State of California – A Natural Resources Agency
Gavin Newsom, Governor

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Caroline Thomas Jacobs, Director

November 6, 2023

To: 2023-2025 Wildfire Mitigation Plans docket (2023-2025-WMPs)
Subject: Decision on Bear Valley Electric Service, Inc.'s 2023-2025 Wildfire Mitigation Plan

Dear Wildfire Mitigation Plan stakeholders:

Enclosed is the Office of Energy Infrastructure Safety's (Energy Safety's) Decision approving Bear Valley Electric Service, Inc.'s 2023-2025 Wildfire Mitigation Plan.

On September 21, 2023, a draft of this Decision was published on Energy Safety's website and served to Energy Safety's 2023-2025 Wildfire Mitigation Plans service list for public review and comment.

Opening comments on the draft Decision were due on October 10, 2023, and reply comments were due on October 23, 2023. The comments were considered in the final evaluation, leading to some changes to the Decision. A summary of these changes can be found in Appendix E. In addition to these changes, Energy Safety made non-substantive changes to clarify content and correct typographical errors in the text.

Sincerely,

Shannon O'Rourke
Deputy Director | Electrical Infrastructure Directorate
Office of Energy Infrastructure Safety

OFFICE OF ENERGY INFRASTRUCTURE SAFETY

DECISION ON 2023-2025 WILDFIRE MITIGATION PLAN

BEAR VALLEY ELECTRIC SERVICE, INC.

November 2023

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1. Executive Summary

The Office of Energy Infrastructure Safety (Energy Safety) works to ensure electrical corporations take effective actions to reduce utility-related wildfire risk. Pursuant to Public Utilities Code section 8386.3(a), this Decision serves as Energy Safety's assessment and approval of Bear Valley Electric Service, Inc.'s (BVES) 2023-2025 Wildfire Mitigation Plan (WMP), submitted on May 8, 2023. Energy Safety's Decision considers comments from the public and other stakeholders.

BVES's WMP is comparable to, and at times exceeds, the plans of the other small multi-jurisdictional electrical corporations. For example, BVES plans continued incorporation of various technologies to inform decisions and priorities. Specifically, the use of light detection and ranging (LiDAR) inspection to determine vegetation management and asset inspection advances BVES beyond its peers that are currently in the pilot phases of incorporating this technology. Additionally, the multiple and diverse data inputs to BVES's Fire Safety Circuit Matrix, such as number of customers, wood poles, bare wire overhead circuit miles, tree attachments, and remaining expulsion fuses, aid in setting priorities for wildfire mitigation actions by balancing cost and potential risk reductions.

There are some areas of BVES's WMP that can be further developed and improved. BVES must build out a quality assurance and quality control (QA/QC) process for technology-based asset inspection tools. Furthermore, as BVES deepens its understanding and application of its third-party vendor risk modeling software, Energy Safety expects BVES to continue to incorporate quantitative methodologies into its mitigation selection process.

Finally, BVES, along with the other electrical corporations, is expected to continue participation in Energy Safety sponsored risk modeling working groups to ensure cross collaboration on best practices and latest approaches to complex modeling issues.

2. Introduction and Background

Bear Valley Electric Service, Inc. (BVES) submitted its 2023-2025 Wildfire Mitigation Plan (Base WMP or WMP) covering a three-year term from 2023 through the end of 2025 (the current WMP cycle) on May 8, 2023, in response to the reporting requirements set forth in the Office of Energy Infrastructure Safety's (Energy Safety's) 2023-2025 WMP Technical Guidelines (Technical Guidelines)[1] and the processes set forth in Energy Safety's WMP Process and Evaluation Guidelines (Process Guidelines).[2]

Pursuant to Public Utilities Code section 8386.3(a), this Decision is Energy Safety's assessment of BVES's 2023-2025 WMP.

Energy Safety approves BVES's 2023-2025 WMP. In 2024, BVES must submit a 2025 Update consistent with the 2025 WMP Guidelines. Energy Safety will approve or deny BVES's 2025 Update to its Base Plan.

2.1 Consultation with California Department of Forestry and Fire Protection

The Office of the State Fire Marshal is part of the California Department of Forestry and Fire Protection (CAL FIRE). Public Utilities Code section 8386.3(a) requires Energy Safety to consult with the Office of the State Fire Marshal in reviewing electrical corporations'[3] WMPs and WMP Updates. The Office of the State Fire Marshal provided meaningful consultation and input on the evaluation, but this Decision is solely an action of Energy Safety and not the Office of the State Fire Marshal or CAL FIRE.

2.2 Stakeholder Comments

Energy Safety invited stakeholders, including members of the public, to provide comments on the utilities' 2023-2025 WMPs and Revision Notices. Opening comments on BVES's Base WMP were due on June 29, 2023, and reply comments were due on July 10, 2023. Opening comments on BVES's Revision Notice were due on September 7, 2023, and reply comments were due on September 18, 2023. See Appendices E and F for lists of stakeholders that

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[1] Energy Safety's 2023-2025 Wildfire Mitigation Plan Technical Guidelines (Dec. 2022) (hereafter Technical Guidelines) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[2] Energy Safety's 2023-2025 Wildfire Mitigation Plan Process and Evaluation Guidelines (Dec. 2022) (hereafter Process Guidelines) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true, accessed May 5, 2023).

[3] In this document, "utility" should be understood to mean "electrical corporation."

submitted comments, including comments that Energy Safety concurred with and incorporated into its evaluation.

3. Energy Safety's 2023 Evaluation Process

Energy Safety issued the following guidelines for electrical corporations' 2023-2025 WMPs:

- **2023-2025 WMP Technical** Guidelines, which sets forth substantive and procedural requirements for electrical corporations to prepare and submit their WMPs.[4]
- **ITO Supplement to the 2023-2025 WMP Technical Guidelines**, which establishes the modified reporting requirements for independent transmission operators (ITOs).[5]
- **2023-2025 WMP Process and Evaluation Guidelines**, which outlines the process for Energy Safety's evaluation of WMPs, details the public participation process, and establishes submission requirements for the electrical corporations.[6]
- **2023-2025 Maturity Model and Survey**, which provides a quantitative method for assessing electrical corporation wildfire risk mitigation capabilities and examining how electrical corporations propose to continuously improve in key areas of their WMPs.[7, 8]

The WMP evaluation process includes some or all the following steps for each utility, which are described in more detail in the remainder of this section:

- Completeness check of the utilities' WMP pre-submissions

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[4] Technical Guidelines (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[5] Energy Safety's Independent Transmission Operator Supplement to the 2023-2025 Wildfire Mitigation Plan Technical Guidelines (Decemeber 2022) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53290&shareable=true, accessed May 5, 2023).

[6] Process Guidelines (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true, accessed May 5, 2023).

[7] Second Revised Final Maturity Model and Maturity Survey Letter (February 2023) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53393&shareable=true, accessed May 5, 2023);.

2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (Second Revised Final, February 2023) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53394&shareable=true, accessed May 5, 2023);.

2023 Electrical Corporation Wildfire Mitigation Maturity Survey (Second Revised Final, February 2023) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53395&shareable=true, accessed May 5, 2023). This is the version that electrical corporations saw when filling out the survey.

[8] 2023 Electrical Corporation Wildfire Mitigation Maturity Survey (Revised Final, April 2023) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53708&shareable=true, accessed May 5, 2023). This is the version used by Energy Safety when scoring the survey.

- Energy Safety's evaluation of utilities' WMPs, including consideration of Maturity Survey results, areas where the utility has progressed, and areas where the utility must improve
- Issuance of a Revision Notice if Energy Safety identifies critical issues associated with a utility's WMP
- Publication of Energy Safety draft Decision
- Publication of Energy Safety's Decision approving or denying a utility's WMP
- Various forms of public participation throughout the process

3.1 WMP Completeness

The first step in Energy Safety's WMP evaluation is a completeness check.[9] BVES provided its WMP pre-submission to Energy Safety on March 6, 2023.

Energy Safety determined that BVES's WMP pre-submission did not satisfy the completeness check and notified BVES on March 27, 2023, of what information was required to make its WMP complete.

BVES submitted its revised Base WMP on May 8, 2023.

3.2 Maturity Model and Survey

Energy Safety used the 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model[10] (Maturity Model) and 2023 Electrical Corporation Wildfire Mitigation Maturity Survey[11] (Maturity Survey), which together provided a quantitative method to assess the maturity of each utility's wildfire risk mitigation program. The current version of the Maturity Model is an update to the original version that Energy Safety used to assess utility maturity during the first WMP cycle (2020-2022).

The Maturity Model consists of 37 individual capabilities describing the ability of electrical corporations to mitigate wildfire risk and Public Safety Power Shutoff (PSPS) risk within their service territory. The 37 capabilities are aggregated into seven categories. Maturity levels range from 0 (below minimum requirements) to 4 (beyond best practice). For each utility, Energy Safety calculated maturity levels for each capability, each category, five cross-

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[9] Process Guidelines, Section 4.1, pages 3-5 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true, accessed May 5, 2023).

[10] 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (Second Revised Final, Feb. 2023) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53394&shareable=true, accessed May 5, 2023).

[11] 2023 Electrical Corporation Wildfire Mitigation Maturity Survey (Revised Final, April 2023) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53708&shareable=true, accessed May 5, 2023). This is the version used by Energy Safety when scoring the survey.

category themes, and the overall WMP, based on the utility's answers to Maturity Survey questions and the scoring system described in the Maturity Model.

Energy Safety evaluated each utility's reported and projected wildfire mitigation maturity in the context of the utility's corresponding current and planned initiatives described in its WMP.

The results from the 2023 Maturity Survey establish a baseline for maturity as well as the utility's anticipated progress over this three-year plan period.

Energy Safety assessed the results of each utility's Maturity Survey and discussed how the utility is progressing—or not—in maturity relative to each mitigation initiative. BVES's results specific to each initiative are discussed in Sections 6 through 9 of this Decision, and overall results for BVES can be found in Appendix H.

3.3 Areas for Continued Improvement

Energy Safety's evaluation of the 2023-2025 WMPs focused on each utility's strategies for reducing the risk of utility-related ignitions. Energy Safety assessed the electrical corporation's progress on areas for improvement resulting from 2022 WMP evaluations, evaluating the feasibility of its strategies, and measuring year-to-year trends. As a result of this evaluation, Energy Safety identified areas where the utility must continue to improve its wildfire mitigation capabilities in future plans.[12]

Areas for continued improvement relative to each mitigation initiative are discussed in Sections 6 through 9 of this Decision. Specific areas for continued improvement prescribed by Energy Safety in 2023, including specific required progress, are listed in Section 11.

3.4 Revision Notice

Public Utilities Code section 8386.3(a) states, "Before approval, [Energy Safety] may require modifications of the [WMP]." If Energy Safety requires modifications to a WMP, it does so by issuing a Revision Notice to a utility.[13]

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[12] Process Guidelines, Section 4.7 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true, accessed May 5, 2023).

[13] Process Guidelines, Section 4.4, page 6 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true, accessed May 5, 2023).

Energy Safety issued a Revision Notice to BVES on August 8, 2023.[14] BVES submitted its Revision Notice Response on August 22, 2023.[15, 16] Appendix C lists the critical issues contained in the Revision Notice, a brief overview of the utility's response, and Energy Safety's assessment of the utility's response. Energy Safety considered BVES's Revision Notice Response in its comprehensive WMP evaluation and this Decision includes Energy Safety's evaluation of both BVES's Revision Notice Response and its 2023-2025 WMP.

3.5 Decision

In its evaluation of an electrical corporation's 2023-2025 WMP, Energy Safety considers the areas where the electrical corporation must improve, as well as the progress it plans to achieve in its areas of strength. As a result of its evaluation, Energy Safety determines whether the 2023-2025 WMP is approved or denied.[17]

If the WMP is approved, Energy Safety finds the electrical corporation's WMP is sufficient and expects it to complete mitigation initiatives as described in its WMP. An approved WMP demonstrates adequate progress toward wildfire mitigation, while still showing areas where the electrical corporation must improve.

If the WMP is denied, Energy Safety finds the electrical corporation's WMP is not satisfactory or does not include sufficient detail within a section or sub-section of the WMP. There may still be areas of strength within a denied WMP, but the issues are critical enough to warrant denial.

Energy Safety recognizes that planning for wildfire risk is a maturing capability and expects that electrical corporations will continue to improve year over year. Therefore, Energy Safety's Decision includes areas for continued improvement, identifying areas where the utility must continue to mature in its capabilities.

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[14] Energy Safety's Issuance of Revision Notice for Bear Valley Electric Service Company's 2023-2025 Wildfire Mitigation Plan (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=54480&shareable=true, accessed August 23, 2023).

[15] BVES Response to the Office of Energy Infrastructure Safety Issuance of Revision Notice for Bear Valley Electric Service Company (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=54541&shareable=true, accessed August 24, 2023).

[16] Bear Valley Electric Service 2023-2025 Wildfire Mitigation Plan 2023 Revision 1 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=54542&shareable=true, accessed August 23, 2023).

[17] Process Guidelines, Section 5.3, page 10 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53287&shareable=true, accessed May 5, 2023).

Energy Safety also highlights in its Decision areas of strength where the electrical corporation plans noteworthy improvements to its wildfire mitigation programs, sets ambitious and feasible targets for its programs, and/or sets out to achieve more than what is required.

Pursuant to Public Utilities Code section 8386.3(a), this Decision is the totality of Energy Safety's review of BVES's 2023-2025 WMP. BVES's 2023-2025 WMP is approved.

3.6 Change Order Requests

For information regarding Energy Safety's change order process, refer to Section 12 of the Process Guidelines.

4. Introductory Sections of the WMP

In response to Sections 1 through 4 of the Technical Guidelines, BVES provided basic information regarding persons responsible for executing the plan and adherence to statutory requirements.[18]

BVES provided the required information for these sections:

- Section 1: Executive Summary (Summary of the 2020–2022 WMP Cycle, Summary of the 2023–2025 Base WMP)
- Section 2: Responsible Persons (titles and credentials for: executive-level owner with overall responsibility; program owners with responsibility for each of the main components of the plan; as applicable, general ownership for questions related to or activities described in the WMP)
- Section 3: Statutory Requirements Checklist
    - This section provides a checklist of the statutory requirements for a WMP as detailed in Public Utilities Code section 8386(c).19 By completing the checklist, the electrical corporation affirms that its WMP addresses each requirement. BVES completed this checklist.
- Section 4: Overview of WMP (Primary Goal; WMP Objectives; Proposed Expenditures; Risk-Informed Framework)

4.1 BVES's Wildfire Mitigation Expenditures

Section 4.3 of the Technical Guidelines requires electrical corporations to summarize projected expenditures for the current WMP cycle, as well as planned and actual expenditures from the previous WMP cycle (i.e., 2020–2022).[20]

BVES provided all required information regarding expenditures. A summary of this information is presented below. Table 4.1-1 presents a comparison of territory-wide projected expenditures by wildfire mitigation initiative category across the small and multi-

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[18] Technical Guidelines, Sections 1 through 4, pages 6-14 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[19] Public Utilities Code section 8386 (https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=8386.&lawCode=PUC, accessed May 9, 2023).

[20] Energy Safety's WMP evaluation and decision on a WMP is not an approval of, or agreement with, costs listed in the WMP.

jurisdictional utilities (SMJUs). Table 4.1-2 provides the same information but divided by planned expenditures within and outside the CPUC's high fire threat district (HFTD). These tables present total projected expenditure for the current 2023-2025 WMP cycle.[21]

Since all electrical corporations spend a considerably higher percentage of their wildfire mitigation expenditures within the grid design and vegetation management categories, Figures 4.1-1 through 4.1-4 provide a more detailed breakdown of how expenditures within these categories are divided across major activity types.

[21] Liberty and Bear Valley's projected expenditure data for the 2023-2025 WMP cycle are derived from Table 11 of their 2022 Q4 Quarterly Data Reports (QDRs); PacifiCorp's are derived from Table 11 of its 2023 Q1 QDR. See links below:
Liberty's 2022 Q4 QDR
(https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53425&shareable=true, accessed August 7, 2023);
Bear Valley's 2022 Q4 QDR
(https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53474&shareable=true, accessed August 7, 2023);
PacifiCorp's 2023 Q1 QDR
(https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=54232&shareable=true, accessed August 7, 2023).

Table 4.1-1. SMJU Territory-Wide Expenditures per Initiative Category [22]

WMP Initiative Category	PacifiCorp	%	Liberty	%	Bear Valley	%	Grand Total	%
Grid Design, Operations, and Maintenance	$242.6 M	79%	$97.9 M	66%	$68.4 M	86%	**$408.9 M**	**76%**
Vegetation Management and Inspection	$55.5 M	18%	$41.8 M	28%	$9.5 M	12%	**$106.8 M**	**20%**
Emergency Preparedness	$500.0 K	0%	$4.6 M	3%	$121.8 K	0%	**$5.3 M**	**1%**
Situational Awareness and Forecasting	$3.6 M	1%	$3.0 M	2%	$797.2 K	1%	**$7.4 M**	**1%**
Community Outreach and Engagement	$270.0 K	0%	$270.0 K	0%	$764.7 K	1%	**$1.3 M**	**0%**
Risk Methodology and Assessment	$938.0 K	0%	$0	0%	$187.6 K	0%	**$1.1 M**	**0%**
Wildfire Mitigation Strategy Development	$1.9 M	1%	$0	0%	$91.5 K	0%	**$2.0 M**	**0%**
Overview of the Service Territory	$0	0%	$0	0%	$76.2 K	0%	**$76.2 K**	**0%**
PSPS	$2.4 M	1%				0%	**$2.4 M**	**0%**
Grand Total	**$307.7 M**	**100%**	**$147.6 M**	**100%**	**$79.9 M**	**100%**	**$535.3 M**	**100%**

Table 4.1-2. SMJU Expenditures per Initiative Category, HFTD vs non-HFTD

	PacifiCorp				Liberty				Bear Valley			
WMP Initiative Category	Total Territory	HFTD	Non-HFTD	% Spend in HFTD	Total Territory	HFTD	Non-HFTD	% Spend in HFTD	Total Territory	HFTD	Non-HFTD	% Spend in HFTD
Grid Design, Operations, and Maintenance	$242.6 M	$207.9 M	$34.7 M	86%	$97.9 M	$97.9 M	-	100%	$68.4 M	$68.4 M	-	100%
Vegetation Management and Inspection	$55.5 M	$1.8 M	$53.6 M	3%	$41.8 M	$41.8 M	-	100%	$9.5 M	$9.5 M	-	100%
Emergency Preparedness	$500.0 K	-	$500.0 K	0%	$4.6 M	$4.6 M	-	100%	$121.8 K	$121.8 K	-	100%
Situational Awareness and Forecasting	$3.6 M	-	$3.6 M	0%	$3.0 M	$3.0 M	-	100%	$797.2 K	$797.2 K	-	100%
Community Outreach and Engagement	$270.0 K	-	$270.0 K	0%	$270.0 K	$270.0 K	-	100%	$764.7 K	$764.7 K	-	100%
Overview of the Service Territory	-	-	-	0%	-	-	-	0%	$76.2 K	$76.2 K	-	100%
Wildfire Mitigation Strategy Development	$1.9 M	-	$1.9 M	0%	-	-	-	0%	$91.5 K	$91.5 K	-	100%
Risk Methodology and Assessment	$938.0 K	-	$938.0 K	0%	-	-	-	0%	$187.6 K	$187.6 K	-	100%
PSPS	$2.4 M	-	$2.4 M	0%				0%				0%

[22] The "Environmental Compliance and Permitting" initiative category above correlates to the "Overview of the Service Territory" initiative in WMPs.

