June 20, 2022 **Via Electronic Mail**

Caroline Thomas Jacobs, Director
Office of Energy Infrastructure Safety
California Natural Resources Agency
Sacramento, CA 95184
efiling@energysafety.ca.gov

Subject: **Comments of the Public Advocate's Office on the 2022 Wildfire Mitigation Plan Updates of the Small Investor-Owned Utilities**
Docket: **2022-WMPs**

Dear Director Thomas Jacobs,

The Public Advocate's Office (Cal Advocates) at the California Public Utilities Commission (CPUC) respectfully submits the following comments on the 2022 Wildfire Mitigation Plan Updates of Bear Valley Electric Service (BVES), Liberty Utilities (CalPeco Electric) LLC (Liberty), and PacifiCorp dba Pacific Power (PacifiCorp), as well as general wildfire mitigation issues. Please contact Nathaniel Skinner (Nathaniel.Skinner@cpuc.ca.gov) or Henry Burton (Henry.Burton@cpuc.ca.gov) with any questions relating to these comments.

We respectfully urge the Office of Energy Infrastructure Safety to adopt the recommendations discussed herein.

Sincerely,

/s/ ***Carolyn Chen***

Carolyn Chen
Attorney

Public Advocates Office
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102
E-mail: Carolyn.Chen@cpuc.ca.gov
Telephone: (415) 703-1980

TABLE OF CONTENTS

Page

I. INTRODUCTION

Pursuant to the Office of Energy Infrastructure Safety's (Energy Safety) *Final 2022 Wildfire Mitigation Plan (WMP) Update Guidelines* (2022 WMP Guidelines),[1] the Public Advocate's Office at the California Public Utilities Commission[2] (Cal Advocates) submits these comments on the 2022 Wildfire Mitigation Plan (WMP) Updates filed by small and multi-jurisdictional investor-owned utilities (IOUs or utilities).[3] The 2022 WMP Guidelines permit interested persons to file opening comments on the small utilities' 2022 WMPs by June 20, 2022, and reply comments by June 27, 2022.[4]

The 2022 WMP Guidelines established templates, guidelines, and a schedule for the utilities' 2022 WMP submissions. According to the 2022 WMP Guidelines, Bear Valley Electric Service (BVES), Liberty Utilities (CalPeco Electric) LLC (Liberty), and PacifiCorp dba Pacific Power (PacifiCorp) submitted their 2022 WMP Updates on May 6, 2022.

In these comments, Cal Advocates addresses the WMPs of BVES, Liberty, and PacifiCorp, in that order. We then provide technical recommendations applicable to all three small utilities and recommendations for future improvements in the WMP guidelines.

---

[1] Energy Safety, *Final 2022 Wildfire Mitigation Plan (WMP) Update Guidelines*, December 15, 2021. See Attachment 5: Guidelines for Submission and Review of 2022 Wildfire Mitigation Plan Updates, pp. 5-6 and 9.

[2] Hereafter, we refer to the California Public Utilities Commission as "the CPUC" in these comments.

[3] Many of the Public Utilities Code requirements relating to wildfires apply to "electrical corporations." *See e.g.* Public Utilities Code Section 8386. These comments use the more common terms "utilities" or "IOUs" and the phrase "electrical corporations" interchangeably to refer to the entities that must comply with the wildfire safety provisions of the Public Utilities Code.

[4] On June 15, 2022, Energy Safety unexpectedly issued notices of rejection for incompleteness to Liberty and PacifiCorp and directed those utilities to resubmit their 2022 WMPs on July 15, 2022. Cal Advocates is nonetheless filing comments on the WMPs of Liberty and PacifiCorp as well as BVES, so that the utilities and Energy Safety may consider and begin addressing the safety concerns we have identified.

II. TABLE OF RECOMMENDATIONS

Item	Utility	Recommendation	Timeframe	Section of these Comments
1	BVES	Energy Safety should require BVES to improve the quality and fidelity of its risk assessment methods. BVES should report on its progress in its 2023 WMP.	2023 WMP	III.A.1
2	BVES	BVES should work to reconcile the differences between its Fire Safety Circuit Matrix and newer risk assessment methods such as the maps developed with Reax.	2023 WMP	III.A.1
3	BVES	Energy Safety should require BVES to explain how it uses risk assessments to prioritize its wildfire mitigation work, especially system hardening.	2023 WMP	III.A.2
4	BVES	Energy Safety should require BVES to provide an update that explains in detail how BVES chose where to perform specific projects (including covered conductor installation, detailed asset inspections, and pole loading assessments).	WMP Quarterly Report for Q3 2022	III.A.2
5	BVES	Energy Safety should require BVES to more fully explain its use of a 48-hour fire spread simulation.	2023 WMP	III.A.3
6	BVES	BVES should provide an analysis of the accuracy of fire simulations at various durations. Based on this analysis, BVES should modify its fire spread duration.	2023 WMP	III.A.3
7	BVES	Energy Safety should require BVES to prioritize covered conductor installation in high-risk areas.	WMP Quarterly Report for Q3 2022	III.B.1
8	BVES	Energy Safety should require BVES to explain how it chose the specific locations where it plans to install covered conductor.	WMP Quarterly Report for Q3 2022	III.B.1

Item	Utility	Recommendation	Timeframe	Section of these Comments
9	BVES	Energy Safety should require BVES to update its covered conductor installation plans for 2023 to target the highest-risk sections of its system.	2023 WMP	III.B.1
10	BVES	Energy Safety should require BVES to perform a study on the necessity of installing covered conductor across its entire system.	2024 WMP	III.B.2
11	BVES	BVES should divide its system into risk tranches. For each tranche, BVES should evaluate the benefits and costs of covered conductor, as well as the benefits and costs of alternative mitigations.	2024 WMP	III.B.2
12	BVES	In subsequent years, BVES should submit annual updates of its analysis for each risk tranche where it plans to perform work.	Future WMPs	III.B.2
13	BVES	In relatively low-risk areas, BVES should consider upgrading circuits as existing conductors reach the end of their useful life.	2024 WMP	III.B.2
14	BVES	Energy Safety should require BVES to submit a risk-to-benefit analysis of its proposed solar plus storage project. BVES should submit a full analysis in its WMP prior to filing an application for approval at the CPUC.	Future WMPs	III.B.2
15	BVES	Energy Safety should require BVES to work with the US Forest Service to ensure the Radford Covered Conductor Project is completed by 2023.	WMP Quarterly Report for Q3 2022	III.B.3
16	BVES	Energy Safety should require BVES to report on the status of the Radford line project in its WMP quarterly data reports, beginning with the third quarter in 2022.	WMP Quarterly Reports	III.B.3
17	BVES	BVES should describe how it is exercising oversight of its contractors for the Radford line project.	WMP Quarterly Reports	III.B.3

Item	Utility	Recommendation	Timeframe	Section of these Comments
18	BVES	Energy Safety should not approve BVES's 2023 WMP unless BVES has completed all permitting steps for the Radford line project.	2023 WMP	III.B.3
19	BVES	Energy Safety should require BVES to begin performing field QC inspections in 2022.	WMP Quarterly Report for Q3 2022	III.C.1
20	BVES	Energy Safety should require BVES to provide quarterly reporting on the implementation of its asset inspection QA/QC program.	WMP Quarterly Reports	III.C.1
21	BVES	BVES should report on asset inspection field QC in its 2023 WMP.	2023 WMP	III.C.1
22	BVES	Energy Safety should require BVES to justify the decelerated pace of its pole loading assessment program.	2023 WMP	III.C.2
23	BVES	In its 2023 WMP, BVES should detail the number and types of failures found in its recent pole loading assessments, and the number of poles in high-risk locations that have not recently been subjected to a pole loading assessment.	2023 WMP	III.C.2
24	BVES	Energy Safety should direct BVES to file a revised PSPS plan that includes the Commission's Phase 3 PSPS Guidelines.	Within 30 days of Energy Safety's action	III.D.1
25	BVES	Energy Safety should require BVES to identify persons reliant on electricity to maintain necessary life functions.	2023 WMP	III.D.1
26	Liberty	Energy Safety should require Liberty to show how it will meet the goals set within its 2021 and 2022 WMPs.	Within 30 days of Energy Safety's action	IV.A.1

Item	Utility	Recommendation	Timeframe	Section of these Comments
27	Liberty	Liberty should submit a detailed workplan that explains how it will address WMP shortfalls. Liberty should describe contingency plans, and explain how it will address potential obstacles in the current year and future years.	Within 30 days of Energy Safety's action	IV.A.1
28	Liberty	Liberty should submit progress reports with each WMP quarterly report describing how its actual progress compares to its workplan.	WMP Quarterly Reports	IV.A.1
29	Liberty	Energy Safety should require Liberty to explain how it plans and prioritizes WMP initiatives to achieve the greatest feasible amount of risk reduction.	Within 30 days of Energy Safety's action	IV.B.1
30	Liberty	Energy Safety should require Liberty to submit a detailed system hardening workplan for 2022 demonstrating that it is prioritizing the highest-risk areas.	Within 30 days of Energy Safety's action	IV.B.1
31	Liberty	Liberty should explain in its 2023 WMP how it uses risk analysis to prioritize mitigation work in the highest-risk locations.	2023 WMP	IV.B.1
32	Liberty	Energy Safety should require Liberty to submit a detailed system hardening workplan for 2023 before the end of 2022.	WMP Quarterly Report for Q3 2022	IV.B.1
33	Liberty	Energy Safety should direct Liberty to revise its WMP with a stronger asset inspection QA/QC program. Liberty should show that its program is adequate to avoid catastrophic safety failures.	Revision Notice	IV.C.1
34	Liberty	Energy Safety should direct Liberty to explain why it has chosen to perform QC inspections on only 0.5 percent of its asset inspections.	Revision Notice	IV.C.1
35	Liberty	Energy Safety should direct Liberty to report the results of the interim QA/QC program in 2021 or explain why it was not implemented.	Revision Notice	IV.C.1

Item	Utility	Recommendation	Timeframe	Section of these Comments
36	Liberty	Energy Safety should direct Liberty to submit quarterly updates on its asset inspection QA/QC programs.	WMP Quarterly Reports	IV.C.1
37	Liberty	Energy Safety should require Liberty to describe in future WMP filings how it employs in-house and contract labor in vegetation management programs, and the reasoning behind Liberty's decisions.	2023 WMP	IV.D.1
38	Liberty	Liberty should explain in its 2023 WMP whether the contractors who perform the vegetation management work also perform quality control checks.	2023 WMP	IV.D.1
39	All utilities	In the 2023 WMP guidelines, Energy Safety should require utilities to describe the mix of in-house and contract staff for vegetation management programs and explain the reasoning for staffing decisions.	2023 WMP	IV.D.1
40	PacifiCorp	PacifiCorp should describe how it is learning from past safety incidents, including wildfires and PSPS events.	Revision Notice	V.A.1
41	PacifiCorp	Energy Safety should require PacifiCorp to submit a revised WMP that identifies factors that likely contributed to the cause of the Slater Fire, discusses the implications for safety practices in general and wildfire mitigation initiatives specifically, and identifies specific measures PacifiCorp is taking in response.	Revision Notice	V.A.1
42	PacifiCorp	Energy Safety should direct PacifiCorp to improve how it uses risk assessment to select effective wildfire mitigation measures.	Revision Notice	V.B.1
43	PacifiCorp	PacifiCorp should complete development of its RSE analysis methodologies and explain the assumptions and factors it uses.	Revision Notice	V.B.1(b)
44	PacifiCorp	PacifiCorp should clarify how it will use Technosylva modeling for decision-making.	Revision Notice	V.B.1(c)

Item	Utility	Recommendation	Timeframe	Section of these Comments
45	PacifiCorp	Energy Safety should require PacifiCorp to submit a revised WMP that provides greater detail regarding the use of risk assessment methodologies to minimize wildfire risk.	Revision Notice	V.B.1(d)
46	PacifiCorp	PacifiCorp should demonstrate how it factors egress risk into its grid hardening programs.	Revision Notice	V.B.2
47	PacifiCorp	PacifiCorp should demonstrate that it is actively identifying infrastructure that could impede the evacuation of areas with limited egress, substantial population, and high fire risk. PacifiCorp should show how its grid hardening programs reduce this risk.	2023 WMP	V.B.2
48	PacifiCorp	PacifiCorp should detail its methodology for identifying places with limited egress.	2023 WMP	V.B.2
49	PacifiCorp	Energy Safety should direct PacifiCorp to revise its WMP to demonstrate the feasibility of its 2022 system hardening targets. PacifiCorp should explain how it took staffing and other constraints into account and should detail contingency plans.	Revision Notice	V.C.1
50	PacifiCorp	Energy Safety should require PacifiCorp to submit a detailed workplan listing each system hardening project it plans to perform in 2022, with project milestones.	Revision Notice	V.C.1
51	PacifiCorp	Energy Safety should require PacifiCorp to update this workplan with each quarterly report.	WMP Quarterly Reports	V.C.1
52	PacifiCorp	PacifiCorp should submit a detailed system hardening workplan as part of its 2023 WMP.	2023 WMP	V.C.1
53	PacifiCorp	Energy Safety should direct PacifiCorp to demonstrate that its system hardening projects in 2022 are targeted to the highest-risk portions of its grid.	Revision Notice	V.C.1

Item	Utility	Recommendation	Timeframe	Section of these Comments
54	PacifiCorp	PacifiCorp should exclusively concentrate on mitigating the riskiest 20 percent of circuit-segments in its HFTD areas.	Revision Notice	V.C.1
55	PacifiCorp	If PacifiCorp fails to meet grid hardening targets for a third year in a row, Energy Safety should require PacifiCorp to submit a corrective action plan in February 2023.	WMP Quarterly Report for Q4 2022	V.C.1
56	PacifiCorp	PacifiCorp's 2023 WMP should not be approved until PacifiCorp has resolved or adequately planned for the obstacles that have delayed implementation of system hardening.	2023 WMP	V.C.1
57	PacifiCorp	PacifiCorp should detail its contract management plans.	2022	V.C.2
58	PacifiCorp	Energy Safety should require PacifiCorp to provide an interim report on its construction management contract that describes PacifiCorp's oversight mechanisms, milestones, and key deliverables.	Within 30 days of finalizing the contract	V.C.2
59	PacifiCorp	PacifiCorp's 2023 WMP should detail the role of the construction management partner, the contractor's impact on grid hardening projects, and PacifiCorp's internal contract oversight mechanisms.	2023 WMP	V.C.2
60	PacifiCorp	In its 2023 WMP, PacifiCorp should describe its plan for quality assurance and quality control of grid hardening installations.	2023 WMP	V.C.2
61	PacifiCorp	Energy Safety should require PacifiCorp to revise its WMP to improve its quality assurance and quality control programs for asset inspections.	Revision Notice	V.D.1
62	PacifiCorp	PacifiCorp should demonstrate that its QA/QC process is supported by data and that it results in an acceptable degree of risk.	Revision Notice	V.D.1

Item	Utility	Recommendation	Timeframe	Section of these Comments
63	PacifiCorp	PacifiCorp should directly audit a minimum of 5 percent of asset inspections annually in HFTD Tier 3 areas.	Revision Notice	V.D.1
64	PacifiCorp	PacifiCorp should file quarterly reports on its progress towards improving its asset management QA/QC processes.	WMP Quarterly Reports	V.D.1
65	PacifiCorp	Prior to its 2023 WMP, PacifiCorp should evaluate the merits of increasing the frequency of its detailed asset inspections in HFTD areas, especially in Tier 3, and should adjust its asset inspection strategy accordingly.	2023 WMP	V.D.1
66	PacifiCorp	Energy Safety should require PacifiCorp to show how it monitors and tracks poles identified for replacement.	Revision Notice	V.D.2
67	PacifiCorp	Energy Safety should require PacifiCorp to provide an update on the condition of the remaining 152 poles that were identified by its LiDAR pilot as needing replacement. PacifiCorp should include contingency plans to periodically assess the risk of pole failures.	Revision Notice	V.D.2
68	All utilities	Energy Safety should hold discussions this year in its risk modeling working group on appropriate fire simulation durations in risk models.	2022	VI.A.1
69	All utilities	Energy Safety should direct all six utilities to study the appropriate duration for fire simulations and to report on this issue in their 2023 WMPs. Each utility should perform a validation exercise and should justify the usefulness of its chosen duration in estimating the risk of catastrophic wildfires.	2023 WMP	VI.A.1
70	All utilities	Future WMP filings should clearly address the impact of grid hardening programs on evacuation routes.	2023 WMP	VI.A.2

Item	Utility	Recommendation	Timeframe	Section of these Comments
71	Liberty, PacifiCorp	Liberty and PacifiCorp should compile a list of areas where there is likely to be difficulty evacuating in the event of a catastrophic wildfire.	2023 WMP	VI.A.2
72	All utilities	Energy Safety should require all utilities to proactively identify areas of their service territory with high fire risk, substantial population, and limited egress, and then identify prompt and effective measures for reducing egress risk.	2023 WMP	VI.A.2
73	Small utilities	Energy Safety should require the small utilities to develop quantitative models to estimate and compare the relative consequences of PSPS and wildfires.	2023 WMP	VI.B.1
74	Small utilities	The small utilities should explain (with specific examples) how their PSPS consequence models measure harms to customers caused by PSPS and weigh these risks against those caused by wildfires.	2023 WMP	VI.B.1
75	Small utilities	Energy Safety should modify the WMP guidelines to improve reporting on how decisions made by other utilities affect the small IOUs' PSPS planning.	2023 WMP	VI.B.2
76	Small utilities	In the 2023 WMPs, each small utility should describe how it works with neighboring utilities to prepare for PSPS events.	2023 WMP	VI.B.2

III. BVES

A. Risk Assessment and Mapping

1. Energy Safety should require BVES to improve the quality and fidelity of its risk assessment methods.

BVES has historically assessed the risk of its circuits through its Fire Safety Circuit Matrix.[5] Each of BVES's circuits is assigned a Wildfire Risk Group score, which provides BVES a means of ranking the circuits from most to least risky.[6] The Wildfire Risk Group score is determined by a combination of asset data, inspection data, typical weather conditions, and more.[7]

While the Fire Safety Circuit Matrix provides a relative risk ranking of BVES's circuits, it is a low-fidelity[8] method that does not allow for risk estimation on a more granular level than individual circuits. BVES's circuits range from less than 1 mile to over 20 miles in length.[9]

BVES has taken steps to improve its risk assessment methods. In 2021, BVES contracted with Reax Engineering (Reax) to develop ignition probability and consequence maps for its system.[10] While these maps provide a far more granular view of risk across BVES's territory, the risk modeling used to develop them does not currently incorporate many features specific to BVES's system, such as specific asset data, the effects of vegetation management, or the effects of system hardening.[11]

Furthermore, BVES's Fire Safety Circuit Matrix and the risk maps developed with Reax are at odds with one another.

