California Wildfire Safety Advisory Board

Guidance Advisory Opinion for the 2021 Wildfire Mitigation Plans of Publicly Owned Electric Utilities and Electrical Cooperatives

DRAFT November 13, 2020

Acknowledgements

The 2020 wildfire season in California has ravaged and impacted countless populations from North to South: community members, firefighters, members of the civil service throughout a plethora of agencies, utility workers, and many more. Alongside weather forecasters, journalists, scientists, and environmentalists, many minds are working individually and collaboratively to develop new and innovative techniques to apply to our current and ever-changing landscape. The California Wildfire Safety Advisory Board has been given the responsibility of reviewing and advising the State's Publicly Owned Utilities' and electric cooperatives' (together, POUs) 2020 Wildfire Mitigation Plans (WMP). The publicly owned utilities and electric cooperatives play a significant role in wildfire risk mitigation. We appreciate the efforts that went into to developing these WMPs. The Board is honored to have reviewed the first wildfire risk mitigation plans and looks forward to our continued collaboration.

As always, we acknowledge the dedication, creativity and project management of our advisors, Jamie Ormond, and Katherine Stockton.

California Wildfire Safety Advisory Board

The Board is comprised of seven appointed member experts. Each board member brings a unique perspective and expertise to the state and to their review of the POU WMPs.[1] Additional information about the Board and its members can be found its website: www.cpuc.ca.gov/WSAB.

- Marcie Edwards, Chair
- Diane Fellman, Vice Chair
- Ralph Armstrong
- Jessica Block
- Chris Porter
- John Mader
- Alexandra Syphard

[1] The Board approves these recommendations, but each recommendation may not reflect the views of individual board members.

Introduction

Charting new territory has been the central theme of the Board's 2020 efforts. Without precedent or even instruction, we have had to meet our statutory responsibilities while respecting the differences between public power agencies and the investor-owned utilities. We appreciated the contribution and cooperation from the publicly owned utilities and electric cooperatives, especially through their representative organizations: California Municipal Utilities Association, Southern California Public Power Authority, Northern California Power Agency, and the Golden State Power Cooperative. This first round has been an education for each of us. In this Guidance Advisory Opinion, we offer our recommendations for the 2021 WMP Updates that will assist in clarifying information that we deem essential for understanding wildfire threats and mitigation measures. We also recognize the distinctions among the entities that can allow differentiation regarding the level and detail of information to be submitted in the future. We will continue to work with the representative organizations to create a template that will be both comprehensive and efficient. The November 18, 2020 workshop is designed to discuss our 2020 evaluation as well as how to move forward.

Background

Assembly Bill (AB) 1054 (Holden, 2019) created the California Wildfire Safety Advisory Board (the Board or WSAB). Per AB 1054, which added Public Utilities Code Section 326.2(c), the Board is required to provide Advisory Opinions to Publicly Owned Electric Utilities and Electrical Cooperatives (together, POUs) regarding their Wildfire Mitigation Plan (WMP) filings. The Board emphasizes that its independent, advisory role is distinct from a regulatory role. To that end, however, after reviewing 50 WMPs created by POUs, as well as reports by independent evaluators, the Board developed a holistic view of their role within the wildfire risk mitigation space. In this Guidance Advisory Opinion, the Board will surface several themes that have emerged and recommend essential information for the future WMP submittals by the POUs.

Board members read each of the 50 WMPs based the requirements and categories established in AB 1054[2] and performed their evaluations on each of the following topics:[3]

A	Staff responsibilities	J(i)	Grid design/operations risks
B	General objectives	J(ii)	Vegetation & climate risks
C	Program descriptions	K	Expansion of the High Fire Threat Districts
D	Future Metrics	L	Identifying enterprise-wide risk
E	Lessons learned, past metrics	M	Restoration of service
F	Protocols for reclosers & PSPS	N(i)	Monitoring & auditing
G	Community notification	N(ii)	Audits & discovering deficiencies
H	Vegetation management	N(iii)	Monitoring asset inspections
I	Infrastructure inspections		

[2] In addition to adding 326.2(c), AB 1054 amended Public Utilities (Pub. Util.) Code Section 8387(b)(2).

[3] The 50 plans can be accessed here: https://www.cpuc.ca.gov/wsab/POUandCoopWMPs/

The Board reviewed each of the 50 POU WMPs that were received including (cooperatives are **blue**):