Figure 4.1-1. BVES Grid Design, Operations, and Maintenance Projected Expenditures

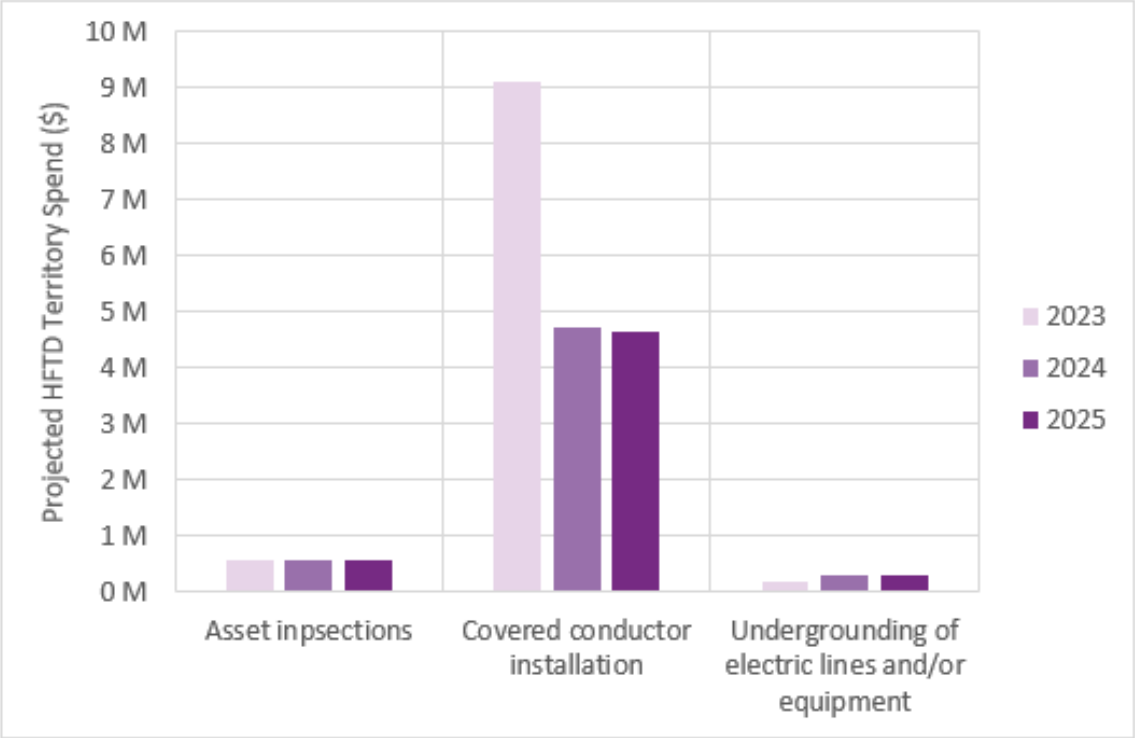


Figure 4.1-2. BVES Vegetation Management Projected Expenditures

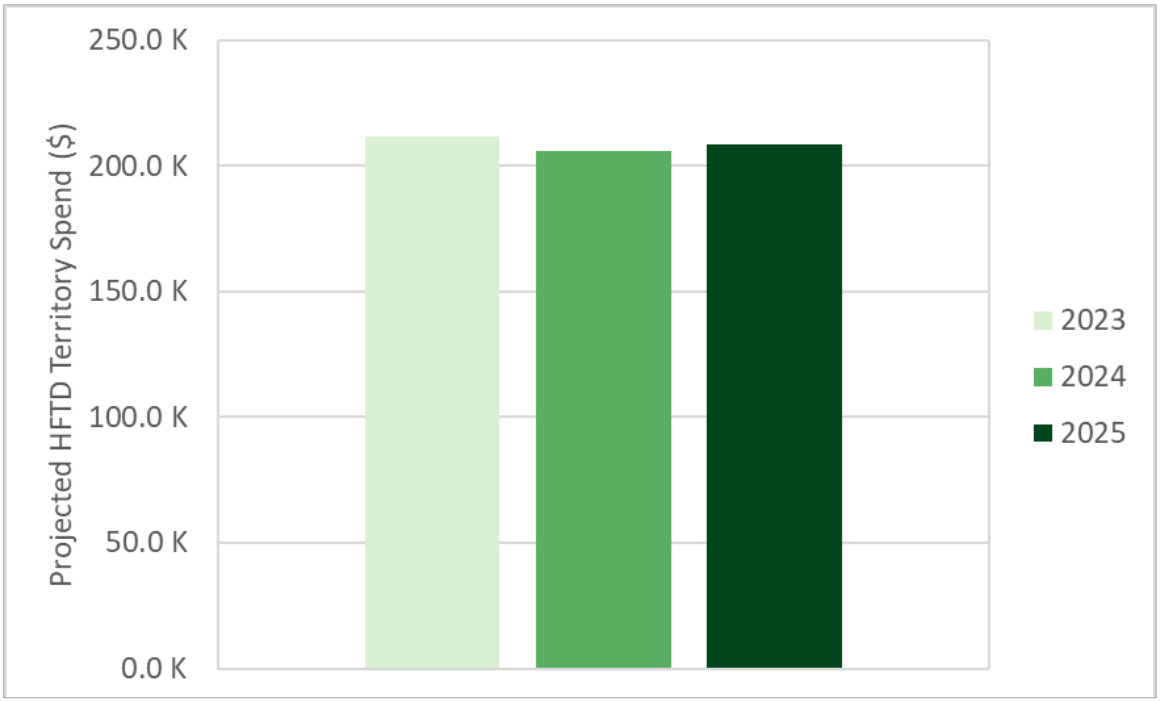


Figure 4.1-3. BVES Grid Design, Operations, and Maintenance Projected Expenditures (HFTD)

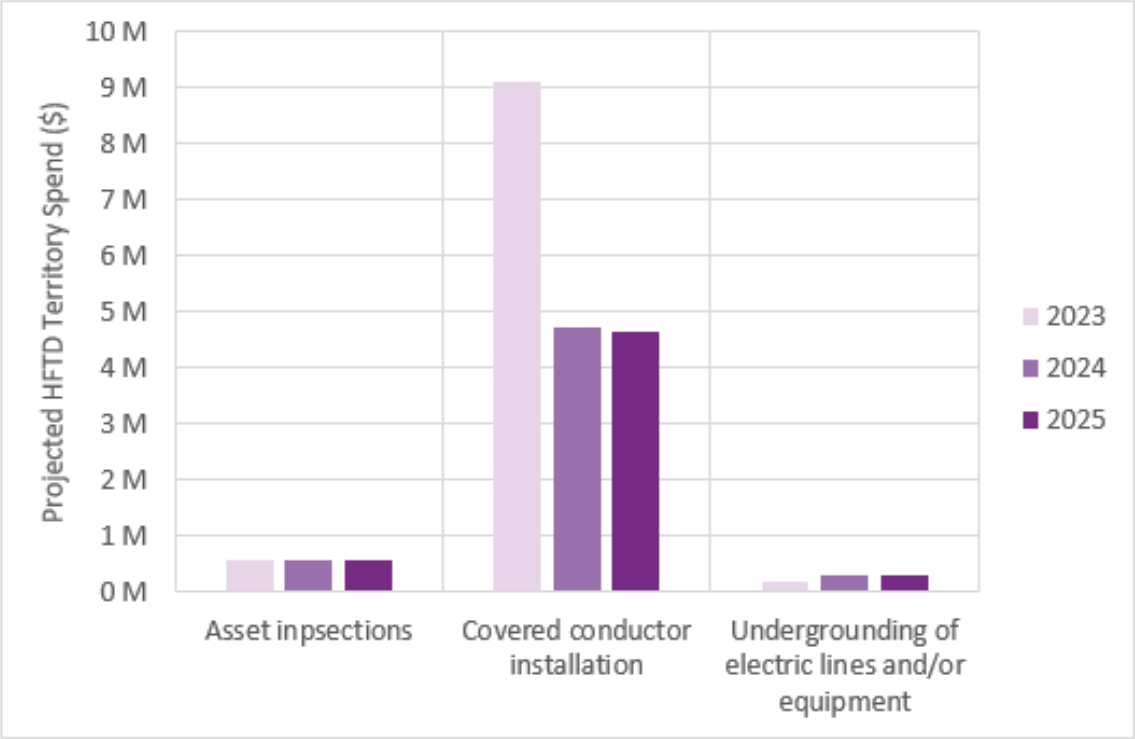
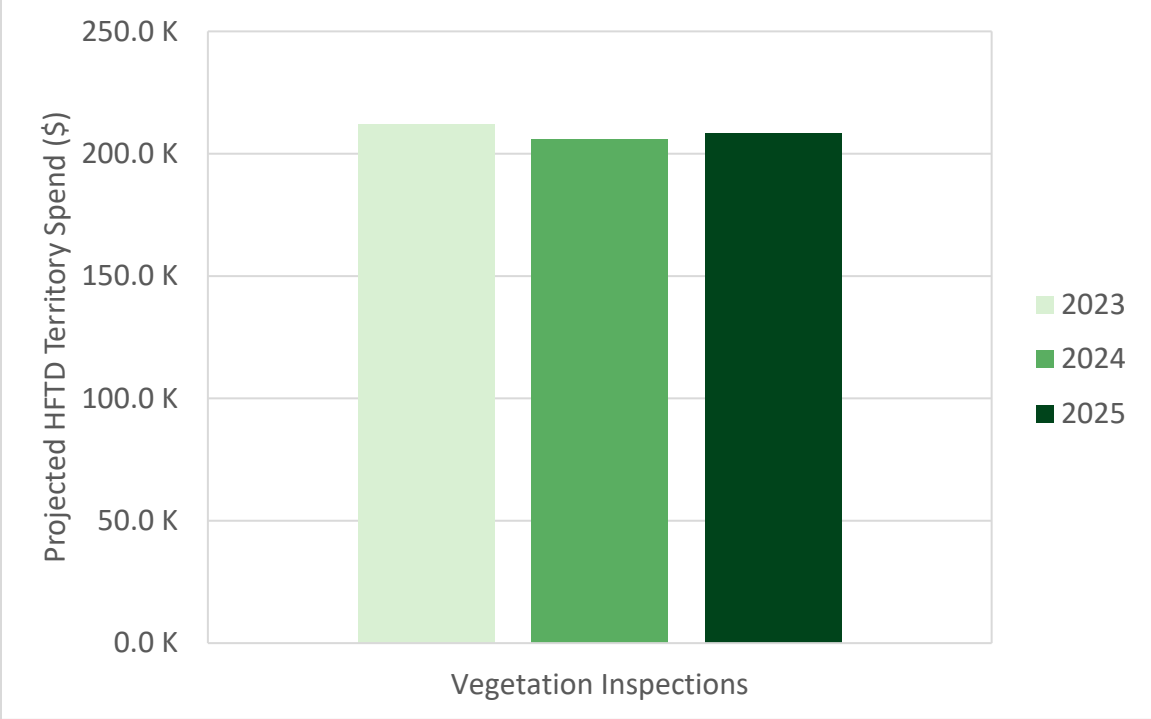


Figure 4.1-4. BVES Vegetation Management Projected Expenditures (HFTD)



5. Overview of the Service Territory

In response to Section 5 of the Technical Guidelines, BVES provided a high-level overview of its service territory that includes key characteristics of its electrical infrastructure, environmental settings, and community values at risk.[23]

Below are Energy Safety's summary and findings regarding BVES's reporting on its service territory.

5.1 Service Territory

Section 5.1 of the Technical Guidelines requires BVES to provide a high-level description of its service territory, including areas served, number of customers served, and geospatial maps.[24]

BVES reported that its service territory includes 32 square miles and serves roughly 24,691 customers. BVES also stated that 30 square miles of its territory are in the CPUC's HFTD Tier 2 and 3 lands, which is 94 percent of its territory. Compared to the peer utilities of PacifiCorp and Liberty Utilities (Liberty), BVES's service territory is the smallest in size, serves the least customers, and encompasses the smallest number of square miles of HFTD in its territory. Figures 5.1-1 and 5.1-2. below summarize the square miles served, customers served, and square miles of HFTD Tier 2 and 3 lands in BVES, PacifiCorp, and Liberty service territories.

[23] Technical Guidelines, Section 5, "Overview of the Service Territory," pages 15-29 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[24] Technical Guidelines, Section 5.4, "Service Territory," pages 15-16 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

Figure 5.1-1. Cross-Utility Square Miles Served

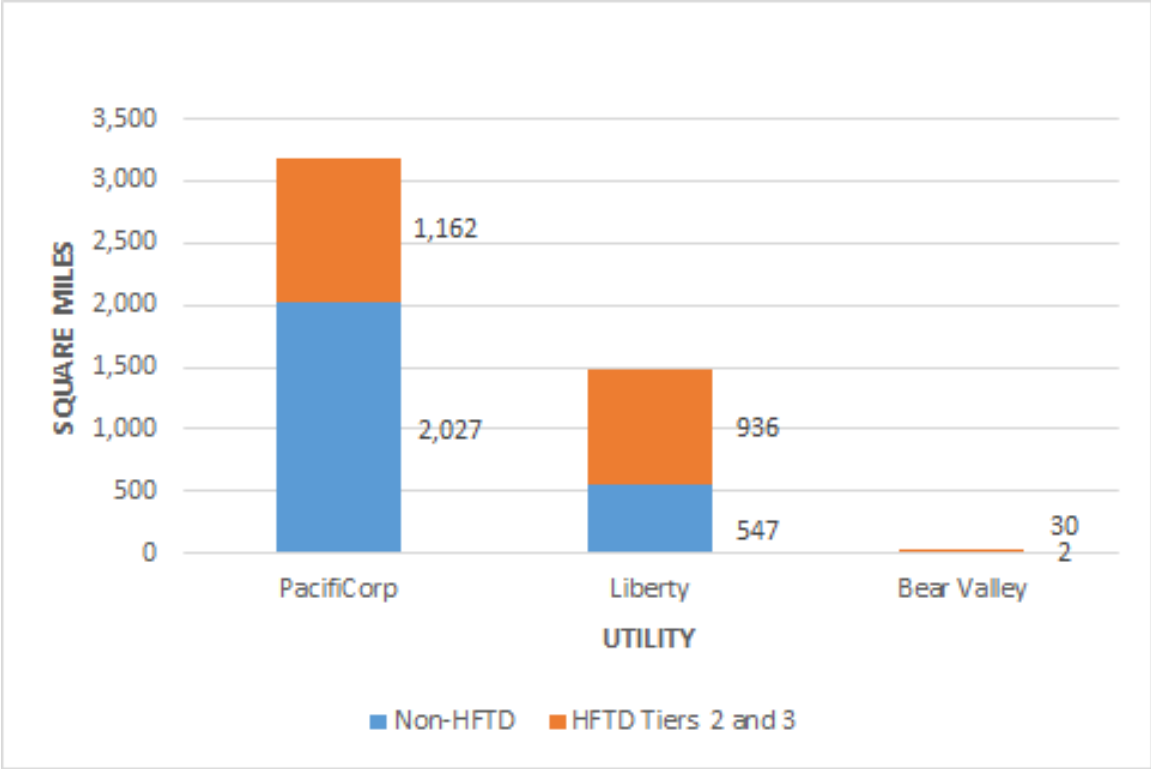
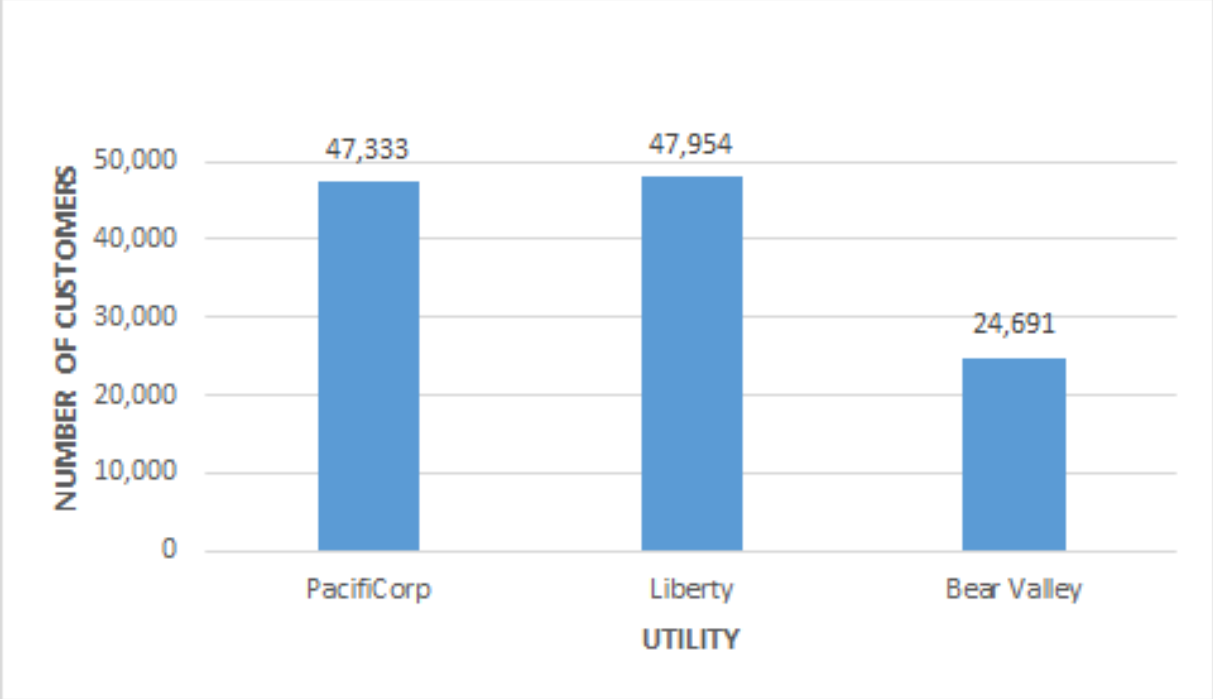


Figure 5.1-2. Cross-Utility Number of Customers Served

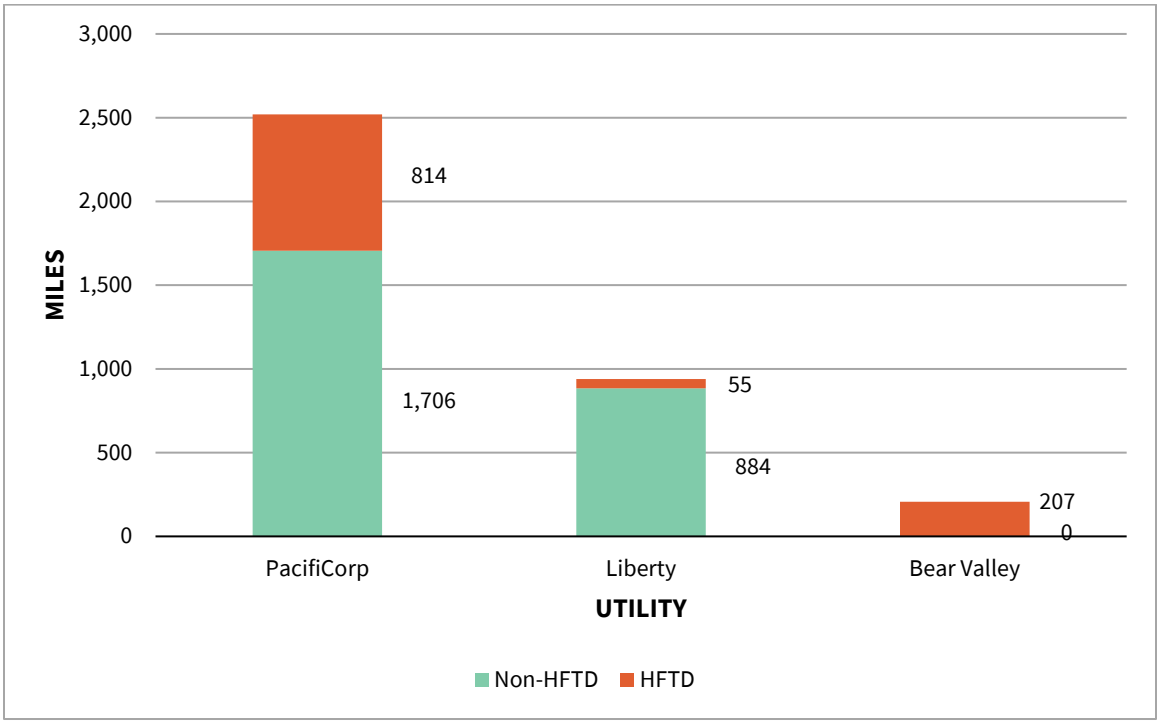


5.2 Electrical Infrastructure

Section 5.2 of the Technical Guidelines requires BVES to provide a high-level description of its infrastructure, including all power generation facilities, transmission and distribution lines and associated equipment, substations, and other major equipment.[25]

BVES provided a table showing the breakdown of conductor line miles of overhead and underground lines in and outside of its HFTD. Figures 5.2-1, 5.2-2, and 5.2-3 below summarize conductor line miles presented by BVES in comparison to its peer utilities.