---

[5] BVES's 2022 WMP Update, p. 28.

[6] BVES's 2022 WMP Update, p. 29.

[7] BVES's 2022 WMP Update, p. 64.

[8] In this context, "fidelity" refers to the accuracy of a model's representation when compared to the real world. https://vva.msco.mil/default.htm?Special_Topics/Fidelity/default.htm

[9] Summation of the "Bare Wire OH Circuit Miles" column in Table 4.2-1 of BVES's 2022 WMP Update, p. 29.

[10] BVES's 2022 WMP Update, p. 70.

[11] "Impacts of routine and enhanced vegetation management activities (including tree-trimming, tree removal, inspections, etc.) are not considered in this model. Asset data (including asset age, health, inspection results, type, etc.) is not currently incorporated into this model. Impacts of system hardening and other initiative efforts is not currently incorporated into this model. Ingress or egress routes are not directly addressed by this risk model." BVES's 2022 WMP Update, p. 68.

Figure **1** and Figure 2 below show the wildfire risk according to BVES's Fire Safety Circuit Matrix and the maps developed with Reax. Both maps use warm colors (red and orange) to indicate circuits identified as high-risk and cold colors (blue and green) to indicate circuits identified as relatively low-risk. While there is some alignment between these maps, the maps from Reax appear to show a low risk for several circuits near the center of BVES's system, while the Fire Safety Circuit Matrix treats these circuits as moderate to high risk (as illustrated in Figures 1 to 3 below). This is concerning because BVES states that it plans to use the Reax maps to "validate risk assessments for determining WMP project priorities"[12] but has provided no information on how this validation will reconcile the differences between the risk assessment methods.

[12] BVES's response to data request CalAdvocates-BVES-2022WMP-07, question 1.

Figure **1** shows BVES's circuits colored by their relative risk ranking according to the Fire Safety Circuit Matrix. This assigns a high-risk score to 81.4 overhead circuit miles,[13] approximately one-third of BVES's system.[14] The populated areas nearest the lakeshore are generally assigned a low-risk score.

Figure 2 shows a map of BVES's bare overhead lines overlaid on a map from Reax that depicts the risk from powerline ignitions based on the probability of an ignition and the size of a fire that would originate from that ignition.

The two risk maps have some important similarities. In particular, the powerlines at the east end and northwest corner of BVES's system are shown to have high wildfire risks. The same is true of the Radford Circuit, which extends south from Big Bear Lake (at the bottom center) and is BVES's only line in High Fire-Threat District (HFTD) Tier 3.

[13] Summation of the "Bare Wire OH Circuit Miles" and "Covered Conductor OH Circuit Miles" columns for the 7 "high risk" circuits in Table 4.2-1 of BVES's 2022 WMP Update, p. 29.

[14] BVES has approximately 211 OH circuit miles. 81.4/211 = 38.6 percent.

Figure 1 - Risk Map Based on Fire Safety Circuit Matrix[15]

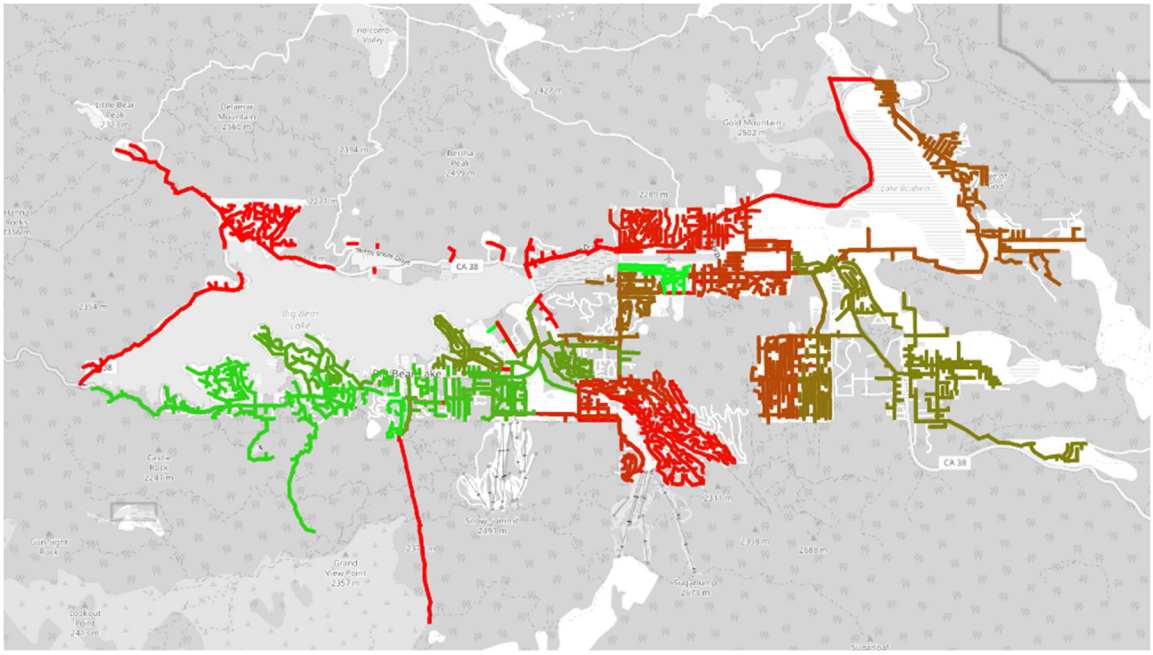
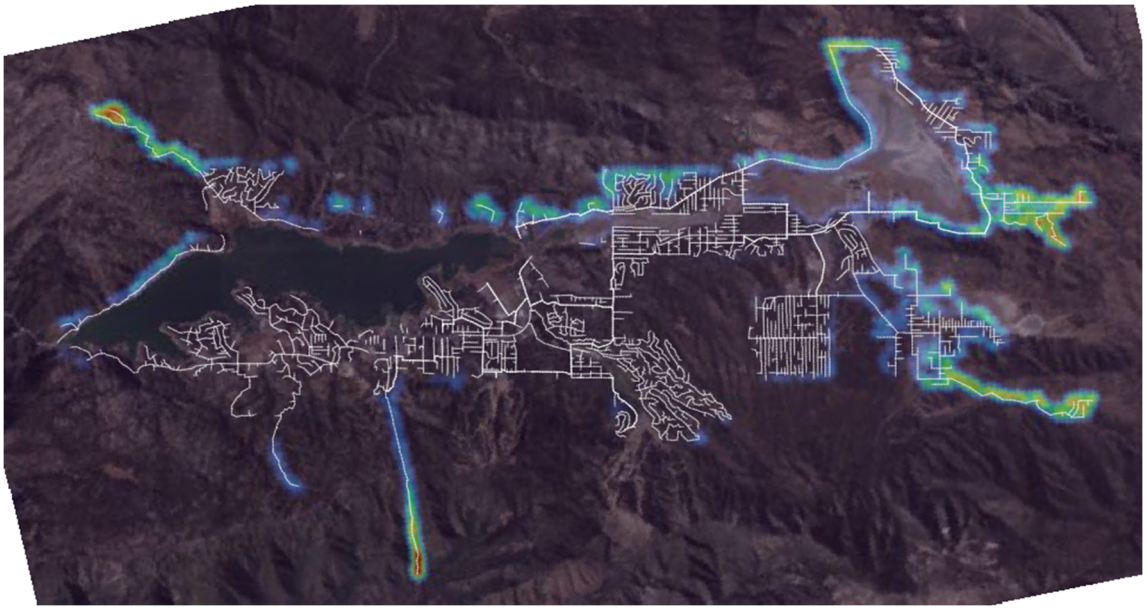


Figure 2 - Risk Map From REAX Engineering[16]

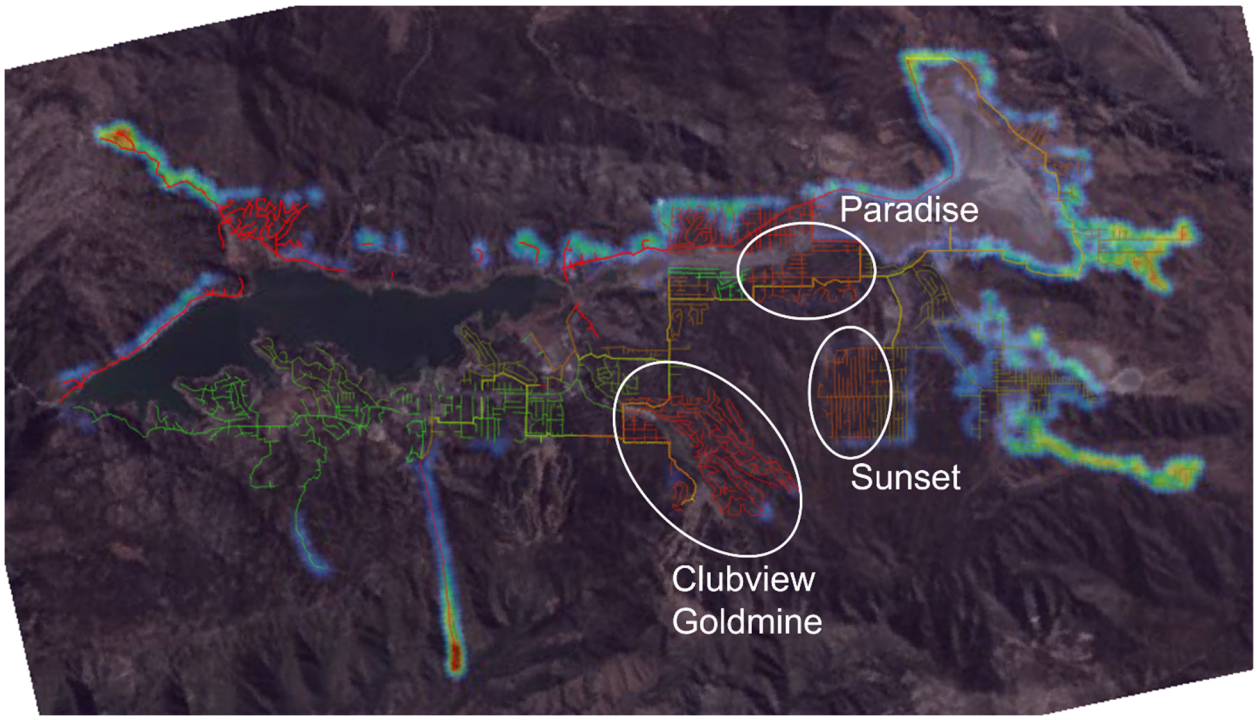


[15] Circuits are assigned a color based on their position in Table 4.2-1 of BVES's 2022 WMP Update, p. 29. Red indicates high risk per the Fire Safety Circuit Matrix; green indicates low risk per the Fire Safety Circuit Matrix.

[16] Overlay of the overhead lines in BVES's system extracted from the GIS data provided with its 2022 WMP, over a georeferenced screenshot of Figure 4.5-5: Modeled Risk from Power Line Ignitions (Based on Fire Area) from BVES's 2022 WMP Update, p. 71.

However, the two risk maps disagree as to the riskiness of several circuits, particularly the Goldmine, Clubview, Paradise, and Sunset circuits, which are circled in Figure 3 below. Each of these is ranked high or moderate risk according to the Fire Safety Circuit Matrix, but as low risk in the Reax maps.

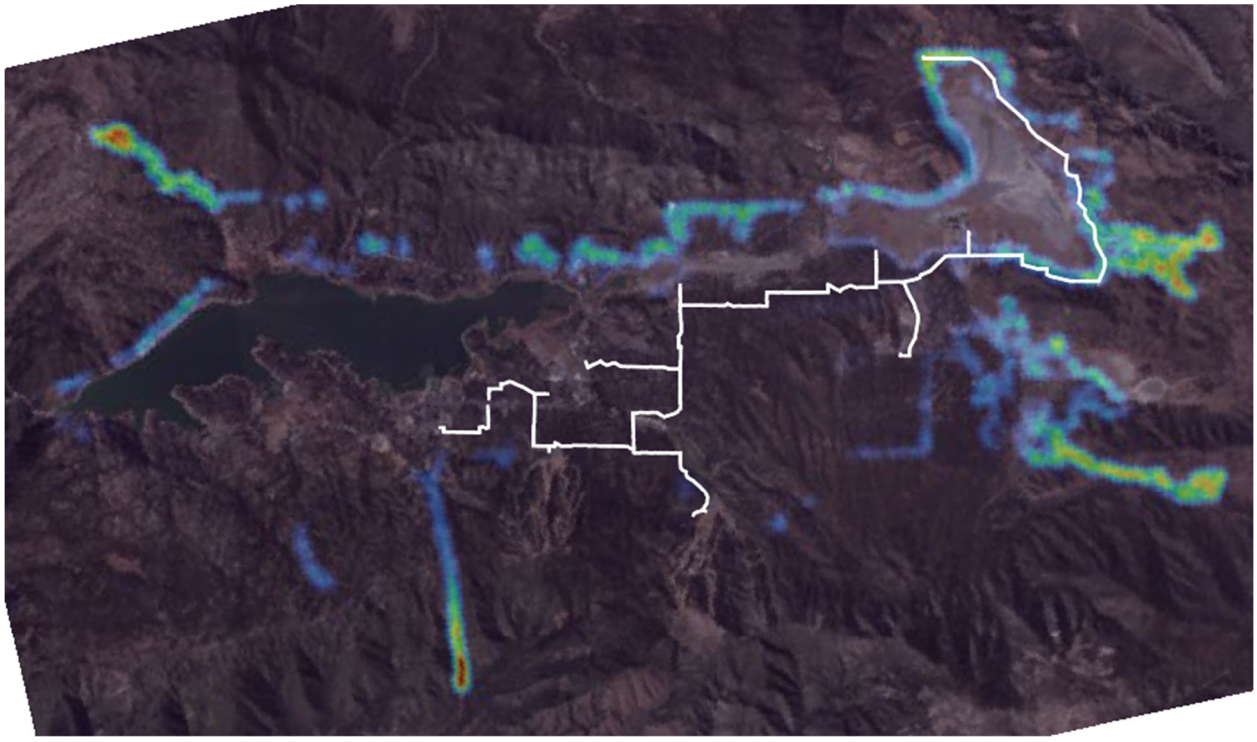
Figure 3 - Risk Model Disagreements[17]



[17] Overlay of the BVES's OH lines on a georeferenced screenshot of Figure 4.5-5: Modeled Risk from Power Line Ignitions (Based on Fire Area) from BVES's 2022 WMP Update, p. 71. Circuits are colored according to their risk ranking in BVES's Fire Safety Circuit Matrix.

There is also inconsistency between the Reax maps and the Fire Safety Circuit Matrix in portions of the Shay Circuit, which is ranked as the third-riskiest line in BVES's Fire Safety Circuit Matrix. While the northeastern portions of the Shay Circuit present an elevated fire risk according to both methods, much of the remainder of the circuit is low-risk according to the Reax maps. This is indicative of the problem associated with assigning an entire circuit the same risk value, as in the Fire Safety Circuit Matrix. The Shay Circuit is shown in white in Figure 4**Figure 3** below.

Figure 4 - Shay Circuit[18]



While BVES has taken steps to improve the fidelity of its risk assessment methodology, there is clearly still work to be done. Energy Safety should require BVES to improve the quality of its risk assessments and work to reconcile the differences between its Fire Safety Circuit Matrix and newer risk assessment methods such as the maps developed with Reax. This is important to ensure that BVES is accurately assessing the wildfire risk presented by its system and targeting mitigation initiatives to effectively reduce that risk. Energy Safety should require BVES report on its progress in this area in its 2023 WMP.

[18] Overlay of the BVES's Shay Circuit on a georeferenced screenshot of Figure 4.5-5: Modeled Risk from Power Line Ignitions (Based on Fire Area) from BVES's 2022 WMP Update, p. 71.

2. Energy Safety should require BVES to explain in its 2023 WMP how it uses risk assessments to prioritize wildfire mitigation work, especially system hardening.

While a number of BVES's wildfire mitigation initiatives are applied to the entire system,[19] several wildfire mitigation initiatives are only applied to portions of the system each year, such as covered conductor installation[20] and pole loading assessments.[21] BVES's WMP lacks adequate detail and description regarding how BVES determines where to perform these mitigations, as its historical risk assessment method can only assess risk at the circuit level (discussed further in section III.A.1 of these comments).

For example, with regard to covered conductor, BVES has approximately 20.5 bare overhead circuit miles of 34.5 kV sub-transmission, and 170.4 bare overhead circuit miles of 4 kV distribution.[22] BVES currently installs covered conductor at an average rate of 4.3 circuit miles per year on 34.5 kV lines and 8.6 circuit miles per year on 4 kV lines.[23] To determine the specific miles to be hardened, BVES states:

> Several factors are considered when determining which specific miles of 4kV distribution wire is replaced. Some of these factors include risk of the circuit, benefit to the overall system design, ignition and consequence modeling, and current condition of the circuit.[24]

BVES's explanation is extremely general and does not explain how it chose the specific miles it plans to harden in 2022. This is especially concerning since, as discussed in section III.B.1 of these comments, BVES does not appear to be targeting the highest risk locations for covered conductor installation, according either to its Fire Safety Circuit Matrix or the Reax wildfire risk maps.

It is important that BVES prioritize its mitigation efforts to high-risk locations in order to reduce the most risk in the early years of the program and thereby maximize the benefit to its

---

[19] For example, initiative 7.3.4.7 LiDAR inspections of distribution electric lines and equipment, and initiative 7.3.4.11 Patrol inspections of distribution electric lines and equipment.

