), in which it discusses risks and potential solutions that are experienced by its utility partners.

D. Risk Assessment

WSAB Recommendation #10: Describe the particular wildfire risks associated with system design and construction such as topography and location near the HFTD areas of another utility's service territory. Describe any G.O. 95 exempt assets and possible updates to G.O. 95 that could facilitate more resilient utility transmission and distribution assets.

PWP Response: PWP's assessment of wildfire risks is discussed in Section 5 of PWP's WMP. PWP's risk assessment includes investigating the number of customers and facilities within its high fire threat areas and identifying how they impact its risks of wildfire. The following provides responses to specific questions included in the WSAB's 2021 WSAB Guidance Advisory Opinion:

- Are there design or construction issues related to the utility's specific topography or geographic location that the Board should be aware of?

PWP Response: PWP's service territory is mostly urban, the areas of tier 3 that are within Pasadena have very few facilities.

- How will the utility address risks associated with facilities requiring power that abut a Tier 2 or Tier 3 HFTD?

PWP Response: For PWP the most effective method for assessing risk is by performing detailed pole inspections as well as intrusive pole inspections for the assets it has within the high fire threat district. PWP's detailed pole inspection includes data about the equipment installed as well as the specific assets that have enhanced risks.

- How does the utility assess its risks associated with system design and construction?

PWP Response: PWP is constantly evaluating alternative design methods to reduce wildfire risks. While it is difficult to prove the success and cost viability of design and construction decisions on wildfire risks due to the lack of internal data, PWP does identify new equipment that reduce risks and evaluate them to see if they can be implemented across its high fire threat areas.

- What design and construction standards has the POU implemented that go beyond G.O. 95 or other General Order standards related to design and construction?

PWP Response: PWP has enhanced wind loading criteria in the high fire threat areas. Also, PWP has been installing covered overhead wire as a standard for the last 20 years across its entire service territory.

E. SITUATIONAL AWARENESS TECHNOLOGY

WSAB Recommendation #11: Provide context-setting information about the prevailing wind directions and speeds, differentiated by season, along with average weather conditions by season. Describe how and why situational awareness technology is installed, and where on the system. Describe the decision-making process regarding the installation of situational awareness technology, including constraints such as budgets, availability of equipment, knowledge to effectively deploy, or qualified personnel to install and monitor effectively. Identify any other agencies, utilities, or fire professionals that the data from these devices is shared with.

PWP Response: The prevailing wind for PWP is from the west to the east across its service territory. The weather in Pasadena is generally comfortable all year long with relatively few hot dry days in the summer. PWP has situational awareness technology installed to monitor its electrical assets through SCADA remotely from PWP's dispatch department. PWP has SCADA connected assets at every substation and on many points along PWP's distribution networks. For situational awareness technology PWP combines efforts with Automation and identify the areas where remote close / open capability allows us to provide optimal service to the most number of customers. PWP has also installed monitoring devices which help us identify the areas of asset failures to reduce the outage times and direct staff to make corrections.

F. VEGETATION MANAGEMENT

WSAB Recommendation #12: Describe treatment plans for all types of vegetation associated with utility infrastructure, from the ground to the sky, which includes vegetation above and below electrical lines.

PWP Response: PWP's vegetation management program is discussed in Section 6 of PWP's WMP. PWP performs its tree trimming program in compliance with G.O. 95 trimming guidelines. PWP tree trimming vendor performs an annual rotation across PWP service territory to ensure that tree clearances are being met. The following provides responses to specific questions included in the WSAB's 2021 WSAB Guidance Advisory Opinion:

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- Describe how vegetation management in the HFTD or Fire Threat Zones differs from other areas, including within private property and urban landscaping.

PWP Response: PWP deploys increased time-of-trim standards in the high fire-threat zone as well as evaluating tree clearances to ensure they meet the requirements listed in case 14 of GO. 95 rule 35 table 1.

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- Describe any enhanced vegetation management that goes beyond the minimum G.O. 95 standard.

PWP Response: PWP conducts an annual review of tree clearance across its service territory.

WSAB Recommendation #13: List the qualifications of any experts relied upon, such as scientific experts in ecology, fire ecology, fire behavior, geology, and meteorology. Specify the level of expertise of the POU staff that manages the contractors performing vegetation management. Describe measures each POU takes to ensure that POU staff and contractors comply with or verify compliance with Cal/OSHA standards on Minimum Approach Distances (MAD).

PWP Response: PWP relies on its fire department to provide expert knowledge of fire behavior and specific information about its service territory as it relates to fire behavior. The PWP staff managing the vegetation management contractor are Forman / journeyman linemen. They have in depth information about the electrical infrastructure. Forman will observe tree clearance contractors while they are performing tree clearing and are responsible for ensuring they are complying with MAD requirements.

WSAB Recommendation #14: Describe whether the POU has considered innovative and alternative approaches to vegetation management.

PWP Response: PWP has investigated utilizing fire retardant sprays as an alternative to tree clearance, it does not appear to be a viable option due to costs and customer concerns.