Figure 5.2-1. Cross-Utility Miles of Overhead Distribution Lines



[25] Technical Guidelines, Section 5.2, "Electrical Infrastructure," pages 16-17 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

Figure 5.2-2. Cross-Utility Miles of Overhead Transmission Lines

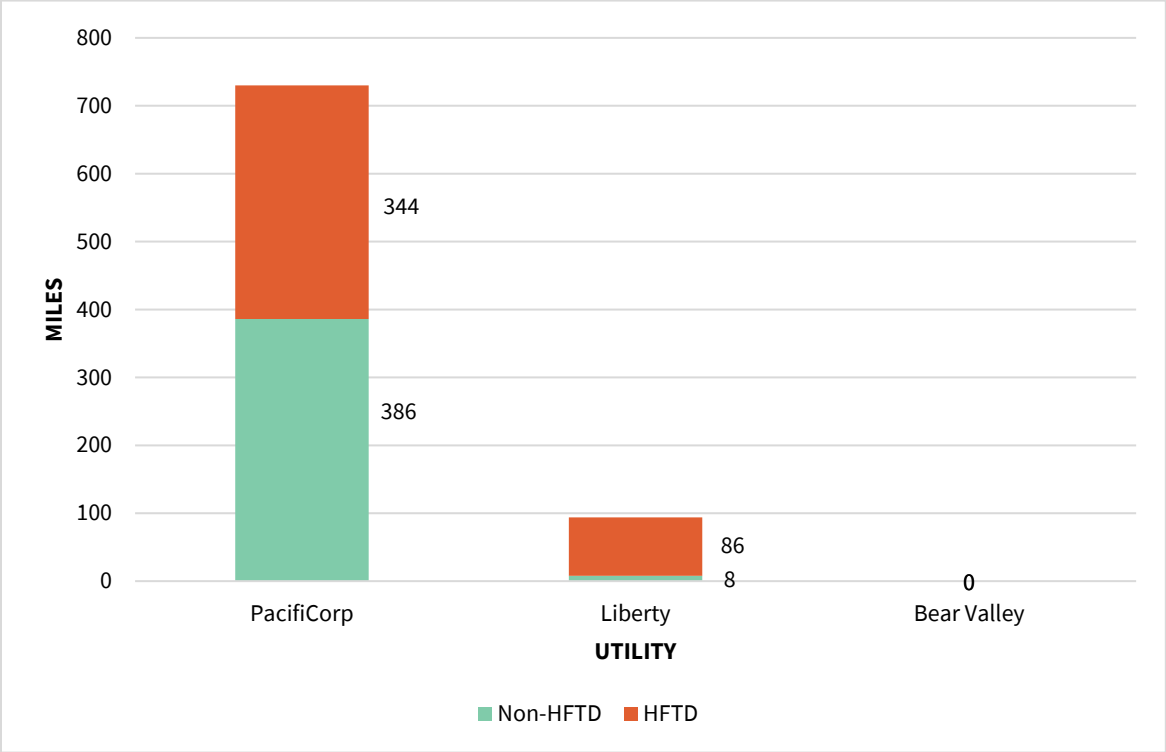
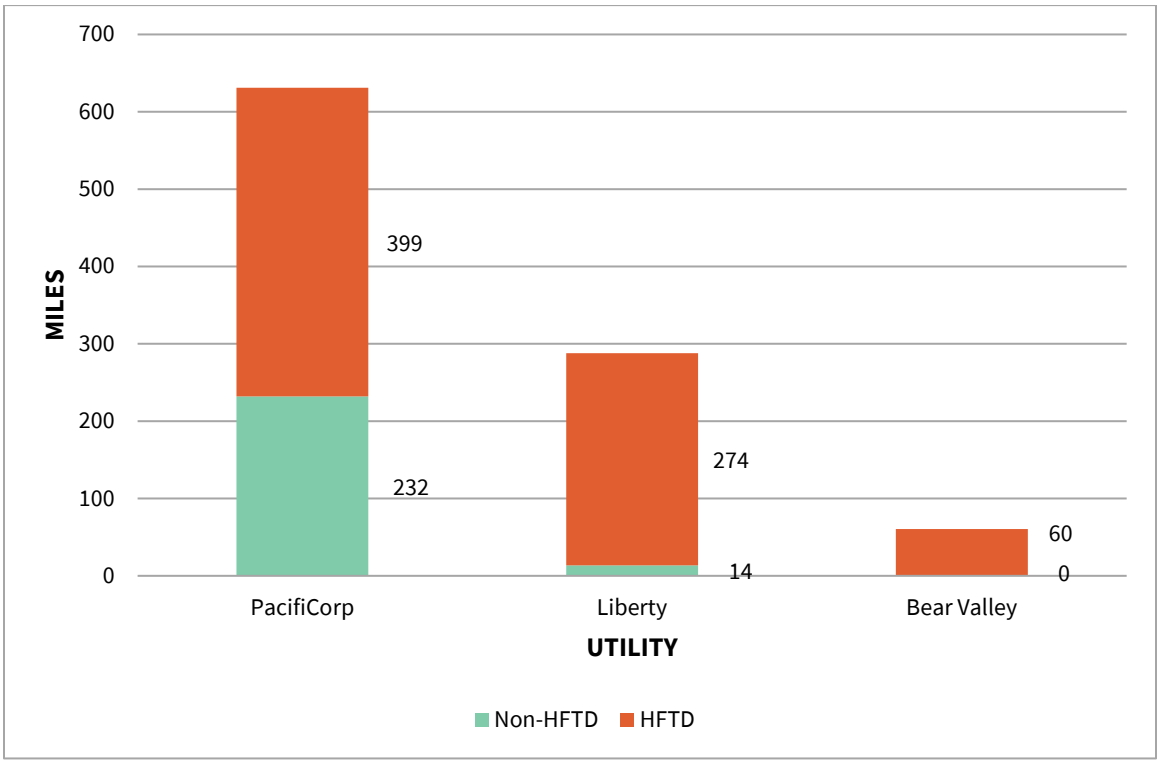


Figure 5.2-3. Cross-Utility Miles of Underground Distribution and Transmission Lines



5.3 Environmental Settings

Section 5.3 of the Technical Guidelines requires BVES to provide a high-level overview of the environmental settings within its service territory.[26]

5.3.1 Fire Ecology

Section 5.3.1 of the Technical Guidelines requires BVES to provide a brief narrative of the fire ecologies across its service territory, including how ecological features influence the propensity of the electrical corporation's service territory to experience wildfires. The Technical Guidelines also require tabulated statistics.[27]

BVES provided a narrative describing the vegetative coverage across its service territory. BVES additionally provided a table describing the existing vegetation types in BVES's service territory and/or pie chart showing a breakdown of the vegetation types in its service territory in percentages.

5.3.2 Catastrophic Wildfire History

Section 5.3.2 of the Technical Guidelines requires BVES to provide a brief narrative summarizing its wildfire history for the past 20 years as recorded by the electrical corporation, CAL FIRE, or another authoritative source.[28]

BVES reported zero catastrophic wildfires that were attributed to its facilities or equipment from 2015-2022.[29] Energy Safety defines catastrophic wildfires as those that resulted in at least one death, damaged over 500 structures, or burned over 5,000 acres. Figures 5.3-1, 5.3-2, and 5.3-3 below summarize the reported information on catastrophic wildfires for BVES, PacifiCorp, and Liberty.

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[26] Technical Guidelines, Section 5.3, "Environmental Settings," pages 17-26 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[27] Technical Guidelines, Section 5.3.1, "Fire Ecology," pages 17-18 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[28] Technical Guidelines, Section 5.3.2, "Catastrophic Wildfire History," pages 18-20 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[29] The reporting period for catastrophic wildfires represented here begins in 2015 because data limitations experienced by utilities.

Figure 5.3-1. Cross-Utility Number of Catastrophic Wildfires (2015-2022)

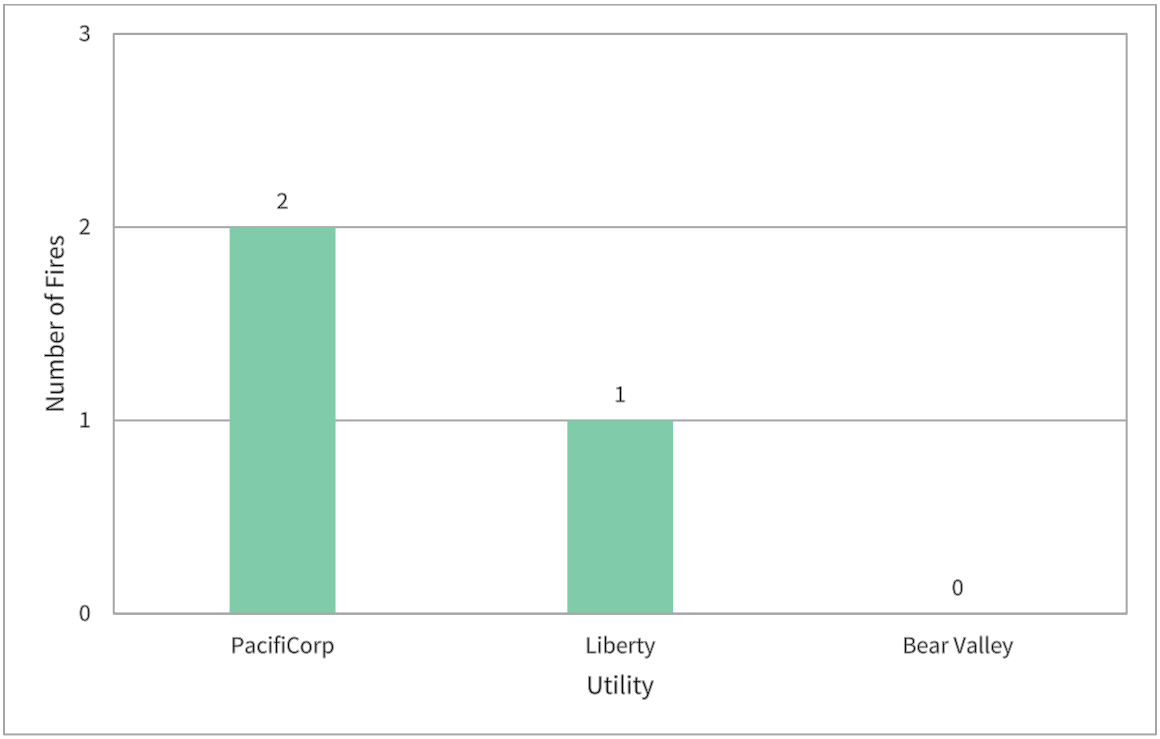


Figure 5.3-2. Cross-Utility Acres Burned by Catastrophic Wildfires (2015-2022)

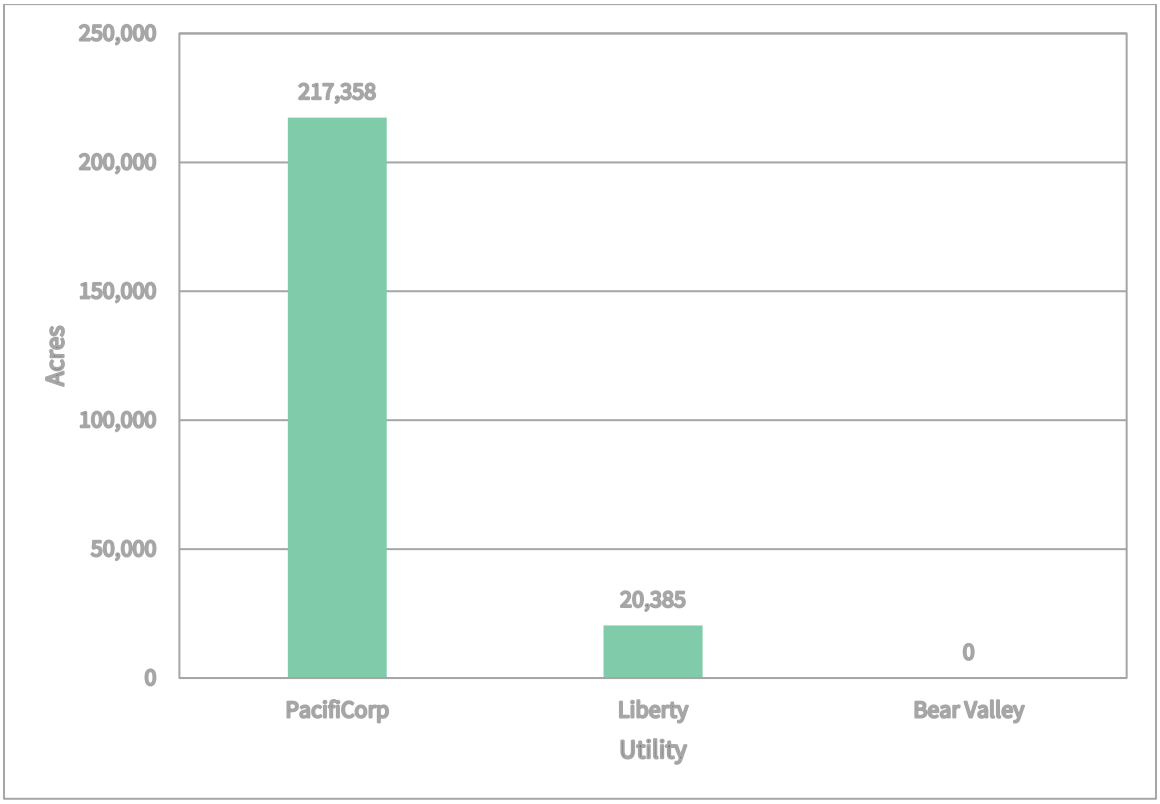
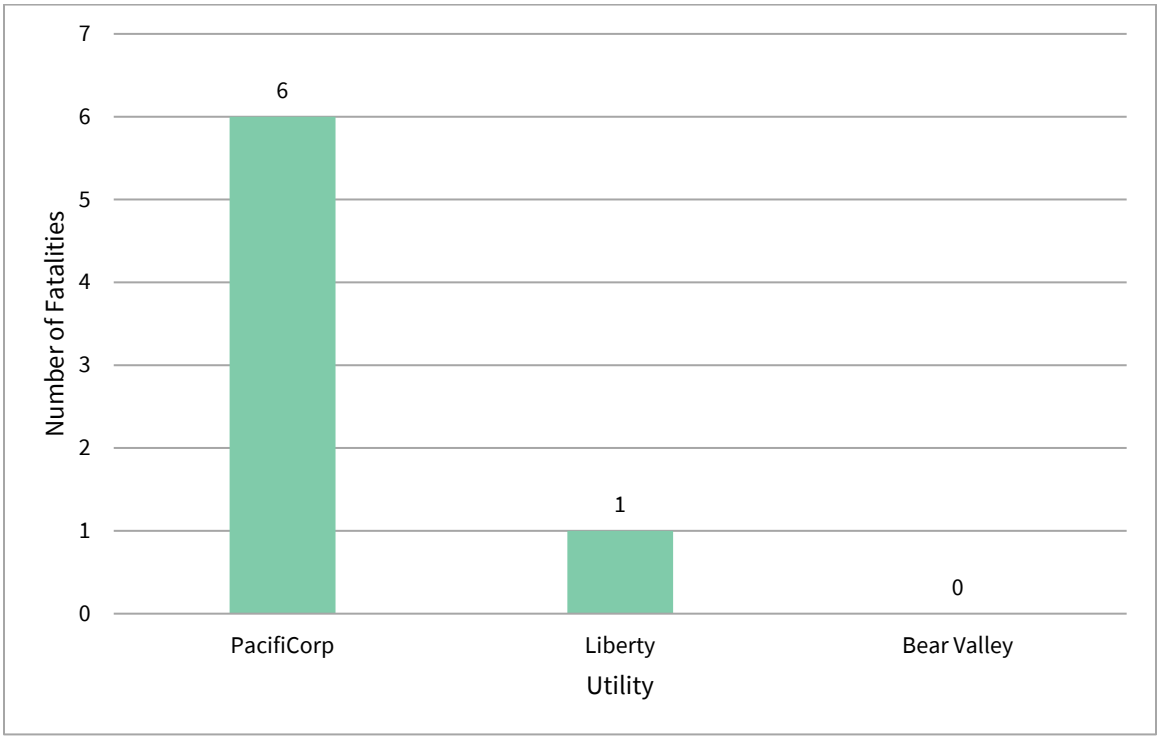


Figure 5.3-3. Cross-Utility Number of Fatalities Caused by Catastrophic Wildfires (2015-2022)



5.4 Community Values at Risk

Section 5.4 of the Technical Guidelines requires BVES to identify the community values at risk across its service territory, including the distribution of urban, rural, and highly rural customers; the wildland-urban interface (WUI) in its territory; the community values at risk from wildfire as defined by the electrical corporation; the distribution of critical facilities within its territory; and a summary of how the utility complies with environmental laws.[30]

BVES listed the number of people in its territory that are located in urban and rural areas and briefly summarized where these areas occur in its territory.[31] BVES does not service any highly rural areas. BVES also stated that its entire service territory is in the WUI.

BVES also stated that all critical facilities and infrastructure in its service territory are in the HFTD.

[30] Technical Guidelines, Section 5.4, "Community Values at Risk," pages 26-29 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[31] BVES's 2023-2025 WMP, pages 38-39.

5.4.1 Environmental Compliance and Permitting

Section 5.4.5 of the Technical Guidelines requires BVES to summarize how it ensures it complies with applicable environmental laws and permits related to the implementation of its WMP, including its procedures/processes to ensure compliance, roadblocks it has encountered, and any notable changes to its environmental compliance and permitting procedures since the last WMP submission.[32]

New construction and/or large maintenance projects must comply, as necessary, with the California Environmental Quality Act, the Clean Water Act (sections 401 and 404), California Fish and Game Code (section 1602), the National Environmental Policy Act, the National Historic Preservation Act, Forest Practice Act and Rules, among other federal, state, and local requirements. Utilities must also obtain permits from land management agencies such as the National Forest Service, Bureau of Land Management, National Park Service, California Coastal Commission, among others.

The linear nature of utility infrastructure often warrants several permits for one project, including different permit conditions, environmental requirements, and post-work reporting requirements. Compliance with permitting requirements add time and complexity to project planning, cost and mitigations related to environmental analysis and impact, and sometimes result in long-term monitoring or restoration projects. These are all considerations factoring into a utility's project planning and execution.

BVES summarized how it plans to ensure compliance with applicable environmental laws, regulations, and permitting requirements in planning wildfire mitigation projects.

5.5 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for BVES under the service territory overview section of its Base WMP.

[32] Technical Guidelines, Section 5.4.5, "Environmental Compliance and Permitting," pages 28-29 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

6. Risk Methodology and Assessment

In response to Section 6 of the Technical Guidelines, BVES provided information on how it operates its grid to reduce wildfire risk, including in relation to equipment settings, grid response procedures and notifications, and personnel work procedures and training.[33]

Below is Energy Safety's evaluation regarding BVES's objectives and targets, maturity levels, and strengths in this area. In addition, Energy Safety has identified areas where BVES must improve, described at the end of this section.

6.1 Methodology

Section 6.1 of the Technical Guidelines requires BVES to provide an overview of its risk calculation approach, including graphs showing the calculation process, a concise narrative explaining key elements, and definitions of risks and risk components.[34]

BVES performs risk calculations in accordance with CPUC Decision (D.) 19-04-020 of May 6, 2019,[35] which involves the use of a Multi-Attribute Value Function (MAVF) for calculating relative risks and benefits. BVES uses a Fire Safety Circuit Matrix (FSCM)[36] with subject matter expert rankings as the primary source of input data.

6.2 Risk Analysis Framework

Section 6.2 of the Technical Guidelines requires BVES to provide a high-level overview of its risk analysis framework, including a summary of key modeling assumptions, input data, and modeling tools used.[37]

BVES's risk analysis framework has seven steps:[38]

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[33] Technical Guidelines, Section 6, "Risk Methodology and Assessment," pages 30-58 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[34] Technical Guidelines, Section 6.1, "Methodology," pages 30-35 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[35] BVES's 2023-2025 WMP, page 2.

[36] BVES's 2023-2025 WMP, page 2.

