STATE OF CALIFORNIA GAVIN NEWSOM, *Governor*

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PUBLIC UTILITIES COMMISSION
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April 14, 2021

Via Electronic Mail

Caroline Thomas Jacobs, Director
Wildfire Safety Division
California Public Utilities Commission
San Francisco, CA 94102
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Subject: Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Updates of the Small and Multijurisdictional Electric Utilities

Dear Director Thomas Jacobs,

The Public Advocates Office at the California Public Utilities Commission (Cal Advocates) respectfully submits the following comments on 2021 Wildfire Mitigation Plan Updates of Bear Valley Electric Service (BVES), Liberty Utilities (Liberty), and PacifiCorp. We respectfully urge the Wildfire Safety Division to adopt the recommendations discussed herein.

Please contact Nathaniel Skinner (Nathaniel.Skinner@cpuc.ca.gov) or Henry Burton (Henry.Burton@cpuc.ca.gov) with any questions relating to these comments.

Sincerely yours,

/s/ Carolyn Chen

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I. INTRODUCTION

Pursuant to the Rules of Practice and Procedure of the California Public Utilities Commission (Commission) and Resolution WSD-011, the Public Advocates Office at the California Public Utilities Commission (Cal Advocates) submits these comments on the 2021 Wildfire Mitigation Plan (WMP) Updates submitted by small and multijurisdictional investor-owned electric utilities (small IOUs or utilities).[1]

The *Resolution implementing the requirements of Public Utilities Code Sections 8389(d)(1), (2) and (4), related to catastrophic wildfire caused by electrical corporations subject to the Commission's regulatory authority* (Resolution WSD-011), established guidelines and a schedule for WMP submissions in 2021. Pursuant to Resolution WSD-011, Bear Valley Electric Service (BVES), Liberty Utilities (Liberty), and PacifiCorp submitted 2021 WMP Updates on March 5, 2021. Resolution WSD-011 permits interested persons to serve opening comments on the small IOUs' 2021 WMPs by April 14, 2021 and reply comments by April 21, 2021.

In these comments, Cal Advocates first provides recommendations regarding future WMP guidelines and technical recommendations applicable to all three small utilities. We then address the small electric utilities' WMPs in alphabetical order: BVES, Liberty, and PacifiCorp.

II. TABLE OF RECOMMENDATIONS

Item	Utility	Recommendation	Section of these Comments
1	Future WMP guidelines	The WSD should separately define the terms "quality assurance" and "quality control" in future WMP guidelines.	III.A
2	Future WMP guidelines	The WSD should require the utilities to report on quality assurance (QA) and quality control (QC) separately in their WMPs.	III.A
3	Small IOUs	The WSD should require BVES, Liberty, and PacifiCorp to submit reports within 90 days of the WSD's action statements, providing detailed	IV.A

[1] 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 term "utilities" and the phrase "electrical corporations" interchangeably to refer to the entities that must comply with the wildfire safety provisions of the Public Utilities Code.

Item	Utility	Recommendation	Section of these Comments
		justifications for the small utilities' de-energization wind speed thresholds.	
4	Small IOUs	The WSD should convene a working group in the summer or fall of 2021 to evaluate the benefits and costs of conducting more frequent detailed inspections of distribution assets in HFTDs. This working group should include BVES, Liberty, and PacifiCorp, and should be open to the large IOUs and other stakeholders.	IV.B
5	Small IOUs	The WSD should hold a workshop to explore the reasons for differing assessments of LiDAR effectiveness.	IV.C
6	Small IOUs	The WSD should conduct a workshop on covered conductor program costs.	IV.D
7	BVES	The WSD should require BVES to explain its internal audit procedures in its 2022 WMP Update.	V.A
8	BVES	The WSD should require BVES to file an update each quarter through the first quarter of 2022, detailing BVES's progress on developing internal audits, and the results from any audits that were performed in the prior quarter.	V.A
9	BVES	The WSD should require BVES to implement quality assurance and quality control processes for asset inspections by the end of 2021, rather than 2022 as BVES proposes. BVES should submit a report by October 2021.	V.B
10	BVES	BVES should include a detailed description of its QA/QC program for asset inspections in its 2022 WMP Update.	V.B
11	BVES	The WSD should require BVES to assess the potential costs and benefits of completing its Tree Attachment Removal and Pole Loading Assessment and Remediation programs sooner than the end of 2026. BVES should include this assessment in its 2022 WMP Update.	V.C

Item	Utility	Recommendation	Section of these Comments
12	BVES	The WSD should require BVES to file a report within 30 days of the WSD's action statement to explain BVES's high rate of vegetation findings compared to its peer utilities, and assessing the need for any immediate changes to its vegetation management processes.	V.D
13	BVES	The WSD should require BVES to perform a thorough audit of its vegetation management processes to determine if changes are necessary to reduce the risk of outage or ignition due to vegetation. BVES should file a report within 180 days of the WSD's action statement.	V.D
14	Liberty	The WSD should require Liberty to implement QA/QC processes for both asset inspections and grid hardening programs by the end of 2021.	VI.A
15	Liberty	The WSD should require Liberty to improve its oversight of its contractors, including tracking the quality of work of individual contractors.	VI.A
16	Liberty	The WSD should require Liberty to file quarterly reports on its progress in improving QA/QC processes and contractor oversight.	VI.A
17	All utilities	The WSD should convene a technical working group to develop best practices for QA/QC.	VI.A
18	PacifiCorp	The WSD should require PacifiCorp to provide detail, within 30 days of the WSD's action statement, regarding distribution automatic recloser operations, grid topology improvements, and system automation projects. PacifiCorp should address the expected impact of these programs on the frequency and scope of future de-energization events.	VII.A
19	PacifiCorp	The WSD should require PacifiCorp to provide additional detail on system hardening progress in 2020 and on future forecasts for system hardening programs. PacifiCorp should provide a revised WMP Update including this information within 30 days of the WSD's action statement.	VII.B