Alameda Municipal Power
Anaheim Public Utilities
Anza Electric Cooperative
Azusa Light & Water, City of
Banning, City of
Biggs, City of
Burbank Water and Power
Cerritos Electric Utility, City of
City of Colton Electric Dept.
Corona, City of
Eastside Power Authority
Glendale Water & Power
Gridley California
Healdsburg Electric Dept.
Imperial Irrigation District
Industry, City of
Kirkwood Meadows Public Utility District
Lassen Municipal Utility District
Lathrop Irrigation District
Lodi Electric Utility, City of Lodi
Lompoc, City of
Los Angeles Dept. of Water and Power
Merced Irrigation District
Modesto Irrigation District
Moreno Valley Utility
Northern California Power Agency
Oakland, Port of Oakland
Palo Alto Utilities, City of
Pasadena Water and Power Department
Pittsburg Power Co (Island Energy)
Plumas-Sierra Rural Electric Co-Op
Power & Water Resource Pooling Auth.
Rancho Cucamonga Municipal Utility
Redding Electric Utility, City of Redding
Riverside Public Utilities Dept.
Roseville Electric Utility, City of
Sacramento Municipal Utility District
San Francisco Public Utilities Comm.
Shasta Lake, City of
Silicon Valley Power, City of Santa Clara
Stockton Utility, Port of Stockton
Surprise Valley Electrification Corp.
Transmission Agency of Northern CA
Trinity Public Utility District
Truckee Donner Public Utility District
Turlock Irrigation District
Ukiah, City of
Vernon Public Utility, City of Vernon
Victorville Municipal Utility Services

The 2020 Guidance Advisory Opinion is organized as follows:

1 – 4 Plan Structure: Risk Profiles, Governance, Independent Evaluations and Groupings

5 – 6 Customer Impacts: Investor Owned Utility Public Safety Power Shutoffs, Communication with Customers, and Emergency Planning

7 – 9 The Grid: System Hardening, Inspections, and Undergrounded Lines

10 – 11 Risk Assessment: Risk Evaluation, Situational Awareness, and Managing Limited Resources

12 – 14 Vegetation Management: Treatment Plans, Experts, and Innovation

Following its review, the Board observed that themes emerged across the submittals. To inform the 2021 WMPs and beyond, we focused on developing these themes to inform our recommendations about what information would be useful, based on our expertise, to understand and evaluate the wildfire mitigation efforts of each POU. The goal of this Guidance Advisory Opinion is to highlight these themes and create guidelines for the POUs to develop and deliver the most consequential information about their wildfire risk mitigation actions and planning processes in the future.

The 2021 WMP Update is due on July 1, 2021. We respectfully request each POU incorporate the various recommendations contained within this Guidance Advisory Opinion in its submittal. As mentioned above, the Board and its advisors will work with POU representative organizations to define the new WMP template within in the next 120 day or no later than March 1, 2021.

TABLE OF RECOMMENDATIONS

Sections 1-4 relate to the structure of the Wildfire Mitigation Plans including: introducing a risk profile upfront, including information about governing boards, independent evaluations, and a structure for the 2021 plan updates.

1. Plan Structure: Future Wildfire Mitigation Plans Should Be Organized to Introduce Utility Risk Profile Upfront and Increase Information Accessibility, Bearing in Mind Federal Infrastructure Protection Protocols

During WSAB's POU WMP review process, Board Members spent a significant amount of time searching for information between the WMP document, the independent evaluator report, and the community and utility websites to understand each utility's baseline risk profile. As a pillar of review, WSAB recommends that future WMPs have an increased level of transparency and information accessibility for public consumption. This includes providing information up front about each POUs risk profile and ensuring that the WMP has a prominent and easily locatable web-based publication location. To understand the risk profile, WMPs should give an account of the municipal utility's customer base, load requirements, and assets available to meet customer load. The WMPs should also describe the percentage of utility-managed circuits that are transmission or distribution and their maintenance schedule**.**

The first POU utility WMPs did highlight information required by AB 1054. Given the challenge at times of finding utility-specific information and the redundancy of the references to statute[4] and the CPUC General Orders, the Board is interested in standardizing and streamlining introductory information for each POU.

RECOMMENDATIONS FOR THE NEXT FILING

In the WMP update, the Board hopes to receive information at the beginning of the POU plans that will help the Board gain a general understanding about each POUs risk profile. The goal would be to create a document that describes the utility composition, location**,** and risk profile upfront**:**

- Size of the utility territory in square miles;
- Detailed asset identification including transmission, distribution, and generation;
- Number of customers, which may differ from the number of city or county residents;
- Types of customer classes served;
- Location and topography including percentage urban, wildland, or wildland-urban interface;
- Prevailing wind directions and speeds within the territory differentiated by season;
- Territory maps with CPUC High Fire Threat Districts (HFTD) or California Department of Forestry and Fire Protection (CAL FIRE) Fire Threat Zones (FTZ) overlayed with distribution and transmission assets, considering Federal Infrastructure Protection Protocols; and
- Specific municipal level of wildfire risk including areas of concern, with increased wildfire risk;
- Impact on the POU of another utility's Public Safety Power Shutoff (PSPS) events, existing measures to mitigate the other utility's PSPS, and whether the POU expects to call its own PSPS.

[4] Pub. Util. Code Section 8387(b)(2).