[37] Technical Guidelines, Section 6.2, "Risk Analysis Framework," pages 36-44 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

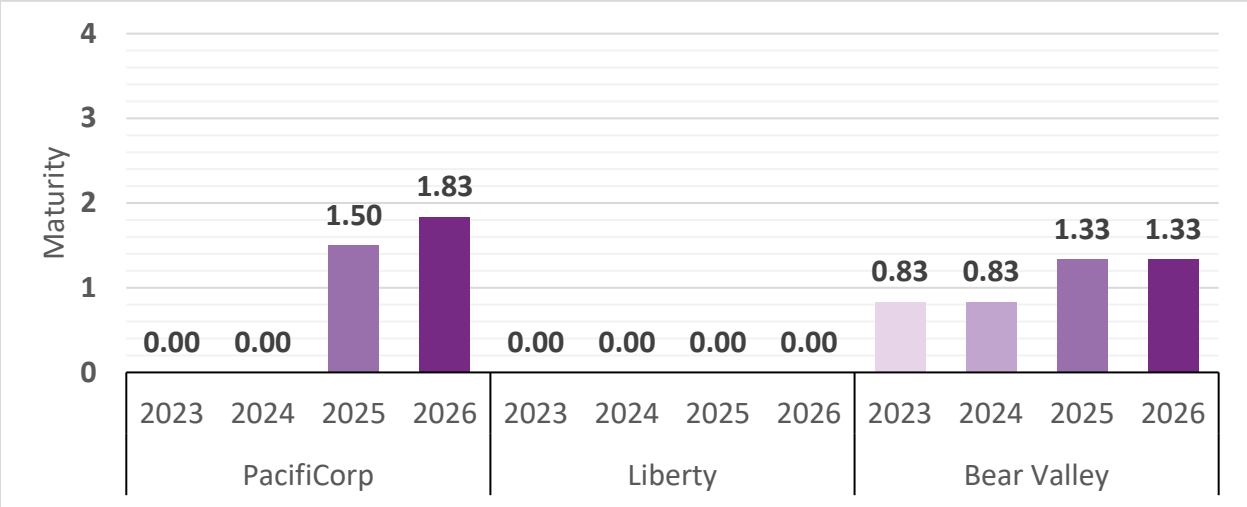
[38] BVES's 2023-2025 WMP, pages 45-47.

1. A 7x7 log score model matrix is used to determine an impact risk score for each weighted scoring input in the risk register.
2. The weighted impact scores are accumulated to arrive at a total risk score.
    a. The risk scoring inputs and total risk score form the basis of evaluation for each identified wildfire mitigation activity or initiative.
3. Risk reduction or risk benefit is then calculated for each scoring input to arrive at a weighted mitigated risk score.
    a. The risk benefit for each combination of mitigation activity and risk event is determined by subtracting the mitigated risk score from the total risk score.
4. The risk register determines the risk-spend efficiency (RSE) by dividing the risk benefit by the equivalent annual cost.
    a. Steps 1-4 provide an overall risk benefit analysis but lack the granularity of a location-specific risk benefit analysis which is subsequently added in steps 5-7.
5. BVES developed a tool called the Fire Safety Circuit Matrix (FSCM). FSCM uses a balanced scorecard approach to rate circuits in terms of wildfire risk.
    a. The risk ratings are high, moderate, and low.
    b. Data inputs include inter alia, the number of customers, wood poles, bare wire overhead circuit miles, tree attachments, and remaining expulsion fuses.
6. Circuits are then prioritized within each risk group.
7. The FSCM uses formulas to compile and weight input data, and subsequent calculations, to produce final wildfire risk mitigation scores.

6.3 Maturity Survey Results

According to its responses to the 2023 Maturity Survey, BVES has a 2023 maturity level of 0.83 for risk assessment and mitigation strategy. For 2024, BVES projects the same. For 2025, BVES projects that it will slightly increase in maturity to a level of 1.33 (Figure 6.3-1).

Figure 6.3-1. Cross-Utility Maturity for Risk Assessment and Mitigation Strategy (Minimum Values)

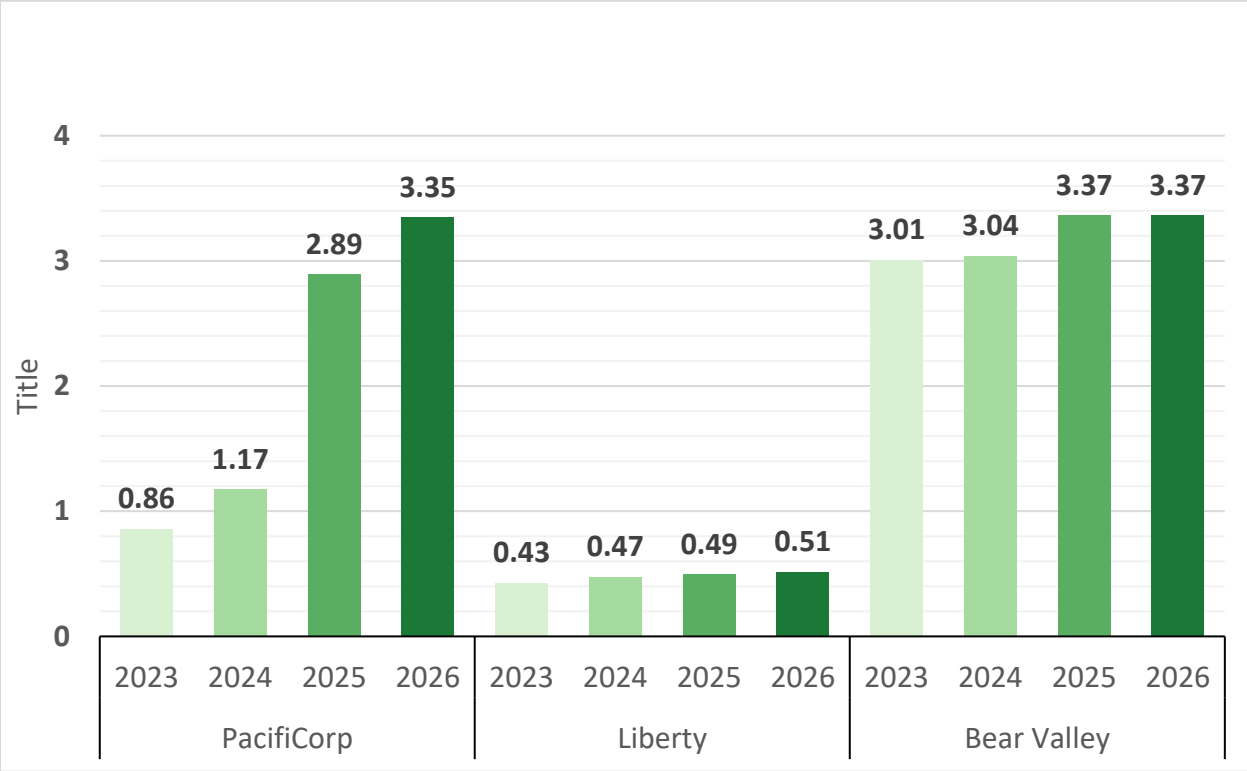


The utility's maturity level for the risk assessment and mitigation strategy category described above is calculated using the minimum value sub-capability of each capability. BVES's performance in this risk assessment and mitigation strategy can also be reflected if the capability average is considered. The capability average is determined from the average of all component sub-capabilities and is an additional tool to evaluate the utilities' maturity.[39]

When the category maturity is calculated using the capability average (rather than the minimum), BVES has a maturity level for risk assessment and mitigation strategy of 3.01 for 2023, 3.04 in 2024, and 3.37 in 2025 (Figure 6.3-2).

[39] For further information on maturity level determinations, see Section 4 of the 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (second revision), published February 21, 2023.

Figure 6.3-2. Cross-Utility Maturity for Risk Assessment and Mitigation Strategy (Average Values)



The rest of this section reports on maturity levels considering the minimum values.

BVES's current maturity level in this category is higher than its peers, with Liberty and PacifiCorp reporting at levels 0.00 and 0.00, respectively. See Figure 6.3-1.

Based on its responses to the 2023 Maturity Survey, BVES reported its highest levels of projected maturity in the following capabilities for 2023 and 2024:

- Risk event tracking and integration of lessons learned[40]

Based on its responses to the 2023 Maturity Survey, BVES reported its lowest levels of projected maturity in the following capabilities for 2023 and 2024:

- Statistical weather, climate, and wildfire modeling[41]
- Calculation of risk and risk components[42]

[40] BVES's 2023 Maturity Survey, response to 1.5.1.Q1.

[41] BVES's 2023 Maturity Survey, response to 1.1.2.Q8.

[42] BVES's 2023 Maturity Survey, response to 1.4.5.Q3.

6.4 BVES's WMP Strengths

BVES projects improvement in risk methodology and assessment over the WMP cycle in the following area: risk analysis results and presentation.

BVES's plan demonstrates recent and ongoing efforts to implement a risk modeling platform comparable to those of the large investor-owned utilities (IOUs). Through these efforts, BVES is utilizing modeling practices that increase data precision rather than continuing to depend on a system that employs subject matter risk rankings. [43] BVES notes the early benefits in both planning and operational models,[44] such as:

- Improved situational awareness of wildfire risk
- Ability to run more risk scenarios than was possible under the old approach
- Probabilistic analysis at the circuit and segment levels

6.4.1 2022 Areas for Continued Improvement

Energy Safety evaluated the progress BVES made toward addressing areas for continued improvement identified in Energy Safety's 2022 WMP Decision. BVES adequately addressed its 2022 areas for continued improvement related to risk methodology and assessment. See Appendix B for the status of each 2022 area for continued improvement.

6.5 Areas for Continued Improvement

BVES must continue to improve in the following areas.

6.5.1 Cross-Utility Collaboration on Risk Model Development

BVES and the other IOUs participated in past Energy Safety-led risk modeling working group meetings. The risk modeling working group meetings facilitate collaboration among the IOUs on complex technical issues related to risk modeling. The risk modeling working group meetings are ongoing. BVES and the other IOUs must continue to participate in all Energy Safety-led risk modeling working group meetings.

6.5.2 PSPS and Wildfire Risk Trade-Off Transparency

BVES's explanation of how it makes PSPS and wildfire risk trade-offs needs further transparency. In the Technical Guidelines, Section 6 requires discussion of calculation processes that together inform utility PSPS and wildfire risk trade-offs, or how it uses risk

[43] BVES's 2023-2025 WMP, pages 45-47, 58-59.

[44] BVES's 2023-2025 WMP, page 46-47.

ranking and risk buy-down to determine risk mitigation selection.[45] Section 6 responses must provide the transparency required to ensure that BVES is properly balancing the safety, reliability, and cost impacts of BVES's planned mitigations versus wildfire risk, and versus other potential mitigations. BVES does not provide adequate transparency regarding PSPS and wildfire risk trade-offs, or how it uses risk ranking and risk buy-down to determine risk mitigation selection.

BVES is implementing a new risk model that was incomplete as of the submission of its Base WMP. BVES identifies many aspects of its risk modeling approach that may be impacted by these changes.[46, 47] In its 2025 Update, BVES must describe how it prioritizes PSPS risk in its risk-based decisions, along with any trade-offs between wildfire risk and PSPS risk.

6.5.3 Collaboration Between Vendor And Utility Risk Teams

BVES is adopting new risk modeling capabilities, many through the use of a vendor, but BVES has not demonstrated how a vendor will be integrated into BVES's risk modeling going forward. The use of a vendor risk model[48] may significantly change how BVES identifies, evaluates, and mitigates risks. The vendor risk model introduces advanced analysis and reports.[49] Using the model, BVES expects to provide its risk and risk component calculations in the 2025 WMP Update and improve its risk model maturity.[50] BVES contracted with the vendor due to BVES's limited internal risk modeling capabilities and difficulty in assembling an internal team with these capabilities.

Further transparency and more detail regarding what tasks are completed by its internal risk team versus the vendor are needed to better explain how BVES is conducting its risk analysis and decision-making. BVES must follow the Technical Guidelines requirements,[51] even when responsibilities fall under the vendor. To improve transparency, BVES must provide

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[45] Technical Guidelines, Section 6, "Risk Methodology and Assessment," pages 39-67 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed August 15, 2023).

[46] BVES's 2023-2025 WMP, pages 85-86.

[47] BVES's 2023-2025 WMP, page 164.

[48] BVES's 2023-2025 WMP, page 3.

[49] BVES's 2023-2025 WMP, pages 85-86.

[51] Technical Guidelineshttps://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, Section 6.2 "Risk Analysis Framework," pages 36-45, Section 6.3 "Risk Scenarios," pages 45-50, Section 6.4 "Risk Analysis Results and Presentation," pages 50-54, Section 6.6 "Quality Assurance and Control," pages 54-56, Section 7.1 "Risk Evaluation," pages 59-66 Section 7.2 "Wildfire Mitigation Strategy", pages 66-75 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed September 13, 2023).

information in its 2025 Update that demonstrates how BVES is integrating its vendor into its risk modeling capabilities.

Energy Safety sets forth specific areas for improvement and associated required progress in Section 11.

7. Wildfire Mitigation Strategy Development

In response to Section 7 of the Technical Guidelines, BVES provided a high-level overview of its risk evaluation and process for deciding on a portfolio of mitigation initiatives to achieve the maximum feasible risk reduction while meeting WMP goals and objectives.[52]

Below is Energy Safety's evaluation regarding BVES's objectives and targets, maturity levels, and strengths in this area. In addition, Energy Safety has identified areas where BVES must improve, described at the end of this section.

7.1 Risk Evaluation

Section 7.1 of the Technical Guidelines requires BVES to describe its approach to risk evaluation based on risk analysis outcomes.[53] The approach should inform the development of a wildfire mitigation strategy that meets WMP goals and objectives.

BVES uses a MAVF for calculating relative risks and benefits. BVES's subject matter experts[54] then collaborate to complete a fire safety circuit model that is then used to prioritize mitigation decisions at the circuit level. The MAVF results, plus additional information such as fire threat maps, inform the subject matter experts during this process.

7.1.1 BVES's WMP Strengths

BVES projects improvement in its wildfire mitigation strategy development over the WMP cycle in the following area: ignition risk mapping.

BVES reports that it enhanced its ignition risk mapping with a vendor's ignition probability models to better predict, quantify, and measure risk drivers under high-risk and climate change-related metrological forecasts. BVES states that these risk maps provide ignition probability, consequence, and risk under current and future conditions to better understand the effects of climate change.

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[52] Technical Guidelines, Section 7, "Wildfire Mitigation Strategy Development," pages 59-74 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed August 15, 2023).

[53] Technical Guidelines, Section 7.1, "Risk Evaluation," pages 59-66 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed August 15, 2023).

[54] BVES's 2023-2025 WMP, page 2.

7.1.1.1 2022 Areas for Continued Improvement

Energy Safety evaluated the progress BVES made toward addressing areas for continued improvement identified in Energy Safety's 2022 WMP Decision. BVES made sufficient progress in its 2022 area for continued improvement in risk evaluation. See Appendix B for the status of each 2022 area for continued improvement.

7.1.2 Areas for Continued Improvement

BVES must continue to improve in the following areas.

7.1.2.1 PSPS and Wildfire Risk Trade-Off Transparency

BVES's explanation of how it makes mitigation selection decisions needs further development. As noted above in the area for continued improvement "PSPS and Wildfire Risk Trade-Off Transparency" (Section 6.6.1), BVES is implementing a new risk model, which was not complete as of the submission of its Base WMP. The incomplete status of BVES's model implementation during the current WMP reporting period limited the details BVES could provide in response to wildfire mitigation strategy development questions.

BVES must improve its explanation for how it uses risk ranking and risk buy-down to determine mitigation selection.[55] In its 2025 Update, BVES must describe how its prioritization of mitigation initiatives in practice compares to the list of mitigation initiatives ranked by risk buy-down estimate. Furthermore, BVES must provide an explanation for any instances where a mitigation initiative with a lower risk-buy-down estimate is prioritized over an initiative with a higher risk-buy down estimate.

7.1.2.2 Vendor Fire Risk Model Implementation Milestones and Dates

BVES' s 2023-2025 Base WMP indicates that it is transitioning to a new risk modeling platform, however it does not provide a clearly defined schedule for this transition. BVES is currently modeling risk at the circuit level using static fire threat maps[56] and is undergoing a transition to a risk modeling platform that has capabilities that BVES's current approach lacks. BVES states that it expects the new model to enable risk modeling at a finer level of granularity[57] and more frequent updates to fire threat maps. BVES expects the new capabilities to improve its risk evaluation process.[58]

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[55] Technical Guidelines, Section 7.1.4.1, "Identifying and Evaluating Mitigation Initiatives," pages 72 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed August 15, 2023).

[56] BVES's 2023-2025 WMP, page 2.

[57] BVES's 2023-2025 WMP, page 3.

[58] BVES's 2023-2025 WMP, page 3.

In its 2025 Update, BVES must describe how it will use the new vendor risk modeling software to improve operational and/or planning risk analysis and provide a plan with milestones and dates for achieving those improvements.

Energy Safety sets forth specific areas for improvement and associated required progress in Section 11.

7.2 Risk-Informed Framework

Section 4.4 of the Technical Guidelines requires BVES to adopt and describe its framework for making risk-informed decisions.[59]

7.2.1 BVES's WMP Strengths

BVES projects improvement in its risk-informed decision making over the WMP cycle in the following area: mitigation prioritization.

BVES's Fire Safety Circuit Matrix leverages multiple data sources to produce circuit risk rating and risk prioritization.[60] The data inputs include the number of customers, wood poles, bare wire overhead circuit miles, tree attachments, and remaining expulsion fuses. The data inputs are processed and weighted to calculate the wildfire risk mitigation score. These scores then inform BVES's mitigation decisions, helping BVES weigh the trade-off between cost and risk reduction.

7.2.1.1 2022 Areas for Continued Improvement

Energy Safety evaluated the progress BVES made toward addressing areas for continued improvement identified in Energy Safety's 2022 WMP Decision. BVES made sufficient progress in its 2022 area for continued improvement in risk-informed framework. See Appendix B for the status of each 2022 area for continued improvement.

7.2.2 Areas for Continued Improvement

BVES must continue to improve in the following areas.

7.2.2.1 Cross-Utility Collaboration on Best Practices for Inclusion of Climate Change Forecasts in Consequence Modeling, Inclusion

[59] Technical Guidelines, Section 4.4 "Risk-Informed Framework," pages 11-14 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[60] BVES's 2023-2025 WMP, pages 45-47.

of Community Vulnerability in Consequence Modeling, and Utility Vegetation Management for Wildfire Safety

BVES must make further improvements in cross-utility collaboration on best practices for the inclusion of climate change forecasts in consequence modeling, inclusion of community vulnerability in consequence modeling, and utility vegetation management for wildfire safety. Although BVES joined the other IOUs in participating in Energy Safety-sponsored scoping meetings in the past, they have not reported additional collaboration. In their 2025 Updates, the IOUs (not including independent transmission operators) must provide a status update on any collaboration with each other that has taken place in these areas, including a list of any resulting changes made to their WMPs since the 2023-2025 WMP submission.

Energy Safety sets forth specific areas for improvement and associated required progress in Section 11.

7.3 Wildfire Mitigation Strategy

Section 7.2 of the Technical Guidelines requires BVES to describe its proposed wildfire mitigation strategies based on the evaluation process identified in Section 7.1 of its WMP.[61]

7.3.1 Maturity Survey Results

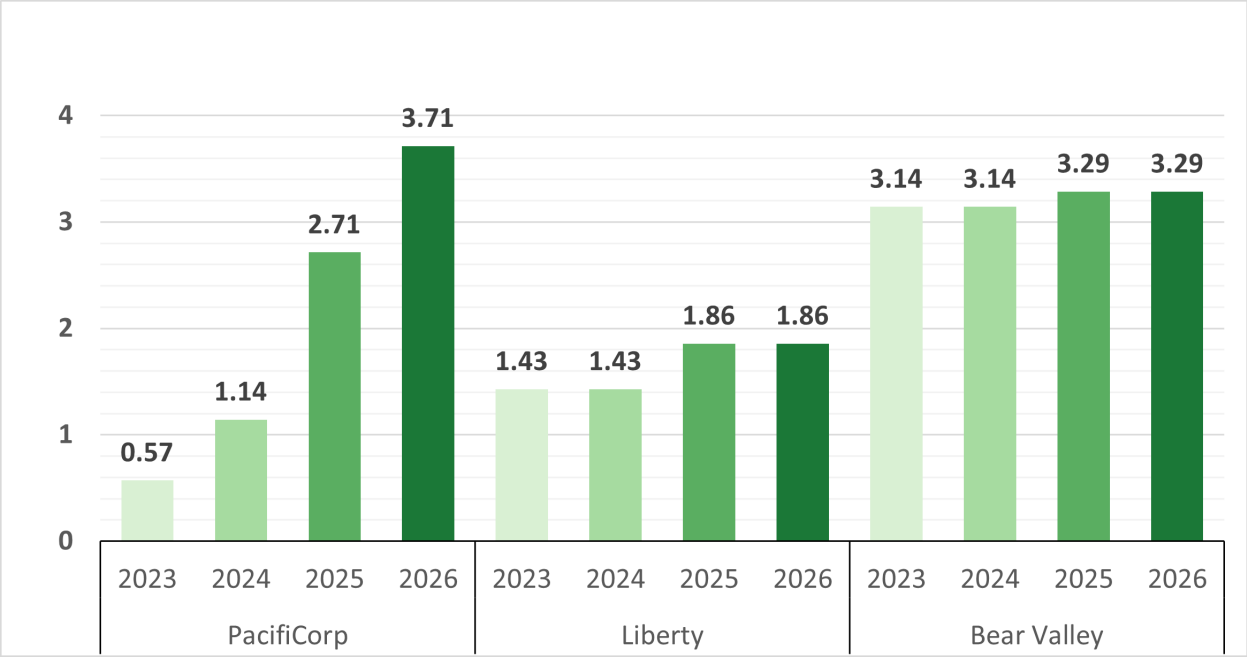
According to its responses to the 2023 Maturity Survey, BVES has a 2023 maturity level of 3.14 for risk prioritization. For 2024, BVES projects the same. For 2025, BVES projects that it will slightly increase in maturity to a level of 3.29. Note that cross-category themes are calculated by averaging the relevant sub-capability maturity levels.[62]

BVES's current maturity level in this cross-category theme is higher than its peers, with PacifiCorp and Liberty reporting at levels 0.57 and 1.43, respectively (Figure 7.3-1).