Item	Utility	Recommendation	Section of these Comments
20	PacifiCorp	The WSD should require PacifiCorp to examine the effectiveness of drone inspections and explain whether it intends to implement drone inspections. PacifiCorp should submit this information in its WMP submission in 2022.	VII.C
21	All utilities	The WSD should hold a technical workshop in the summer or fall of 2021 with all California IOUs to discuss the efficacy of aerial inspections in HFTD areas. The workshop should consider whether aerial inspections should be a required component of WMPs moving forward.	VII.C

III. RECOMMENDATIONS FOR FUTURE WMP GUIDELINES

A. The WSD should differentiate between quality assurance and quality control, and require utilities to report on both.

Quality assurance (QA) and quality control (QC) are mandatory components of each WMP.[2] The WSD's 2021 WMP Guidelines Template[3] uses the terms "quality assurance" and "quality control" together and does not differentiate between the definitions of the two terms. The guidelines define "quality assurance/quality control" for the categories of asset management and inspections, and vegetation management and inspection as follows:

> Establishment and function of audit process to manage and confirm work completed by employees or subcontractors, including packaging QA/QC information for input to decision making and related integrated workforce management processes.[4]

[2] Public Utilities Code Section 8386(c)(21) requires each WMP to include:

> A description of the processes and procedures the electrical corporation will use to do all of the following:
>
> (A) Monitor and audit the implementation of the plan.
>
> (B) Identify any deficiencies in the plan or the plan's implementation and correct those deficiencies.
>
> (C) Monitor and audit the effectiveness of the electrical line and equipment inspections, including inspections performed by contractors, carried out under the plan and other applicable statutes and commission rules.

[3] Resolution WSD-011, Attachment 2.2: "2021 Wildfire Mitigation Plan Guidelines Template," Appendix 9.1 "Definitions of initiative activities by category," November 30, 2020.

[4] Resolution WSD-011, Attachment 2.2: "2021 Wildfire Mitigation Plan Guidelines Template,"

Cal Advocates interprets "quality assurance" and "quality control" to refer to different aspects of the above process. Per dictionary definitions, quality *assurance* refers to a program for the systematic monitoring and evaluation of the various aspects of a program to ensure that standards of quality are met.[5] In the cases of asset management, inspections, and vegetation management, consistent with the aforementioned dictionary definition, Cal Advocates urges the WSD to define quality assurance as referring to actions such as improving processes and procedures to prevent defects prior to an activity being performed. As such, quality assurance should be considered a proactive process.

On the other hand, Cal Advocates urges the WSD to define quality *control* to refer to actions such as audits, record review, and re-inspections in order to uncover defects *after* an activity has been performed.[6]

Cal Advocates believes these two processes, while related, are independently important to ensuring that the utilities are developing effective and safe management and inspection procedures, and that mitigation work is being properly performed. In order to clearly understand the utilities' approaches to their asset management, inspection, and vegetation management programs, these processes should be defined and reported upon separately.

The WSD should separate the terms "quality assurance" and "quality control" in future WMP guidelines, defining them separately. In order to align these definitions with the internal processes of the utilities, the WSD should consult with the large and small IOUs to determine the most appropriate definitions for each term and then hold a public process (such as comments) on the proposed definitions for each term. The WSD should then require the utilities to report on quality assurance and quality control separately beginning with the 2022 WMPs.

November 30, 2020.

[5] "Definition of quality assurance: 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

[6] "Definition of quality control: 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

IV. GENERAL RECOMMENDATIONS ON TECHNICAL ISSUES

A. The WSD should require the small utilities to justify their de-energization wind speed thresholds.

The three small utilities rely on a combination of wind speeds and fire risk indexes to determine whether to initiate a voluntary de-energization event. However, the stated wind speed thresholds vary widely between the three.

BVES states that it will initiate a voluntary de-energization event if the National Fire Danger Rating System rating is brown, orange, or red,[7] and actual sustained wind or 3-second wind gusts exceed 55 mph.[8] Liberty initiates a de-energization event if wind gusts exceed either 40 or 45 mph (depending on the circuit) and several other conditions are met.[9] PacifiCorp initiates a de-energization event in pre-defined zones if wind gusts are greater than or equal to 31 mph and certain other conditions are met.[10]

The small utilities do not provide reasonable detail to justify these wind speed thresholds.[11] For example, BVES does not state whether the analysis it performed to determine the 55-mph threshold includes other environmental factors such as whether winds of 55-mph could cause nearby vegetation to break and blow into lines, causing an outage or ignition even though the equipment itself was able to withstand the wind.

Cal Advocates acknowledges that the small utilities operate in different environments and have different construction standards, all of which may inform their de-energization wind speed thresholds. However, given the marked differences between the wind speed thresholds provided by the three small utilities, Cal Advocates recommends that the WSD examine their methods for determining these thresholds more closely.

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[7] Per BVES's 2021 WMP, Table 4-1 "Fuel Dryness and High-Risk Days," p. A-186, the NFDRS ratings are green – moist, yellow – dry, brown – very dry, orange and red – high-risk days.

[8] BVES's 2021 WMP, Table 4-4 "Operational Direction Based on Wildfire Risk Forecast," p. A-188.

[9] Liberty's 2021 WMP, Figures 8-1 and 8-2, p. 147.

[10] PacifiCorp's 2021 WMP, p. 197.

[11] In BVES's response to Data Request CalAdvocates-BVES-2021WMP-04, Question 5, April 6, 2021, BVES states that it established its wind speed limit of 55 mph by performing a stress analysis on its most common pole construction standards and applying safety factors based on construction requirements in General Order 95. BVES estimates that 55 mph is a conservative position, but does not justify this statement. Additionally, as discussed in section V.C in these comments, approximately 43 percent of poles assessed so far under BVES's Pole Loading Assessment and Remediation Program failed the inspection criteria. It is unclear whether BVES's stress analysis takes this high failure rate into account.