[20] Initiative 7.3.3.3.1 and 7.3.3.3.2 Covered Wire Program – (4kV & 34.5kV) Systems.

[21] Initiative 7.3.4.13 Pole loading assessment program to determine safety factor.

[22] Summation of the "Bare Wire OH Circuit Miles" column in Table 4.2-1 of BVES's 2022 WMP Update, p. 29.

[23] BVES's 2022 WMP Update, p. 152.

[24] BVES's response to data request CalAdvocates-BVES-2022WMP-07, question 5.

customers. This is especially true in the case of covered conductor installation, which is a highly capital-intensive program.[25] To maximize the public safety gains, BVES should ensure it is accurately assessing the risk in its system and hardening the riskiest portions first.

Energy Safety should require BVES to explain in its 2023 WMP how it uses risk assessments to prioritize its mitigation efforts. Energy Safety should also require BVES to provide an update with its WMP quarterly data report for the third quarter of 2022. This update should explain in detail how BVES chose where to perform specific projects (including but not limited to covered conductor installation, detailed asset inspections, and pole loading assessments) that do not target the entire system.

3. Energy Safety should require BVES to more fully explain its use of a 48-hour fire spread simulation in its 2023 WMP.

In 2021, BVES contracted with Reax Engineering to develop ignition probability and consequence maps for its system.[26] To model the potential consequences of an ignition, Reax modeled fire spread over a 48-hour duration.[27] This simulation duration is more than twice as long as any of BVES's peer small utilities, and six times as long as the three large IOUs.[28], [29], [30], [31]

---

[25] Covered conductor installation accounts for more than a third of BVES's projected 2022 WMP costs. Per Table 12, BVES projects spending $6,570,389 installing 12.9 miles of covered conductor, and an additional $1,235,987 to cover the Radford circuit. Per Table-3.1-2 in BVES's June 8, 2022 WMP Errata, BVES projects spending $20,438,970 on its 2022 WMP. ($6,570,389 + $1,235,987)/$16,239,820 = 38.2%.

[26] BVES's 2022 WMP Update, p. 70.

[27] "Fires are modeled as unsuppressed for a duration of 48-hours because all operational fire models, including ELMFIRE, cannot reliably model fire suppression." BVES's 2022 WMP Update, p. 69.

[28] "For each ignition location, fire spread is modeled for 24 hours." Liberty Utilities' 2022 WMP Update, p. 66.

[29] "Currently, PG&E uses Technosylva's 8-hour simulation product." PG&E's 2022 WMP Update, p. 159.

[30] "SCE concludes by emphasizing the intention of the risk models (to prioritize) and discusses modeling limitations (e.g., model employs an eight-hour burn duration)." SCE's 2022 WMP Update, p. 111.

[31] SDG&E's response to data request CalAdvocates-SDGE-2022WMP-07, question 1.

BVES states that Reax recommended using a 48-hour simulation duration.[32] However, BVES was unable to provide any data on the accuracy of simulations over 48 hours.[33] It is notable that Reax has contracted with Liberty for a similar purpose but used a 24-hour fire spread duration in that case.[34]

As BVES notes, current operational fire models cannot reliably model the effects of fire suppression.[35] However, fire suppression resources will typically arrive long before 48 hours have passed. A model that simulates a fire over 48 hours will therefore tend to overestimate the size of the fire. This may lead BVES to assign an inflated risk value to utility assets near urban areas, where it is reasonable to expect the rapid arrival of fire suppression teams.[36]

In BVES' 2023 WMP, Energy Safety should require BVES to provide a justification for its decision to utilize a fire spread duration of 48 hours, if BVES continues the practice in 2023. This explanation should include an analysis of the accuracy of fire simulations at several different durations. BVES should show quantitative comparisons of the size of historical fires in California and the modeled behavior of the same fires,[37] to validate the accuracy of fire simulations at each duration. Depending on the results of this analysis, BVES should modify its fire spread duration and update its risk maps appropriately in its 2023 WMP.

[32] BVES's response to data request CalAdvocates-BVES-2022WMP-07, question 6.

[33] BVES's response to data request CalAdvocates-BVES-2022WMP-07, question 6.

[34] Liberty Utilities' 2022 WMP Update, p. 31.

[35] BVES's response to data request CalAdvocates-BVES-2022WMP-07, question 6.

[36] On the other hand, intervenors have previously commented that an 8-hour fire simulation, as used by the large IOUs, may be too short to adequately model a catastrophic fire. As discussed in section V.A.1 of these comments, the ideal simulation duration is likely to be somewhere between 8 hours and 48 hours. Cal Advocates recommends that all six utilities study this issue and report on it in their 2023 WMPs.

See, e.g., *Mussey Grade Road Alliance Comments On 2022 Wildfire Mitigation Plans of PG&E, SCE, and SDG&E*, April 11, 2022 p. 44.

[37] Especially, fires in terrain with similar characteristics to BVES's service territory.

B. Grid Design and System Hardening

1. Energy Safety should require BVES to prioritize covered conductor installation in high-risk areas.

BVES installs covered conductor at an average rate of 4.3 circuit miles per year on 34.5 kV lines and 8.6 circuit miles per year on 4 kV lines.[38] BVES states that its "covered wire program targets the highest risk circuits as a priority."[39] However, an analysis of BVES's proposed covered conductor installations for 2022 and 2023 indicate that many of these planned installations are not located in high-risk locations. As discussed in more detail in section III.A.1, BVES has multiple methods of assessing the wildfire risk across its system, but regardless of which risk assessment method is used, BVES is not prioritizing its covered conductor installation to improve the highest risk portions of its system. BVES's WMP does not contain sufficient detail to explain how it has chosen the specific miles it plans to harden.[40]

In 2022, BVES plans to install 16.3 miles of covered conductor.[41] Per its Fire Safety Circuit Matrix, BVES has ranked 7 circuits as "high risk."[42] However, it plans to install only 8.5 circuit miles of covered conductor in those circuits, whereas it plans to install 7.8 miles of covered conductor on circuits ranked "moderate risk" or "low risk." Table 1 below shows how BVES' 2022 covered conductor projects compare to BVES' risk assessment.

[38] BVES's 2022 WMP Update, p. 152.

[39] BVES's response to data request CalAdvocates-BVES-2022WMP-05, question 1.

[40] Notably, aside from the Radford Circuit, BVES has not chosen to harden entire circuits in a given year. Therefore, BVES is selecting smaller portions of circuits for hardening, but it is not clear how BVES makes these selections.

[41] BVES's response to data request CalAdvocates-BVES-2022WMP-05, question 3.

[42] BVES's 2022 WMP Update, p. 29.

Table 1 **2022 Covered Conductor Installations** Sorted by Risk Tranche on the Fire Safety Circuit Matrix				
Risk Grouping	Voltage	Number of Circuits	Total Existing Mileage of Bare Conductor[43]	Projected **2022** Covered Conductor Installation (circuit miles)[44]
High Risk	34.5 kV	3	20.5	6.9
High Risk	4 kV	4	52.5	1.6
Moderate Risk	4 kV	12	112.7	7.3
Low Risk	4 kV	7	5.3	0.5

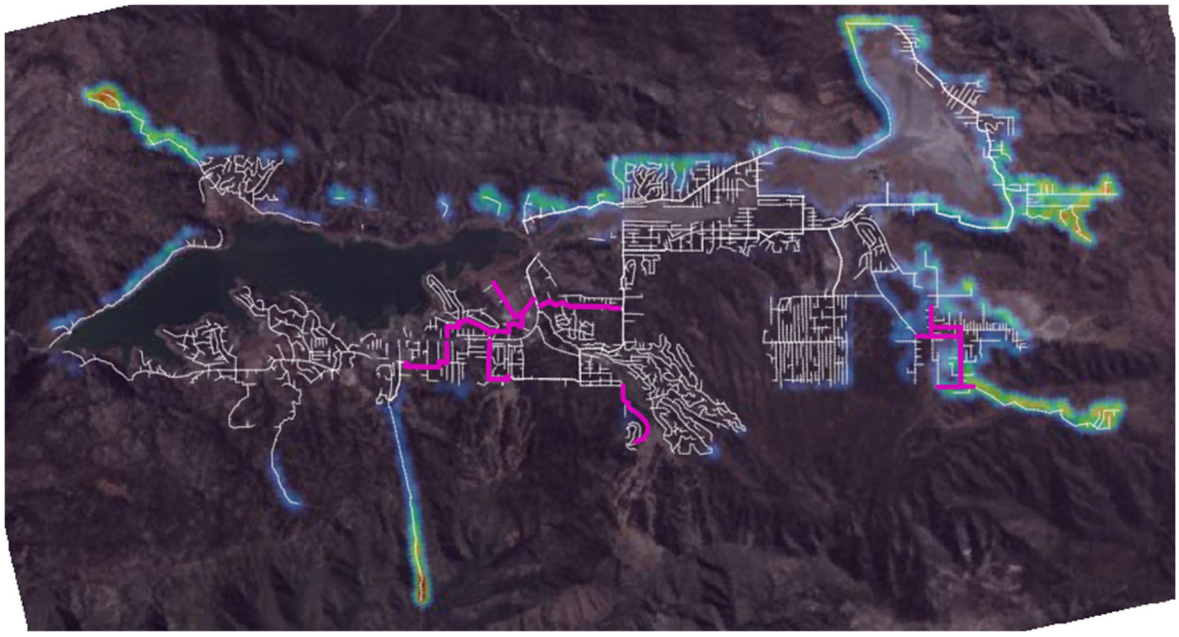
While a similar quantitative analysis is not yet feasible with the Reax risk maps, a qualitative overlay shows that, in 2022 and 2023, BVES plans to harden several lines that appear to have low wildfire risk. In the maps below (Figures 5 and 6), the lines that BVES plans to harden in 2022 and 2023 are shown in magenta. These two maps show that BVES plans to harden several lines to the southeast and east of Big Bear Lake, which are considered low-risk lines according to the Reax map.

[43] This table shows circuit-miles of bare, overhead circuits. Summation of the "Bare Wire OH Circuit Miles" column in Table 4.2-1 of BVES's 2022 WMP Update, p. 29.

[44] BVES's response to data request CalAdvocates-BVES-2022WMP-05, question 3.

Figure 5
2022 Covered Conductor Installation Projects Compared to REAX Risk Maps[45]

Figure 6
2023 Covered Conductor Installation Projects Compared to Reax Risk Maps[46]



[45] Overlay of the layer "CoveredCondutor2022" from BVES's 2022 WMP GIS data and a georeferenced screenshot of Figure 4.5-5: Modeled Risk from Power Line Ignitions (Based on Fire Area) from BVES's 2022 WMP Update, p. 71.

[46] Overlay of the layer "CoveredCondutor2023" from BVES's 2022 WMP GIS data and a georeferenced screenshot of Figure 4.5-5: Modeled Risk from Power Line Ignitions (Based on Fire Area) from BVES's

BVES's statement that its covered wire program targets the highest-risk circuits as a priority is not supported by its proposed system hardening in 2022 and 2023. That is, BVES has not provided a justification for its decision to install covered conductor in lower-risk portions of its system.

Energy Safety should require BVES to explain how it chose the specific locations where it plans to install covered conductor. BVES should provide this explanation with its quarterly data report for the third quarter of 2022. In it, BVES should clearly demonstrate how BVES is targeting the highest risk circuits as a priority and explain which risk assessment methods BVES uses to achieve this. Unfortunately, it may be infeasible to adjust the covered conductor projects that BVES undertakes in 2022; the current WMP filing schedule does not allow Energy Safety to issue findings in time to alter BVES' workplan for 2022.[47]

Finally, Energy Safety should also require BVES to update its covered conductor installation plans for 2023 and beyond to target the highest-risk sections of its system.

2. Energy Safety should require BVES to perform a study on the necessity of installing covered conductor across its entire system.

BVES states that it plans to eventually install covered conductor across its entire system. BVES plans to completely cover its 34.5 kV lines by the end of 2026[48] and its 4 kV lines by the end of 2042.[49] The estimated risk-spend efficiency (RSE) for this program is 0.21, and the cost is approximately $500,000 per circuit mile.[50]

2022 WMP Update, p. 71.

[47] Under the 2022 WMP Guidelines published on December 15, 2021, Energy Safety will publish a final action statement after August 31, 2022. As BVES's construction season ends on October 31, 2022, this would provide insufficient time for BVES to adjust its 2022 covered conductor installation plans if Energy Safety determines that its current workplan does not appropriately target high-risk lines, as we argue here. This is indicative of the issues raised in *Comments of the Public Advocates Office on the 2023 Wildfire Mitigation Plan Guideline Development Workshop*, May 6, 2022, pp. 9-12, where we expressed concern that the current WMP schedule hinders improvements and adjustments by the utilities. If the schedule were adjusted such that WMPs are approved or denied prior to the start of the implementation year, it would be feasible for BVES to reassess its 2022 workplans following Energy Safety's action statement, and modify workplans as needed to better target high-risk areas.

[48] BVES's 2022 WMP Update, p. 152.

[49] BVES's 2022 WMP Update, p. 153.

[50] Per Table 12 of BVES's 2022 WMP Update non-spatial tables, BVES spent $6,156,716 in 2021 to install 12.3 miles of covered conductor, for an average cost per mile of $500,546.

Wildfire risk is predominantly concentrated in a relatively small number of circuit miles in BVES's service territory.[51] While the Reax wildfire risk maps still require refinement (as discussed in section III.A.1 of these comments), they show great disparities in risk levels across BVES' territory.[52] Therefore, if BVES proceeds with covered conductor installation on the riskiest lines first, it will eventually reach a point where it has hardened the lines that present a serious wildfire risk. At that point, there will be diminishing benefits from installing additional covered conductor in lower-risk locations.

Focusing on high-risk circuit miles is important, because covered conductor is a costly mitigation measure. BVES projects that this initiative will cost $7.8 million in 2022.[53] These costs will be borne by BVES's approximately 25,000 customers.[54] This is concerning because since 2018, BVES customers have seen the highest rate increases due to wildfire mitigation activities of any electric IOU in California.

[51] See Figures 4.5-4 through 4.5-8 in BVES's 2022 WMP Update, pp. 70-72.

[52] BVES's 2022 WMP Update, p. 70.

[53] Per Table 12 of BVES's 2022 WMP Update, BVES projects capital expenditures of $6.6 million for its covered conductor installation program, and an additional $1.2 million to cover the Radford line.

[54] Per Table 3 of BVES's 2022 WMP Update, BVES has approximately 24,628 customers.

Table 2 Typical Monthly Bill Increases due to Wildfire Mitigation Activities [55]	
Utility	**Monthly bill increase since 2018** [56]
BVES [57]	$50.06
PG&E [58]	$20.22
Liberty [59]	$18.35
SCE [60]	$9.91
SDG&E [61]	$6.88
PacifiCorp [62]	$0

BVES has approximately 20.5 circuit miles of bare overhead 34.5 kV sub-transmission, and 170.4 circuit miles of bare overhead 4 kV distribution.[63] Installing covered conductor on the entire system could cost as much as $96 million by the time BVES hardens all circuits.[64] This is likely to lead to rate increases that BVES's customer base cannot support.

BVES should consider performing alternative, lower-cost mitigations that can be implemented more quickly than covered conductor. This would allow BVES to reduce the risk

[55] Rate increases are normalized for an assumed monthly consumption of 500 kWh.

[56] This column shows the increase in the average customer's monthly bill since 2018, including the projected cost increases in 2022.

[57] Derived by multiplying the cost per kWh by 500 kWh. Cost per kWh from Table 3.2-1 in BVES's 2022 WMP Update, p. 18.

[58] From Table 3.2-1 in PG&E's 2022 WMP Update, p. 42.

[59] Per Table 3.2-1 in Liberty's 2022 WMP Update, p. 24, the average expected monthly residential rate increase in 2022 is 17%, or $18.35. No information is provided on the number of kWh used monthly, however, so this may not be comparable to the other values in this table.

[60] From Table 3-3 in SCE's 2022 WMP Update, p. 28.

[61] Derived by multiplying the monthly cost by 1.25 to convert from an assumed consumption of 400 kWh/month to 500 kWh/month. Costs from Table 3.2 in SDG&E's 2022 WMP Update, p. 17.

[62] From Table 3.2-1 in PacifiCorp's 2022 WMP Update, p. 29.

[63] Summation of the "Bare Wire OH Circuit Miles" column in Table 4.2-1 of BVES's 2022 WMP Update, p. 29,

[64] Per Table 12 of BVES's 2022 WMP Update, BVES spent $6,156,716 in 2021 to install 12.3 miles of covered conductor, for an average cost per mile of $500,546. Multiplying this by the 190.9 circuit miles of bare conductor in BVES's territory results in an expected remaining cost of $95.55 million. Per BVES's 2022 WMP Update, p. 153, covered conductor installation will continue until approximately 2042.

in lower-risk portions of its system at the same time as it hardens the higher-risk portions of its system, thereby reducing wildfire risk more quickly and for less cost than the 20-year covered conductor plan BVES currently proposes.

Energy Safety should require BVES to perform to a study to assess the costs and benefits of covering its entire system. This study should separate the system into risk tranches and analyze each tranche separately. Cal Advocates proposes the following five risk tranches:

- The 34.5 kV lines
- The top quartile of 4 kV lines based on risk analysis
- The second quartile of 4 kV lines based on risk analysis
- The third quartile of 4 kV lines based on risk analysis
- The bottom quartile of 4 kV lines based on risk analysis

For each tranche, BVES should evaluate the benefits and costs of covered conductor, as well as the benefits and costs of alternative mitigations. BVES should identify and analyze at least two viable alternatives to widespread covered conductor. For instance, these could include: (a) enhanced vegetation management paired with fast-trip recloser settings, (b) enhanced vegetation management paired with more frequent detailed asset inspections, and (c) deployment of fault-detection and mitigation technologies such as Early Fault Detection or Rapid Earth Fault Current Limiter technology.

To the extent that BVES determines that widespread installation of covered conductor is necessary in relatively low-risk areas (for example, to address the expected effects of climate change), BVES should consider installing covered conductor on a rolling basis – that is, upgrading circuits as existing conductors reach the end of their useful life. This would allow BVES to prudently address expected wildfire risk while reducing the burden on ratepayers.