[61] Technical Guidelines, Section 7.2, pages 66-74 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[62] 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (Second Revised Final, Feb. 2023) page 13 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53394&shareable=true, accessed August 15, 2023).

Figure 7.3-1. Cross-Utility Maturity for Risk Prioritization
(Cross-Category Theme; Average Values)



7.3.2 BVES's WMP Strengths

BVES projects improvement in its wildfire mitigation strategy over the WMP cycle in the following area: projected risk reduction on highest-risk circuits.

BVES provides a territory risk score chart[63] and a projected overall territory risk table[64] that present a notable trend of projected risk reduction. BVES shows it expects its current mitigation plans will be effective at reducing the risk within its highest risk circuits.

7.3.2.1 2022 Areas for Continued Improvement

Energy Safety evaluated the progress BVES made toward addressing areas for continued improvement identified in Energy Safety's 2022 WMP Decision. See Appendix B for the status of each 2022 area for continued improvement.

As a response to BVES-22-03, Wildfire Consequence Modeling Improvements, BVES hired a third-party firm to produce and deliver wildfire spread modeling for current and future conditions.[65] These simulations projected likely fire spread from different locations

[63] BVES's 2023-2025 WMP, page 103.

[64] BVES's 2023-2025 WMP, page 104.

[65] BVES's 2023-2025 WMP, page 3.

throughout BVES's service territory based on historical fires in the area, local climate, topography, and projected climate-driven factors.

7.3.3 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for BVES under the wildfire mitigation strategy section of its Base WMP.

8. Wildfire Mitigation Initiatives

This section comprises Energy Safety's evaluation of the mitigation initiatives BVES undertakes to reduce the risk of catastrophic wildfire. For each mitigation initiative this section provides an analysis of BVES's maturity level, the ways BVES is progressing and specific areas where BVES must continue to improve.

The following mitigation initiatives, each with corresponding capabilities and maturity levels, are discussed in Sections 8.1 through 8.6.

- Grid design, operations, and maintenance, including grid design and system hardening, asset inspections, equipment maintenance and repair, and grid operations and procedures
- Vegetation management and inspections
- Situational awareness and forecasting
- Emergency preparedness
- Community outreach and engagement

BVES's approach to PSPS is discussed in Section 9. BVES's process for continuous improvement, including lessons learned, corrective action programs, and notices of violation and defect, are discussed in Section 10.

8.1 Grid Design, Operations, Maintenance

In response to Section 8.1 of the Technical Guidelines,[66] BVES provided information about its grid design and system hardening; asset inspections; equipment maintenance and repair; asset management and inspection enterprise systems; quality assurance and quality control; open work orders; grid operations and procedures; and workforce planning.

Below is Energy Safety's evaluation regarding BVES's objectives and targets, maturity levels, and strengths in these areas. In addition, Energy Safety has identified areas where BVES must improve, described at the end of each subsection.

8.1.1 Objectives and Targets

As part of its Base WMP, BVES provided 3-year and 10-year objectives for its grid design, operations, and maintenance programs.[67]

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[66] Technical Guidelines, Section 8.1, pages 75-93 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[67] BVES's 2023-2025 WMP, pages 107-114.

BVES also defined quantitative targets for initiative activities for grid design, operations, and maintenance programs. BVES's Base WMP includes end-of-year targets for 2023, 2024, and 2025. Selected targets are included in Table 8.1-1 to demonstrate the utility's projected progress.

Table 8.1-1. BVES Grid Design, Operations, and Maintenance – Selected Targets[68]

Initiative Activity	Target Unit	2023 Target	2024 Target	2025 Target
Covered Conductor Installation	Circuit Miles of Line Replaced	15.6	12.9	12.9
Distribution Pole Replacements	Number of Poles Replaced	270	200	200

8.1.2 Grid Design and System Hardening

Section 8.1.2 of the Technical Guidelines requires BVES to provide information on how it designs its system to reduce ignition risk and what it is doing to strengthen its distribution, transmission, and substation infrastructure to reduce the risk of utility-related ignitions resulting in catastrophic wildfires.[69]

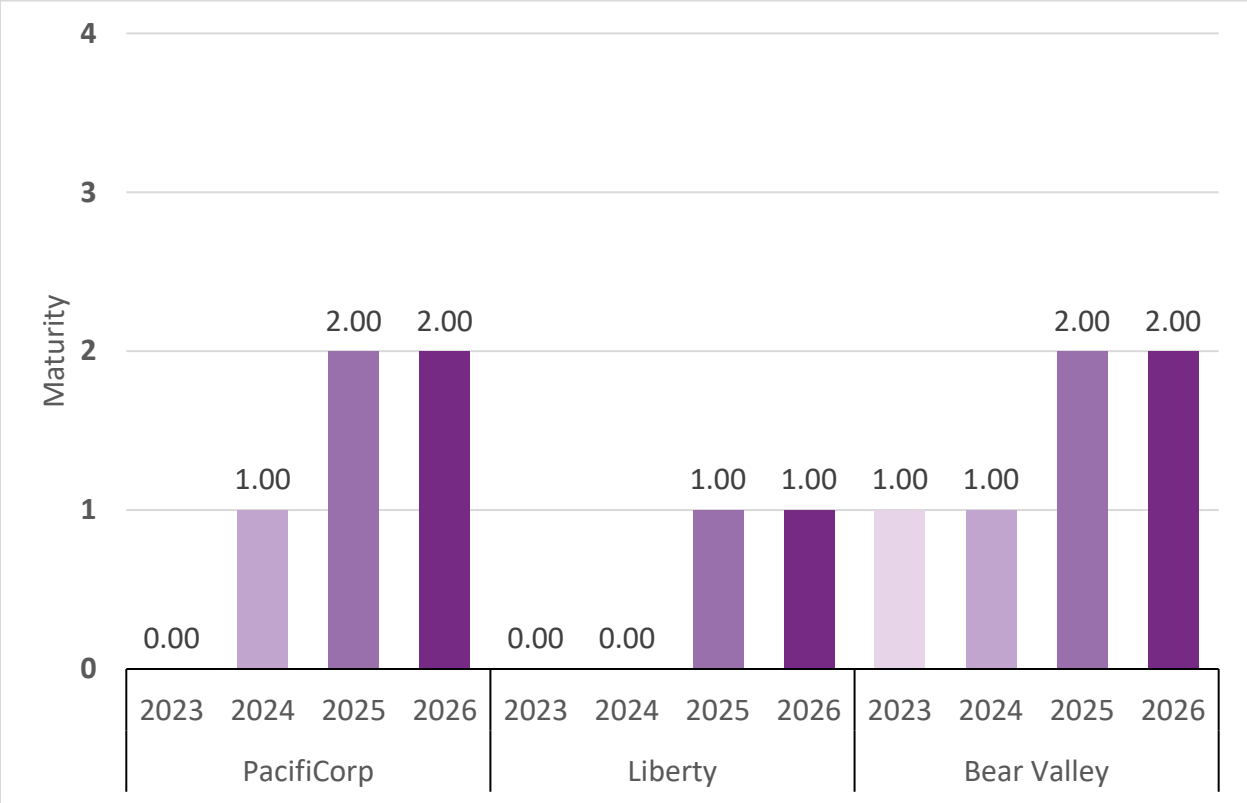
8.1.2.1 Maturity Survey Results

According to its responses to the 2023 Maturity Survey, BVES has a 2023 maturity level of 1 for grid design and resiliency. For 2024, BVES projects the same in maturity level. For 2025, BVES projects that it will increase in maturity to a level of 2 (Figure 8.1-1).

[68] BVES's 2023-2025 WMP, pages 115-122.

[69] Technical Guidelines, Section 8.1.2, page 82 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

Figure 8.1-1. Cross-Utility Maturity for Grid Design and Resiliency[70] (Minimum Values)



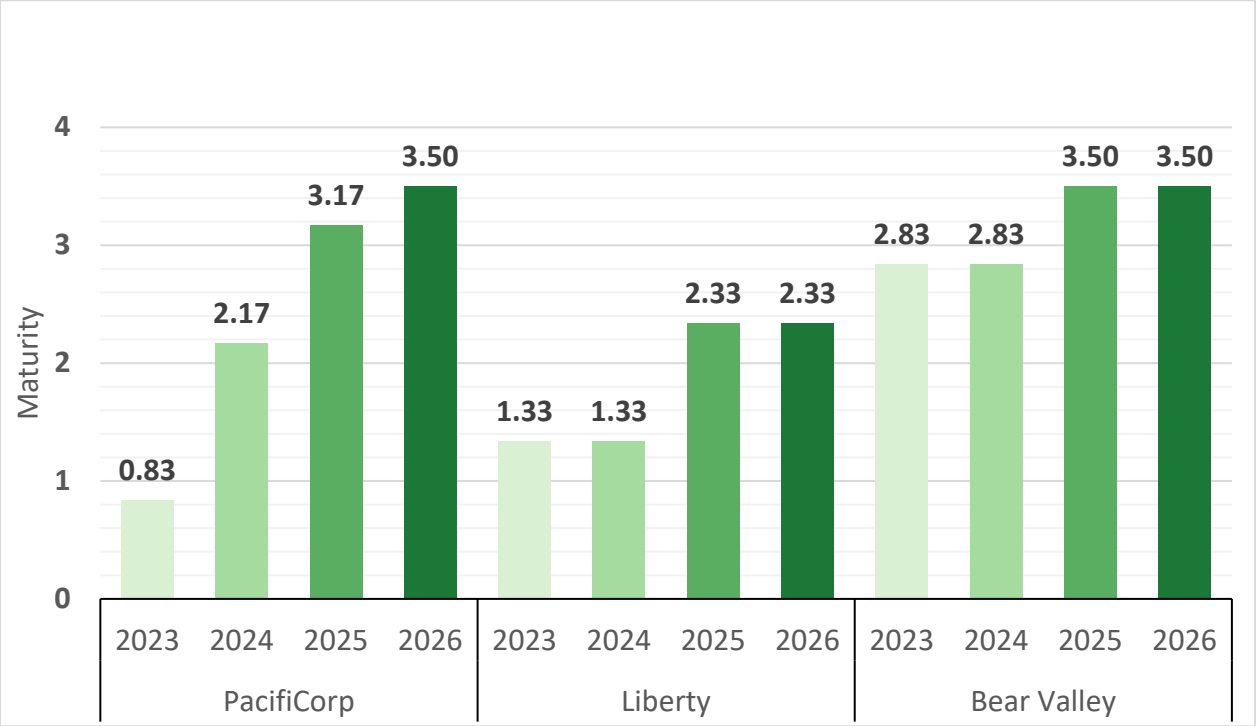
The utility's maturity level for the grid design and resiliency capability described above is calculated using the minimum value of component sub-capabilities. BVES's performance in grid design and resiliency can also be reflected if the average is considered. The capability average is determined from the average of all component sub-capabilities and is an additional tool to evaluate the utilities' maturity.[71]

When the capability maturity is calculated using the average (rather than the minimum), BVES has a maturity level for 2.83 for 2023, 2.83 in 2024, and 3.5 in 2025 (Figure 8.1-2).

[70] 2023 Maturity Survey Category C "Grid Design, Inspections, and Maintenance," Capability 16 "Grid design and resiliency."

[71] For further information on maturity level determinations, see Section 4 of the 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (second revision), published February 21, 2023.

Figure 8.1-2. Cross-Utility Maturity for Grid Design and Resiliency[72] (Average Values)



The rest of this section reports on maturity levels considering the average values.

BVES's current maturity level in this capability is higher than its peers, with PacifiCorp and Liberty reporting at levels 0.83 and 1.33, respectively. See Figure 8.1-2.

8.1.2.2 BVES's WMP Strengths

BVES projects improvement in grid design and system hardening over the WMP cycle in the following areas: QA/QC.

In 2022, BVES established and completed its first annual QA/QC audit program for covered conductor installations and tree attachment removals. BVES set a yearly target pass rate for these two audits of 99 percent for the period 2023 through 2025, which is an ambitious goal.[73]

2022 Areas for Continued Improvement

Energy Safety evaluated the progress BVES made toward addressing areas for continued improvement identified in Energy Safety's 2022 WMP Decision. BVES adequately addressed

[72] 2023 Maturity Survey Category C "Grid Design, Inspections, and Maintenance," Capability 16 "Grid design and resiliency."

[73] BVES's 2023-2025 WMP, Table 8-7 Grid Design and Maintenance QA/QC Program, page 157.

the 2022 areas for continued improvement related to grid design and system hardening. See Appendix B for the status of each 2022 area for continued improvement.

8.1.2.3 Areas for Continued Improvement

BVES must continue to improve in the following areas.

Risk Informed Prioritization of Grid Hardening Installation

BVES is currently in the process of updating its risk analysis, as it is transitioning from its Fire Safety Circuit Matrix to a Wildfire Risk Reduction Model (WRRM), and states that this new risk modeling methodology results in more accurate understanding of risk along its system.[74] BVES must explain how it will use the WRRM outputs to prioritize its grid hardening projects appropriately, particularly covered conductor.

Covered Conductor Mitigation Selection

BVES's current plan is to replace all 34.5 kV bare wire with covered conductor by 2026, and all 4 kV bare wire with covered conductor by 2042.[75] However, BVES has not provided a sufficient evaluation comparing covered conductor to alternative mitigations, nor mitigations in combination with covered conductor. The lack of alternative mitigation assessments is compounded by BVES's limited exploration into pilot programs (which is further discussed in the Grid Hardening Pilots section below). BVES must analyze mitigation selections at a project-level and properly account for known ignition risks and drivers, demonstrate efficient use of resources, and maximize risk reduction benefits as opposed to defaulting to covered conductor throughout its territory.

Radford Line Project

BVES continues to report delays due to permitting for the Radford line covered conductor project. BVES initially identified and completed the design and engineering of the Radford project in 2019,[76] reporting an estimated construction completion date of October 2020 in its 2020 WMP.[77]

BVES consistently reports delays for this project due to permitting with the U.S. Forest Service (USFS). In its 2021 Update, BVES reported that it expected to complete the remaining covered

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[74] BVES's 2023-2025 WMP, page 47.

[75] BVES's 2023-2025 WMP, pages 125-126.

[76] Data Request CalAdvocates-BVES-2023WMP-06 (Question 7) (https://www.bvesinc.com/assets/documents/wildfire-mitigation-plan/gpi/caladvocates-bves-2023wmp-06-response-final.pdf, accessed August 28, 2023).

[77] BVES's 2020 WMP, Table 4-1 "Prevention Strategy Program Descriptions & Updates," page 43.

conductor replacement in 2021.[78] In its 2022 Update, BVES reported that it had not completed any construction of the Radford project in 2020 and 2021 but that it was "on track for completion in 2022."[79]

BVES now states it is in the process of receiving the permit and expects to complete work by November 2023, and that receiving the permit has been the only limiting factor.[80] BVES must provide Energy Safety with accurate project status updates. BVES must explain whether it plans to expedite construction after receiving a permit from the USFS, and if so, explain how BVES intends to do so. Additionally, BVES must provide an updated timeline for completion, including notes of how BVES's plans on expediting construction impact its timeline.

Grid Hardening Pilots

As part of BVES-22-12, Exploration of New Technologies, BVES was required to explain how it monitors pilot programs being performed by the three large IOUs, and to provide an update on BVES's exploration of technologies such as distributed fault anticipation (DFA), early fault detection (EFD), and rapid earth fault current limiter (REFCL). In response, BVES continues to state it is not running pilots, as it is primarily waiting to see evidence of success in the pilot programs being performed by the three large IOUs before deciding to implement any of these technologies. In addition to broadly stating that it "continues to monitor and evaluate other utilities [sic] experiences with these technologies,"[81] BVES must provide details on its current process for monitoring and assessing the pilot programs of other utilities.

BVES must continue to report on its progress exploring potential new technologies and provide further details on its existing process for interacting with other utilities beyond monitoring their experiences. BVES must include details about the criteria used for determining whether a new technology's pilot is successful enough for BVES to implement, what pilots BVES is moving forward with and why, and explanations for BVES's decision to not move forward with certain pilots.

Energy Safety sets forth specific areas for improvement and associated required progress in Section 11.

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

[79] BVES's 2022 WMP, Table 5.3-1 "List and description of program targets, last 5 years," page 95; and Table 7.1-5 "Listed Description of the Wildfire Mitigation Strategy," page 122.

[80] BVES's 2023-2025 WMP, page 127.

[81] BVES 2023-2025 WMP Appendices, Appendix D, page 63.

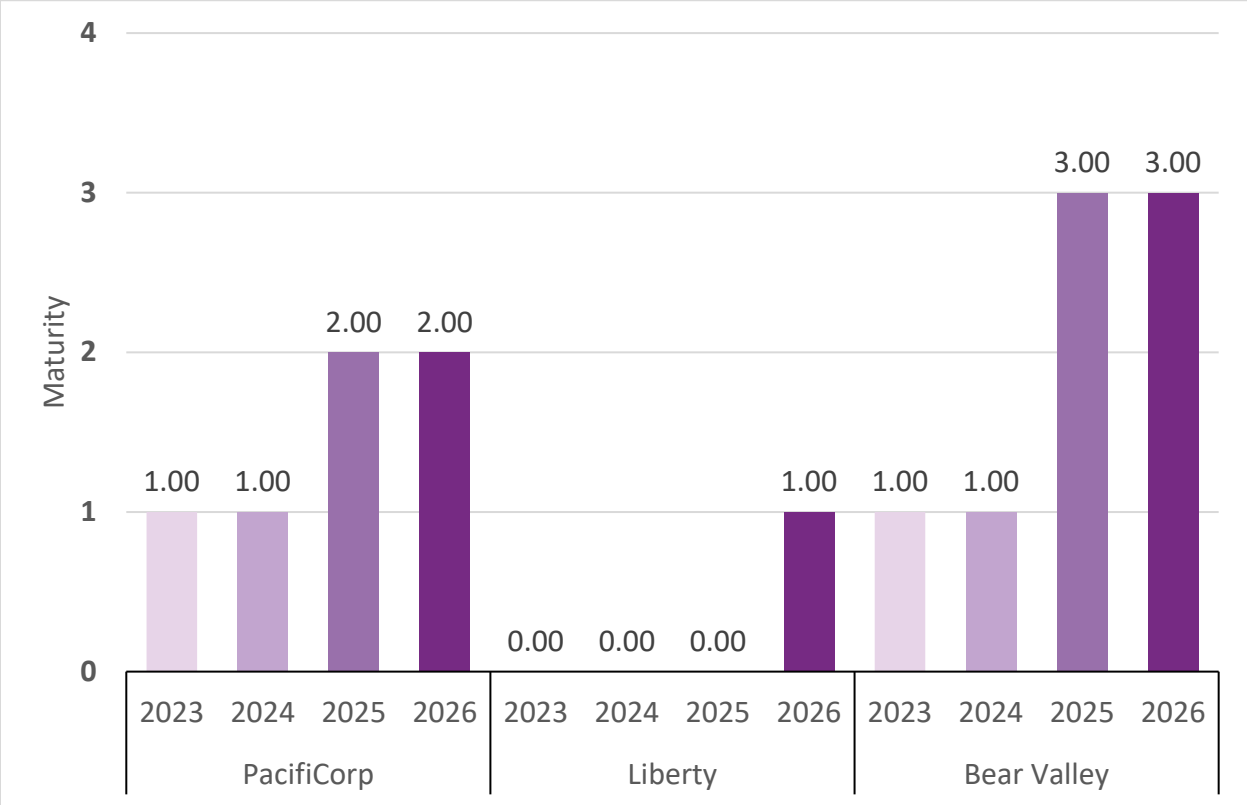
8.1.3 Asset Inspections

Section 8.1.3 of the Technical Guidelines requires BVES to provide an overview of its procedures for inspecting its assets.[82]

8.1.3.1 Maturity Survey Results

According to its responses to the 2023 Maturity Survey, BVES has a 2023 maturity level of 1.00 for asset inspections. For 2024, BVES projects the same maturity level of 1.00. For 2025, BVES projects that it will significantly increase in maturity to a level of 3.00 (Figure 8.1-3).