The WSD should direct BVES, Liberty, and PacifiCorp to submit supplemental reports that justify how each utility determined its de-energization wind speed threshold, including detailed studies or calculations to support this threshold. One option for comparison is to direct the small utilities to provide the number of outages, ignitions, vegetation contacts, and damage incidents they have observed in different wind speed ranges. Cal Advocates recommends this data be required for wind speeds of 21 to 65 mph, in 5 mph increments, from 2016 through 2020. The WSD should direct the three utilities to coordinate and report this data in comparable formats. The WSD should require the small utilities to submit these supplemental reports and data within 90 days from when the WSD issues an action statement on the respective utility's WMP.[12]

B. The WSD should convene a working group to evaluate the benefits and costs of conducting more frequent detailed inspections of distribution assets in high fire-threat districts (HFTDs).

The HFTDs represent regions where there is an increased risk for utility-caused wildfires. The three small utilities, BVES,[13] Liberty,[14] and PacifiCorp,[15] each perform detailed inspections of their overhead distribution assets once every five years, as required by General Order 165.[16] The three small utilities all employ the same detailed inspection frequency for assets in HFTDs and outside the HFTDs. In contrast, 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.[17]

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[12] Pursuant to Public Utilities Code Section 8386.3(a), the WSD is expected to issue action statements on the small IOUs' WMPs by June 5, 2021.

[13] BVES's 2021 WMP, p. 119.

[14] Liberty's 2021 WMP. p. 98.

[15] PacifiCorp's 2021 WMP, p. 143.

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

[17] 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.

The WSD should convene a working group in the summer or fall of 2021 to evaluate the potential benefits and costs of conducting detailed inspections of distribution assets in HFTDs more frequently than once every five years. This working group should also include a discussion of best practices regarding supplemental inspection programs, such as aerial inspections, which may serve as an alternative to more frequent detailed inspections. This working group should include BVES, Liberty, and PacifiCorp, at a minimum, and should be open to the large IOUs and all stakeholders who want to participate. The WSD should schedule working group meetings soon, so that the group can reach conclusions and recommend actions in time for inclusion in the 2022 WMPs.

C. The WSD should hold a workshop on light detection and ranging (LiDAR) inspections.

PacifiCorp, BVES, and Liberty have reached differing conclusions regarding the use of light detection and ranging (LiDAR) technology.[18]

- BVES has a positive assessment of LiDAR for vegetation management inspections and also plans to use LiDAR for asset inspections.[19], [20]
- Liberty states that it had success in implementing LiDAR for detecting vegetation clearances, but that it has no plans to use LiDAR for asset inspections.[21], [22]
- PacifiCorp notes that LiDAR inspections have yielded positive results when used for surveying and evaluating poles and equipment. However, PacifiCorp determined that LiDAR was *not effective* for detecting clearances for vegetation management.[23] As an alternative to LiDAR, PacifiCorp is piloting the use of satellite data of tree canopies from the National Land Cover Database (NLCD) to predict where vegetation management work is more likely to be needed.[24]

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

[19] BVES 2021 WMP, p. 120.

[20] BVES 2021 WMP, p. 122.

[21] Liberty 2021 WMP, p. 75.

[22] Liberty 2021 WMP, p. 101.

[23] PacifiCorp 2021 WMP, p. 44.

[24] PacifiCorp 2021 WMP, p. 45.

While it is possible that these different assessments are the result of differing service territory topography, all three of the small IOUs' service territories have similar topography of mountainous and forested terrain.

The WSD should hold a workshop in the summer or fall of 2021 to explore the reasons for differing assessments of LiDAR effectiveness[25] and any lessons that the IOUs can learn from each other. Additionally, at a workshop, the WSD could evaluate the benefits and costs of LiDAR programs across all the IOUs and determine if LiDAR programs should be required in future WMPs.

D. The WSD should conduct a workshop on covered conductor program costs.

The costs of covered conductor programs vary widely across the utilities.[26] For example, PacifiCorp intends to install 85 circuit-miles[27] of covered conductor in 2021 and expects to spend significantly less per mile than Southern California Edison Company (SCE), Pacific Gas and Electric Company (PG&E) or San Diego Gas & Electric Company (SDG&E), as shown in Table 1 below.[28], [29], [30], [31], [32]

[25] For example, the workshop could examine whether these discrepancies are due to differences in experience by utility staff, a difference in quality of the vendors selected by the utilities, or other factors.

[26] *Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Updates of the Large Investor-Owned Utilities*, March 29, 2021, pp. 39-40. See also *Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Update of Pacific Gas and Electric Company*, March 29, 2021, pp. 42-43.

[27] These 85 miles of circuits represent approximately 165 line-miles, accounting for circuits with more than one phase. PacifiCorp Response to data request CalAdvocates-PacifiCorp-2021WMP-04, April 6, 2021, Question 1, Attachment "Attach CalPA 4.1".

[28] PacifiCorp forecasts a cost of approximately $185,000 per circuit mile. PacifiCorp 2021 WMP Update, Table 12 of Non-spatial Tables.

[29] PacifiCorp Response to data request CalAdvocates-PacifiCorp-2021WMP-04, April 6, 2021, Question 1, Attachment "Attach CalPA 4.1".

[30] PG&E's 2021 WMP, Table 12 of Non-Spatial Tables.

[31] SDG&E's 2021 WMP, Table 12 of Non-Spatial Tables.

[32] SCE's 2021 WMP, Table 12 of Non-Spatial Tables.

Table 1 **Comparison of Covered Conductor Costs** Forecast Cost per Mile	
Utility	**Forecast Cost per Mile in 2021**
PacifiCorp	$185,000
SCE	$540,000
PG&E	$1,600,000
SDG&E	$2,750,000
Source: WMP non-spatial data tables, Table 12. *See also:* Cal Advocates' 2021 WMP Comments on SCE, SDG&E, and General Issues, Section V.E; Cal Advocates' 2021 WMP Comments on PG&E, Section III.O.	