To simplify this requirement, the Board developed a template for its own review and recommends that it be applied to the POU WMPs:

Utility Name	**Utility Name**
Size in Square Miles	*square miles*
Assets	☐ Transmission ☐ Distribution ☐ Generation
Number of Customers Served	*customers*
Customer Classes	☐ Residential ☐ Small/Medium Business ☐ Large Commercial/Industrial ☐ Government
Location/Topography	☐ Urban ☐ Rural/Forested ☐ Mixed (Including Wildland Urban Interface)
Territory in High Fire Threat Districts	☐ No HFTD ☐ Tier 2 ☐ Tier 3 ☐ Includes maps
Utility Fire Threat Risk Level	☐ High ☐ Low ☐ Mixed
Impacted by another utility's PSPS?	☐ Yes ☐ No
Mitigates impact of other utility's PSPS?	☐ Yes ☐ No
Expects to initiate its own PSPS?	☐ Yes ☐ No
Prevailing wind directions & speeds by season	☐ Includes maps ☐ Includes a description

2. Plan Structure: Include Information about Governing Body Approval

Governing Body Approval Process: Per AB 1054, utilities must submit their WMPs to a governing body for approval. Since all plans require approval by a governing body in the municipality prior to submission to the Board, the Board would appreciate additional detail regarding which governing body provided approval and the approval process followed. Only a small paragraph is requested here.

Monitoring and Auditing to Demonstrate Success: The Board requests additional data (tables, charts) about wildfire mitigation goal setting to determine utility achievements. The details in the monitoring and auditing sections of the wildfire mitigation plans are sparse. Utilities should determine how they will judge their own success and then report that methodology to their governing municipalities and the Board, and use history to inform as to progress. These mechanisms showcase that the utility understands its commitment to maintain trust with the public as it uses the public dollar to further its necessary WMPs.

Describe Budget Mechanism to be Used: Municipalities have year-round budgets. How will a municipality raise money to complete the work of system hardening? Additionally, WSAB is interested in understanding how utilities are then validating that their planned budget and reporting to the Board that the budget was used the way it was planned.

RECOMMENDATIONS FOR THE NEXT FILING

In the WMP update, the Board recommends utilities provide a paragraph describing the process for receiving approval from their governing body. The Board requests additional data on monitoring and auditing and how that information is presented to each POUs governing body. A short explanation on each POUs budget mechanism to be used to perform wildfire mitigation would also be helpful to the Board.

3. Plan Structure: Independent Evaluations of the Wildfire Mitigation Plans Should Be More Specific and Less Repetitive

Independent Evaluator (IE) reports should serve as a helpful tool for POUs to improve wildfire mitigation planning. These IE reports assisted the Board in identifying where various sections of reports were located within submitted documents and that index or map of the documents was useful.

However, the 2020 IE reports read in isolation seemed to be a cursory review of whether a POU addressed the elements required by AB 1054. As a first effort, the IE reports ranged broadly. However, in the future, it will prove useful to have a more standardized format for their evaluation as well.

Healdsburg Electric Department's Independent Evaluator Report identifies 13 industry best practices for comparable utilities with Tier 2 HFTD and similar service territories and risk profiles. The report evaluates the WMP and makes recommendations for improvement. The report describes five in more detail.

We found a great deal of both repetitive and general material in the IE reports that did not fully address the specific POU's WMP. The evaluator will not be providing additional benefit to the municipality funding the evaluation, unless the IE provides a more robust analysis of each POUs specific plan and whether that plan comports with industry standards defined by the IE's assessment of best practices,[5] including the best practices described in the Investor-Owned Utility Wildfire Mitigation Maturity Model when applicable.[6]

The IE reports should not only provide examples of industry standards; they should provide recommendations on how the POU can meet those standards. For the next round, the IEs should investigate and evaluate the WMP details provided by the utility, dig deeper and ask the utility why

[5] In addition to the Healdsburg Electric Department IE Report highlighted here, the reports prepared for the following utilities included a comparison between the utility and the IE's assessment of best practices: Anaheim Public Utilities, Burbank Water and Power, Glendale Water and Power, Redding Electric Utility, Truckee Donner Public Utility District, and Sacramento Municipal Utility District.

[6] *The Utility Wildfire Mitigation Maturity Model,* Attachment 2 to Administrative Law Judge Thomas' December 16, 2019 Ruling in Rulemaking 18-10-007 at 2, available at: http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M322/K150/322150488.PDF.

projects and programs are being done, and endorse these efforts as appropriate or make suggestions on how to improve them.

RECOMMENDATIONS FOR THE NEXT FILING

In the future, the Board recommends IEs perform a robust evaluation of the contents and substance of the POUs WMP. The Board especially appreciates evaluations of how each POU compares to industry standards, and recommendations on how to meet those standards.

4. Plan Structure: Create Wildfire Mitigation Plan Templates Based on Utility Groupings, for Example Risk Profile and Type of Publicly Owned Utility

AB 1054 requires all POUs to file a WMP. The Board's review revealed that all POUs are not similarly situated, rather, they have a variety of characteristics that impact their risk profile that may allow different kinds of reporting in the WMPs based on ignition threat. Lower risk profiles include POUs that are urban, urban-locked, or have a high percentage of undergrounded lines. Higher risk profiles include POUs that are rural, forested, surrounded by wildland or in the wildland urban interface. To tailor future WMP filings to the risks and areas of concern for the variety of POUs that must report, the Board suggests creating groups based on risk profile and requiring slightly different reporting from each group. Despite lower risk for some utilities, all POUs should provide descriptions and analysis of the risks that are present within their agency in order to help the Board understand each utilities' overall risk exposure.