Figure 8.1-3. Cross-Utility Maturity for Asset Inspections[83] (Minimum Values)



The utility's maturity level for the asset inspections capability described above is calculated using the minimum value of component sub-capabilities. BVES's performance in this maturity capability can also be reflected if the average is considered. The capability average is

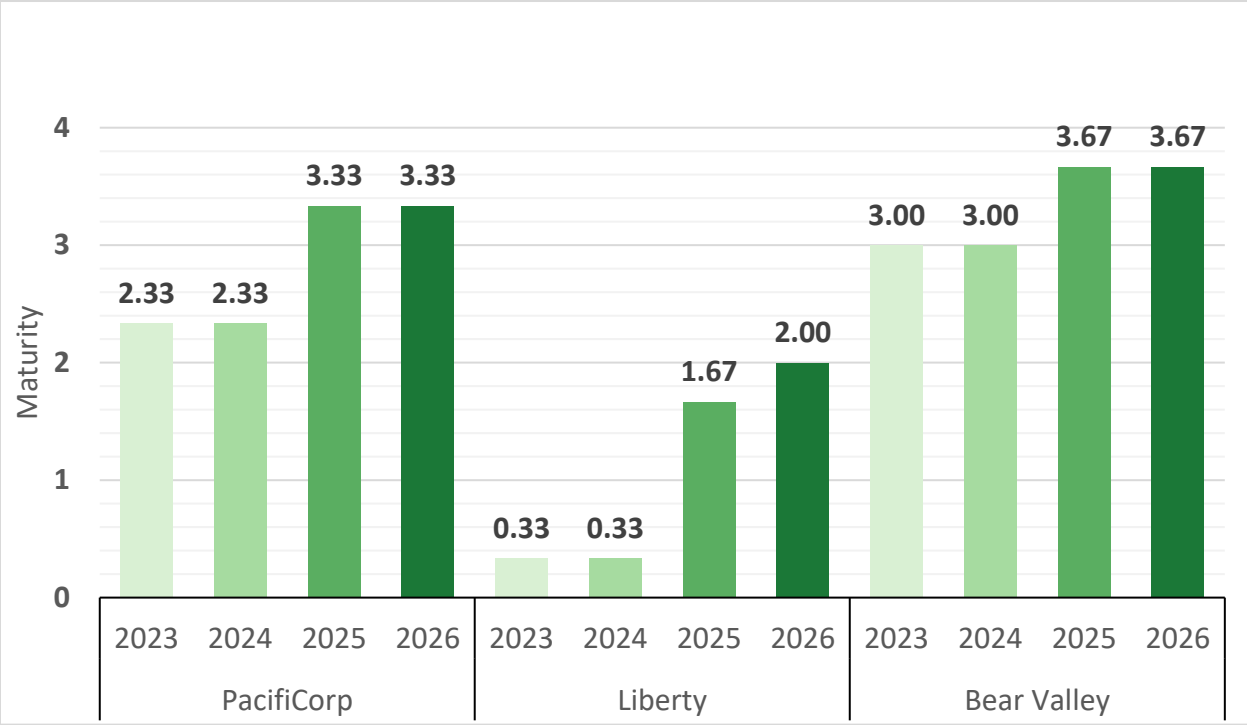
[82] Technical Guidelines, Section 8.1.3, page 83-85 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[83] 2023 Maturity Survey Category C "Grid Design, Inspections, and Maintenance," Capability 14 "Asset inspections."

determined from the average of all component sub-capabilities and is an additional tool to evaluate the utilities' maturity.[84]

When the capability maturity is calculated using the average (rather than the minimum), BVES has a maturity level for asset inspections of 3.00 for 2023, 3.00 in 2024, and 3.67 in 2025 (Figure 8.1-4).

Figure 8.1-4. Cross-Utility Maturity for Asset Inspections[85] (Average Values)



The rest of this section reports on maturity levels considering the average values.

BVES's current maturity level in this capability is higher than its peers, with Liberty and PacifiCorp reporting at levels 0.33 and 2.33, respectively. See Figure 8.1-4.

8.1.3.2 BVES's WMP Strengths

BVES projects improvement in asset inspections over the WMP cycle in the following areas: unmanned aerial vehicle (UAV) thermographic inspections, UAV video inspections, and LiDAR inspections.

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[84] For further information on maturity level determinations, see Section 4 of the 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (second revision), published February 21, 2023.

[85] 2023 Maturity Survey Category C "Grid Design, Inspections, and Maintenance," Capability 14 "Asset inspections."

BVES performs annual UAV thermal and video inspections on all its distribution lines.[86] BVES identified 260 issues on its 211 miles of distribution lines in 2021 using these inspection methods.[87] Neither of BVES's peers are beyond the pilot stages of incorporating thermal imaging into their distribution inspection programs. Additionally, BVES's peers do not incorporate UAV video into their inspections.

BVES states it performs an annual LiDAR inspection of all its assets.[88] BVES identified 509 issues on its 211 miles of distribution lines in 2021 using this inspection method.[89] Neither of BVES's peers use LiDAR in their asset inspections.

2022 Areas for Continued Improvement

Energy Safety evaluated the progress BVES made toward addressing areas for continued improvement identified in Energy Safety's 2022 WMP Decision. BVES adequately addressed the 2022 areas for continued improvement related to asset inspection. See Appendix B for the status of each 2022 area for continued improvement.

8.1.3.3 Areas for Continued Improvement

BVES must continue to improve in the following areas.

Covered Conductor Inspections and Maintenance

BVES states it will continue participating in covered conductor meetings and workshops with other utilities in 2023 and lists inspection practices as a discussion topic.[90] In its 2025 Update, BVES must discuss how it will account for failure modes unique to covered conductor in its inspections, including applying lessons learned from the covered conductor joint sessions to its inspection and maintenance programs. For example, one failure mode identified during the covered conductor joint workshops is corrosion caused by water intrusion.[91] In the case of a covered conductor, a visual inspection is unlikely to discover this failure, necessitating a different approach.

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[86] BVES's 2023-2025 WMP, pages 144-147.

[87] BVES's 2023-2025 WMP Appendices, BVES-22-15, pages 64-65. The 260 issues consist of total UAV findings, determined by adding the UAV HD Photography/Video number of actual findings (235) to the UAV HD Thermography number of actual findings (25).

[88] BVES's 2023-2025 WMP, page 146.

[89] BVES's 2023-2025 WMP Appendices, BVES-22-15, pages 64-65.

[90] BVES's 2023-2025 WMP, pages 151-152.

[91] Exponent (2022). Effectiveness and Implementation Considerations of Covered Conductors: Testing and Analysis, pages 42-79 (https://www.pge.com/pge_global/common/pdfs/safety/emergency-preparedness/natural-disaster/wildfires/wildfire-mitigation-plan/supporting-documents/effectiveness-and-implementations-considerations-of-covered-conductors-testing-and-analysis.pdf, accessed July 17, 2023).

Distribution Detailed Inspection Frequency

BVES currently performs distribution detailed inspections on a five-year interval[92] and does not adjust the frequency based on risk. This approach may not adequately evaluate wildfire risk, particularly in riskiest areas, given that high-priority issues could propagate within the five-year timeline. BVES must either:

- Adopt a risk-based approach by increasing the frequency of these inspections on the circuits identified by the BVES risk model as having the highest risk, including a plan and timeline for implementation; or
- Show how it has considered a risk-based approach for inspections but decided not to increase inspection frequency, including demonstrating that BVES's existing inspections adequately identify, manage, and address risk.

Asset Inspection QA/QC Program

BVES began implementing a QA/QC program in 2022. BVES's 2023-2025 WMP indicates that it performs QA/QC on covered conductor installation, tree attachment removal, and grid design and maintenance.[93] In its 2025 Update, BVES must include its QA/QC process for asset inspection, including sample size, verification methods, pass rate targets, and actual pass rates. BVES must also provide its QA/QC procedures and documents for performing each type of inspection in either an appendix or as attachments to its 2025 Update.

Energy Safety sets forth specific areas for improvement and associated required progress in Section 11.

8.1.4 Equipment Maintenance and Repair

Section 8.1.4 of the Technical Guidelines requires BVES to provide a narrative of its maintenance programs, including its strategy for replacing/upgrading and for specific equipment types.[94]

8.1.4.1 Maturity Survey Results

According to its responses to the 2023 Maturity Survey, BVES has a 2023 maturity level of 1.00 for asset maintenance and repair. For 2024, BVES projects the same maturity level of 1.00. For 2025, BVES projects that it will increase in maturity to a level of 2.00 (Figure 8.1-5).

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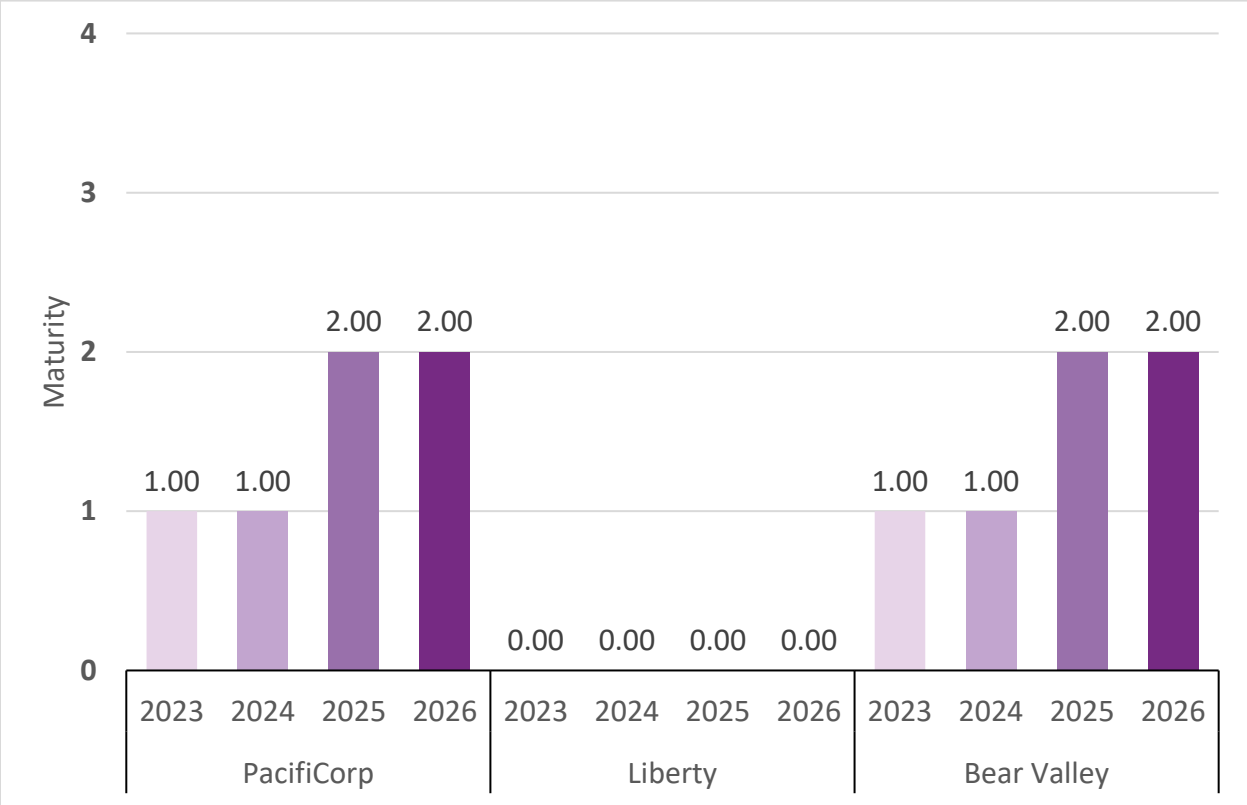
[92] BVES's 2023-2025 WMP, Table 8-6 "Vegetation Management Inspection Frequency, Method, and Criteria," page 142.

[93] BVES's 2023-2025 WMP, Table 8-7 "Grid Design and Maintenance QA/QC Program," page 157.

[94] Technical Guidelines, Section 8.1.4, pages 85-86 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

Figure 8.1-5. Cross-Utility Maturity for Asset Maintenance and Repair[95] (Minimum Values)



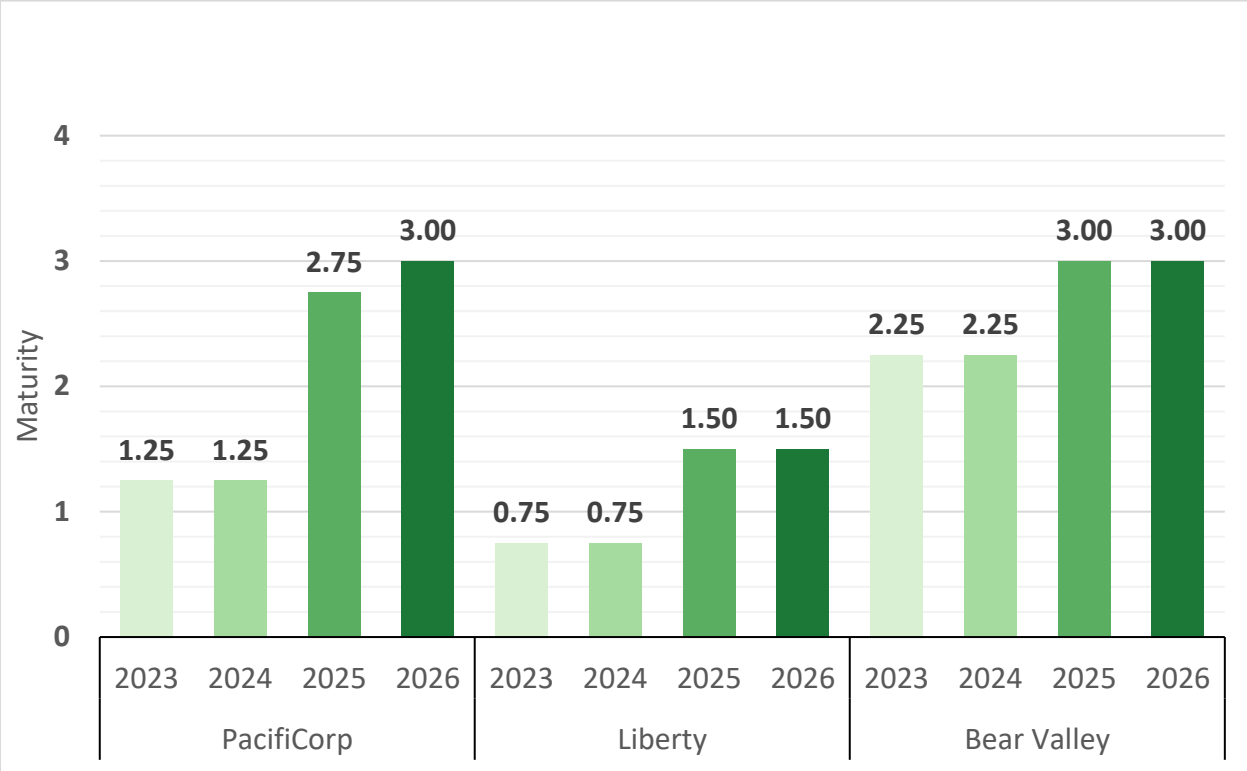
The utility's maturity level for the asset maintenance and repair capability described above is calculated using the minimum value of component sub-capabilities. BVES's performance in this maturity capability can also be reflected if the average is considered. The capability average is determined from the average of all component sub-capabilities and is an additional tool to evaluate the utilities' maturity.[96]

When the capability maturity is calculated using the average (rather than the minimum), BVES has a maturity level for asset maintenance and repair of 2.25 for 2023, 2.25 in 2024, and 3.00 in 2025 (Figure 8.1-6).

[95] 2023 Maturity Survey Category C "Grid Design, Inspections, and Maintenance," Capability 15 "Asset maintenance and repair."

[96] For further information on maturity level determinations, see Section 4 of the 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (second revision), published February 21, 2023.

Figure 8.1-6. Cross-Utility Maturity for Asset Maintenance and Repair[97] (Average Values)



The rest of this section reports on maturity levels considering the average values.

BVES current maturity level in this capability is higher than its peers, with Liberty and PacifiCorp reporting at levels 0.75 and 1.25, respectively. See Figure 8.1-6.

8.1.4.2 BVES's WMP Strengths

BVES projects improvement in equipment maintenance and repair over the WMP cycle in the following area: overdue work orders.

Energy Safety recognizes BVES's commitment to completing work orders timely. BVES states it had no overdue work orders at the time its 2023 WMP was composed.[98] BVES's two peer utilities both have over 150 overdue work orders. BVES's ability to resolve work orders on time is a strength.

[97] 2023 Maturity Survey Category C "Grid Design, Inspections, and Maintenance," Capability 15 "Asset maintenance and repair."

[98] BVES's 2023-2025 WMP, pages 160-161.

2022 Areas for Continued Improvement

Energy Safety evaluated the progress BVES made toward addressing areas for continued improvement identified in Energy Safety's 2022 WMP Decision. BVES adequately addressed its 2022 areas for continued improvement related to asset maintenance and repair. See Appendix B for the status of each 2022 area for continued improvement.

8.1.4.3 Areas for Continued Improvement

BVES must continue to improve in the following areas.

Non-Exempt Surge Arrester Replacement

BVES states that it expects to replace all CAL FIRE non-exempt lightning/surge arrestors with CAL FIRE exempt replacements by 2026.[99] BVES has not yet begun replacing its non-exempt lightning/surge arresters with CAL FIRE-exempt arresters. BVES must provide its plan to identify and replace all its non-exempt lightning/surge arresters with appropriate alternatives, including numerical targets for such as appropriate.

Energy Safety sets forth specific areas for improvement and associated required progress in Section 11.

8.1.5 Grid Operations and Procedures

Section 8.1.8 of the Technical Guidelines requires BVES to describe how it manages and operates its grid to reduce wildfire risk, including in relation to equipment settings, grid response procedures and notifications, and personnel work procedures and training.[100]

8.1.5.1 Maturity Survey Results

According to its responses to the 2023 Maturity Survey, BVES has a 2023 maturity level of 0.80 for grid operations and protocols. For 2024, BVES projects the same maturity level. For 2025, BVES projects that it will increase in maturity to a level of 1.80 (Figure 8.1-7).

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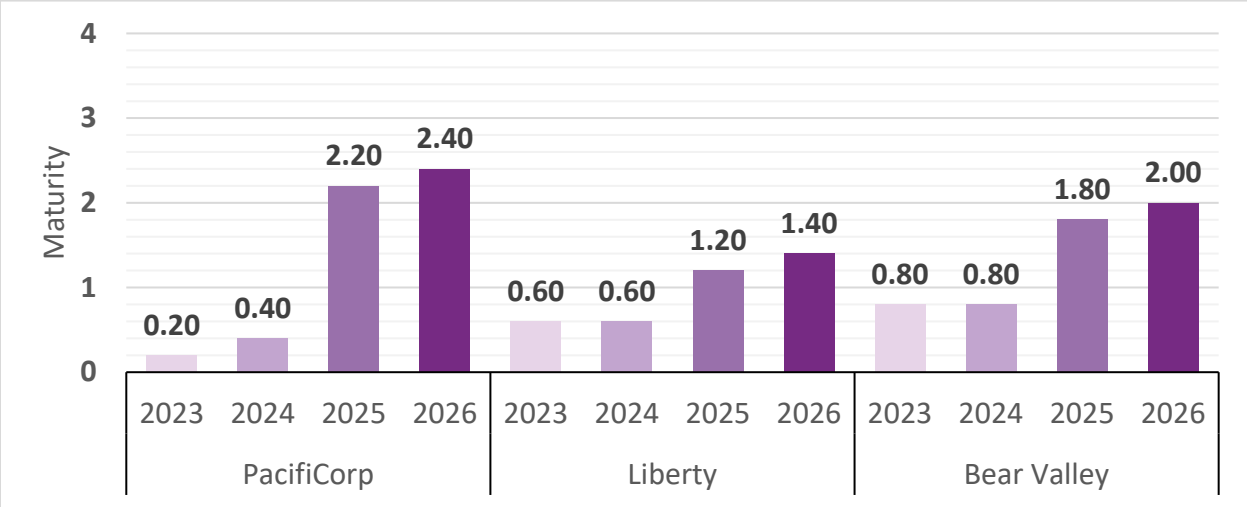
[99] Data Request OEIS-P-WMP_2023-BVES-004 (Question1), (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=54419&shareable=true, accessed September 20, 2023).