It is unclear what factors enable PacifiCorp to install covered conductor at a lower cost per mile. According to their responses to discovery, PacifiCorp's cost per mile has relatively little connection to the number of phases being replaced with covered conductor: regardless of whether the circuit has one, two or three phases, forecasted costs can exceed $185,000 but never exceed $250,000 per circuit mile.[33]

The WSD should examine the large discrepancies in covered conductor costs shown in Table 1. PacifiCorp's forecasts reinforce Cal Advocates' previous recommendation that the WSD hold a technical workshop in the summer or fall of 2021 to evaluate the practices and procedures the different IOUs use when installing covered conductor.[34]

While the WSD does not approve the costs of the WMPs, the WSD should examine these cost disparities in an effort to help all utilities reduce wildfire risks in a cost-effective manner and with realistic forecasts. If it is possible for the other IOUs to install covered conductor at costs comparable to PacifiCorp's forecasts, there could be renewed discussion between the Commission and the IOUs about the efficacy and prioritization of covered conductor projects in comparison to other mitigations.

[33] PacifiCorp response to data request CalAdvocates-PacifiCorp-2021WMP-04, April 6, 2021, Question 3.

[34] *Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Updates of the Large Investor-Owned Utilities*, March 29, 2021, p. 40.

V. BEAR VALLEY ELECTRIC SERVICE

A. The WSD should require BVES to explain its internal audit procedures.

BVES states that "all actions implemented under [its] WMP including capital, operations, and administrative initiatives are reviewed periodically for quality assurance and control."[35] As part of this periodic review, internal audits may be used to identify deficiencies.[36] However, as of April 2, 2021, BVES has never performed any internal audits of WMP processes, and BVES' WMP does not describe its internal audit process.[37] While BVES states that it expects to begin performing these audits during the latter half of 2021,[38] it has not provided a description of how these audits will be carried out, nor how frequent or thorough they will be.

Internal audits are a powerful tool for ensuring that mitigation programs are effective and that procedures are properly followed.[39] The WSD should require BVES to explain its procedures for periodically reviewing WMP initiatives, including internal audits. Since BVES has not yet performed any internal audits of WMP processes,[40] and therefore does not currently have data on the effectiveness of these audits, Cal Advocates recommends that the WSD require BVES to file an update each quarter through the first quarter of 2022, detailing BVES's progress on developing these audits and the results from any audits that were performed in the prior quarter. BVES should include the same information regarding its internal audit procedures and results in its 2022 WMP Update.

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[35] BVES's 2021 WMP, p. 95.

[36] BVES's 2021 WMP, p. 96.

[37] BVES's response to Data Request CalAdvocates-BVES-2021WMP-02, Question 4, April 2, 2021.

[38] BVES's response to Data Request CalAdvocates-BVES-2021WMP-02, Question 4, April 2, 2021.

[39] See Cal Advocates' discussion of PG&E's internal audits, and recommendations of additional internal audits in *Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Update of Pacific Gas and Electric Company*, March 29, 2021, pp. 19-20 and 24-30.

[40] BVES's response to Data Request CalAdvocates-BVES-2021WMP-02, Question 4, April 2, 2021.

B. The WSD should require BVES to implement quality assurance and quality control processes for asset inspections by the end of 2021.

BVES lacks QA/QC processes for asset inspections.[41] BVES plans to implement QA/QC processes for inspections by the end of 2022,[42] but has not yet determined what these processes will entail.[43]

Distribution asset inspections, including detailed and patrol inspections, are required by General Order 165,[44] and are necessary to find issues that may cause an outage or ignition if left un-remediated. Asset inspections are especially important in the HFTD, which encompasses BVES's entire service territory.[45] Robust QA/QC processes would ensure BVES's inspectors perform thorough inspections,[46] appropriately identify the priority of issues,[47] and ensure repairs are performed properly,[48] thereby preventing outages or ignitions.

Without any QA/QC processes in place for inspections, it is impossible to determine the effectiveness of BVES's inspections, or to identify areas for improvement. As BVES's entire service territory is at an elevated fire risk, it would be beneficial for BVES to develop such a program as soon as is feasible. Deferring this until the end of 2022 – after two more wildfire seasons - is an unnecessarily long wait.

The WSD should direct BVES to develop and begin implementing an inspection QA/QC program by the end of 2021, rather than 2022 as BVES proposes. BVES should submit a report by October 2021 describing the QA/QC processes it is implementing in 2021. Among other things, BVES should describe how it will ensure that the personnel performing quality control are separate from those who performed the original inspections.

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[41] BVES's response to Data Request CalAdvocates-BVES-2021WMP-02, Question 11, April 2, 2021.

[42] BVES's 2021 WMP, Table 5.3-1 "List and Description of Program Targets, Last 5 Years," p. 63.

[43] BVES's response to Data Request CalAdvocates-BVES-2021WMP-02, Question 11, April 2, 2021.

[44] General Order 165, Table 1.

[45] BVES's 2021 WMP, p. 26.

[46] For example, SCE's QA/QC program "performs field validations of inspections completed by SCE's Transmission and Distribution Business Unit (T&D) work crews," SCE's 2021 WMP, p. 184.

[47] For example, PG&E's Centralized Inspection Review Team reviews corrective findings, and in 2020, "made changes to the priority, scope, or other aspect of the initial inspection field finding in 12 percent of transmission cases and 7 percent of distribution cases," PG&E's 2021 WMP, p. 619.

[48] For example, SDG&E randomly audits 1.5% of electric inspections to "assess their conditions to see if the appropriate improvements have been properly carried out," SDG&E's 2021 WMP, p. 155.

Additionally, BVES should include a detailed description of its QA/QC program for asset inspections in its 2022 WMP Update.

C. The WSD should require BVES to assess the feasibility of completing certain mitigation programs sooner than proposed.

In its 2020 WMP refile, BVES projected completing both its Tree Attachment Removal program and Pole Loading Assessment and Remediation program by 2022.[49] In its 2021 WMP, both of these programs are projected to be complete by the end of 2026.[50]

1. BVES is reducing the scope of the Tree Attachment Removal program and the Pole Loading Assessment and Remediation program in 2021 compared to recent years.