Energy Safety should require BVES to submit this proposed study in its 2024 WMP Update. In subsequent years, BVES should submit annual updates of its analysis for each risk tranche where it plans to perform work.

Cal Advocates also notes that a similar risk-to-benefit analysis will be needed in the future prior to BVES beginning construction on its proposed solar plus storage project, if approved. BVES plans to file an application to construct a 5 MW solar generation facility and a 20 MWh energy storage facility, which BVES claims would mitigate the risk of a possible future

PSPS event on SCE lines that supply BVES.[65] The combined cost for the two facilities is estimated at $27.7 million.[66] However, BVES has not yet demonstrated that the safety benefits warrant the significant cost of this project. BVES should submit a full analysis of the project in its WMP prior to filing an application for approval of the project at the CPUC.

3. Energy Safety should require BVES to work with the US Forest Service to ensure the Radford Covered Conductor Project is completed in 2023.

The Radford circuit is BVES's only line that crosses into HFTD Tier 3. It is ranked as the highest risk line according to BVES's Fire Safety Circuit Matrix.[67] In its 2019 WMP, BVES outlined a plan to replace the line with covered conductor, and stated that it planned to complete the project in 2019, with possible deferral to 2020.[68] Since then, the project has been delayed several times, and BVES most recently stated that it plans to complete the project in 2022, but may need another deferral to 2023.[69]

BVES cites "an extremely long lead-time in obtaining a permit from the US Forest Service" as the reason for these delays.[70] Cal Advocates met with representatives from the US Forest Service on June 9, 2022 and learned that the Forest Service had been waiting on a response to deficiencies in BVES's permit application and updated applications.[71] Specifically, on November 4, 2021, BCR Consulting (BVES's contractor) filed a permit application with the US Forest Service to perform an archaeological inventory prior to beginning construction on the Radford line covered conductor project.[72] The application was found deficient on November 8, 2021, and BCR Consulting filed an updated application on December 9, 2021. This application

[65] BVES's 2022 WMP Update, pp. 168-169.

[66] BVES's response to data request CalAdvocates-BVES-2022WMP-08, Question 3.

[67] BVES's 2022 WMP Update, p. 29.

[68] BVES's 2019 WMP, p. 23.

[69] BVES's 2022 WMP Update, pp. 95 and 159.

[70] BVES's response to data request CalAdvocates-BVES-2022WMP-06, question 4.

[71] Conversation between Cal Advocates and USFS staff for the San Bernardino National Forest on June 9, 2022.

[72] Email from BCR Consulting to the US Forest Service on November 4, 2021, provided to Cal Advocates on June 9, 2022.

was again found deficient on February 17, 2022. On June 9, 2022, the US Forest Service received a third application from BCR, which it is in the process of reviewing.

It is unlikely that the Radford line covered conductor project will be completed in 2022 due to BVES's deficient permit applications. Construction would need to conclude by the end of October 2022 to avoid construction during winter months.[73] Project completion is probably no longer feasible this year, because the project will take about 5.5 months once the permits are granted.[74], [75] If the project is delayed until 2023, as appears likely, it will be constructed four years later than the original plan.

Energy Safety should require BVES to report on the status of the Radford line covered conductor project in its WMP quarterly data reports, beginning with the third quarter in 2022. These reports should include the specific stage of the permitting process that BVES is engaged in, and should state the specific reasons for any delays, such as a rejected application from its contractor. The report should set forth the specific actions BVES has taken to address deficiencies and delays. In particular, BVES should describe how it is exercising oversight of its contractors for the project, holding contractors to deadlines, and creating incentives or penalties for performance.

To ensure the project is not delayed past 2023, Energy Safety should not approve BVES's 2023 WMP unless BVES has completed all permitting steps with the US Forest Service by the time it submits its 2023 WMP.

---

[73] BVES's 2022 WMP Update, p. 156.

[74] The archaeologic inventory permit application from BCR would have had to be approved by about mid-May 2022 to ensure that construction could be completed in 2022. Once the archaeological inventory application is approved, the US Forest Service estimates that construction could begin within approximately ten weeks, accounting for the remaining reports and consultations required to construct on US Forest Service land. (Conversation between Cal Advocates and USFS staff for the San Bernardino National Forest on June 9, 2022.) BVES estimates that construction on the Radford line covered conductor project will take approximately three months (BVES's 2022 WMP Update, p. 156). Therefore, it will take about five and a half months from approval of the archeological permit to the completion of construction.

[75] USFS representatives have estimated it will take 2.5 months from permit approval to the beginning of construction. This estimate includes approximately two weeks to perform the archeological inventory, one month for the US Forest Service to review and approve the archaeological inventory report, and one month for BCR Consulting to consult with the State Historic Preservation Officer. These numbers are rough approximations based on the conversation between Cal Advocates and USFS staff for the San Bernardino National Forest on June 9, 2022.

C. Asset Management and Inspections

1. Energy Safety should require BVES to provide quarterly reporting on the implementation of its asset inspection QA/QC program.

In its final action statement on BVES's 2021 WMP Update, Energy Safety listed the lack of an inspection quality assurance (QA) and quality control (QC) program[76] as a key area for improvement.[77] In response, BVES developed a formalized QA/QC protocol at the end of 2021.[78] In the interim, BVES utilized "informal procedures and team communication to govern and control most inspection activities."[79] BVES did not perform any independent QA/QC field inspections for patrol inspections, substation inspections, or detailed asset inspections in 2021.[80]

BVES has a single inspector[81] who is responsible for inspecting 211 circuit miles of overhead lines[82] and approximately 6,900 poles.[83] Field QC inspections are important to verify the quality of this inspector's work.

Energy Safety should require BVES to begin performing field QC inspections in 2022 and report results quarterly. BVES should report the number of field QC inspections performed

---

[76] For a discussion of the difference between quality **assurance** and quality **control**, see *Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Updates of the Small and Multijurisdictional Electric Utilities*, April 14, 2021, pp. 4-5.

Quality assurance refers to "a program for the systematic monitoring and evaluation of the various aspects of a project, service, or facility to ensure that standards of quality are being met." https://www.merriam-webster.com/dictionary/quality%20assurance

Quality control refers to "an aggregate of activities (such as design analysis and inspection for defects) designed to ensure adequate quality especially in manufactured products." https://www.merriam-webster.com/dictionary/quality%20control

[77] Item BVES-21-09 in Energy Safety's *Final Action Statement on 2021 Wildfire Mitigation Plan Update – Bear Valley Electric Service, Inc.*, pp. 13-14.

[78] BVES's 2022 WMP Update, p. A-15.

[79] BVES's 2022 WMP Update, pp. A-15 to A-16.

[80] BVES's response to data request CalAdvocates-BVES-2022WMP-08, questions 9, 10, and 12.

[81] BVES's response to data request CalAdvocates-BVES-2022WMP-08, question 16. BVES's single inspector performs patrol inspections of the entire overhead system (211 circuit miles) and detailed inspections of approximately 20 percent of the overhead system each year.

[82] BVES's 2022 WMP Update, p. 92.

[83] Per BVES's response to data request CalAdvocates-BVES-2022WMP-08, question 15, BVES has an average of 30 to 35 poles per circuit mile. Assuming 32.5 poles per circuit mile, and 211 overhead circuit miles, BVES has approximately 6,858 poles.

and the results of those field QC inspections in its quarterly data reports for Q3 and Q4 of 2022, and in its 2023 WMP.

2. Energy Safety should require BVES to justify the decelerated pace of its pole loading assessment program.

In our comments on BVES's 2021 WMP Update, Cal Advocates noted that BVES was reducing the pace of its pole loading assessment program and thereby pushing back its expected completion date for the program from 2022 to 2026.[84] BVES now states that, at the end of 2022, it will close out the pole loading program and thereafter assess poles in coordination with the covered conductor program thereafter.[85] As noted in section III.B.2 of these comments, BVES's planned covered conductor program will continue through approximately 2042. This will greatly slow the pace of BVES's pole loading assessments.

In 2020 and 2021, BVES assessed a total of 748 poles.[86] More than half of those poles failed the assessment.[87] While the deficiencies found in 2021 were all low priority (level 3) deficiencies,[88] the high rate of deficiencies is concerning. As BVES notes, its entire service territory is in HFTD Tier 2 or 3, and its system is subject to heavy loading requirements due to its exposure to severe weather.[89] With a failure rate of over 50 percent from these pole loading assessments, it is concerning that BVES has decided to slow rather than accelerate this program.

Energy Safety should require BVES to justify its decision to close out the pole loading program in its 2023 WMP. BVES should provide data on the safety implications of its proposed rate of pole loading assessments, which is drastically slower than BVES proposed in its 2020 and 2021 WMPs. Among other things, in its 2023 WMP, BVES should detail the number and types of failures found in its pole loading assessments performed in 2021 and 2022. BVES should also

---

[84] See *Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Updates of the Small and Multijurisdictional Electric Utilities*, April 14, 2021, pp. 13-15.

[85] BVES's response to data request CalAdvocates-BVES-2022WMP-08, question 13.

[86] Per Table 3 of BVES's 2022 WMP Update, BVES assessed 191 poles in 2020 and 557 poles in 2021.

[87] Per Table 3 of BVES's 2022 WMP Update, 107 poles failed assessment in 2020 and 279 poles failed in in 2021. This is 386 failed poles between 2020 and 2021, or a failure rate of 51.6 percent.

Per BVES's response to data request CalAdvocates-BVES-2022WMP-09, question 1, "The poles assessment is based on wind loading, age, deterioration, unfixable GO-95 violation."

[88] BVES's response to data request CalAdvocates-BVES-2022WMP-09, question 1.

[89] BVES's 2022 WMP Update, p. 187.

list the number of poles in high-risk locations[90] that have not recently been subjected to a pole loading assessment. This information will enable Energy Safety and stakeholders to assess whether the deceleration of pole loading assessments is likely to present an increased wildfire risk in BVES's service territory.

D. Public Safety Power Shutoffs (PSPS)

1. BVES should include the Commission's Phase 3 PSPS Guidelines in its PSPS Plan.

In its PSPS Plan (attached to its WMP as Appendix B), BVES lists the decisions that inform its PSPS plan.[91] Missing from this list is the Phase 3 Decision (D.21-06-034) adopted in the de-energization rulemaking in June of 2021.[92] BVES acknowledges it is still in the process of updating its PSPS plan and protocols to align with the Phase 3 PSPS guidelines, but states that this alignment will be complete at some point in "mid-2022."[93]

It is unacceptable that BVES has not yet updated its PSPS plan to include guidelines, issued a full year ago, that are necessary to protect populations that are particularly vulnerable during a PSPS event. This failure to include the latest guidelines means BVES potentially navigated the 2021 peak fire season (i.e., late summer and early fall) without having a plan in place to adhere to all the Commission's PSPS requirements. For example, the Phase 3 guidelines include a requirement to file a Community Resource Centers (CRC) plan on an annual basis, which includes how the utility will serve medical baseline and Access and Functional Needs (AFN) populations.[94] Additionally, the Phase 3 Decision requires all electric utilities to identify "persons reliant on electricity to maintain necessary life functions" (beyond those currently enrolled in medical baseline tariffs).[95]

---

[90] High-risk, for this purpose, can be defined as either being in the High-Risk category of the Fire Safety Circuit Matrix or being in the riskiest 20 percent of the system according to the Reax maps.

[91] BVES 2022 WMP Update, pp. B-4 to B-5.

[92] Decision (D.) 21-06-034 *Adopting Phase 3 Revised and Additional Guidelines and Rules for Public Safety Power Shutoffs (Proactive De-Energizations) of Electric Facilities to Mitigate Wildfire Risk Caused by Utility Infrastructure* in Rulemaking 18-12-005, issued June 24, 2021.

[93] BVES 2022 WMP Update, p. 239.

[94] D.21-06-034, p. A1.

[95] D.21-06-034, pp. A8-A9.

BVES states that "to date, due to privacy issues, BVES has been unable to collect comprehensive data on AFN populations,"[96] which means that BVES does not have the data that it is required to collect on vulnerable populations. At least equally problematic is the fact that BVES has not explained what measures it has taken to collect the needed data.

In response to these issues, Energy Safety should require BVES to identify persons reliant on electricity to maintain necessary life functions, including for durable medical equipment and assistive technology, pursuant to D.21-06-034. BVES should report on the status of this collection in its 2023 WMP. If the AFN data is still incomplete at that time, BVES should also include a plan to collect comprehensive data. Furthermore, Energy Safety should direct BVES to file a revised PSPS plan within 30 days of Energy Safety's action statement on BVES' WMP, since BVES stated that it will finish integrating the requirements of D.21-06-034 into its PSPS plan in mid-2022.

[96] BVES 2022 WMP Update, p. 74.

IV. Liberty

A. Wildfire Mitigation Strategy

1. Energy Safety should require Liberty to explain how it will finish its incomplete 2021 WMP work and show that its 2022 targets are feasible.

In 2021, Liberty fell significantly behind on implementing initiatives under the Grid Design and System Hardening, Vegetation Management, and Asset Inspection categories.[97] In its 2022 WMP, Liberty acknowledges the shortfalls, but fails to provide adequate information on the utility's plans to address the shortfalls. Liberty also fails to identify whether it plans to catch up on the incomplete 2021 goals (and if so, how) or whether Liberty's mitigation initiatives will be permanently behind schedule.

Table 3
Liberty's WMP Performance, 2021 – 2022[98]

	2021 Target output	2021 Actual output	2022 Target output
Covered Conductor Installation	9.1 miles	3.75 miles	9.55 miles
Expulsion Fuse Replacement	1,500	867	1,500
Vegetation Management Detailed Inspections	207 miles	178 miles	221 miles
Asset Management Detailed Inspections	52 miles	60 miles[99]	308 miles

a) Covered Conductor

Liberty is investing heavily in covered conductor installation as a wildfire mitigation initiative in 2022 and beyond. Liberty chose covered conductor installation as its primary

[97] Liberty's 2022 WMP, Table 5.3-1: List and Description of Program Targets, last 5 years, pp. 81-82.

[98] Liberty's 2022 WMP, Table 5.3-1: List and Description of Program Targets, last 5 years, pp. 81-82.

[99] Liberty's response to CalAdvocates-Liberty-2022WMP-09, question 1a, June 2, 2022: "Liberty erroneously reported 20 circuit miles for detailed inspections in 2021. The actual number is 59.8 circuit miles completed for detailed inspections in 2021."

system hardening initiative on claims that this mitigation is more cost-effective than undergrounding.[100]

Liberty has set a target of installing 9.55 miles of covered conductor in 2022.[101] However, in 2021 it only completed 3.75 miles of covered conductor installation, well short of its target of 9.1 miles. This performance calls into question Liberty's ability to reach its higher 2022 target.[102]

Liberty does not provide meaningful detail in its plan. Liberty merely states,

> In addition, covered conductor projects delayed from 2021 have [been] rolled into 2022 for completion. These projects have high assurance for completion without delays.[103]

Specifically, Liberty does not explain whether rolling projects into 2022 means that the utility has increased its 2022 targets to compensate for the 2021 shortfall or that other projects (previously scheduled for 2022) have been postponed. Liberty should provide more clarity on how it plans to meet the target goal of 9.5 new miles for 2022, while also completing the additional 6 miles missed in 2021.

b) Expulsion Fuse Replacements

The expulsion fuse replacement program aims to mitigate ignition potential by replacing traditional expulsion fuses with non-expulsion fuses.[104] Liberty failed to reach its 2021 projection of 1,500 fuse replacements; it only replaced 867 expulsion fuses. Liberty states,

---

[100] Liberty's 2022 WMP, p. 120:

> Due to the high cost of undergrounding in Liberty's service territory, which is over three times as costly as overhead covered conductor projects, undergrounding is not a reasonable or cost-effective option for wildfire mitigation in most cases.

[101] Liberty's 2022 WMP, Table 7.3.3-2: Liberty 2022 Covered Conductor Planned Projects, p. 111.

[102] Liberty's 2022 WMP, Liberty 2022 Q1 Performance Metrics Data Final, Table 12. See Table 12: Line 23 Cell AN.

[103] Liberty's 2022 WMP, pp. 26-27.

[104] Liberty's 2022 WMP, pp. 114-115:

> The goal of the expulsion fuse replacement program is to mitigate ignition potential of traditional expulsion fuses by replacing them with non-expulsion alternatives. When a fault occurs on the distribution system, the fault is often isolated by an expulsion fuse, which, upon operation, discharges gas and particles that could ignite nearby vegetation. By replacing traditional fuses with non-expulsion fuses, the ignition potential is significantly reduced. The expulsion fuse replacement initiative installs CAL FIRE-approved non-expulsion fuse hardware,

> The primary reasons Liberty missed its 2021 target were supply chain issues impacting material availability and prohibitive lead times for procuring adequate materials. The Tamarack and Caldor fire responses also impacted Liberty's resources for this initiative. … Liberty has resolved supply chain issues by expanding its pool of suppliers and plans to maintain its target of 1,500 fuses per year until the approximately 9,000 fuses in Liberty's HFTD Tier 2 and Tier 3 areas are replaced.[105]

While Liberty does explain the cause of its shortfall and how these factors have been resolved, Liberty fails to describe whether it has considered how these factors may affect its 2022 performance. Liberty also does not explain whether the decreased number of fuse replacements completed in 2021 will affect Liberty's projected timeline to replace all expulsion fuses by the end of 2024.[106] From Liberty's statement, it appears that this program will now be completed in 2025 at the earliest.

c) Vegetation Management – Detailed Inspections

In 2021, Liberty fell short of its detailed inspections under the vegetation management category. Liberty states that its "target for detailed inspections of vegetation along its electric lines and equipment was 207 line miles in 2021. Liberty completed approximately 178 line miles of detailed vegetation inspections in 2021."[107] Liberty asserts that it fell short of its 2021 target due to its reallocation of resources in response to wildfires in its service territory.[108]

Notably, Liberty does not explain how it will increase vegetation management detailed inspections in 2022 to 221 miles – a 24 percent increase from what it achieved in 2021. This is

---

> which has shown reduced ignition potential compared to traditional fusing alternatives.