[100] Technical Guidelines, Section 8.1.8, pages 88-89 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

Figure 8.1-7. Cross-Utility Maturity for Grid Operations and Protocols[101] (Minimum Values)



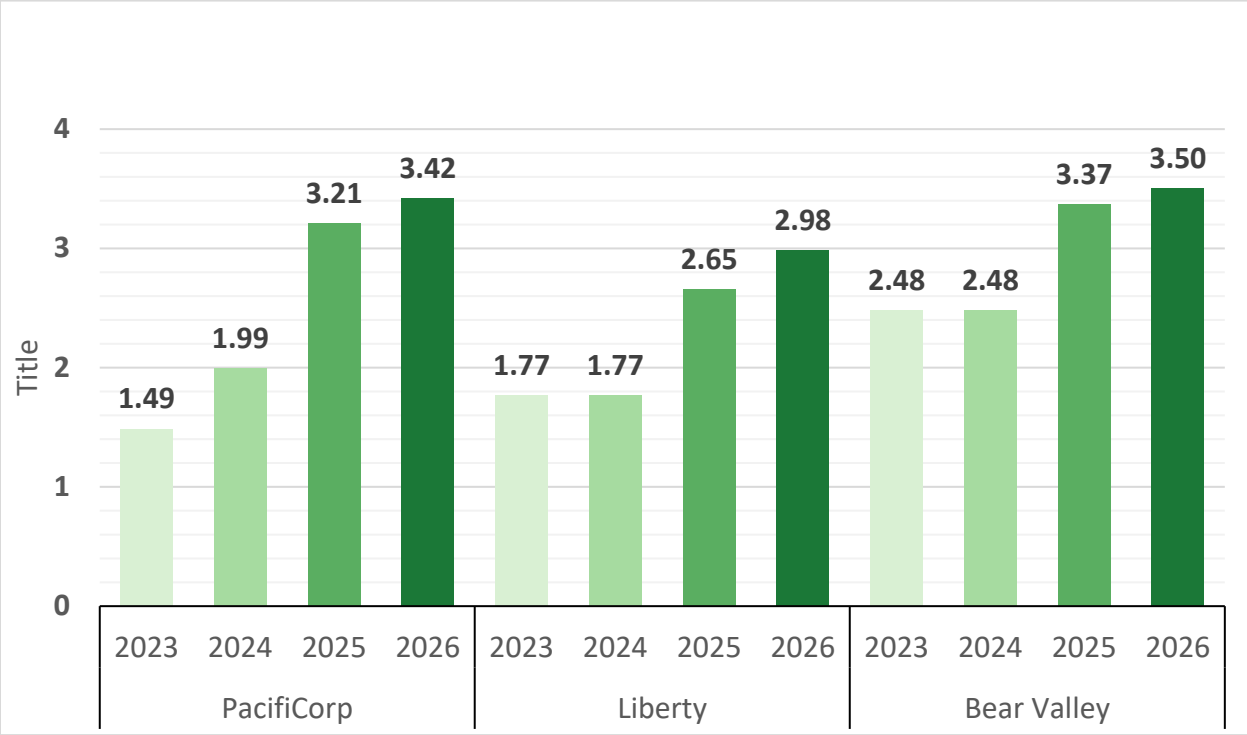
The utility's maturity level for the grid operations and protocols capability described above is calculated using the minimum value of component sub-capabilities. BVES's performance in this maturity capability can also be reflected if the average is considered. The capability average is determined from the average of all component sub-capabilities and is an additional tool to evaluate the utilities' maturity.[102]

When the capability maturity is calculated using the average (rather than the minimum), BVES has a maturity level for grid operations and protocols of 2.48 for 2023, 2.48 in 2024, and 3.37 in 2025 (Figure 8.1-8).

[101] 2023 Maturity Survey Category E "Grid Operations and Protocols."

[102] For further information on maturity level determinations, see Section 4 of the 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (second revision), published February 21, 2023.

Figure 8.1-8. Cross-Utility Maturity for Grid Operations and Protocols[103] (Average Values)



The rest of this section reports on maturity levels considering the average values.

BVES's maturity level in this capability is limited by its response to the following questions:

- BVES reports that it only reviews its policies and procedures for determining and applying grid operation thresholds at least once annually.[104] To increase its maturity level, BVES would need to review these policies and procedures at least once per six months. To reach the maximum maturity level, BVES would need to review once per quarter.
- BVES reports its protocols for determining the sensitivity of protective equipment are determined manually.[105] To increase its maturity level, BVES needs to determine this sensitivity automatically.
- BVES reports its predictive model for shortening the expected life of equipment undergoes review less than once per year.[106] In order to increase its maturity level, BVES's predictive model would need to undergo review at least once per year.

[103] 2023 Maturity Survey Category E "Grid Operations and Protocols."

[104] BVES's 2023 Maturity Survey, response to 5.1.4.Q1.

[105] BVES's 2023 Maturity Survey, response to 5.1.6.Q2.

[106] BVES's 2023 Maturity Survey, response to 5.2.4.Q2.

BVES's current maturity level in this capability is higher than its peers, with Liberty and PacifiCorp reporting at levels 1.77 and 1.49, respectively. See Figure 8.1-8.

Based on its responses to the 2023 Maturity Survey, BVES reported its highest levels of projected maturity in the following capabilities for 2023 and 2024:

- Ignition prevention and suppression[107]

Based on its responses to the 2023 Maturity Survey, BVES reported its lowest levels of projected maturity in the following capabilities for 2023 and 2024:

- Protective equipment and device settings[108]
- Incorporation of ignition risk factors in grid control[109]

8.1.5.2 BVES's WMP Strengths

BVES projects improvement in grid operations and procedures over the WMP cycle in the following area: completion of Fault Localization Isolation and Service Restoration (FLISR), in which smart high voltage switches that can "rapidly detect and isolate faults"[110] are installed.

BVES reports that in 2022 it completed installation of nine such switches to increase the versatility and responsiveness of its 34.5 kV system. BVES expects FLISR to have risk mitigation benefits for fault detections, service restoration, and other potentially dangerous conditions. BVES intends to continue installation of these switches where possible along its four kV system based on the success of the switches currently installed.

2022 Areas for Continued Improvement

Energy Safety evaluated the progress BVES made toward addressing areas for continued improvement identified in Energy Safety's 2022 WMP Decision. BVES adequately addressed the 2022 areas for continued improvement related to grid operations and procedures. See Appendix B for the status of each 2022 area for continued improvement.

8.1.5.3 Areas for Continued Improvement

BVES must continue to improve in the following areas.

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[107] BVES's responses to questions on the 2023 Maturity Survey under Category E "Grid Operations and Protocols," Capability 26, "Ignition prevention and suppression."

[108] BVES's responses to questions on the 2023 Maturity Survey under Category E "Grid Operations and Protocols," Capability 22, "Protective equipment and device settings."

[109] BVES's responses to questions on the 2023 Maturity Survey under Category E "Grid Operations and Protocols," Capability 23, "Incorporation of ignition risk factors in grid control."

[110] BVES's 2023-2025 WMP, pages 135-136.

Reliability Impacts of Fast Trip Settings

BVES reports it uses fast trip settings on its protective devices throughout the year and that these settings had no discernable reliability impacts.[111] BVES did not demonstrate how it reached this conclusion or provide evidence of internal analysis to support this statement. BVES must demonstrate it understands the associated reliability and safety impacts of using fast trip settings, especially given that BVES enables such settings throughout its entire territory.

Energy Safety sets forth specific areas for improvement and associated required progress in Section 11.

8.2 Vegetation Management and Inspections

In response to Section 8.2 of the Technical Guidelines, BVES provided information on its vegetation management programs, including vegetation inspections, vegetation and fuels management, vegetation management enterprise systems, environmental compliance and permitting, quality assurance and quality control, open work orders, and workforce planning as applicable.[112]

Below is Energy Safety's evaluation regarding BVES's objectives and targets, maturity levels, and strengths in these areas. In addition, Energy Safety has identified areas where BVES must improve, described at the end of this section.

8.2.1 Objectives and Targets

As part of its Base WMP, BVES provided 3-year and 10-year objectives for its vegetation management programs.[113]

BVES also defined quantitative targets for initiative activities for its vegetation management programs. BVES's Base WMP includes end-of-year targets for 2023, 2024, and 2025. Selected targets are included in Table 8.2-1 to demonstrate the utility's commitment to mitigating ignition risk from vegetation contact.

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[111] BVES's 2023-2025 WMP, page 165.

[112] Technical Guidelines, Section 8.2, "Vegetation Management and Inspections," pages 94-113 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[113] BVES's 2023-2025 WMP, Tables 8-12 and 8-13, pages 187-190.

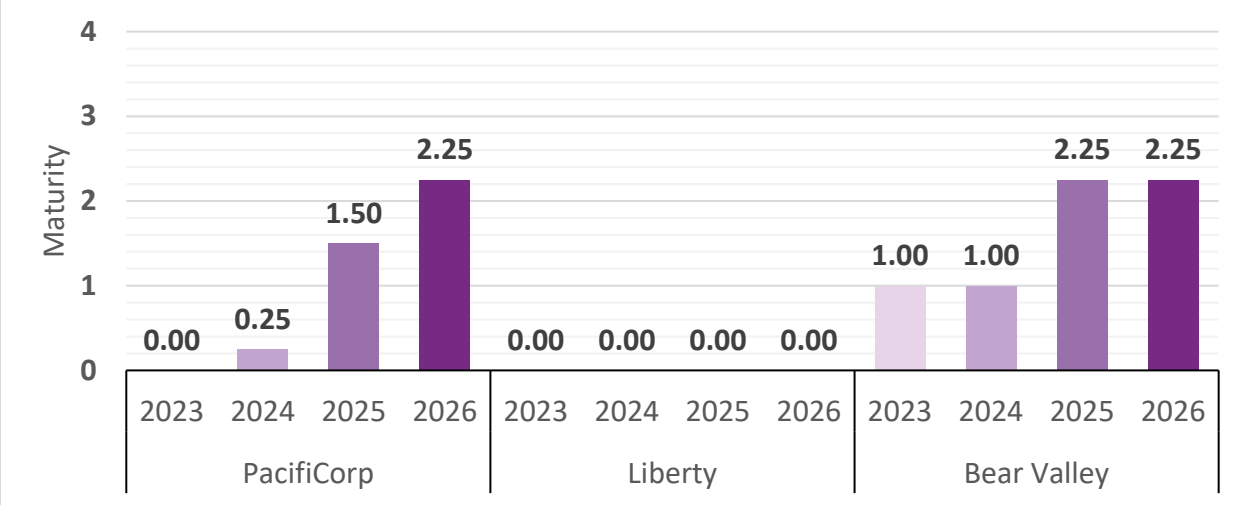
Table 8.2-1. BVES Vegetation Management – Selected Targets[114]

Initiative Activity	Target Unit	2023 Target	2024 Target	2025 Target
Quality assurance / quality control	Number of Vegetation Quality Control Checks	72	72	72
Vegetation inspections / LiDAR Inspection	Circuit Miles Inspected	211	211	211
Vegetation inspections / 3rd Party Ground Patrol	Circuit Miles Inspected	211	211	211

8.2.2 Maturity Survey Results

According to its responses to the 2023 Maturity Survey, BVES has a 2023 maturity level of 1 for vegetation management and inspections. For 2024, BVES projects the same maturity level of 1. For 2025, BVES projects to increase in maturity to a level of 2.25 (Figure 8.2-1).

Figure 8.2-1. Cross-Utility Maturity for Vegetation Management and Inspections (Minimum Values)



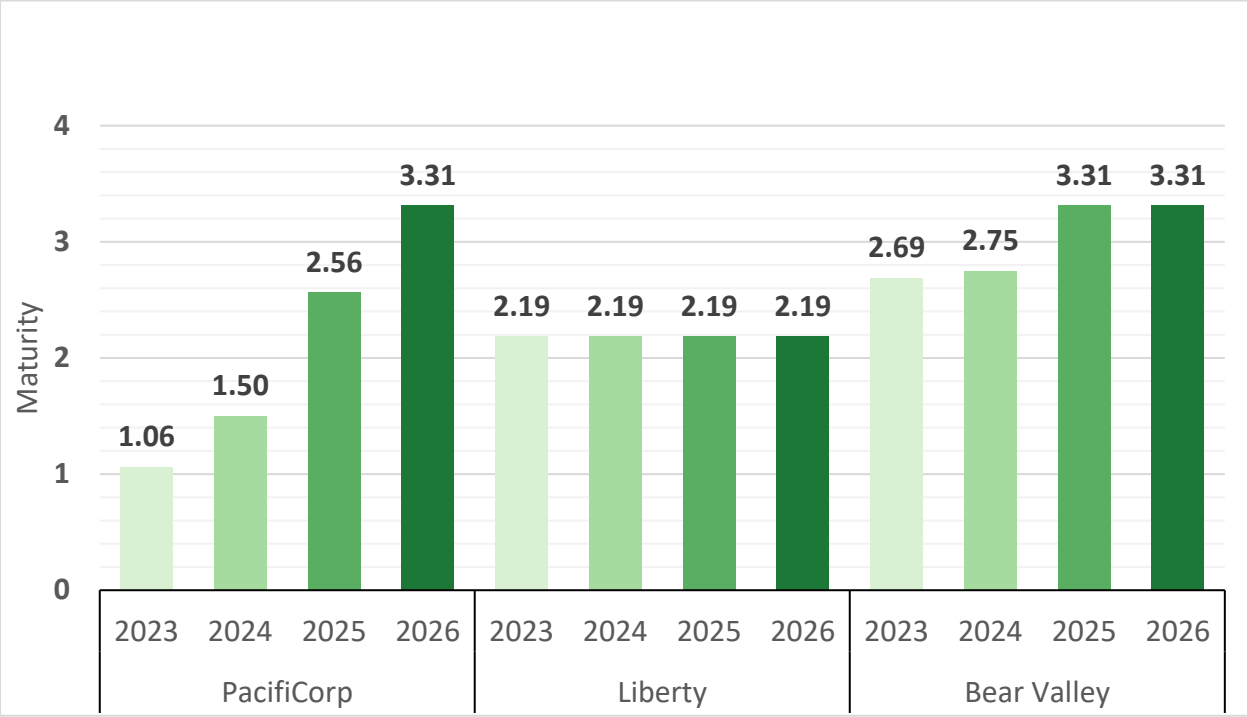
The utility's maturity level for the vegetation management and inspections category described above is calculated using the minimum value sub-capability of each capability. Using the capability average is another way to look at BVES's performance in vegetation management and inspections. The capability average is determined from the average of all component sub-capabilities and is an additional tool to evaluate the utilities' maturity.[115]

[114] BVES's 2023-2025 WMP, pages 190-192.

[115] For further information on maturity level determinations, see Section 4 of the 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (second revision), published February 21, 2023.

When the category maturity is calculated using the capability average (rather than the minimum), BVES has a maturity level for vegetation management and inspections of 2.69 for 2023, 2.75 in 2024, and 3.31 in 2025 (Figure 8.2-2).

Figure 8.2-2. Cross-Utility Maturity for Vegetation Management and Inspections (Average Values)



The rest of this section reports on maturity levels considering the average values.

BVES's current maturity level in this category is higher than its peers, with Liberty reporting at level 2.19 and PacifiCorp reporting at level 1.06. See Figure 8.2-2.

Based on its responses to the 2023 Maturity Survey, BVES reported its highest levels of projected maturity in the following capabilities for 2023 and 2024: vegetation personnel training and quality.[116]

Based on its responses to the 2023 Maturity Survey, BVES reported its lowest levels of projected maturity in the following capability for 2023 and 2024: vegetation inspections.[117]

[116] BVES's responses to questions on the 2023 Maturity Survey under Category D "Vegetation Management and Inspections," Capability 21 "Vegetation personnel training and quality."

[117] BVES's responses to questions on the 2023 Maturity Survey under Category D "Vegetation Management and Inspections," Capability 19 "Vegetation inspections."

8.2.3 BVES's WMP Strengths

BVES projects improvement in vegetation management over the WMP cycle in the following areas: vegetation inspections and vegetation enterprise systems.

BVES's 2023-2025 WMP outlines a program where a yearly LiDAR survey determines vegetation clearances to conductors.[118] This should enable BVES to locate vegetation that is out of compliance with applicable regulations and BVES's internal clearance standards.

BVES is also migrating to a cloud-based system for its tree inventory and documentation of vegetation-related work. BVES plans to fully implement this system by the end of 2023.[119] This system will improve documentation of inspection findings, track assignments and the completion of work, and provide real-time vegetation data to users in the field.

8.2.3.1 2022 Areas for Continued Improvement

Energy Safety evaluated the progress BVES made toward addressing areas for continued improvement identified in Energy Safety's 2022 WMP Decision. See Appendix B for the status of each 2022 area for continued improvement.

8.2.4 Areas for Continued Improvement

BVES must continue to improve in the following area.

In its response to BVES-22-16, Vegetation Management Quality Control Personnel Qualifications, it is evident that BVES did not consider alternative staffing for its vegetation management QC checks as required. BVES declares that the 72 annual field-based QC checks[120] are conducted by "qualified staff."[121] However, as previously stated in the Decision on BVES's 2022 WMP Update:

> …it is evident that BVES staff are knowledgeable in various aspects of utility operations. However, it seems that BVES staff have limited direct experience in arboriculture or forestry, other than performing BVES's QC checks. It is essential for BVES to have qualified personnel examining completed vegetation management and assessing the performance of its sole vegetation management contractor.[122]

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[118] BVES's 2023-2025 WMP, page 199.

[119] BVES's 2023-2025 WMP, page 215.

[120] BVES's 2023-2025 WMP, Table 8-14 "Vegetation Management Initiative Targets by Year," pages 192-193.

[121] BVES's 2023-2025 WMP, Appendix D, page 66.

[122] Decision on BVES's 2022 WMP Update, page 61 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53284&shareable=true, accessed July 20, 2023).

Other electrical corporations, including Pacific Gas and Electric Company (PG&E),[123] Southern California Edison Company (SCE),[124] San Diego Gas & Electric Company (SDG&E),[125] Liberty,[126] and PacifiCorp,[127] require field auditors to have extensive experience related to utility vegetation management and/or be ISA Certified Arborists.[128] BVES must show it has properly identified trained and qualified personnel to perform its vegetation quality control checks.

Energy Safety sets forth specific areas for improvement and associated required progress in Section 11.

8.3 Situational Awareness and Forecasting

In response to Section 8.3 of the Technical Guidelines, BVES provided information on its situational awareness and forecasting, including environmental monitoring systems, grid monitoring systems, ignition detection systems, weather forecasting, and fire potential index as applicable.[129]

Below is Energy Safety's evaluation regarding BVES's objectives and targets, maturity levels, and strengths in these areas. In addition, Energy Safety has identified areas where BVES must improve, described at the end of this section.

8.3.1 Objectives and Targets

As part of its Base WMP, BVES provided 3-year and 10-year objectives for its situational awareness and forecasting programs.[130]

BVES also defined quantitative targets for initiative activities for its situational awareness and forecasting programs. BVES's Base WMP includes end-of-year targets for 2023, 2024, and 2025. Selected targets are included in Table 8.3-1 to demonstrate the utility's commitment to improved fault detection and reduction of response times of potential ignitions.

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[123] PG&E's 2023-2025 WMP, page 553.

[124] SCE's 2023-2025 WMP, pages 440-441.

[125] SDG&E's 2023-2025 WMP, page 282.

[126] Liberty's 2023-2025 WMP, pages 237-238.

[127] PacifiCorp's 2023-2025 WMP, page 204.

[128] International Society of Arboriculture (https://www.isa-arbor.com/Credentials/Types-of-Credentials/ISA-Certified-Arborist, accessed July 21. 2023).

[129] Technical Guidelines, Section 8.3, "Situational Awareness and Forecasting," pages 114-135 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[130] BVES's 2023-2025 WMP, pages 228-229.