BVES appears to be slowing its pace of work on tree attachment removals. From 2018 through 2020, BVES removed an average of 216 tree attachments *per year*.[51] However, it plans to remove approximately 100 tree attachments in 2021, in *one year*.[52] BVES estimates that 714 tree attachments remain in its system,[53] which means that if BVES were to maintain its previous pace, it would be able to remove all remaining tree attachments by the middle of 2024, and faster than at the estimated pace for 2021.[54]

Similarly, BVES plans to perform fewer pole loading assessments in 2021 than it performed in either 2018 or 2019. BVES has approximately 9,951 wood poles in its service

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[49] "As of July 31, 2020, BVES has removed 431 tree attachments and installed 295 new poles. BVES estimates that all attachments will be removed by the end of 2022." BVES's 2020 WMP refile, p. 127.

"As of July 31, 2020, BVES has evaluated 2,525 poles; 1,050 failed the inspection criteria; 547 poles were replaced and 113 remediated. Corrective action for the remaining poles that failed inspection is being undertaken. As noted above, this is an ongoing project that is expected to be completed by 2022." BVES's 2020 WMP Refile, p. 129.

[50] BVES's 2021 WMP, Table 5.3-2 "Prevention Strategy Program Completion Schedule," p. 68.

[51] Per BVES's 2021 WMP, Table 3, BVES removed 230 tree attachments in 2018, 199 in 2019, and 220 in 2020.

[52] "The tree attachment removal work plan for 2021 will start on the Goldmine 4 kV circuit with 76 tree attachments and then shift to removing approximately 24 tree attachments on the Clubview 4 kV circuit." BVES's response to Data Request CalAdvocates-BVES-2021WMP-02, Question 9, April 2, 2021.

[53] BVES's 2021 WMP, p. 111.

[54] 714 tree attachments remain in BVES's system. At 216 remediations per year beginning in 2021, this would take 3.3 years, or until spring of 2024.

territory,[55] and plans to assess approximately 500 per year in 2021 and 2022.[56] In 2018 and 2019, BVES assessed two to three times that many.[57] This slowdown is occurring despite a high failure rate: approximately 43 percent of poles assessed so far have failed the inspection criteria.[58]

BVES states that it plans to accelerate its Pole Loading Assessment and Remediation program by increasing its annual number of pole assessments to 1,600,[59] but does not say when this will occur. BVES should provide a specific date.

BVES states that it pushed back its estimated completion date for its Tree Attachment Removal program and Pole Loading Assessment and Remediation program from 2022 to 2026 in part due to other WMP projects that were not originally planned when these programs were proposed in 2017.[60] However, the competing projects (which include the Conventional Fuse Replacement program,[61, 62] and the Radford Line Covered Conductor Replacement Project[63]) will be completed this year.[64, 65] Because these two large projects are scheduled to be completed by 2021, BVES could conceivably have more staff time and financial resources available to redirect to increasing the annual scope of its Tree Attachment Removal and Pole Loading Assessment and Remediation programs.

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[55] BVES's response to Data Request CalAdvocates-BVES-2021WMP-01, Question 4.

[56] BVES's 2021 WMP, Table 5.3-1 "List and Description of Program Targets, Last 5 Years," p. 60.

[57] Per BVES's 2021 WMP, Table 3, BVES assessed 924 poles in 2018, 1,588 in 2019, but only 191 in 2020.

[58] Per BVES's 2021 WMP, Table 3, BVES assessed 2,703 poles from 2018 through 2020. Of those, 1,155 failed assessment. 1,155/2,703 = 0.43.

[59] BVES's 2021 WMP, p. 113.

[60] These projects were "mostly planned and estimated in 2016 and submitted for review and approval in the BVES GRC application A.17-05-004 filed on May 1, 2017." BVES's response to Data Request CalAdvocates-BVES-2021WMP-03, Questions 1 and 2, April 5, 2021.

[61] BVES's response to Data Request CalAdvocates-BVES-2021WMP-03, Questions 1 and 2, April 5, 2021.

[62] Per BVES's 2021 WMP, Table 12, the Conventional Fuse Replacement program is projected to cost approximately $0.74 million in 2021.

[63] Per BVES's 2021 WMP, Table 12, the Radford Line Covered Conductor Replacement Project will cost approximately $5.4 million in 2021.

[64] BVES's 2021 WMP, Table 5.3-1 "List and Description of Program Targets, Last 5 Years," p. 59.

[65] BVES's 2021 WMP, Table 5.3-2 "Prevention Strategy Program Completion Schedule," p. 69.

2. BVES should assess the feasibility of completing these programs sooner.

Cal Advocates recognizes that it is not feasible for BVES to complete both its Tree Attachment Removal and Pole Loading Assessment and Remediation programs by 2022. However, BVES will complete two high-expenditure programs in 2021, potentially freeing resources that could be reapplied to these programs. Instead, BVES has reduced its planned annual scope for these programs compared to recent years.

The WSD should require BVES to assess the potential costs and benefits of accelerating its Tree Attachment Removal and Pole Loading Assessment and Remediation programs after 2021 in order to complete these programs sooner than the end of 2026. BVES should include this assessment and an updated schedule in its 2022 WMP update.

D. The WSD should require BVES to explain its high finding rate of non-compliant vegetation.

In Table 1 of its 2021 WMP, BVES reports that it inspected 2,498 spans for vegetation compliance in 2020, and 1,323 of those were found to have some non-compliant vegetation.[66] It is concerning that 53 percent of spans appear to have had non-compliant vegetation when inspected.[67] By comparison, other utilities report much lower rates of non-compliant vegetation in their Table 1 data. Liberty and PacifiCorp report non-compliant vegetation on approximately seven percent[68] and five percent[69] of spans within their HFTDs, respectively.[70] Also, the three large IOUs all report rates of non-compliant vegetation below five percent.[71]

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[66] BVES's 2021 WMP, Table 1.