For example, a utility with undergrounded lines that uses external above-ground transformation which is bordered or typically downwind of a HFTD inside their area or inside another utility's service territory. While the first Utility could be seen as having low risk exposure, that utility should consider the risk of its own infrastructure failing and causing an ignition in another bordering or typically downwind territory. While the Board recommends developing different reporting requirements for utilities with various wildfire risk profiles, utilities with undergrounded infrastructure should consider reporting on plans for backup batteries, backup communications, or other risk mitigation that could be at risk from ignition relating to above ground equipment. The Board recognizes that while utilities with underground powerlines do face lower risk, definitionally, than utilities with traditional overhead wires, the level of risk imposed by any related above ground equipment should be addressed or at least touched upon in the WMP.

To better understand utility risk profiles, WSAB proposes working with municipal utility and cooperative associations to categorize and group utilities in the following ways but is open to alternative suggestions or definitions:

- Port, urban-locked or undergrounded utilities (lower risk);
- Utilities with wildfire risk profiles ranging from urban wildland interface to extreme threat (higher risk); or
- Utilities with blended risk profiles (medium risk).

The Board will initiate a dialogue with the POUs to determine if this list is sufficient or if there are other types of groupings to consider.

WSAB thanks the California Municipal Utilities Association (CMUA) for developing a preliminary model reporting template that was used by a number of POUs. Generally, the model template provided a map to the statutory requirements and offered suggested language to include in each POUs WMP. The model template was an admirable initial effort and a launch pad for refinement incorporating the recommendations in this Guidance Advisory Opinion. The next step is to look beyond the letter of the statute to its spirit and develop a reporting structure that provides the information specific to each POU as discussed in this Guidance Advisory Opinion. We look forward to working with the municipal associations to develop guidelines that incorporates the Board's suggestions as appropriate.

RECOMMENDATIONS FOR THE NEXT FILING

The 2021 POU WMPs should be based on a revised template that reflects the learnings from the 2020 initial effort. To develop that template in a timely manner, the Board invites the municipal utility associations CMUA, the Southern California Public Power Association, the Northern California Power Agency, and the Golden State Power Cooperative, to work collaboratively with the WSAB to identify the utility groupings and develop a revised template for 2021. The Board looks forward to further discussing this topic with POUs at the upcoming workshop on November 18, 2020 and then further discussion at the final Wildfire Safety Advisory Board meeting of 2020, scheduled for December 9 at 1pm.

Sections 5-6 relate to the customer impacts of wildfire mitigation and planning including: the impact of Investor Owned Utility Public Safety Power Shutoffs, communication to customers regarding Investor Owned Utility Public Safety Power Shutoffs, regular communication plans to customers, and separating citywide emergency preparedness from wildfire mitigation.

5. Customer Impacts: Describe how Investor Owned Utility Public Safety Power Shutoffs Impact the Publicly Owned Utilities

One of the more important pieces of information that should be conveyed in a wildfire mitigation plan is how a Public Safety Power Shut Off (PSPS) would impact the utility's ability to operate. One missing piece from the POU template and most of the filings is the role of investor-owned utilities (IOU) on POU customers and how the POU manages this intersect. These are the questions that Board would like to have answered in the future:

- Is the utility implementing a mitigation strategy for IOU PSPS?
- What is the distinction between the IOU notification and how the POU informs its customers?
- Does the utility have its own permanent or temporary generation, allowing it to withstand an IOU PSPS?
- Does the utility distribute back-up generators to customers?

In general, the POUs see PSPS as a last resort in their service territories. A few have their own generation assets, but it is unclear how the assets are used to mitigate the impact of an IOU (or POU) PSPS event. A few utilities address their electrical relationship to the IOU in their territory, including indicating how much control the utility has over managing impacts from an IOU initiated PSPS or initiating its own PSPS event.

RECOMMENDATIONS FOR THE NEXT FILING

In the next round of WMPs, utilities should specifically describe whether customers are impacted by another POU or IOUs PSPS or deenergization event relating to wildfire risk or mitigation. Each POUs should clearly indicate how it mitigates the impacts of an IOU triggered PSPS, including whether it has utility-scale supplemental backup power sources, the ability to sectionalize, a program to distribute generation for individual customers, or other measures. It would be useful to highlight what the POU intends to do if an IOU calls a PSPS or deenergization event or if it plans on calling a PSPS itself to preserve system equipment or reduce risk of causing a utility ignited wildfire. POUs should include a detailed and well-articulated protocol and initiative to address these concerns in order for the Board to understand the strategic direction and effectiveness of each POU and assist in furthering best practices.

6. Customer Impacts: Describe Communication Plans Alerting Customers about IOU PSPS, or Other Wildfire Related Service Interruptions

Utility emergency preparedness is separate and apart from city or municipal emergency preparedness and this differentiation must be clear. Publicly owned utilities are part of and subservient to the will of the municipal entity and the elected officials of a city council. Municipalities have emergency preparedness plans for communities and many of the emergency plans are developed and implemented by municipal jurisdictions. For future wildfire mitigation planning, the idea of "emergency preparedness" for a utility should be distinguished as needed from the city's emergency preparedness plans. Although it is quite likely that these distinctions already exist within municipalities, these distinctions should be called out so that a reader understands the full scope of the plans. Where needed, utilities should have separate and distinct communications needs from a municipality since the utility communicates with a variety of customer types for emergency preparedness purposes.