[105] Liberty's 2022 WMP, p. 115.

[106] The estimated completion date is based on the following calculation done by Cal Advocates: Liberty's estimate of 9,000 total fuse replacements divided by 1,500 fuse replacements a year equaling an estimated 6-year timeline. This timeline was started in 2019, implying that Liberty could complete this mitigation initiative by the end of 2024.

[107] Liberty's 2022 WMP, p. 133.

[108] Liberty's response to CalAdvocates-Liberty-2022WMP-07, question 5a, June 3, 2022:

> During emergency response to wildfires entering the service territory, Liberty moved inspectors from scheduled, detailed inspections to perform unscheduled, patrol where infrastructure was damaged or threatened by fire damaged trees.

important considering that the same obstacles that impeded Liberty's progress in 2021 may occur again, given the current drought conditions in California.[109]

d) Asset Inspections – Detailed Inspections

Liberty asserts that it performs detailed inspections of distribution and transmission lines in accordance with CPUC General Order (G.O.) 165. Liberty plans to increase its detailed asset inspections more than five-fold – from 60 miles in 2021 to 308 miles in 2022.[110] However, Liberty provides no meaningful explanation of how this large increase is feasible.

Liberty inspects approximately 20 percent of its asset system annually. This results in the entire system being inspected every five years.[111] As a result of its system-wide survey in 2020, Liberty generated a large volume of repair tags. This maintenance diverted resources from performing detailed inspections in 2021.[112]

---

[109] Cal Fire Incidents page, 2022 Outlook, viewed June 13, 2022. https://www.fire.ca.gov/incidents/

> California continues to experience longer wildfire seasons as a direct result of climate change. Extended dryness originating from January is expected to continue into the spring with little precipitation, leaving most of the state in moderate to extreme drought conditions prior to summer. These continued dry conditions, with above normal temperatures through spring, will leave fuel moisture levels lower than normal, increasing the potential for wildland fire activity.

[110] Liberty's response to CalAdvocates-Liberty-2022WMP-09, question 1a, June 2, 2022:

> When Cal Advocates inquired about Liberty's plan on how it would increase the number of circuit miles inspected from 20 circuit miles in 2021 to 308 circuit miles in 2022, Liberty noted "Liberty erroneously reported 20 circuit miles for detailed inspections in 2021. The actual number is 59.8 circuit miles completed for detailed inspections in 2021.

[111] Liberty's 2022 WMP, p. 121; Liberty's response to CalAdvocates-Liberty-2022WMP-09, question 1b, June 2, 2022:

> Liberty completed a full system survey of its overhead assets in 2020. In 2021, Liberty only inspected underground assets since the full system survey was completed on the overhead in 2020. Liberty's 2021-2025 schedule will meet GO 165 requirements.

[112] Liberty's 2022 WMP, p. 121:

> In 2020, a system-wide survey and detailed inspection of all overhead distribution and transmission equipment was completed for Liberty's service territory. The volume of repairs generated from the survey is such that there was a reduced number of detailed inspections performed in 2021. The full level of detailed inspections will resume as scheduled in 2022, encompassing approximately 20% of the overall system.

While it is good that Liberty is conducting these detailed inspections, Liberty should demonstrate that it will be able to achieve its goal of inspecting 20 percent of its entire system annually in future years. Liberty's 2022 target is less than 20 percent of its system. Combining this with Liberty's underperformance in 2021 means that Liberty will be substantially behind schedule for completing detailed inspections on its entire system over a five-year cycle.[113] Liberty should also be required to more thoroughly explain how it will promptly handle all repairs that are newly identified as it inspects 20 percent of the system annually.

e) Remedy: Liberty should submit a detailed workplan that explains how it will address WMP shortfalls.

Energy Safety should require Liberty to show how it will meet the goals set within its 2021 and 2022 WMPs and describe contingency plans in case the utility continues to fall behind. Additionally, it is important for Liberty to explain how it will address potential obstacles in the current and future years. Liberty's WMP provides little meaningful detail on how it will be able to complete the targets set for 2022.

Energy Safety should direct Liberty to submit a detailed workplan within 30 days of Energy Safety's action statement on Liberty's 2022 WMP Update. This deadline is appropriate because the current WMP year is already half over. Energy Safety should review Liberty's workplan as soon as possible, to ensure that Liberty meets its WMP targets for 2022. The workplan should address the following key points at a minimum:

- Explain how the utility will complete the unfinished 2021 WMP mitigation initiative goals;
- Explain whether Liberty will be able to catch up on 2021 WMP work that was not completed in 2021;
- Explain how Liberty plans to optimize its resources to complete its 2022 WMP covered conductor installation, expulsion fuse replacements, and detailed inspections of vegetation management and of assets;

[113] Cal Advocates calculated the estimated circuit miles Liberty should be inspecting each year based on inspecting 20% of the system annually. Liberty has an estimated total 1,951 circuit miles. 1,951 divided by a 5-year cycle equals an estimate of 390 miles per year starting in 2021 and ending in 2025. By the end of 2022, Liberty plans to perform detailed inspections of 368 miles, which is well short of the 780 miles that would be needed to be on track for 2021 and 2022 combined.

- Submit a revised Table 12 from its 2022 WMP to address any errors or delays;
- Detail how Liberty has addressed foreseeable challenges that would be the most likely barriers to Liberty completing its WMP initiative goals for 2022;

Subsequently, Liberty should be required to submit progress reports with each WMP quarterly report in 2022 and 2023 describing how its actual progress compares to its workplan.

B. Grid Design and System Hardening

1. Energy Safety should require Liberty to explain how it plans and prioritizes WMP initiatives to provide the greatest feasible amount of risk reduction.

Risk levels vary dramatically across the geography of each utility service territory. This makes it vital to know exactly where a utility is performing wildfire mitigation work. Targeting mitigation work to the places with the most acute wildfire risk can make the difference between a lifesaving project and an ineffective use of resources.

While Liberty has made progress in recent years working with Reax Engineering to develop and update wildfire risk models,[114] Liberty's WMP lacks detail on how Liberty will use these maps to determine where mitigation work should be performed. According to Liberty:

> In the initial phases (2020 and 2021) of the covered conductor program, areas of the service territory were selected based on local knowledge of the wildland/urban interface, locations of high fire threat districts, the age and condition of the current infrastructure, and accessibility and egress options during an emergency. Initiatives in 2020 and 2021 were focused on the southwest shores of Lake Tahoe and Fallen Leaf Lake in South Lake Tahoe.[115]

Liberty states that based on its risk-based assessments in 2021, covered conductor projects started in 2022 and beyond are now being chosen to provide the greatest amount of risk

[114] Liberty's 2022 WMP, p. 97.

[115] Liberty's 2022 WMP, p. 110:

> In the initial phases (2020 and 2021) of the covered conductor program, areas of the service territory were selected based on local knowledge of the wildland/urban interface, locations of high fire threat districts, and the age and condition of the current infrastructure. Areas were also chosen based on their accessibility and egress options during an emergency. Initiatives in 2020 and 2021 were focused mainly on the southwest shores of Lake Tahoe and Fallen Leaf Lake in South Lake Tahoe.

reduction.[116] Other factors that help determine the top priority covered conductor projects are outage and potential ignition history, infrastructure age, and reliability considerations."[117]

However, a review of Liberty's planned covered conductor project timelines and maps demonstrates otherwise.[118] Based on its project timelines and maps, Liberty's covered conductor projects for 2022 rarely target the "Very High" or "High" areas of wildfire risk identified by the Reax risk model. Six of the seven covered conductor projects Liberty plans to perform in 2022 are in "Low" or "Moderate" risk areas, with only one project in a "High" wildfire risk area. Liberty claims that it will perform work in "High" and "Very High" risk areas starting in 2023.

Currently, Liberty's covered conductor installation projects are not targeting the areas of highest wildfire risk. Therefore, Liberty is not providing the greatest amount of risk reduction for its customers. This is especially significant since Liberty's covered conductor installation unit costs are much higher than those of the other small utilities.[119]

---

[116] Liberty's 2022 WMP, p. 111:

> Since the deployment of Liberty's newly developed risk-based assessment, has resulted in covered conductor projects selected for 2022 and beyond being chosen based on the areas providing the greatest risk reduction gained by implementing covered conductor projects.

[117] Liberty's 2022 WMP, p. 113:

> Liberty is still in the early stages of implementing covered conductor projects and developing its methodology and process for the use of covered conductor…To determine the top priority projects for installation of covered conductor, Liberty evaluates outage and potential ignition history, risk analysis, infrastructure age, and reliability considerations.

[118] Liberty's 2022 WMP, pp. 111-112, Table 7.3.3-2: Liberty 2022 Covered Conductor Planned Projects and Table 7.3.3-3: Liberty 2023 Covered Conductor Planned Project; Liberty's 2022 WMP, Attachment C: Maps of Liberty Covered Conductor, Pole Replacement, and Fuse Replacement Projects, maps titled "Overview Grid Hardening Lines 2021-2024," Page 1 of 3, "Grid Hardening Lines 2021-2024," Pages 1, 2, and 3 of 3.

[119] Liberty's cost projections have also increased since 2020. Cal Advocates calculated an estimated actual 2021 covered conductor installation per mile for Liberty, Bear Valley, and PacifiCorp. Cal Advocates calculated this by reviewing the total capital expenditures and dividing by the total number of miles that were installed in 2021 that was reported under Table 12 for each of the utilities. For Liberty, $10,550,000/3.75 miles equaled an estimated $2.8 million/mile. For Bear Valley, $6,156,716/12.3 mile equaled an estimated $0.5 million/mile. For PacifiCorp, $19,922,000/20 miles equaled an estimated $1.0 million/mile.

Table 4 Liberty's Covered Conductor Installation Costs Cost per circuit mile, from 2020 to 2022 WMPs[120]			
	2020	**2021**	**2022**
Forecast unit costs (from same year's WMP)	$0.61 million	$1.8 million	$1.6 million
Actual unit costs	$1.1 million	$2.8 million	TBD

Energy Safety should require Liberty to submit a detailed system hardening workplan for 2022 demonstrating that it is prioritizing the highest-risk areas, to achieve the greatest amount of risk reduction feasible in the near term. If the planning of mitigation work does not align with the risk scores of the planned projects, Energy Safety should require Liberty to explain the disparity between its planned work and its wildfire risk analysis, and to evaluate whether its planned system hardening projects need to be modified or reprioritized. Liberty should also reevaluate the two planned covered conductor installation projects for 2022 and consider implementing projects in higher-risk areas sooner than 2023.[121] Energy should require Liberty to submit this detailed workplan for covered conductor projects within 30 days of Energy Safety's action statement. As the current WMP filing schedule allows little time to adjust the sequencing of system hardening projects for 2022, it is essential that Liberty submit its detailed workplan as soon as possible.[122]

---

[120] 2020 forecast unit costs from Liberty 2020 WMP, Table 23, p. 57; 2020 actual unit costs from Liberty 2021 WMP Update non-spatial data filing, Table 12; 2021 forecast unit costs from Liberty 2021 WMP Update non-spatial data filing, Table 12; 2021 actual unit costs from 2022 WMP Update non-spatial data filing, Table 12; 2022 forecast unit costs from 2022 WMP Update non-spatial data filing, Table 12.

[121] Liberty's response to CalAdvocates-Liberty-2022WMP-06, question 3a, May 24, 2022. Liberty provided a table that stated the month and year when Liberty began project planning, when Liberty began construction or plans to begin construction, and when Liberty currently plans to complete the project, for 2022 covered conductor planned projects. This is how Cal Advocates determined the number of projects that have not yet been started in 2022.

[122] Since Energy Safety will not issue a draft decision on Liberty's WMP until August, it may already be infeasible to improve the prioritization of projects for this year to better target high-risk areas. This is indicative of a broader problem. Cal Advocates has previously expressed concern that the current WMP schedule hinders improvements and adjustments by the utilities. (See *Comments of the Public Advocates Office on the 2023 Wildfire Mitigation Plan Guideline Development Workshop*, May 6, 2022, pp. 9-12.) If the schedule were adjusted such that WMPs are approved or denied prior to the start of the implementation year, it would be feasible for Liberty to reevaluate and improve its workplans based on Energy Safety's findings and direction.

Liberty should also explain in detail in its 2023 WMP how it uses risk analysis to prioritize mitigation work in the highest-risk locations. To ensure that Liberty proactively plans its 2023 system hardening projects based on risk, Energy Safety should require Liberty to submit a detailed workplan for 2023 with the WMP quarterly report for the 3rd quarter of 2022 or by the end of 2022 at latest.

C. Asset Management and Inspections

1. Energy Safety should require Liberty to implement quality assurance and quality control (QA/QC) programs for its asset inspections in a timely manner.

A robust QA/QC program is necessary to improve the quality of asset inspections and ensure that inspections do not overlook crucial safety problems. Having proper QA/QC processes in place not only allows Liberty to check the quality and consistency of work performed, but also aids in building upon its own in-house knowledge and experience. QA/QC processes may help to identify underperforming contractors; identify in-house inspectors who need additional training; inform analysis of how conditions are classified and prioritized; and identify ways to reduce the number of errors in the future.

a) Liberty has not performed any asset inspection QA/QC to date.

In comments on Liberty's 2021 WMP, Cal Advocates expressed concern about the utility's lack of established QA/QC procedures for asset inspections.[123] Energy Safety required Liberty to develop an interim QA/QC procedure for asset inspections, then establish a new QA/QC program by January 2022, to ensure that inspections are performed accurately and effectively.[124]

---

[123] *Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plans of the Small and Multijurisdictional Electric Utilities,* April 14, 2021, p. 16. Cal Advocates stated:

> Detailed and accurate QA/QC inspections of Liberty's WMP work are vital to ensuring that Liberty has up-to-date knowledge of potential failures and that they are detected early enough to correct them before they can cause catastrophic problems. Quality assurance refers to training staff on procedures and monitoring the work performance of both the utility's own staff and hired contractors, while quality control programs help to verify that the WMP work done has met the standards that the Commission has set forth.

[124] Energy Safety's final action statement on Liberty's 2021 WMP Update, item LU-21-04, pp 7.

However, Liberty did not issue its Asset Inspection QA/QC Program until March 2022.[125] Additionally, Liberty states that it will start conducting its QA/QC process only in the third and fourth quarters of 2022.[126] Liberty does not explain the reason for this delay.[127] While it is good that Liberty has developed a QA/QC program and plans on implementing it, delaying the implementation to the second half of 2022 without any explanation is troubling.[128]

Moreover, due to the delay in launching asset inspection QA/QC, it is not possible to evaluate the results. We can neither assess the quality of Liberty's asset inspections, nor the effectiveness of the quality control measures in catching any mistakes.

b) Liberty's plans to perform less QA/QC for asset inspections than its peer utilities.

Currently, Liberty plans to perform only one tenth of the QC for asset inspections of its peer utilities. The table below shows that this is a continuing practice. Liberty is performing QC on a smaller fraction of its asset inspections than the other small utilities.

[125] Liberty's 2022 WMP Update, Attachment F: Liberty Asset Inspection QA/QC Program.

[126] Liberty's response to Data Request CalAdvocates-Liberty-2022WMP-06, question 7, May 24, 2022.

[127] Liberty's response to Data Request CalAdvocates-Liberty-2022WMP-06, question 7, May 24, 2022. See also, Liberty's 2022 WMP Update, pp. 74, 78, 121, 124, and Attachment F.

[128] Liberty's response to Data Request CalAdvocates-Liberty-2022WMP-06, question 7, May 24, 2022.

Table 5 Comparison of asset inspection QA/QC programs[129]			
	BVES	**Liberty**	**PacifiCorp**
Approximate percentage of asset inspections to check with QC	5.0% [130]	0.5% [131]	5.0% [132]
2021 (Actual)	$19,870	N/A	$49,620
2022 (Projected)	$20,391	$30,000	$36,000
2023 (Projected)	$21,003	$30,000	$36,000

Energy Safety should direct Liberty to explain why it has chosen to perform QC inspections on only 0.5 percent of its asset inspections. Liberty should analyze whether this proposal is adequate to address the safety risks that can arise from flawed asset inspections and evaluate the benefits of performing QC inspections on a higher percentage of asset inspections.

c) Remedy: Energy Safety should direct Liberty to revise its WMP with a stronger asset inspection QA/QC program.

Energy Safety should require Liberty to revise its WMP by including a more robust asset inspection QA/QC program. Liberty should submit a plan to implement asset inspection QA/QC as soon as possible and should show that its program is adequate to avoid catastrophic safety failures. Energy Safety should also direct Liberty to report the results of the implementation of the interim QA/QC program that Energy Safety's 2021 action statement directed Liberty to create, or else explain why it was not implemented in 2021.[133]

Subsequently, Energy Safety should direct Liberty to submit quarterly updates on its asset inspection QA/QC programs, as part of the WMP quarterly reports. These quarterly updates should state the number of asset inspection QC checks performed in the past quarter and the

[129] Unless otherwise specified, values are provided from respective utility's 2022 WMP Update, Table 12, WMP Initiative #7.3.4.14.

[130] 2022 WMP Workshop for Small Utilities, May 18, 2022.

[131] Liberty's 2022 WMP Update, Attachment F: Liberty Asset Inspection QA/QC Program.

[132] *Policy 123: Pacific Power Facility Inspection Audit Policy for Transmission & Distribution Lines for California, Oregon, and Washington*, Revision 2, February 19, 2021, provided in PacifiCorp's response to Data Request CalAdvocates-PacifiCorp-2022WMP-09, Question 2, June 6, 2022.

[133] *Office of Energy Infrastructure Safety's Action Statement on 2021 Wildfire Mitigation Plan Update - Liberty,* LU-21-04, Part 3a., July 15, 2021, p. 7.

number planned for the upcoming quarter. Additionally, Liberty should provide the following data (at minimum) on *each QC inspection* performed in the past quarter:

- Date of original inspection;
- Date of QC inspection;
- Whether the QC inspection was performed by an employee or a contractor;
- QC results (including the accuracy score for the original inspection and whether it was deemed to pass or fail)
- Number and priority level of corrective actions identified.

Liberty should also provide several samples of completed QA/QC inspection reports. Requiring quarterly updates will allow Energy Safety and stakeholders to examine the effectiveness of Liberty's QC program and the quality of the original asset inspections.