[67] Per BVES's 2021 WMP, Table 1, non-compliant vegetation was found on 1,323 spans, out of a total of 2,498 spans inspected. 1,323/2,498 = 0.53.

[68] Per Liberty's 2021 WMP, Table 1, non-compliant vegetation was found on 1,797 spans in HFTD, out of a total of 26,125 spans inspected in HFTD. 1,797/26,125 = 0.069.

[69] Per PacifiCorp's 2021 WMP, Table 1, non-compliant vegetation was found on 52 spans in HFTD, out of a total of 1,059 spans inspected in HFTD. 52/1,059 = 0.049.

[70] BVES's entire territory is within the HFTD. In order to keep comparisons meaningful, Cal Advocates compared only data from each utility's facilities within HFTD.

[71] Per PG&E's 2021 WMP, Table 1, non-compliant vegetation was found on 24,998 spans in HFTD, out of a total of 546,184 spans inspected in HFTD. 24,998/546,184 = 0.046.

Per SCE's 2021 WMP, Table 1, non-compliant vegetation was found on 715 spans in HFTD, out of a total of 53,123 spans inspected in HFTD. 715/53,123 = 0.013.

Per SDG&E's 2021 WMP, Table 1, non-compliant vegetation was found on 1,302 spans in HFTD, out of a total of 76,951 spans inspected in HFTD. 1,302/76,951 = 0.017.

The WSD should require BVES to file a report to explain its high rate of vegetation findings. BVES should assess whether any immediate changes to its vegetation management processes are needed to ensure safety and describe such changes in the report. BVES should submit this report within 30 days from when the WSD issues an action statement on BVES's WMP.[72]

Additionally, the WSD should require BVES to perform a thorough audit of its vegetation management processes to determine if changes to its vegetation management processes or frequency are necessary to reduce the risk of outage or ignition due to vegetation. BVES should submit a report within 180 days from when the WSD issues an action statement on BVES's WMP,[73] detailing the results of this audit and any planned corrective actions.

VI. LIBERTY

A. The WSD should require Liberty to establish formal QA and QC programs for its asset inspections and grid hardening projects.

QA/QC programs and processes are essential to ensuring that Liberty's quality standards are properly implemented on the wildfire mitigation work as stated in the utility's 2021 WMP Update. Detailed and accurate QA/QC inspections of Liberty's WMP work are vital to ensuring 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.

[72] Pursuant to Public Utilities Code Section 8386.3(a), the WSD is expected to issue an action statement on BVES's WMP by June 5, 2021.

[73] Pursuant to Public Utilities Code Section 8386.3(a), the WSD is expected to issue an action statement on BVES's WMP by June 5, 2021.

Liberty's 2021 WMP Update lacks QA/QC procedures for Liberty's asset inspection[74] and grid hardening programs.[75, 76] Liberty states that it currently "does not have any formalized QA/QC processes" for either asset inspections or grid hardening.[77, 78] Liberty recognizes the need to establish a robust QA/QC program to improve compliance with company and Commission standards.[79] Cal Advocates understands that Liberty is a small utility, and it may make sense for Liberty to rely on outside contractors and consultants to complete wildfire mitigation work. However, this does not excuse the lack of processes in place to verify the quality of work. Having proper QA/QC processes in place not only allows Liberty to verify and check the work, but also aids in building upon its own in-house knowledge and experience.

Furthermore, Liberty's lack of QA/QC programs to verify the quality of its asset inspections or grid hardening projects could imply larger problems such as a lack of commitment to consistently high-quality work. This is particularly important given Liberty's heavy reliance

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[74] Public Utilities Code Section 8386(c)(21) requires each WMP to include:

> A description of the processes and procedures the electrical corporation will use to do all of the following:
>
> (A) Monitor and audit the implementation of the plan
>
> (B) Identify any deficiencies in the plan or the plan's implementation and correct those deficiencies.
>
> (C) Monitor and audit the effectiveness of the electrical line and equipment inspections, including inspections performed by contractors, carried out under the plan and other applicable statutes and commission rules.

[75] A prudent manager should ensure that capital projects are constructed properly, even though the 2021 WMP guidelines do not specifically call attention to QA/QC processes for grid hardening work.

[76] Public Utilities Code Section 8386(c)(21) requires each WMP to include processes and procedures to audit implementation of the plan and to "identify any deficiencies in the plan or the plan's implementation and correct those deficiencies."

[77] "Liberty does not have any formalized QA/QC processes for asset inspections performed by contractors. The year 2020 was the first year that Liberty utilized contractors for any asset inspections. These inspections are normally performed by Liberty inspectors, but the volume in 2020 necessitated hiring a contractor to perform an asset survey in addition to asset inspections" Liberty's response to Data Request CalAdvocates-Liberty-2021WMP-02, Question 5, April 1, 2021.

[78] "Liberty currently does not have any formalized QA/QC processes for grid hardening projects in place. There is no auditing process in place when a company inspector has been assigned to a grid hardening project. However, Liberty has stated in the 2021 WMP Update that it will create an RFP process this year to get a third-party contractor to perform QA/QC on jobs beginning in 2022, even those that had a company inspector assigned" Liberty's response to Data Request CalAdvocates-Liberty-2021WMP-02, Question 6, April 1, 2021.

[79] Liberty's 2021 WMP, Section 7.3.4.14, pp. 102-103.

on contractor work. Liberty should develop specific, actionable processes to ensure that all mitigation work meets expectations. To pick one important example, a lack of quality control creates uncertainty about the quality of Liberty's "system-wide survey conducted in 2020 that utilized contractors and Liberty personnel to inspect the entire service territory and provided data on conditions of all overhead distribution and transmission assets."[80]

As part of establishing its formal QA/QC programs and processes, Liberty should also consider what it will do to address underperforming inspectors (for both asset inspections and vegetation management). Currently, Liberty states that it identifies problems and issues, and then notifies the contractor who is then expected to resolve the issue.[81] Liberty should provide a more defined process on how it will address underperforming contractors and describe how underperforming inspectors will be evaluated, retrained, reassigned (as appropriate), or not rehired.