We are aware of the importance of Incident Command Protocols and the need for uniform communications across the municipality. Nevertheless, there are distinct messages that come only from the utility, and times wherein the Emergency Command Centers are not alerted, but the Utility needs to inform its customers. There are those occasions wherein a PSPS is insufficient to open an Emergency Command Center. In those instances, we need to further understand how the utility communicates with its customers and the typical messaging used.

The Board would like to understand whether the Emergency Communication Plan template submitted in many of the WMPs is deemed sufficient to address the specific needs of wildfire events compared to other types of emergencies. Some utilities shared information about their plans for Community Resource Centers, community meetings, monthly meetings, and other utilities provide this information as part of their city emergency plan. Regardless of the communication method chosen, the POUs needs to articulate the adequacy of the current plan as well as the manner of notice is given to POU customers and other impacted community members about IOU-triggered or local agency-triggered PSPS events. In future WMPs, utilities should also detail the process for reaching the most vulnerable members of its community such as Access and Functional Needs (AFN) or Medical Baseline customers.

RECOMMENDATIONS FOR THE NEXT FILING

For planning purposes, the Board understands that there is a distinction between being a resident of a community and being customer of a utility. The utility plan, while frequently a part of the municipal plan, should address the utility customer dimensions of emergency preparedness planning with respect to PSPS and wildfires and the unique concerns of more vulnerable customers such as: Access and Functional Needs, medical baseline, and non-English speakers. The Board recommends future WMPs continue to describe the specific methods, content, and timing used to communicate with customers. Beginning with the 2021 WMPs, the POUs should provide an evaluation of whether the current method of emergency communication appears sufficient and, if not, what can be done to improve it, especially protocols for notifying customers, essential service providers, and other critical facilities of IOU or self-triggered PSPS events.

Sections 7-9 relate to the system upgrades and grid operations including: system hardening and grid design, infrastructure inspections, and wildfire mitigation for undergrounded utility lines.

7. The Grid: Highlight Particular System Hardening and Grid Design Improvements

AB 1054, which amended Pub. Util. Code Section 8387 requires utilities to report on "programs to be adopted by the [POU]… to minimize the risk of its electrical lines and equipment causing catastrophic wildfires…" including plans for inspections, risk drivers associated with their system, and their recloser policy. In the 2021 WMP Updates, POUs should describe what specific system hardening measures and the timing under which each utility will be targeting measures such as: replacing expulsion fuses in the HFTD, undergrounding facilities and assets, adding covered conductors, increasing the spacing between lines, applying more localized sectionalizing equipment, and replacing wooden poles with wind-resistant poles. The Board would appreciate information on existing and planned system upgrades and hardening measures as well as the overarching timelines by which the utilities mean to accomplish the goals relating to these actions.

Further, it would be helpful if POUs describe the risks that are being mitigated with specific utility hardening practices. Helpful information includes how many miles of assets are located within HFTDs as well as the potential risk of the asset to start a fire. POUs should describe the mitigation measure utilities are providing to HFTDs and why. POUs should be specific about the goals they want to achieve and how they are monitoring progress. For example, if the goal is to replace 22 switches, what is the methodology to ensure that those 22 switches are actually replaced?

Information should be included in WMPs to explain whether each POU mitigates PSPS or other deenergization events by performing system upgrades, for example:

- Does the POU perform a circuit-by-circuit analysis to identify essential facilities like hospitals, communication centers, and community resource centers? Does the POU assess system hardening measures that could be installed to prevent PSPS for those facilities? In what way does the POU prepare these facilities for a PSPS or other deenergization event?
- 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? Are pump stations self-contained or have some level of fire protection? Is the supply to sewage treatment plants hardened?

- Is supplemental generation overall? Are backup batteries or backup power facilities added?
- Can the utility open and close taps? Can the utility back-feed?
- Can the utility sectionalize? Sectionalizing in higher, more vulnerable areas allows utilities to drop less load and impact fewer customers if the IOU calls a PSPS or other deenergization event.

Anaheim Public Utilities discusses its sectionalization program in HFTDs that allows the utility to control and shrink the areas potentially impacted by the Los Angeles Department of Water and Power's deenergization events.

As POUs implement wildfire mitigation projects and programs around the state, they may encounter shortages of certain equipment and increased prices as a result because IOUs and other POUs are competing for the same limited resources. California utilities should collaborate where practical and use their economic power to ease equipment shortages, manage price increases, and reduce shipping delays.[7] POUs should report any such challenges with limited resources in the 2021 WMP Updates and any measures they are taking to mitigate resource shortages. In addition, they should consider listing ways in which state or federal agencies could assist in this endeavor.