D. Vegetation Management and Inspections

1. Energy Safety should require Liberty to describe in future WMP filings how it employs in-house and contract labor in vegetation management programs.

Liberty's WMP does not make clear which vegetation management inspections are staffed by Liberty employees and which employ contract labor.[134] Through discovery, Cal Advocates learned that Liberty relies on contract arborists to perform most vegetation inspections.[135] Liberty should include this information in future WMP filings to clarify how these programs operate.

In next year's WMP, Energy Safety should require Liberty to clearly denote the vegetation management programs that utilize contract or in-house labor, in what proportions that labor is employed, and the reasoning behind Liberty's decisions. As Cal Advocates has observed previously, in-house and contract labor each have strengths and weaknesses.[136] Providing clarity in the WMP about which vegetation management initiatives rely on in-house staff and

[134] Liberty's 2022 WMP, pp. 102. "Most of the maintenance work for vegetation management (pre-inspection, pruning, and tree removals) is performed by contractors and not by Liberty employees."

[135] Liberty's response to CalAdvocates-Liberty-2022WMP-07, question 4a, June 3, 2022: "Contract arborists perform most vegetation inspections."

[136] *Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plans of the Small and Multijurisdictional Electric Utilities,* April 11, 2022, pp. 40-42.

contractors will enable Energy Safety and other stakeholders to better understand Liberty's vegetation management procedures.

In addition, Liberty should explain in its 2023 WMP whether the contractors who perform the vegetation management work are the same contractors who perform quality control checks on vegetation management work. Currently, it is unclear whether Liberty's in-house staff perform the vegetation management QC inspections themselves or if the utility hires contractors to perform the vegetation management QC inspections (and Liberty employees subsequently review the results).[137]

Finally, Energy Safety should include a requirement in the 2023 WMP guidelines for each utility to describe the current mix of in-house and contract staff employed by each vegetation management program and to explain the utility's reasoning for staffing decisions.

V. PacifiCorp

A. Wildfire Mitigation Strategy

1. PacifiCorp should describe how it is learning from past safety incidents, including wildfires and PSPS events.

When previous wildfires or other safety incidents may have been caused by utility infrastructure, the utility owning the infrastructure has had a responsibility to examine the specific cause of the incident and to institute any changes necessary to prevent such incidents in the future.[138] Energy Safety should hold PacifiCorp to the same standard to which it holds PG&E after a wildfire linked to its infrastructure.

The Slater Fire ignited on September 8, 2020,[139] near Happy Camp in Northern California.[140] The fire ultimately burned 157,229 acres, and damaged 237 structures of which 197 were residential. Unfortunately, the fire resulted in two reported fatalities and three reported

[137] Liberty's 2022 WMP, pp. 149. "Liberty reviews VM QC inspection results and provides recommendations to VM contractors as needed."

[138] See *William B. Abrams Comments on the Utility Proposed 2022 Wildfire Mitigation Plan Updates*, April 11, 2022.

[139] Pacific Power's *Follow-Up Accident Report to the California Public Utilities Commission, October 16, 2022* indicates that the ignition took place on September 9, 2020, however this appears to be a typo. The United States Forest Service Report of Investigation indicates that the ignition took place on September 8, 2020.

[140] Pacific Power Follow-Up Accident Report to the California Public Utilities Commission, October 16, 2022.

injuries.[141] The United States Forest Service found that the fire was caused by a collapsed white fir tree "which appeared to have impacted [PacifiCorp's] power line when it fell."[142], [143]

Every catastrophic wildfire is regrettable, especially those such as the Slater Fire that cause fatalities. However, these unfortunate incidents also provide evidence about risk factors and opportunities to identify improvements in operations or wildfire mitigation strategies.

Despite the destructiveness of the Slater Fire, PacifiCorp does not identify (or even say whether it internally identified) any lessons that could help PacifiCorp to prevent a similar fire in the future. Indeed, PacifiCorp initially refused to answer most of Cal Advocates' policy questions about lessons from the Slater Fire."[144] Even when Cal Advocates issued a asked questions that were narrowly focused on *how* PacifiCorp has used the incident to improve its wildfire mitigation practices, PacifiCorp refused to answer most of them.[145] In those few instances where PacifiCorp did provide answers, some of the responses PacifiCorp provided were incomplete and inaccurate.[146]

---

[141] United States Forest Service Report of Investigation, Slater Fire, Case/File Number 20-05-MBBK0WI (USFS Slater Fire Report), undated, p.1.

[142] USFS Slater Fire Report, undated, p. 3. The USFS Slater Fire Report states that "the center of the tree was [hollow] and rotted but [the tree] appeared healthy on the exterior with green needles and cones." The tree was estimated to be 95.5 feet tall, and was located approximately 43 feet from the power line right of way.

[143] USFS Slater Fire Report, undated, p. 3. The report also states at p. 4: "When the tree fell it appears to have struck both conductors causing the east conductor to be pulled from the insulator of Pole 4. The west conductor and the insulator were broken from the crossmember of pole 4. The west conductor then severed. The east conductor remained intact and possibly was freed from the tree as the tree burned."

[144] PacifiCorp response to DR CalAdvocates-PacifiCorp-2022WMP-06, questions 1-4, May 24, 2022. Notably, PacifiCorp did not fully respond to this data request until *three weeks* after the due date.

[145] PacifiCorp provided partial responses to only three of eight questions. PacifiCorp response to DR CalAdvocates-PacifiCorp-2022WMP-11, June 7, 2022.

[146] PacifiCorp's responses to question 4 of data request CalAdvocates-PacifiCorp-2022WMP-11 were incomplete in that PacifiCorp omitted requested documents. The responses were inaccurate because PacifiCorp's responses pertain to an individual span rather than a circuit-segment, as requested. PacifiCorp stated that it would provide supplemental responses by June 13. PacifiCorp provided documents responsive to question 4b on June 15. However, PacifiCorp still has not provided documents responsive to question 4f, nor has it corrected its responses to the other parts of question 4.

In summary:

- PacifiCorp does not identify (or even say whether it internally identified) any lessons its subject matter experts, engineers, managers, or executives have learned about safely operating PacifiCorp's system.[147]
- PacifiCorp does not identify (or even say whether it internally identified) any company policies that were changed or adopted in response to the Slater fire.[148]
- PacifiCorp does not identify (or even say whether it internally identified) any changes to its wildfire mitigation priorities.[149]
- PacifiCorp does not describe (or even say whether it internally considered) how the Slater Fire influenced or changed company practices in each WMP initiative category.[150]
- PacifiCorp does not identify (or even say whether it internally identified) any changes in its PSPS thresholds or other PSPS practices, as a result of the Slater Fire.[151]

If PacifiCorp will not identify safety improvements made as a result of the Slater Fire, it is reasonable to infer that PacifiCorp has taken no lessons from the event.[152]

In its Revision Notice to PG&E regarding its 2022 WMP Update, Energy Safety notes that utilities are required, as a part of their WMP filings, "to use lessons learned to combat risk of utility-related wildfires."[153] Among the critical issues and required remedies identified for PG&E is that "PG&E has not adequately documented the causes of, or direct lessons learned from, PG&E-ignited catastrophic wildfires, including how such lessons have informed its WMP initiatives."[154] To remedy this, Energy Safety ordered PG&E to address the following:

---

[147] PacifiCorp response to DR CalAdvocates-PacifiCorp-2022WMP-11, question 5, June 7, 2022.

[148] PacifiCorp response to DR CalAdvocates-PacifiCorp-2022WMP-11, question 6, June 7, 2022.

[149] PacifiCorp response to DR CalAdvocates-PacifiCorp-2022WMP-11, question 6, June 7, 2022.

[150] PacifiCorp response to DR CalAdvocates-PacifiCorp-2022WMP-11, question 7, June 7, 2022.

[151] PacifiCorp response to DR CalAdvocates-PacifiCorp-2022WMP-11, question 8, June 7, 2022.

[152] At minimum, PacifiCorp should be able to affirmatively state whether or not it has identified possible safety improvements, which it could do without waiving attorney-client privilege.

[153] *Office of Energy Infrastructure Safety Issuance of Revision Notice for Pacific Gas and Electric Company's 2022 Wildfire Mitigation Plan Update and Notice of Extension of Office of Energy Infrastructure Safety's Determination Per Public Utilities Code 8389.3(a)* (PG&E 2022 WMP Revision Notice), May 26, 2022, p.3.

[154] PG&E 2022 WMP Revision Notice, May 26, 2022, p. 3.

For each PG&E-ignited catastrophic wildfire (greater than 500 acres) since 2017, PG&E must:

- List the cause(s) of each catastrophic wildfire and any associated lessons learned, and
- Detail the specific measures PG&E is taking to i) directly mitigate the causes of past PG&E-ignited catastrophic wildfires, and ii) integrate lessons learned from past PG&E-ignited wildfires into its wildfire mitigation strategy.[155]

Energy Safety should apply a similar policy to PacifiCorp. Therefore, Energy Safety should require PacifiCorp to submit a revised WMP which identifies factors that likely contributed to the cause of the Slater Fire, describes how PacifiCorp has analyzed the incident, discusses the implications for safety practices in general and wildfire mitigation initiatives specifically, and identifies any specific measures PacifiCorp is taking in response to the incident.

B. Risk Assessment and Mapping

1. Energy Safety should direct PacifiCorp to provide more detail on its risk assessment methodologies.

Energy Safety should require PacifiCorp to explain how it uses risk assessments to prioritize its wildfire mitigation initiatives. Risk assessment methodologies provide the necessary framework with which to assess wildfire risk and prioritize mitigation initiatives. PacifiCorp's WMP update provides limited detail on how it proposes to utilize risk assessment tools and methods to propose, plan, and prioritize its WMP initiatives.

a) PacifiCorp lacks a quantitative risk model to aid in long-term planning.

Long-term planning is a practical exercise that informs, prioritizes, and confirms decisions that mitigate future wildfire risk and consequences. Contrary to operational decisions, long-term planning is performed at a strategic level and focuses on setting definite goals then analyzing options based on quantitative risk assessment modeling.

PacifiCorp states that it "continues to develop and mature models to better understand ignition probability, wildfire risk, and estimations of wildfire consequences along electric lines

[155] PG&E 2022 WMP Revision Notice, May 26, 2022, p. 5.

and equipment."[156] However, its initiative selection process lacks adequate transparency and a coherent strategy to justify the selection of current and future initiatives. Adding to this concern, PacifiCorp states that it "does not yet have a quantitative risk methodology."[157] PacifiCorp's approach to the application of risk assessment methodologies during the initiative selection process is either absent or incomplete in scope as described in its WMP.

PacifiCorp's WMP update includes some discussion of its current risk modeling methodology, using Local Risk Assessment Model (LRAM), which "has been primarily used to prioritize work within the HFTD" and evaluate the risk reduction achieved by initiative work.[158] While the present use of LRAM and its focus on short-term operational decision-making support is reasonable, PacifiCorp needs to quickly evolve LRAM to better support the long-term planning and financial analysis of WMP initiatives. If risk reduction mitigations have long term benefits, that needs to be reflected in the outputs of the LRAM.

b) PacifiCorp does not use risk-spend efficiency (RSE) to choose wildfire mitigation initiatives or projects.

PacifiCorp's WMP continues to omit risk-spend efficiency (RSE) estimates for its mitigation initiatives. PacifiCorp states that the methodology for RSE will be refined throughout 2022.[159] Regarding the lack of risk-spend efficiency (RSE) methods in its 2022 WMP update, PacifiCorp stated that it has developed a methodology to calculate RSE and has estimated some RSE values in its 2022 WMP, but that "these estimated RSE values have not been validated yet and are not being used in decision making at this time."[160]

PacifiCorp also notes that it has not yet estimated RSE values for asset management and inspections, public safety power shutoffs (PSPS) or grid operations.[161] Thus, its RSE analysis to date is incomplete. The 2022 WMP guidelines require utilities to report an RSE estimate for

[156] PacifiCorp 2022 WMP, p. 31.

[157] PacifiCorp 2022 WMP, p. 36.

[158] PacifiCorp 2022 WMP, p. 216.

[159] PacifiCorp 2022 WMP, p. 216.

[160] PacifiCorp response to data request CalAdvocates-PacifiCorp-2022WMP-08, Question 6.

[161] PacifiCorp response to data request CalAdvocates-PacifiCorp-2022WMP-08, Question 6.

each initiative by HFTD tier and to describe their RSE analyses in the section on resource allocation methodology.[162]

PacifiCorp should complete development of its RSE analysis methodologies. PacifiCorp should also provide further explanation of the assumptions and other factors used to determine RSE estimates. In addition, PacifiCorp should explain the process for validating the accuracy of its RSE values (for those values it has validated so far).

c) PacifiCorp should clarify how it will use Technosylva modeling for decision-making.

Recognizing the need for long-term planning of wildfire initiatives, PacifiCorp states that it is "investing in Technosylva's [Wildfire Analyst - Enterprise] suite of products[163] to enhance its ability to identify distribution circuits and transmission lines that pose a risk of catastrophic wildfire due to current and forecast conditions."[164] In response to discovery, PacifiCorp does provide a concept for long-term planning of wildfire initiatives in the future using risk assessment analysis.[165] However, PacifiCorp noted that it "does not currently have WRRM [Wildfire Risk Reduction Model]"[166] and anticipates deploying WRRM by the end of 2022.[167] Therefore, there is no wildfire risk model that is currently informing PacifiCorp's long-term planning.[168]

---

[162] Energy Safety, *Final 2022 Wildfire Mitigation Plan (WMP) Update Guidelines*, December 15, 2021. *See* Attachment 2: 2022 Wildfire Mitigation Plan Update Guidelines Template, pp. 73 and 77.

[163] Also known as Wildfire Analyst, these constitute a cloud-based SaaS offering that provides on-demand wildfire spread prediction capabilities, "what-if" scenario analysis, and wildfire risk forecasting. Description available at https://technosylva.com/products/wildfire-analyst/

[164] PacifiCorp 2022 WMP, p. 37.

[165] PacifiCorp response to data request CalAdvocates-PacifiCorp-2022WMP-08, Question 5.

[166] Wildfire Risk Reduction Model.

[167] PacifiCorp response to data request CalAdvocates-PacifiCorp-2022WMP-08, Question 5.

[168] Neither WRRM nor LRAM is used for this purpose. PacifiCorp states that "the WRRM does not currently influence PacifiCorp's long-term planning." (PacifiCorp response to data request CalAdvocates-PacifiCorp-2022WMP-08, Question 5.) The Local Risk Assessment Model (LRAM) is not used for long-term planning either, as discussed previously. PacifiCorp states that the purpose of LRAM is "to scope Wildfire Mitigation initiatives and prioritize work based on potential for risk reduction." (PacifiCorp 2022 WMP, p. 82.)

PacifiCorp's WMP should provide more clarity about how it proposes to leverage its investment in new technology to identify, rank, and develop mitigations to address wildfire safety risk.

d) Remedy: PacifiCorp should improve how it uses risk assessment to select effective wildfire mitigation measures.

PacifiCorp anticipates that it will be able to report RSE values for line rebuilds and other initiatives starting in 2023.[169] Developing and implementing an accurate, reliable, and quantitative initiative selection process, based on proven risk assessment methodologies, will allow PacifiCorp to better understand how to address wildfire risk through its WMP initiatives. In the meantime, PacifiCorp must address the deficiencies described above. To facilitate this, Energy Safety should require PacifiCorp to provide greater detail regarding the use of risk assessment methodologies to minimize wildfire risk in a revised WMP update. Specifically, PacifiCorp should:

- Provide detail about how and where the outputs from its proposed risk assessment model will direct and influence its initiative selection process.
- Provide an overview that describes any quantified risk reduction outputs, RSE calculations, and weighted decision factors that are used to determine which wildfire mitigations to include in its future WMPs.
- Explain its methods for calculating RSE estimates and explain its process for validating the accuracy of RSE estimates.
- Clarify how PacifiCorp will use Technosylva's modeling for decision-making.

Energy Safety should direct PacifiCorp to submit a revised WMP update that includes this information within 30 days of when Energy Safety issues an action statement on PacifiCorp's WMP.

2. PacifiCorp should clearly demonstrate how it factors egress risk into its grid hardening programs.

PacifiCorp's WMP update does not address evacuation routes or the risk that utility infrastructure can impede egress in the event of a wildfire emergency. The obstruction of limited

[169] PacifiCorp 2022 WMP, p. 216.

evacuation routes by wildfire was one of many factors that contributed to the catastrophic outcome of the Camp Fire in 2018.[170] In areas of utility service territories where ingress and egress is limited, utilities should consider the potential impact that their infrastructure could have on evacuation routes and factor these impacts into grid hardening program implementation.

PacifiCorp does not mention egress risk in its 2022 WMP.[171] However, in response to discovery PacifiCorp claims that it considers egress risk in grid hardening.[172] Specifically, PacifiCorp states that egress risk is "a contributing factor in determining prioritization" for grid hardening projects. Thus, egress risk does not appear to be a primary consideration in identifying and scoping projects.[173] Ultimately, PacifiCorp's assertion that it considers egress risk is inadequate without further information on how it assesses this risk and shapes its wildfire mitigation programs to address this risk.

PacifiCorp should be required to file a revised 2022 WMP Update that clearly shows it has considered egress risk when identifying areas for grid hardening. In this revision, PacifiCorp should identify the communities in its territory that it currently regards as the most constrained for ingress and egress, and identify any projects it is considering, designing, or implementing in those communities.

For its 2023 WMP filing, PacifiCorp should demonstrate that it is actively identifying electric infrastructure that could impede the evacuation of areas with limited egress, substantial population, and high fire risk. PacifiCorp should detail its methodology for identifying places with limited egress. Finally, PacifiCorp should further show how grid hardening programs are being deployed to reduce this risk.

---

[170] *After siege of blazes, experts say California must improve wildfire evacuation plans*, Washington Post, October 7, 2021. Retrieved June 09, 2022, from https://www.washingtonpost.com/weather/2021/10/07/california-wildfire-evacuations-plans-inadequate/

[171] PacifiCorp response to DR CalAdvocates-PacifiCorp-2022WMP-08, question 2, June 3, 2022.