In sum, the WSD should require Liberty to implement QA/QC processes for both asset inspections and grid hardening programs by the end of 2021. The WSD should also require Liberty to improve its oversight of its contractors, including tracking the quality of work of individual contractors, and developing specific action plans to address underperforming contractors. As part of establishing these programs, the WSD should require Liberty to file quarterly reports on its progress in improving QA/QC processes and contractor oversight. Each report should detail the QA/QC processes currently in effect for all wildfire mitigation measures, including but not limited to vegetation management, asset inspections, and grid hardening projects. In these reports, Liberty should be required to provide the following:

- The number of asset inspection personnel (either employee or contractor) who, to date, have reported abnormally high or low rates of corrective findings in the field;
- The number of inspection personnel who, to date, have observed abnormal rates of change of their initial findings;
- The number and percentage of inspections (of each type) that failed QC on the first attempt;
- The number of cases in which an inspection QA/QC process has resulted in a reinspection of assets;

[80] Liberty's 2021 WMP, Section 7.3.4.3, pp. 99.

[81] Liberty's response to Data Request CalAdvocates-Liberty-2021WMP-02, Question 8, April 1, 2021.

- For each case above, the short-term and long-term corrective actions Liberty has taken to remediate the issue.

Additionally, Cal Advocates has previously recommended that the WSD should convene a technical working group with the three large IOUs and interested stakeholders to develop best practices for QA/QC.[82] We recommend that the WSD also require Liberty to attend this technical working group session to allow Liberty to gather more information on how to develop its QA/QC programs.

VII. PACIFICORP

A. The WSD should direct PacifiCorp to describe its operations and projects related to grid automation systems.

PacifiCorp implemented its first voluntary de-energization event in September 2020, affecting 2,557 customers (about six percent of PacifiCorp's customers).[83] In light of this, PacifiCorp's WMP should provide detail on programs that affect the probability and scale of future de-energization events. However, PacifiCorp's 2021 WMP Update provides limited detail on three important programs that affect current de-energization readiness and the scope of future events: recloser operations in the HFTD, grid topology changes, and installation of system automation equipment.

PacifiCorp's 2021 WMP Update provides little detail about how PacifiCorp operates reclosers or other protection devices during the wildfire season. PacifiCorp states:

> PacifiCorp further restricts these [line-testing] operations during extreme fire weather conditions throughout additional line by either remotely or manually modifying these settings. This practice and its role in fire mitigation during designated 'watch' periods is further discussed in Chapter 8.[84]

In Chapter 8, though, PacifiCorp fails to further describe the practice or role of modifying the settings of its protective devices during the wildfire season.[85]

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[82] *Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Update of Pacific Gas and Electric Company*, March 29, 2021, pp. 32.

[83] PacifiCorp Public Safety Power Shut-Off Report for September 13 - September 17, 2020, October 1, 2020, p. 8.

[84] PacifiCorp 2021 WMP, p. 172.

[85] *See, e.g.,* PacifiCorp 2021 WMP, p. 200.

PacifiCorp's discussion of procedures related to the operation of reclosers in HFTD areas during fire season are incomplete in scope. PacifiCorp notes that it is still developing similar procedures for distribution circuits, which may be implemented prior to the 2021 fire season.[86, 87]

Likewise, PacifiCorp provides limited detail regarding changes to grid hardening programs focused on grid topology and system automation as a means to reduce wildfire risk and voluntary de-energization events. PacifiCorp mentions that it may implement some grid topology improvements that are "limited in scope and expenditure and will be considered on a case-by-case basis," but provides no additional detail.[88] Similarly, PacifiCorp's WMP Update mentions 68 system automation projects, but provides no further details on the nature of these projects or any impact that they may have on de-energization thresholds.[89] In fact, while PacifiCorp's program scope (covering 68 projects in the years 2019 through 2023) is unchanged from the 2020 WMP, PacifiCorp provides much less detail on the scope of the program and the project types.[90] Specifically, PacifiCorp does not provide an update on the 41 projects it had forecast to be completed in 2019 and 2020.[91] PacifiCorp's discussion of these 68 projects appears to be copied word for word from PacifiCorp's 2020 WMP,[92, 93] but information on the number of projects per year is missing.

To address the deficiencies described above, the WSD should require PacifiCorp to provide greater detail regarding distribution automatic recloser operations, grid topology improvements, and system automation projects. Filling these gaps is necessary to ensure that PacifiCorp's WMP achieves the goal of minimizing wildfire risk and de-energization events. PacifiCorp should provide detail on the scope of these programs that includes information such

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[86] PacifiCorp Response to CalAdvocates-PacifiCorp-2021WMP-03, April 5, 2021, Question 3.

[87] In response to discovery, PacifiCorp provides additional detail regarding recloser operations, specifically for *transmission and sub-transmission* lines (meaning lines that operate at 35 kV or higher). PacifiCorp Response to CalAdvocates-PacifiCorp-2021WMP-03, April 5, 2021, Question 3, PCC-200-T 02252021.

[88] PacifiCorp 2021 WMP, p. 135.

[89] PacifiCorp 2021 WMP, p. 136.

[90] PacifiCorp's 2020 WMP forecast completing 10 projects in 2019, 31 projects in 2020, 24 projects in 2021, and 3 projects in 2022. PacifiCorp 2020 WMP, p. 153.

[91] PacifiCorp 2020 WMP, p. 153.

[92] PacifiCorp 2021 WMP, p. 136.

[93] PacifiCorp 2020 WMP, p. 153.

as the methodology and forecasted scope of work.[94] PacifiCorp should specifically address the expected impact of these programs on the frequency and scope of future de-energization events. The WSD should require PacifiCorp to provide this information in a revised WMP Update within 30 days from when the WSD issues an action statement on PacifiCorp's WMP.[95]

B. The WSD should require PacifiCorp to provide additional detail on system hardening progress in 2020 and on future forecasts for system hardening programs.