RECOMMENDATIONS FOR THE NEXT FILING

The Board requests information on existing and planned system upgrades. In future WMPs, the Board would like to see detailed system hardening and grid design program descriptions. The WMPs should identify the goals of the programs and the risk any particular measure is designed to mitigate. The Board also wants to understand each POUs approach to PSPS mitigation and prevention. Finally, POUs should report on any supply shortages.

8. The Grid: Highlight Particular Infrastructure Inspection Plans for Regular and Post-Incident Inspections

Many POUs are moving to using drones for visual inspections and video images to determine if certain elements, like pins, were missing from equipment, and to measure wood separation from structures. These innovative efforts are very encouraging.

When IOUs shed load, they require that load be shed across their service territory, including in POU territory for whom they provide balancing services. Each POU has different protocols for load restoration depending on whether de-energization was initiated by PSPS, another type of load shedding event, or a wildfire. These differences influence the outcome of inspection results concerning POU

[7] *See* Section 3.6. of the Board's Recommendations on the 2021 IOU WMP Guidelines, available at: https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/About_Us/Organization/Divisions/WSD/WSAB%20Recommendations%20on%202021%20WMP%20Guidelines%20APPROVED%20CONCURRENCES%206.24.2020.pdf

assets and equipment. Information about these distinctions would be helpful, especially a robust description of the inspection process that the utility performs before reenergizing its lines after an event.

The WMPs demonstrated that even when POUs have little risk, they take their mission to provide safe service seriously. Some POUs discuss how they start patrolling right when the circuit(s) are deenergized. Others describe the man-power related challenges that occur when restoring service. Information on how POUs manage to mitigate these challenges would be helpful.

RECOMMENDATIONS FOR THE NEXT FILING

To prevent unanticipated ignitions due to our changing environmental circumstances, utilities should consider additional visual patrols on all potentially impacted circuits annually. The Board requests that future WMPs describe the risks a utility is inspecting for such as insect, wildfire incursion, wood split, woodpeckers, termites, etc. WMPs should also describe whether and how an inspection can lead to a system improvement.

9. The Grid: Utilities with Undergrounded Lines Should Analyze and Prepare for Black Swan Events

The Board recognizes the variety of circumstances in which electric utilities serve customers. Utilities with lower risk profiles can still contribute to the State's wildfire mitigation efforts. The role for utilities with a lower risk profile, including those with a majority of their lines undergrounded, could be as Black Swan event thinkers.[8] These utilities could create an engineering position or a team of engineers that would be dedicated to challenging the assumptions on existing and future grid designs, including system upgrades. This new risk management position or team could then surface and flag potential Black Swan events for further consideration and remediation.

For example, utilities with undergrounded powerlines pose a significantly reduced wildfire risk compared to those with overhead lines, but there are still risks of faults or ignitions if undergrounded lines or above-ground equipment is poorly maintained. POUs with lines that are primarily undergrounded could develop a methodology to identify and mitigate wildfire risks centering on an analysis of potential Black Swan events.[9] These utilities could focus on identifying weaknesses in the system that could lead to faults or ignitions in undergrounded lines and take a closer look at the maintenance of the few above-ground assets. Utilities with lower risk because their territory is urban and lacks wildland could also apply these concepts. During annual patrols, utilities could evaluate the system with the same scrutiny it would a system surrounded by higher risk topography.

[8] See also, Section 5.1 of the Board's Recommendation on the 2021 IOU WMP Guidelines.

[9] A "black swan event" is an often-catastrophic event, that was not predicted or predictable by existing statistical, engineering, or risk management models.

RECOMMENDATIONS FOR THE NEXT FILING

The Board recommends the POUs create engineering and risk management teams to surface and flag black swan events for further consideration and remediation.[10]

Sections 10-11 assess POU approaches to risk assessment related to design and construction, and bolstering descriptions of situational awareness programs and technologies, and mitigating.

10. Risk Assessment: Highlight Particular Wildfire Risks Associated with System Design and Construction

The Board believes that POUs are already planning for and attempting to comply with, and some exceed, the CPUC's General Order (G.O.) 95 standards. For the 2021 WMP Updates, the Board would like to request information related to the specific risks associated with design and construction such as:

- Are there design or construction issues related to the utility's specific topography or geographic location that the Board should be aware of?
- How will the utility address risks associated with facilities requiring power that abut a Tier 2 or Tier 3 HFTD?
- How does the utility assess its risks associated with system design and construction? In what areas does the utility consider going above and beyond G.O. 95 or other General Order standards related to design and construction?

Further, the Board would like information about any facilities that are exempt from G.O. 95. Is there an automatic exemption from G.O. 95 if a facility was built before G.O. 95 was published? Descriptions of G.O. 95 exempt equipment ought to be highlighted and inspection processes for exempted lines should be relayed to the Board as they relate to potential wildfire risk. The Board would like to understand how each utility identifies these risks on its own system and then better understand plans to mitigate the risk of exempt assets.

Finally, the Board encourages utilities to provide suggestions about how to build or design their systems in the future to further mitigate wildfire risk. For example, should the CPUC modify G.O. 95 to require a topography analysis before new poles are set?[11] By modifying the General Order, utilities would have to identify windspeeds and potential increases over ridgelines and other terrain. This may already be happening within certain utilities; the Board would like to know.