[172] PacifiCorp response to DR CalAdvocates-PacifiCorp-2022WMP-08, question 1, June 3, 2022.

[173] PacifiCorp response to DR CalAdvocates-PacifiCorp-2022WMP-08, question 1, June 3, 2022.

C. Grid Design and System Hardening

1. Energy Safety should require PacifiCorp to submit a detailed workplan demonstrating that its grid hardening program targets are feasible and targeted at high-risk circuit-segments.

In comments on PacifiCorp's 2020 WMP and 2021 WMP Update, Cal Advocates expressed concern about the feasibility of PacifiCorp's plan to rapidly increase the scale of covered conductor installation and other grid hardening efforts in 2022 and beyond.[174] We found the projected scale of PacifiCorp's grid hardening to be unsustainable in the event of unforeseen resource constraints that could impact PacifiCorp's scheduling. Cal Advocates has recommended to Energy Safety that PacifiCorp provide additional data on its system hardening progress and has recommended remedial action should PacifiCorp fall behind its projections.[175]

PacifiCorp's actual output in 2020 and 2021 for its two biggest system hardening programs – covered conductor installation and pole replacements – has been far below PacifiCorp's projections. In the 2021 WMP, PacifiCorp forecast 81.2 miles of covered conductor installation in 2021 but only completed 20 miles (25 percent) of the forecasted work.[176] Similarly but to a lesser extent, PacifiCorp forecasted reinforcing or replacing 128 poles in 2021, but actually only completed 87 poles (68 percent).[177]

[174] See Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Updates of the Small and Multijurisdictional Electric Utilities, April 7, 2020, pp. 27-32; Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Updates of the Small and Multijurisdictional Electric Utilities, April 14, 2021, pp. 21-22.

[175] See Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Updates of the Small and Multijurisdictional Electric Utilities, April 14, 2021, pp. 21-22; Comments of the Public Advocates Office on the 2020 Wildfire Mitigation Plans of the Small and Multijurisdictional Electric Utilities, April 7, 2020, pp. 29-32.

[176] Compare PacifiCorp 2022 WMP Update non-spatial data, Table 12 (in 2021, PacifiCorp completed 20 miles of the forecasted 81.22 miles), with 2021 forecast from PacifiCorp 2021 WMP, p. 139

[177] Compare PacifiCorp 2022 WMP Update non-spatial data, Table 12 (in 2021, PacifiCorp completed 87 poles of the forecasted 128 poles), with 2021 forecast from PacifiCorp 2021 WMP, p. 139.

Table 6 PacifiCorp's WMP Performance, 2020 – 2022[178]					
	2020 Target output[179]	**2020 Actual output**	**2021 Target output[180]**	**2021 Actual output**	**2022 Target output**
Covered Conductor Installation	38 miles	1.4 miles	81.2 miles	20 miles	112 miles
Pole Replacement	39 poles	29 poles	128 poles	87 poles	2,158 poles

As table 6 shows, PacifiCorp fell short of its system hardening targets in 2020 and 2021. Despite the difficulties PacifiCorp has experienced in increasing the pace of these programs, PacifiCorp's 2022 forecasts still envision substantial increases in the amount of work planned, relative to actual performance in past years.[181] It is not clear if the 2022 targets include the shortfalls from 2020 and 2021, or if that work is deferred to an unidentified future year.

PacifiCorp's 2022 WMP Update acknowledges these challenges, stating that "since initiation [of covered conductor installation] in 2019, the company has delivered fewer miles of covered conductor in California than planned and is currently faced with the continued challenge of ramping up to achieve 2022 targets."[182] To remedy this problem, PacifiCorp proposes to engage a "construction management partner" through a competitive bidding process in 2022.

Continued delays in completing necessary system hardening work will result in PacifiCorp customers facing greater risk of wildfires and de-energization events. Energy Safety should require that PacifiCorp's system hardening initiatives achieve wildfire risk reduction as efficiently as possible in the near term. Specifically, Energy Safety should adopt the following requirements.

First, Energy Safety should direct PacifiCorp to revise its WMP to demonstrate the feasibility of its 2022 system hardening targets. PacifiCorp should explain how it took staffing

[178] Except where noted, figures are from PacifiCorp's Q1 2022 Wildfire Mitigation Plan Quarterly Data Report - non-spatial data template, Table 12.

[179] PacifiCorp 2020 WMP, Table 23.

[180] PacifiCorp 2021 WMP Update Attachment 1, 2021 Performance Metrics, Table 12.

[181] Projected 112 miles of covered conductor and 2158 pole reinforcement/replacements in 2022.

[182] PacifiCorp's 2022 WMP Update, p. 255.

and other constraints into account when setting its targets and should detail contingency plans in case its projects fall behind schedule. PacifiCorp should also provide a workplan that lists each system hardening project it plans to perform in 2022, with expected start and end dates for each phase (e.g., planning, design & engineering, permitting, and construction) of each project, as well as any other pertinent project milestones. PacifiCorp should submit a similar, detailed system hardening workplan as part of its 2023 WMP.

Second, Energy Safety should require PacifiCorp to update its system hardening workplan as part of each quarterly report, so that Energy Safety and other stakeholders can compare actual progress with forecasts. Energy Safety should monitor PacifiCorp's progress on key grid hardening programs through its quarterly updates to ensure that PacifiCorp is in fact hitting program targets.

Third, Energy Safety should direct PacifiCorp to demonstrate that its system hardening projects in 2022 are targeted to the highest-risk portions of its grid. Given that PacifiCorp may not be able to perform grid hardening at the pace envisioned, it is especially important that it does this work in the places where it will have the most impact. Until PacifiCorp is able to achieve grid hardening on a more extensive scale, PacifiCorp should exclusively concentrate on mitigating the riskiest 20 percent of circuit-segments (i.e., zones of protection) in its HFTD areas. If PacifiCorp's system hardening workplans for 2022 and 2023 include any projects that are not in the riskiest 20 percent of its HFTD circuit-segments, PacifiCorp should explain why each such project is prioritized.[183]

Finally, if PacifiCorp fails to meet grid hardening targets for a third year in a row, Energy Safety should require PacifiCorp to submit a corrective action plan in February 2023, along with its quarterly report for the fourth quarter of 2023. Furthermore, PacifiCorp's 2023 WMP should not be approved until PacifiCorp has demonstrated that it has resolved or adequately planned for the obstacles that have delayed implementation of these programs.

[183] In some cases, it might be reasonable to expedite work on a given circuit-segment because it has a substantial amount of deferred maintenance or poles requiring upgrades. As discussed in section V.D.2 of these comments, deferring pole replacements while awaiting a future system hardening project can also create safety risks. Therefore, maintenance and repair needs could be a reasonable justification for prioritizing hardening on a circuit-segment that is otherwise evaluated as relatively low-risk according to PacifiCorp's risk modeling.

2. PacifiCorp should detail its contract management plans.

PacifiCorp has indicated that it has solicited and intends to hire a construction management contractor to accelerate the implementation of its grid hardening programs. This contractor will:

> Facilitate delivery of the various aspects of covered conductor projects, such as project management, project controls, project reporting, engineering, estimating, permitting, surveying, material procurement, material management, construction, and post construction inspections.[184]

The term of the proposed contract spans three years from 2023 to 2025, with a potential two-year extension to 2027.[185] PacifiCorp has stated that it intends to rely on this contractor to implement grid hardening programs for the term of the contract. Furthermore, PacifiCorp states that it "does not have plans to build additional construction management support capabilities in-house."[186] This is troubling.

System hardening programs are important to PacifiCorp's overall wildfire risk mitigation efforts. Thus, it is imperative that the company should have in place a robust contract management plan that includes appropriate oversight, timelines, and cost controls. However, PacifiCorp's WMP lacks evidence that it has a sufficient plan or in-house expertise to effectively manage a contract of this scope and complexity. Contracts for complex functions do not execute themselves; they require careful and continuous oversight. Cal Advocates is concerned that, without a strong contract management plan, PacifiCorp's customers will receive poor quality services, delays in reaching project milestones, or cost overruns.

Energy Safety should require PacifiCorp to provide an interim report within 30 days of finalizing the construction management contract. This report should include the final contract scope of work and descriptions of PacifiCorp's oversight mechanisms. PacifiCorp should identify the milestones or deliverables in 2022 and 2023 that it will use to evaluate the performance of the contractor.

Energy Safety should further require PacifiCorp's 2023 WMP to provide additional detail regarding the role of the construction management partner. This should include, but not be

---

[184] PacifiCorp's 2022 WMP Update, p. 256.

[185] PacifiCorp response to DR CalAdvocates-PacifiCorp-2022WMP-10, question 5, June 7, 2022.

[186] PacifiCorp response to DR CalAdvocates-PacifiCorp-2022WMP-10, question 5, June 7, 2022.

limited to, how the work of the contractor is influencing the sequencing of grid hardening projects, project cost, and speed of execution. It should further outline PacifiCorp's internal contract oversight mechanisms, and an updated timeline for PacifiCorp's line rebuild program. Finally, as part of its 2023 WMP, PacifiCorp should also describe its plan for quality assurance and quality control of grid hardening installations (whether performed by PacifiCorp or the contractor).

D. Asset Management and Inspections

1. Energy Safety should require PacifiCorp to improve its quality assurance and quality control programs for asset inspections.

Quality assurance and quality control (QA and QC) processes are vital to upholding utility asset management standards and best practices. QA/QC processes assure that inspections and maintenance procedures are properly implemented.[187] Additionally, QA/QC processes give timely and critical feedback to PacifiCorp and its contractors so that any potential defects in the inspection process are detected early enough to take corrective action before any catastrophic events occur.

Describing its QA/QC process for asset management inspections, PacifiCorp states that:

> Field inspection services perform field audits on facility points that are audited by the external contractor as well as facility points not previously audited by the external contractor.[188]

PacifiCorp's asset management QA/QC audits, and its inspections, are both performed by the same vendor (Osmose). Using the same contractor to inspect then self-audit, creates uncertainty around the quality of PacifiCorp's asset inspection QA/QC audits. While PacifiCorp performs

---

[187] For a discussion of the difference between quality **assurance** and quality **control**, see *Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Updates of the Small and Multijurisdictional Electric Utilities*, April 14, 2021, pp. 4-5.

Quality assurance refers to "a program for the systematic monitoring and evaluation of the various aspects of a project, service, or facility to ensure that standards of quality are being met." https://www.merriam-webster.com/dictionary/quality%20assurance

Quality control refers to "an aggregate of activities (such as design analysis and inspection for defects) designed to ensure adequate quality especially in manufactured products." https://www.merriam-webster.com/dictionary/quality%20control

[188] CalAdvocates-PacifiCorp-2022WMP-02, question 1.

joint audits with its Osmose, only a fraction of inspections self-audited by Osmose are also audited by PacifiCorp.[189]

Furthermore, PacifiCorp's 2022 WMP lacks important information about its QA/QC process for asset inspections. Key definitions, criteria, and explanations are missing. For example, PacifiCorp does not describe the criteria used to determine if a re-inspection is warranted. In response to a data request, PacifiCorp clarified that:

> A reinspection can occur from a variety of factors including but not limited to overall inspection accuracy falling below the requirement, missing several of the same condition, or misidentifying conditions.[190]

Likewise, PacifiCorp's WMP update does not include any reasoning as to how it established the criteria for audits to either pass or fail. In response to discovery, PacifiCorp claims to have numerical thresholds but does provide any reasoning to support those thresholds:

> A section will pass or fail given the overall score of the section that was inspected. A passing score will be 90 percent in urban areas and 80 percent in rural areas. Passing scores are determined by the number of poles and conditions found in that section. The audit will fail if the section falls below those requirements.[191]

PacifiCorp has also indicated that the asset inspection QA/QC pass or fail criteria are based on contract terms and specifications.[192] But PacifiCorp should establish its own pass or fail criteria based on concrete reasoning or analysis, as opposed to contractual terms, in order to meet its need for accurate inspections and safe equipment.

Moreover, PacifiCorp's scoring methodology relies on calculating the ratio of conditions observed over the conditions missed. This method fails to take into account the severity of the condition or the urgency of the repair. Thus, an inspection accuracy score of 95 percent means that out of twenty conditions observed in the audit, one was missed during the original inspection. PacifiCorp considers this a passing score, even if the missed condition is serious enough to create a risk of a catastrophic asset failure.

---

[189] Meeting between PacifiCorp staff and Cal Advocates, June 10, 2022.

[190] CalAdvocates-PacifiCorp-2022WMP-12, question 1.

[191] CalAdvocates-PacifiCorp-2022WMP-12, question 1.

[192] Meeting between PacifiCorp staff and Cal Advocates, June 10, 2022.

PacifiCorp's approach to quality control becomes even more concerning because PacifiCorp only performs detailed inspections at five-year intervals in HFTD areas.[193] If PacifiCorp's asset inspectors miss a problem, it is likely that nobody will detect the problem for another five years, by which time the asset may have severely deteriorated to a dangerous condition or even failed. Due to the increased risk posed by assets in the HFTDs, PacifiCorp should adopt additional patrols or more frequent detailed inspections for assets in the HFTDs. In contrast to PacifiCorp, the large IOUs have all recognized the increased risk posed by assets in the HFTDs and have adopted additional inspections – or more frequent detailed inspections – for assets in HFTDs.[194]

In conclusion, Energy Safety should require PacifiCorp to revise its WMP to improve its QA/QC process for asset inspections. Specifically, PacifiCorp should:

- Demonstrate that its QA/QC process is supported by data and that its supporting standards reflect an acceptable amount of risk.
- Provide the analysis that supports the selection of the ninety and eighty percent inspection accuracy thresholds for urban and rural areas, respectively.
- Describe how it will ensure that the personnel performing quality control are separate from those who performed the original inspections.
- Directly audit (i.e., performed by PacifiCorp personnel, not contractors) a minimum of 5 percent of asset inspections annually in Tier 3 HFTD areas.
- File quarterly reports on its progress towards improving its asset management QA/QC processes.

Finally, PacifiCorp should evaluate the merits of increasing the frequency of its detailed asset inspections in HFTD areas, especially in Tier 3. Detailed asset inspections can provide significant safety benefits. The large California utilities have all adopted more frequent asset inspections in HFTD areas, but PacifiCorp currently performs detailed asset inspections at the

---

[193] PacifiCorp, PowerPoint Presentation, "2022 WMP Mitigation Update", May 18, 2022, slide 25.

[194] Per PG&E's 2021 WMP, p. 583, PG&E performs detailed inspections of all overhead distribution assets in HFTD Tier 3 annually, and HFTD Tier 2 on a three-year cycle.

Per SCE's 2021 WMP, p. 239, SCE performs "high fire risk-informed" inspections of its assets in high fire risk areas "more frequently than the requirement of once every five years."

Per SDG&E's 2021 WMP, p. 245, SDG&E has implemented additional inspections of distribution equipment in HFTD Tier 3 on a 3-year cycle.

minimum five-year interval required by General Order 165.[195] As Cal Advocates noted in our comments in 2021, PacifiCorp and the other small utilities have not provided any compelling justification for this decision.[196] Prior to its 2023 WMP, PacifiCorp should analyze the benefits and costs of performing detailed inspections more frequently. PacifiCorp should describe its conclusions in its 2023 WMP and adjust its asset inspection strategy accordingly.

2. Energy Safety should require PacifiCorp to show how it monitors and tracks poles identified for replacement by a 2019 LiDAR pilot.

PacifiCorp's WMP update describes a 2019 Light Detection and Ranging (LiDAR)[197] pilot to expedite "the review of pole loading using LiDAR and automated 3D evaluation software."[198] The pilot project identified 187 poles in HFTD areas that require replacement.[199] At the time of the pilot, PacifiCorp determined the poles were not "an imminent threat and were not as high priority as other poles with Conditions that require more rapid replacement consistent with the California general orders."[200] Now, PacifiCorp states that it plans to replace all poles during the installation of covered conductor during the 2020 – 2022 WMP cycle.[201]

However, while giving an update on the status of its covered conductor replacement initiative, PacifiCorp revealed that, "since initiation [of the covered conductor installation] in 2019, the company has delivered fewer miles of covered conductor in California than planned."[202] Since poles are being replaced as part of the covered conductor initiative, any delays in the covered conductor installation will impede the timely replacement of the 187 poles identified by the LiDAR pilot.

---

[195] California Public Utilities Commission General Order 165, Table 1.

[196] Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Updates of the Small Investor-Owned Utilities, April 14, 2021, p. 7.

[197] LiDAR is a technology in which a device emits a laser to gather spatial data on the positions of (and distances between) different objects.

[198] PacifiCorp 2022 WMP, p. 56.

[199] PacifiCorp 2022 WMP, p. 56.

[200] PacifiCorp 2022 WMP, p. 56.

[201] PacifiCorp 2022 WMP, p. 57.

[202] PacifiCorp 2022 WMP, p. 255

Indeed, by the end of 2021 PacifiCorp had only replaced 23 poles identified by the pole loading assessment pilot.[203] During 2022, PacifiCorp forecasts 6 poles will be replaced, and there are no poles forecast to be replaced in 2023 or beyond.[204] PacifiCorp's WMP update also does not provide a timeline for the completion of the remaining 152 pole replacements (approximately 80 percent of the poles identified by its 2019 LiDAR study). PacifiCorp should provide greater detail on exactly how it plans to inspect, evaluate, and monitor the condition of the remaining 152 poles until they are replaced.

Energy Safety should require PacifiCorp to provide an update regarding the condition of the remaining poles that have been identified as needing replacement. A failure of one of these poles could lead to an ignition, which is especially concerning since the poles are all located in HFTD areas. PacifiCorp should also include contingency plans that outline a strategy to periodically assess the risk of pole failures. PacifiCorp should also explain why there are no pole replacements scheduled for 2023. PacifiCorp should submit a revised WMP update which includes this information within 30 days of when Energy Safety issues an action statement on PacifiCorp's WMP.

VI. General Recommendations on Wildfire Mitigation Issues

A. Risk Assessment and Mapping

1. Energy Safety should hold discussions this year in its risk modeling working group on appropriate fire simulation durations in risk models.