In PacifiCorp's 2020 WMP, PacifiCorp planned a gradual start for its largest system hardening programs. PacifiCorp mainly planned to perform design and engineering work in 2020 and 2021, with installation ramping up steeply in the following years.[96] In comments on the 2020 WMP, Cal Advocates expressed concern that this plan could be difficult to sustain in the event that unforeseen resource constraints or other complications were to impact PacifiCorp's work schedule. Any implementation delays would hinder PacifiCorp's achievement of the forecast risk reduction. As a result, Cal Advocates recommended that "PacifiCorp's system hardening programs should be monitored by the WSD to ensure that PacifiCorp is on track to timely complete its overall WMP objectives."[97]

True to Cal Advocates' concerns, PacifiCorp made substantially less progress than PacifiCorp had forecast for the 2020 WMP on two key grid hardening programs: covered conductor installation, and pole replacement and reinforcement. In the 2020 WMP, PacifiCorp forecast completing 38 miles of covered conductor installation in 2020 but in actuality PacifiCorp failed to perform 96 percent of the forecasted work.[98, 99] Similarly, PacifiCorp forecasted reinforcing or replacing 189 poles in 2020, but actually only completed 15 percent of

[94] For example, see the discussion of distribution pole replacement and reinforcement in PacifiCorp's 2021 WMP, pp. 131-134.

[95] Pursuant to Public Utilities Code Section 8386.3(a), the WSD is expected to issue an action statement on PacifiCorp's WMP by June 5, 2021.

[96] See the *Comments of the Public Advocates Office on the 2020 Wildfire Mitigation Plans*, pp. 27-32

[97] *Comments of the Public Advocates Office on the 2020 Wildfire Mitigation Plans*, p. 27.

[98] PacifiCorp completed 1.4 miles out of the 38 planned miles.

[99] 2020 forecast from PacifiCorp 2020 WMP, p. 139; 2020 actual from PacifiCorp 2021 WMP Update non-spatial data, Table 12.

the forecasted work.[100], [101] Despite the difficulties in scaling up these programs, revised 2021 forecasts still envision steep ramps in future years.

Delays in completing necessary system hardening work will result in PacifiCorp customers facing greater risk of wildfire and de-energization. The WSD should require PacifiCorp to provide additional information including but not limited to the circumstances that caused grid hardening progress to be slower than expected in 2020, lessons learned from the delays, and how they are being applied to increase grid hardening progress in 2021 and future years. In addition, PacifiCorp's update should outline contingency plans should additional difficulties prevent the scale of ramping up envisioned in PacifiCorp's forecasts for future years. Therefore, PacifiCorp should provide a revised WMP Update that includes this information within 30 days from when the WSD issues an action statement on PacifiCorp's WMP.

C. The WSD should require PacifiCorp to provide additional detail on its inspections portfolio and whether it intends to implement drone inspections.

PacifiCorp's 2021 WMP Update omits any plans to implement a drone inspection program similar to those being piloted by SDG&E[102] and SCE.[103] Indeed, PacifiCorp indicates that it does not use drones to conduct inspections.[104] However, PacifiCorp does perform aerial inspections[105] for transmission lines and as part of its LiDAR Pole Loading Assessment Pilot.[106], [107]

Drone inspection pilot programs have shown promising effectiveness at large utilities. For example, SDG&E reports that its distribution drone inspections program found on average 51 percent more issues on the same assets compared to ground-based inspections.[108] SCE also

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[100] PacifiCorp reinforced or replaced 29 of the 189 planned poles.

[101] 2020 forecast from PacifiCorp 2020 WMP, p. 145; 2020 actual from PacifiCorp 2021 WMP Update non-spatial data, Table 12.

[102] See SDG&E 2021 WMP, pp. 247-250, and pp. 252-254.

[103] See SCE 2021 WMP, pp. 172-173.

[104] PacifiCorp Response to data request CalAdvocates-PacifiCorp-2021WMP-04, April 06, 2021, Question 4.

[105] Aerial inspections can be performed using drones, helicopters, or fixed-wing aircraft.

[106] PacifiCorp 2021 WMP, p. 160.

[107] PacifiCorp 2021 WMP, p. 43.

[108] SDG&E's 2021 WMP, p. 248.

reports a successful drone inspection pilot program.[109, 110] Cal Advocates has also recommended that PG&E should study implementing its own aerial inspection program.[111] Other utilities have noted instances where problems can be identified from above but not from the ground.[112] Additionally, BVES states that using drones to supplement patrols and ground-based inspections allows BVES to find issues more quickly than using bucket trucks to find the same problems.[113]

Given the promising pilot programs taking place at other California utilities, PacifiCorp's WMP should consider drone inspections of distribution assets in HFTD areas or explain what consideration and analysis has already been undertaken (and the outcome of that consideration). PacifiCorp should also discuss whether PacifiCorp's current inspection programs effectively identify the types of safety issues that could be found by drone inspections. If PacifiCorp is considering piloting drone inspections in the future, it should provide an outline of such plans and a timeline for implementation. This report should also include discussion of alternative frequencies for aerial inspections, ranging from annual inspections to a five-year cycle. The WSD should require PacifiCorp to submit this report with its WMP submission in 2022.

Finally, the WSD should hold a technical workshop with all California IOUs to discuss the efficacy of aerial inspections for distribution and transmission assets in HFTD areas. The workshop should consider whether aerial inspections should be a required component of WMPs moving forward. The WSD should schedule this workshop in the summer or fall of 2021 so that the findings and any necessary follow-up actions can be incorporated into the 2022 WMP submissions.

VIII. CONCLUSION

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

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[109] SCE's 2021 WMP, p. 172.

[110] For discussion of SCE's drone inspections program, see *Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Updates of the Large Investor-Owned Utilities*, pp. 10-11.

[111] See *Comments of the Public Advocates Office on the 2021 Wildfire Mitigation Plan Update of Pacific Gas and Electric Company*, pp. 41-42.

[112] BVES 2021 WMP, p. 122.

[113] BVES 2021 WMP, p. 122.

Respectfully submitted,

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