[10] *Id.*

[11] The Board recommends modifying G.O. 95 to require topography analysis prior to setting new poles. Studying topography prior to pole setting would require a utility to understand wind zones for utility infrastructure prior to building. Examples of utility infrastructure falling as a result of unknown high wind speeds can be found across the state in distribution and transmission line sections. Lassen notes that they design their poles for increased wind zones already, to survive 100 mile per hour winds and snow.

RECOMMENDATIONS FOR THE NEXT FILING

The Board recommends the WMPs state the particular wildfire risks associated with system design and construction such as topography and location near a HFTD of another utility. The Board would also like information about G.O. 95 exempt assets and possible updates to G.O. 95 that could facilitate more resilient utility transmission and distribution assets.

11. Risk Assessment: Address Weather Modeling and Technology Partnerships

Utilities generally know the average wind speed and average weather conditions, as well as red flag weather, high fire threat wind patterns and weather conditions for their service territories. These conditions define the engineering needs for a particular territory and the Board requests that these be described in the POU WMPs.

POUs are adding "intelligence assets," or situational awareness technology in order to gather and assess risk and weather data to more accurately address POU risk profile, especially in HFTDs. These technologies include weather stations, cameras, drones, or other monitoring technologies. These types of mitigation measures are generally less expensive compared to system upgrades and are useful in helping a utility understand the strengths and weaknesses of its system. Some POUs may be partnering with an IOU or neighboring POU to share or collect weather or modeling data. Describing these partnerships with IOUs or other entities would help the Board understand additional intersectionality between the utility and its community.

RECOMMENDATIONS FOR THE NEXT FILING

The Board requests information on how and why grid intelligence is installed, and where on the system. The Board would also like insight into decisions that are made not to install situational awareness technology. Are there constraints such as budgets, availability of equipment, knowledge to effectively deploy, or qualified personnel to install and monitor effectively? Finally, the Board would like information about whether this data is received from or shared with other agencies, utilities, or fire professionals.

Sections 12-14 relate vegetation management including: more comprehensive descriptions of treatments, the qualifications of the personnel that evaluate vegetation management plans and perform certain dangerous activities, and innovative approaches to vegetation and forest management.

12. Vegetation Management: Describe Utility Requirements for Vegetation Above and Below Electrical Lines

To assist in evaluating each WMP, the Board requests utilities describe and evaluate what vegetation and vegetation management practices reduce wildfire related risk and the ecological impact of the treatment

options chosen. Utilities should address the specific method methods employed to remove trees around power lines and their unique standards for vegetation from the trees to sky or for radial clearance from the line. As stated previously, the Board believes that POUs are already planning for and attempting to comply with the CPUC's G.O. 95 standards. POUs should also describe the decision-making processes each utility uses to determine which treatments are appropriate for which types of vegetation.

In order to effectively evaluate utility planning processes, the WMPs should include descriptions of the variety of treatment methods each POU uses. These treatment methods include tree or branch removal, trimming, pruning, mowing, goats to remove grass, use of mechanical tools to clear brush, surface fuel clearing during the dry season, and herbicide use. Further, information on herbicide use would be helpful because herbicides generally kill all the vegetation treated and has cumulative impacts ecological and human health. Additionally, the dead vegetation that remains must be cleared. When all vegetation is cleared, there are opportunities for new plants grow, especially grass, which creates additional fuel for a wildfire. The WMPs should also list both native and non-native plants in the region, especially plants found around electrical equipment. The WMPs should describe how treatment methods vary depending upon the type of species.

RECOMMENDATIONS FOR THE NEXT FILING

The Board recommends the 2021 WMP Updates describe treatment plans for all types of vegetation, from the ground to the sky, which includes vegetation above and below electrical lines. In order to understand current and future risk profiles for each POU, the WMPs should highlight:

- The reasoning behind each treatment plan and the ecological impact of the treatment options chosen;
- How vegetation management in the HFTD or Fire Threat Zones differs from other areas, including within private property and urban landscaping;
- The difference between any enhanced vegetation management and the vegetation management that meets the G.O. 95 standard;
- A list of native and non-native species and describe how treatment methods vary; and
- The new growth that occurs in areas that has previously been cleared or treated, and how the POUs tracks growth.

13. Vegetation Management: Personnel Qualifications Related to Vegetation Evaluation and Safety Compliance

Qualifications of Personnel Evaluating Vegetation Management Plans: The Board would more information about the expert qualifications of scientific personnel that design POU WMP vegetation management plans.[12] Scientists understand the relative growing and regeneration patterns, species traits, flammability, and ecological role that vegetation plays relative to fire ignition and behavior. Do POUs rely on scientists with expertise in ecology, fire ecology, fire behavior, and meteorology? For many

[12] See also, 3.3 on the Board's Recommendation on the 2021 IOU WMP Guidelines. https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/About_Us/Organization/Divisions/WSD/WSAB%20Recommendations%20on%202021%20WMP%20Guidelines%20APPROVED%20CONCURRENCES%206.24.2020.pdf

POUs, most of the vegetation management work is completed by contractors, but it is not clear who within the utility manages the contractors and that staff person's level of expertise.