Fire spread simulations are an important component of wildfire risk modeling. However, the six electric utilities use markedly different durations for fire spread simulations. The large utilities use 8-hour fire spread simulations,[205, 206, 207] Liberty uses a 24-hour fire spread

[203] PacifiCorp 2022 Non-Spatial Data Tables, Table 12.

[204] PacifiCorp 2022 Non-Spatial Data Tables, Table 12.

[205] "Currently, PG&E uses Technosylva's 8-hour simulation product." PG&E's 2022 WMP Update, p. 159.

[206] "SCE concludes by emphasizing the intention of the risk models (to prioritize) and discusses modeling limitations (e.g., model employs an eight-hour burn duration)." SCE's 2022 WMP Update, p. 111.

[207] SDG&E's response to data request CalAdvocates-SDGE-2022WMP-07, question 1.

simulations,[208] and BVES uses 48-hour simulations.[209] PacifiCorp does not specify the fire spread duration it uses.[210]

Since current fire spread models do not account for fire suppression efforts, a wildfire simulation that runs for 48 hours will tend to overestimate the size of wildfires. This may lead the utility to overestimate the wildfire risk associated with utility assets near urban areas, where it is reasonable to expect the rapid arrival of fire suppression teams.

However, intervenors have previously commented that an 8-hour fire simulation, as used by the large IOUs, may be too short to adequately model a catastrophic fire.[211] It is likely that, in the absence of well-developed methods to model fire suppression, the ideal simulation duration is somewhere between 8 hours and 48 hours.

Energy Safety should hold discussions this year in its ongoing risk modeling working group on appropriate fire simulation durations in risk models. In preparation for this discussion, Energy Safety should direct each utility to provide any analysis available that supports its chosen simulation duration and that validates the accuracy of fire simulations at that duration.

After the working group discussions, Energy Safety should direct all six utilities to continue studying the appropriate duration for fire simulations and to report on this issue in their 2023 WMPs. Each utility should perform a validation exercise (similar to that recommended for BVES in section III.A.3 of these comments): compare wildfire simulations with the actual behavior of historical catastrophic wildfires in California and quantitatively assess the model performance at various durations. Each utility should also justify the usefulness of its chosen duration specifically for estimating the risk of *catastrophic* wildfires.[212]

---

[208] "For each ignition location, fire spread is modeled for 24 hours." Liberty Utilities' 2022 WMP Update, p. 66.

[209] "Fires are modeled as unsuppressed for a duration of 48-hours because all operational fire models, including ELMFIRE, cannot reliably model fire suppression." BVES's 2022 WMP Update, p. 69.

[210] While PacifiCorp states that it will use FireCast to model wildfire simulations over a 96-hour forecast horizon, calculating projected wildfire risk at three-hour intervals (PacifiCorp's 2022 WMP Update, p. 70), the duration that individual ignitions are simulated over is not stated.

[211] See, e.g., *Mussey Grade Road Alliance Comments On 2022 Wildfire Mitigation Plans of PG&E, SCE, and SDG&E*, April 11, 2022, p. 44.

[212] "While Technosylva's model undergoes continuous improvement, the fundamental issue that limits the accuracy and appropriateness of the model is the limited (8 hour) run time used in fire spread models, which tends to create fires much smaller than the catastrophic fires that have caused most of the damage from utility ignitions. The effect of this limitation is to create a bias that will tend to rank ignitions nearer to population centers with a higher risk score than they should have. The effect of megafires that ignite in

2. Future WMP filings should clearly address the impact of grid hardening programs on evacuation routes.

As part of its wildfire mitigation planning process, each utility should consider the risk that utility infrastructure may pose to evacuation routes during a wildfire, along with the impact of grid hardening programs on the magnitude of this risk. Grid hardening programs – such as upgrading poles or installing fire-resistant wrapping on poles – can reduce the risk that poles and wires will fall and block roadways during an emergency. The utilities should work to reduce this risk on evacuation routes within areas of the HFTD with limited egress, substantial populations, and high fire risk.

Of the three small utilities, only BVES provides adequate information in its WMP demonstrating how it considers evacuation and egress in planning for system hardening programs. In its 2022 WMP Update, BVES notes that its service territory "has three predetermined evacuation routes, developed by the local sheriff department and other government officials, to evacuate the public in the event of an emergency, including a wildfire."[213] To address this risk, BVES developed a pilot program installing a fire-resistant mesh wrap around poles or fire-resistant fiberglass poles along the identified evacuation routes in its service territory.[214] BVES forecasts that it will have hardened all primary evacuation routes by the end of 2022.[215]

PacifiCorp's WMP does not satisfactorily address the potential impact of its infrastructure on evacuation routes in the event of a wildfire. In response to Cal Advocates' discovery, PacifiCorp stated that "egress risk is utilized to determine prioritization of projects and which ones get undertaken first. It is not utilized when determining where to target system hardening programs and the scoping portion of that process."[216] PacifiCorp further stated that it

---

the wild and then are blown down into the wildland urban interface is not well-modeled." *Mussey Grade Road Alliance Comments On 2022 Wildfire Mitigation Plans of PG&E, SCE, and SDG&E*, April 11, 2022, p. 44.

[213] BVES 2022 WMP Update, p. 159.

[214] BVES 2022 WMP Update, p. 156.

[215] BVES 2022 WMP Update, p. 161.

[216] PacifiCorp response to DR CalAdvocates-PacifiCorp-2022WMP-08, question 1, June 3, 2022.

does not maintain a list of egress-constrained communities within the high fire threat district (HFTD).[217]

Liberty similarly does not address this risk in detail. Liberty states that "egress risk is one factor that Liberty qualitatively considers during project planning processes for system hardening programs."[218] However, it does note that "Liberty works with its Public Safety Partners and community organizations to identify locations where egress risk is important."[219]

Similar to BVES, Liberty and PacifiCorp should consult with local government and jurisdictional fire agencies to proactively compile a list of known areas within their California service territories where there is likely to be difficulty evacuating in the event of a catastrophic wildfire. The utilities should then identify mitigation measures for these corridors, starting with the Tier 3 HFTD. The utilities can either use existing grid hardening programs or develop a stand-alone initiative focused on evacuation routes. Corridors where evacuation constraints would affect a significant population should prioritized first.

Prior to the 2023 WMP filings, Energy Safety should require all utilities to study the impact of utility infrastructure and grid hardening programs on evacuation routes within their service territories. Each utility should report on their findings in its 2023 WMP. Energy Safety should require all utilities to proactively identify areas of their service territory with high fire risk, substantial population, and limited egress, and then identify prompt and effective measures for reducing this risk. If necessary, Energy Safety should convene a working group or other forum to identify best practices and to facilitate cooperation with local and tribal governments, fire authorities, and other stakeholders.

B. Public Safety Power Shutoffs (PSPS)

1. Energy Safety should require the small IOUs to develop quantitative models to evaluate the risks posed to customers by PSPS events.

Energy Safety released changes to the WMP guidelines in advance of the 2022 WMP filings. One of the new guidelines requires the IOUs to describe the methods they use to evaluate the potential consequences of PSPS and wildfires. Specifically:

---

[217] PacifiCorp response to DR CalAdvocates-PacifiCorp-2022WMP-08, question 3a, June 3, 2022.

[218] Liberty response to DR CalAdvocates-Liberty-2022WMP-10, question 1, June 14, 2022.

[219] Liberty response to DR CalAdvocates-Liberty-2022WMP-10, question 2, June 14, 2022

> The utility is required to discuss how the relative consequences of PSPS and wildfires are compared and evaluated. In addition, the utility must report the wildfire risk thresholds and decision-making process that determine the need for a PSPS.[220]

In their WMPs, the small IOUs generally address PSPS as a wildfire mitigation technique without providing meaningful, if any, information on how the IOUs weigh the decision to de-energize their customers against the risk of wildfire ignition.[221] The small IOUs extensively focus on the value of PSPS in terms of avoided risk of wildfire but largely ignore the impacts that PSPS has on customers. This is contrary to the WMP guidelines' requirement to evaluate potential consequences of PSPS. The small IOUs' primary focus on reducing wildfire risk, therefore, consistently skews the IOUs' risk-benefit calculations in favor of holding PSPS events. Below, Cal Advocates discusses each IOU's shortcomings in how it considers PSPS events.

a) BVES

BVES straightforwardly states that it does not have a formal quantitative method to evaluate the potential consequences of PSPS and wildfires.[222] While BVES has not had a PSPS event yet, it is likely only a matter of time given the trend of increasing wildfire risk in California. To mitigate the effects of a future PSPS event, BVES should be able to identify and model the consequences of such an event. BVES notes that it plans to use the risk analysis services of Technosylva, and that once it does, it will be able to have a near real-time ability to quantify the consequence of wildfires, and, therefore, the ability to compare the consequence of a wildfire to the consequences of a PSPS event.[223]

BVES should not rely entirely on Technosylva's services for balancing the risks of wildfires and PSPS events. As BVES describes, Technosylva's modeling suite is one way to estimate the consequence of wildfire ignition,[224] but BVES incorrectly concludes that an improved understanding of wildfire consequences implies the ability to balance wildfire

---

[220] Energy Safety, *Final 2022 Wildfire Mitigation Plan (WMP) Update Guidelines*, December 15, 2021, Attachment 1: Changes for the 2022 Wildfire Mitigation Plan (WMP) Update Guidelines, New Guideline 8a in Section 8.2, p. 29.

[221] While actual de-energization of customers is still a hypothetical for BVES and Liberty, it is no less important for these utilities to develop sound decision-making criteria.

[222] BVES 2022 WMP Update, p. 243.

[223] BVES 2022 WMP Update, p. 243.

[224] BVES 2022 WMP Update, p. 243.

consequences against those from a PSPS event. Technosylva's fire spread and consequence model, which is helpful to understand potential harms from an ignition, should not be used to quantify the risks to safety and finances caused by a PSPS event itself. To accurately understand the impact of PSPS events on its customers, BVES should investigate, evaluate, and model the safety, reliability, and economic impacts of PSPS events on its customers, separate from its analysis of wildfire ignition consequences (modeled by Technosylva's fire spread modeling).

Energy Safety should require BVES to develop a quantitative and transparent model for how it estimates and compares the relative consequences of PSPS and wildfires. Energy Safety should require BVES to describe its model or, at a minimum, the progress made to develop such a model, in its 2023 WMP.

b) Liberty

Liberty's WMP has similar issues as BVES regarding evaluation of potential consequences to customers from PSPS events. Liberty indicates that it is "working to create a PSPS risk model that helps to quantify the risk of de-energizing power lines on customers so that it can weigh [the] risks against the consequences of ignition under extreme wildfire conditions.[225] Cal Advocates commends Liberty on its efforts to develop a PSPS event risk model to weigh the outputs against other PSPS decision-making factors.[226] However, Liberty does not elaborate on what work is being done. For example, Liberty should describe the risk assessment methodologies it plans to use, and the variables it is considering in the development of its PSPS event risk model.

Energy Safety should direct Liberty to describe its model or, at a minimum, discuss the preliminary risk assessment methodologies Liberty plans to use in its PSPS event risk model, in its 2023 WMP.

c) PacifiCorp

PacifiCorp's WMP does not meet the WMP requirement to describe how PacifiCorp compares the relative consequences of PSPS and wildfires. Presently, PacifiCorp is the only

[225] Liberty 2022 WMP Update, p. 177.

[226] For example, the various weather factors and thresholds described on pp. 178-180 of Liberty's 2022 WMP Update.

small IOU to have executed PSPS events with customer de-energizations.[227] PacifiCorp states that once it obtains Technosylva's services, these services "will be used to support the evaluation of potential consequences of PSPS and wildfires."[228] PacifiCorp anticipates that balancing wildfire safety and customer reliability "will be an iterative process."[229]

As discussed in the BVES section above, PacifiCorp should not exclusively rely on Technosylva's services for an accurate depiction of the safety, reliability, and economic consequences of PSPS events. To accurately assess the impact that PSPS events have on its customers, PacifiCorp should evaluate the safety, reliability, and economic impacts of PSPS events on its customers, and develop a model to quantify these impacts. This effort should be separate from PacifiCorp's analysis of wildfire ignition consequence (modeled by Technosylva's suite of tools).

PacifiCorp does not appear to have a method for weighing the risk of wildfire ignition against the risks caused by PSPS to its customers. Energy Safety should require PacifiCorp to develop a quantitative and transparent model for how it evaluates and compares the relative consequences of PSPS events and wildfires. Energy Safety should require PacifiCorp to describe its model or, at a minimum, progress made in developing such a model, in its 2023 WMP.

d) Summary and recommendations

As discussed above, each of the small IOUs' WMPs fall short of the 2022 WMP Guidelines' requirement to explain how PSPS consequences are evaluated and compared with wildfire risk. This lack of information presents significant barriers to understanding how the small IOUs weigh the impacts on customers against the need to prevent catastrophic wildfires.

Energy Safety should direct the small utilities to improve their methods to evaluate and compare risks caused by wildfire and PSPS.[230] In their 2023 WMPs, the small utilities should explicitly explain how their PSPS consequence models measure harms to customers caused by

[227] *See, e.g.*, PacifiCorp PSPS Post-Event Report for its August 17, 2021 Event.

[228] PacifiCorp 2022 WMP Update, p. 236.

[229] PacifiCorp 2022 WMP Update, p. 236.

[230] Energy Safety, *Final 2022 Wildfire Mitigation Plan (WMP) Update Guidelines*, December 15, 2021, Attachment 1: Changes for the 2022 Wildfire Mitigation Plan (WMP) Update Guidelines, New Guideline 8a in Section 8.2, p. 29.

PSPS and weigh these risks against those caused by potential wildfires. The small utilities should also provide concrete examples to illustrate this process.

2. Energy Safety should modify the WMP guidelines to improve reporting on how decisions made by other utilities affect the small IOUs' PSPS planning.

Each of the small IOUs notes some form of dependency on a neighboring utility for all or a significant portion of the electricity they deliver to their customers. Specifically, BVES notes that it is dependent on transmission interties with Southern California Edison Company (SCE),[231] Liberty is dependent on power from NV Energy in Nevada,[232] and PacifiCorp's system is integrated with its service territory in Southern Oregon.[233]

Each small IOU describes the risk of a PSPS event in adjoining territories impacting its customers differently. BVES provides the most comprehensive examination of scenarios in which SCE de-energizes combinations of transmission interties and how BVES would react.[234] Liberty discusses its interconnection with NV Energy but does not discuss PSPS scenarios originating in NV Energy service territory.[235] PacifiCorp does not appear to describe its transmission interconnections with Oregon, nor how they may factor into a PSPS event, but PacifiCorp does acknowledge that cross-border interactions between PacifiCorp's California and Oregon service territories occur.[236]

In general, the small IOUs do not describe in detail how a PSPS event in other regions may impact their operations or how such risk is estimated. In the workshop on the Small IOU WMPs held on May 18, 2022, Liberty staff verbally acknowledged that intentional de-energization events by NV Energy could cause customer de-energizations in Liberty service territory. In a subsequent discussion with Liberty staff, Cal Advocates confirmed that Liberty

[231] BVES 2022 WMP Update, pp. 243-245.

[232] Liberty 2022 WMP Update, p. 80.

[233] PacifiCorp does not describe its California-Oregon electric system interconnection in its WMP, however the two are clearly interconnected. *See:* https://studylib.net/doc/18306910/pacificorp-transmission-system-map-with-path

[234] BVES 2022 WMP Update, pp. 244-245.

[235] Liberty 2022 WMP Update, p. 175.

[236] PacifiCorp 2022 WMP Update, pp. 145, 228.

participates in meetings and planning exercises with NV Energy to prepare for this scenario. However, none of these details are captured by Liberty's WMP.

For its part, BVES describes how SCE PSPS events could plausibly affect its service territory.[237] However, at the May 18, 2022 workshop, BVES verbally indicated that "PSPS Watch" (meaning that particular lines are under active consideration for de-energization[238]) happens multiple times per year on the transmission lines connecting SCE's service territory with BVES's territory. BVES's WMP does not describe how BVES and SCE collaborate to estimate the probability and consequence (for BVES customers) of SCE-driven PSPS events.

PacifiCorp does not discuss how a PSPS event in its Oregon service territory could impact its California operations, despite the Oregon Public Utilities Commission recently adopting new PSPS guidelines,[239] recent wildfires in Southern Oregon in 2021,[240] and PacifiCorp's transmission interconnections with Northern California at the Yreka, Copco, and Weed junctions.[241]

To capture the effects of PSPS events in other jurisdictions and service territories on the small IOUs, Energy Safety should add a requirement in the 2023 WMPs that if PSPS decision-making or customer de-energization depends to a significant degree on another utility's actions, then the IOU must describe its interactions with those utilities on PSPS issues. In particular, each small utility should describe how it works with neighboring utilities to conduct PSPS risk analyses, prepare for PSPS events, perform PSPS exercises, and notify customers or public safety partners. Each utility should document these discussions and risk analyses in its WMP.

---

[237] BVES 2022 WMP Update, pp. 243-245.

[238] If any SCE lines that feed BVES are under consideration for PSPS, BVES takes certain actions that are described in Appendix B, Table 5-3: "BVES Action for SCE Lines Under PSPS Consideration." *See* BVES's 2022 WMP, Appendix B: Public Safety Power Shutoff Plan, page B-36.

[239] Order No. 22-159 in Oregon Public Utilities Commission Rulemaking Regarding Electric Utility Wildfire Mitigation Plans.

[240] New York Times, "How Bad Is the Bootleg Fire? It's Generating Its Own Weather." July 19, 2021, https://www.nytimes.com/2021/07/19/climate/bootleg-wildfire-weather.html.

[241] PacifiCorp does not describe its California-Oregon system interconnection in its WMP, however the two are clearly interconnected. *See:* https://studylib.net/doc/18306910/pacificorp-transmission-system-map-with-path

VII. CONCLUSION

Cal Advocates respectfully requests that Energy Safety adopt the recommendations discussed herein.

Respectfully submitted,

/s/ ***CAROLYN CHEN***

_____

Carolyn Chen
Attorney

Public Advocates Office
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102
Telephone: (415) 703-1980
E-mail: Carolyn.Chen@cpuc.ca.gov

June 20, 2022