Qualifications of Workers to Meet Safety Standards: Qualified Electrical Workers (QEW) are electrical asset inspectors with at least two years of specialized training and experience working with high-voltage utility lines and are knowledgeable about the hazards involved.[13] Qualified Line Clearance Tree Trimmers (QLCTT) have at least 18 months of specialized training and experience with the techniques and hazards involved in tree trimming work.[14] The California Department of Industrial Relations Division of Occupational Safety and Health (Cal/OSHA) regulations requires different Minimum Approach Distances (MAD) for QEWs versus QLCTTs, which vary depending upon the voltage of the electrical equipment. For example, a typical 12 kV distribution line requires a MAD of 2.14 feet or nearly 26 inches for QEWs, and a 10-foot MAD for QLCTTs. Beyond the 10 feet, Cal/OSHA regulations allow non-qualified persons such as other vegetation management personnel. These MADs are critical to ensure worker safety because only QEWs are trained in using

Continuing with the example of a 12 kV electrical line, G.O. 95, Rule 35 requires radial clearances of 18 inches between the bare line conductors and the tree branch or foliage. Therefore, in order to comply with G.O. 95 and Cal/OSHA standards, QEWs must be present within approximately 26 inches. The Board is encouraged that some POU WMPs state that the contractors hired for vegetation management are knowledgeable about safety standards. For the 2021 WMP Updates, the Board suggests POUs describe measures taken to verify contractor compliance with Cal/OSHA standards and other measures taken to enhance a safety culture. Safety culture and compliance with Cal/OSHA standards is critical because many POUs rely on contractors who must compete against other contractors for utility work.

RECOMMENDATIONS FOR THE NEXT FILING

The Board recommends the POU WMPs list the qualifications of any experts relied upon, such as scientific experts in ecology, fire ecology, fire behavior, geology, and meteorology. The WMPs should specify the level of expertise of the POU staff that manages the contractors performing vegetation management.

The Board also recommends the WMPs 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). Ensuring that on Qualified Electrical Workers treat vegetation within the MAD of an energized utility line as required by Cal/OSHA, is critical to fostering a strong safety culture.

14. Vegetation Management: Innovative Approaches to Vegetation Management

California wildfires have been intensifying in recent years due to climate change, drought, forest density, poor management of vegetation surrounding homes, in some cases ignitions caused by utility equipment, extreme weather events, and larger populations living in wildlands and in the wildland urban interface.

[13] California Code of Regulations Section 2940.2; enforced by Cal/OSHA and available at: https://www.dir.ca.gov/title8/2940_2.html.
[14] *Id.*

Given the magnitude of these challenges, business as usual is not an option. The Board appreciates POUs that are exploring innovative new strategies and pilot programs.

The City of Glendale requires homeowners to manage hazardous vegetation within 100 ft of structures to reduce the intensity and rate of spread of wildfires. Since most utility assets also reside within this 100-foot radius, Glendale Water & Power focuses its resources on mitigating areas outside this 100-foot radius.

Municipal codes sometimes require different vegetation management practices to keep communities safe. The City of Glendale requires property owners to maintain defensible space within 100 feet of structures. Since most utility assets are within 100 feet of structures, Glendale Water & Power focuses its mitigation efforts on areas outside the 100-foot radius. Enforcing these individual municipal standards requires a closer integration of the fire department and the utility department. This relationship is more prevalent with smaller utilities. We appreciate the role the City of Glendale has taken to acknowledge the potential for landscaping within private property to result in ignitions from power lines.

It is commendable that the POU and fire department are working together to improve fire safety. The WMPs should provide details about defensible space methods to increase the safety of structures and reduce the potential for powerline ignitions. Additionally, irrigation is a method to achieve both objectives. Ensuring high fuel moisture content reduces flammability and prevents ignition.

The Board is interested in learning, in the WMPs, whether POUs have considered innovative approaches. For example, if a major policy goal is to prevent and reduce the loss of structures and homes, should IOUs and POUs do pilot programs in home hardening? These programs could include rebates or incentives to better manage vegetation within 75-100 feet of a structure to create defensible space.

RECOMMENDATIONS FOR THE NEXT FILING

The Board recommends WMPs describe whether the POU has considered innovative and alternative approaches to vegetation management such as requiring property owners to manage vegetation a certain distance from structures or utility lines, and pilot programs in home hardening.

Conclusion

Once again, the Board thanks the Publicly Owned Utilities and Electric Cooperatives for developing their first round of Wildfire Mitigation Plans pursuant to the direction provided by AB 1054. The Board looks forward to working with the POUs to further develop a framework to report and receive wildfire risk mitigation information in the spirit of the legislation, in the 2021 plan updates. The Board appreciates the efforts of CMUA, SCPPA, NCPA, and Golden State Power Cooperative to work with utilities and the Board to properly frame the next round of Wildfire Mitigation Plans at the November 18, 2020 virtual workshop and the final Board Meeting of the year, on December 9, 2020.