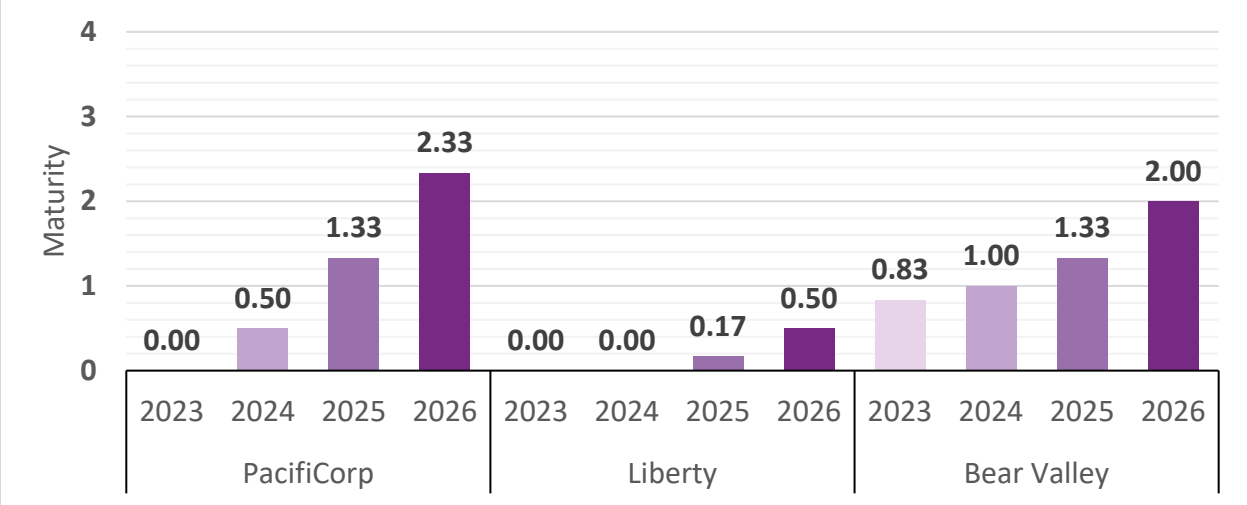
Table 8.3-1. BVES Situational Awareness and Forecasting – Selected Targets[131]

Initiative Activity	Target Unit	2023 Target	2024 Target	2025 Target
Fault Indicators	Number of installed fault indicators	30	0	0
Continuous Monitoring Sensors	Number of circuits installed	2	1	1

8.3.2 Maturity Survey Results

According to its responses to the 2023 Maturity Survey, BVES has a 2023 maturity level of 0.83 for situational awareness and forecasting. For 2024, BVES projects an increase in maturity to a level of 1.00 For 2025, BVES projects an increase in maturity to a level of 1.33 (Figure 8.3-1).

Figure 8.3-1. Cross-Utility Maturity for Situational Awareness and Forecasting (Minimum Values)



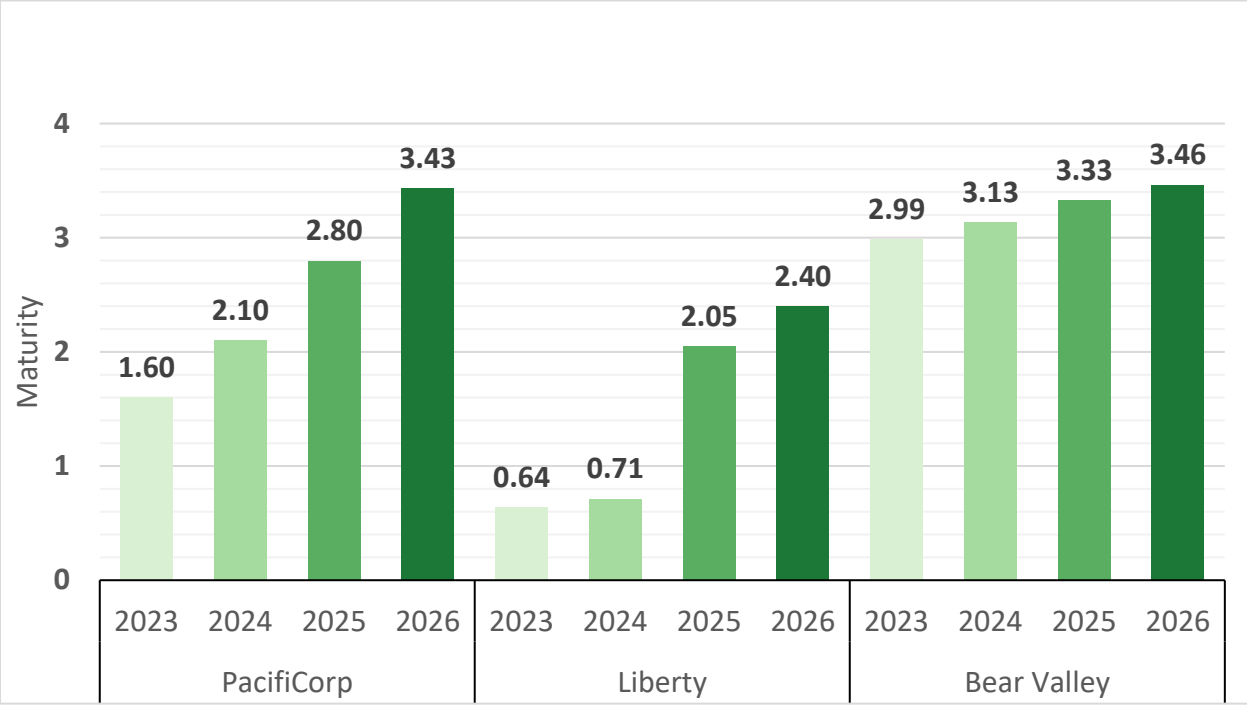
The utility's maturity level for the situational awareness and forecasting category described above is calculated using the minimum value sub-capability of each capability. BVES's performance in situational awareness and forecasting can also be reflected if the capability average is considered. The capability average is determined from the average of all components sub-capabilities and is an additional tool to evaluate the utilities' maturity.[132]

[131] BVES's 2023-2025 WMP, page 230.

[132] For further information on maturity level determinations, see Section 4 of the 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (second revision), published February 21, 2023.

When the category maturity is calculated using the capability average (rather than the minimum), BVES has a maturity level for situational awareness and forecasting of 2.99 for 2023, 3.13 in 2024, and 3.33 in 2025 (Figure 8.3-2).

Figure 8.3-2. Cross-Utility Maturity for Situational Awareness and Forecasting (Average Values)



The rest of this section reports on maturity levels considering the average values.

BVES's current maturity level in this category is higher than its peers, with Liberty and PacifiCorp reporting at levels 0.64 and 1.60, respectively. See Figure 8.3-2.

Based on its responses to the 2023 Maturity Survey, BVES reported its highest levels of projected maturity in the following capabilities for 2023 and 2024:

- Data collection for near-real-time conditions[133]

Based on its responses to the 2023 Maturity Survey, BVES reported its lowest levels of projected maturity in the following capabilities for 2023 and 2024:

[133] BVES's responses to questions on the 2023 Maturity Survey under Category B "Situational Awareness and Forecasting," Capability 10 "Data collection for near-real-time conditions."

- Centralized monitoring of real-time conditions[134]

8.3.3 BVES's WMP Strengths

BVES projects improvement in situational awareness and forecasting over the WMP cycle in the following area: grid monitoring.

BVES aims to complete the installation of fault indicators throughout its service territory by the end of 2023.[135] BVES expects this will allow it to shorten the time it takes for fault detection and location identification, and the time required for response and restoration of service to its customers.

BVES is completing its pilot program for its online diagnostics using continuous monitoring sensors.[136] BVES expects that this technology will improve its ability to identify and locate irregularities caused by degradation of equipment and potential hardware failures, as well as improving its ability to identify objects such as vegetation contacting the lines.

BVES plans to develop and implement a fire potential index (FPI), a rating that assesses the severity of wildfires in a specific area, through a third-party vendor by the end of 2023. BVES expects to use the FPI to calculate its PSPS risk in a quantitative manner.[137]

8.3.3.1 2022 Areas for Continued Improvement

Energy Safety evaluated the progress BVES made toward addressing areas for continued improvement identified in Energy Safety's 2022 WMP Decision. See Appendix B for the status of each 2022 area for continued improvement.

8.3.4 Areas for Continued Improvement

BVES must continue to improve in the following areas.

Weather Station Maintenance and Calibration

BVES has a network of over 20 weather stations[138] that collects weather data across its service territory. BVES reports that its weather stations are currently on an as-needed maintenance schedule based on the manufacturer's recommendations.[139] These weather stations play an

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[134] BVES's responses to questions on the 2023 Maturity Survey under Category B "Situational Awareness and Forecasting," Capability 12 "Centralized monitoring of real-time conditions."

[135] BVES's 2023-2025 WMP Table 7-3, page 101.

[136] BVES's 2023-2025 WMP Table 7-3, page 101.

[137] BVES's 2023-2025 WMP, page 63.

[138] BVES's 2023-2025 WMP, page 234.

[139] BVES's 2023-2025 WMP Table 8-25, page 233.

important role in increasing situational awareness while serving as a fundamental component for BVES's fire consequence modeling, PSPS decision-making, and potentially BVES's future development and implementation of its FPI. BVES must demonstrate that its weather stations will undergo regular maintenance and keep comprehensive documentation of the maintenance activities.

Fire Potential Index

BVES intends to develop and implement a new FPI by the end of 2023.[140] The FPI plays a critical role in assessing and managing wildfire risks within its territory. However, BVES lacks any specific details concerning the development, validation, and implementation of its future FPI. In its 2025 Update, BVES must provide additional information about this FPI initiative.

Energy Safety sets forth specific areas for improvement and associated required progress in Section 11.

8.4 Emergency Preparedness

In response to Section 8.4 of the Technical Guidelines, BVES provided information on its emergency preparedness, including its wildfire and PSPS emergency preparedness plan; collaboration and coordinating with public safety partners; public notification and communications strategy; preparedness and planning for service restoration; customer support in wildfire and PSPS emergencies; and learning after wildfire and PSPS events as applicable.[141]

Below is Energy Safety's evaluation regarding BVES's objectives and targets, maturity levels, and strengths in these areas.

8.4.1 Objectives and Targets

As part of its Base WMP, BVES provided 3-year and 10-year objectives for its emergency preparedness programs.[142]

BVES also defined quantitative targets for initiative activities for its emergency preparedness programs. BVES's Base WMP includes end-of-year targets for 2023, 2024, and 2025. Selected targets are included in Table 8.4-1 to demonstrate the utility's projected progress.

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[140] BVES's 2023-2025 WMP, page 251.

[141] Technical Guidelines, Section 8.4, "Emergency Preparedness," pages 135-179 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[142] BVES's 2023-2025 WMP, Tables 8-33 and 8-34, pages 256-257.

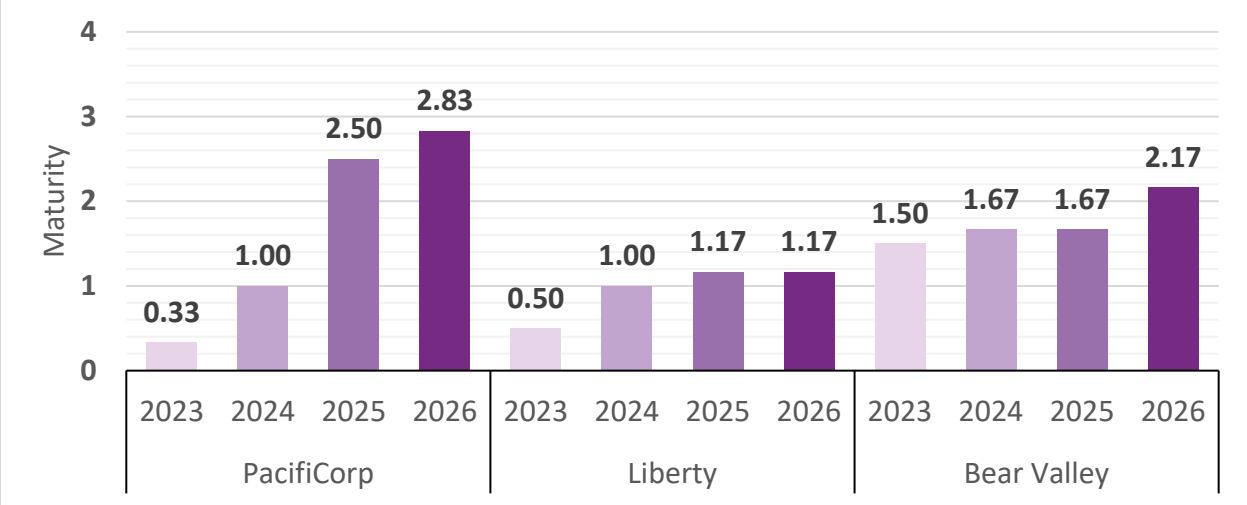
Table 8.4-1. BVES Emergency Preparedness – Selected Targets[143]

Initiative Activity	Target Unit	2023 Target	2024 Target	2025 Target
Emergency Preparedness plan	Review using the FEMA Six Step Process	April	April	April
Preparedness and planning for service restoration	Emergency Plan Review and Evaluation	Update (June)	Update (June)	Update (June)
Customer support in wildfire and PSPS emergencies	PSPS Program Review and Evaluation	Annual Revision (January)	Annual Revision (April)	Annual Revision (April)

8.4.2 Maturity Survey Results

According to its responses to the 2023 Maturity Survey, BVES has a 2023 maturity level of 1.50 for emergency preparedness. For 2024, BVES projects to slightly increase in maturity to a level of 1.67. For 2025, BVES projects the same in maturity to a level of 1.67 (Figure 8.4-1).

Figure 8.4-1. Cross-Utility Maturity for Emergency Preparedness (Minimum Values)



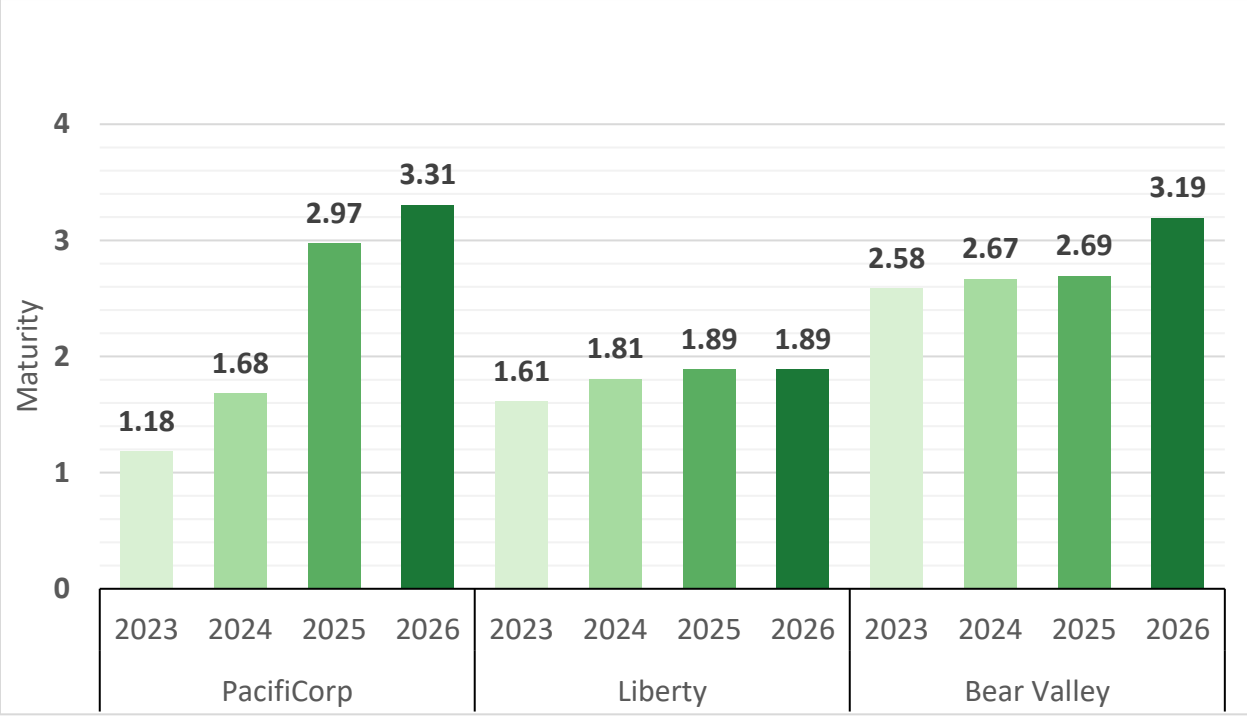
The utility's maturity level for the emergency preparedness category described above is calculated using the minimum value sub-capability of each capability. BVES's performance in this category can also be reflected if the capability average is considered. The capability

[143] Data Request OEIS-P-WMP_2023-BVES-003 (Question 2) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=54303&shareable=true, accessed August 24, 2023).

average is determined from the average of all component sub-capabilities and is an additional tool to evaluate the utilities' maturity.[144]

When the category maturity is calculated using the capability average (rather than the minimum), BVES has a maturity level for emergency preparedness of 2.58 for 2023, 2.67 in 2024, and 2.69 in 2025 (Figure 8.4-2).

Figure 8.4-2. Cross-Utility Maturity for Emergency Preparedness (Average Values)



The rest of this section reports on maturity levels considering the minimum values.

BVES's maturity level in this category is limited by its response to the following questions:

- BVES states that in 2023 it consulted and coordinated with only 50 percent of its safety partners for WMP review and communication strategies. Though this places BVES ahead of its peers, it is still a limiting factor for BVES's maturity. BVES expects to have higher levels of consultation with its public safety partners in the future, which slightly improved its projected maturity for 2024 and 2025.
- BVES, like its peers, reported annual maintenance, testing, and inspection of the physical systems that provide detection, alarm, notification, central monitoring, and

[144] For further information on maturity level determinations, see Section 4 of the 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (second revision), published February 21, 2023.

transmission of "approved" reporting information. Conducting these actions more frequently would raise BVES's emergency preparedness maturity.[145]

BVES's current maturity level in this category is higher than its peers, with PacifiCorp and Liberty reporting at levels 0.33 and 0.50, respectively. See Figure 8.4-1.

Based on its responses to the 2023 Maturity Survey, BVES reported its highest levels of projected maturity in the following capabilities for 2023 and 2024:

- Wildfire and PSPS emergency and disaster preparedness plan[146]

Based on its responses to the 2023 Maturity Survey, BVES reported its lowest levels of projected maturity in the following capabilities for 2023 and 2024:[147]

- Preparedness and planning for service restoration[148]
- Learning after wildfires and PSPS incidents[149]

8.4.3 BVES's WMP Strengths

BVES projects improvement in emergency preparedness over the WMP cycle in the following areas: overview of wildfire and PSPS emergency preparedness; and its schedule for updating and revising its emergency preparedness plan.

BVES continues to apply its Emergency and Disaster Recovery Plan (EDRP) and integrates it into its Base WMP. The EDRP requires BVES to use a Standardized Emergency Management System (SEMS) structure which includes a utility compatible Incident Command Structure (ICS) framework designed to manage emergency incidents and events. Adherence to ICS and SEMS facilitates emergency management communication during outages including PSPS wildfire and extreme weather events.[150]

In 2023, BVES began using the FEMA National Planning System Six Step process to annually update the EDRP. This provides a standardized process that is used by emergency preparedness organizations nationwide.[151]

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[145] BVES's 2023 Maturity Survey, response to 6.3.5.Q 1.

[146] BVES's 2023 Maturity Survey, response to Capability 27.

[147] At the time of the Maturity Survey, BVES had yet to experience a PSPS event. It is unlikely for BVES to meet PSPS thresholds thus this will likely remain an area of lower maturity.

[148] BVES's 2023 Maturity Survey, response to Capability 30.

[149] BVES's 2023 Maturity Survey, response to Capability 32.

[150] BVES's 2023-2025 WMP, pages 262-263.

[151] BVES's 2023-2025 WMP, pages 254-255.

8.4.3.1 2022 Areas for Continued Improvement

There were no areas for continued improvement for BVES in its emergency preparedness resulting from Energy Safety's evaluation of BVES's 2022 WMP Update.

8.4.4 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for BVES under the emergency preparedness section of its Base WMP.

8.5 Community Outreach and Engagement

In response to Section 8.5 of the Technical Guidelines, BVES provided information on its community outreach and engagement, including its public outreach and educational awareness for wildfires, PSPS, outages, and vegetation management; public engagement in the WMP decision-making process; engagement with AFN populations, local governments, and tribal communities; collaboration on local wildfire mitigation and planning; and best practice planning as applicable.[152]

Below is Energy Safety's evaluation regarding BVES's objectives and targets, maturity levels, and strengths in these areas. In addition, Energy Safety has identified areas where BVES must improve, described at the end of this section.

8.5.1 Objectives and Targets

As part of its Base WMP, BVES provided 3-year and 10-year objectives for its community outreach and engagement programs.[153]

BVES also defined quantitative targets for initiative activities for its community outreach and engagement programs. BVES's Base WMP includes end-of-year targets for 2023, 2024, and 2025. A selected target is included in Table 8.5-1.

Table 8.5-1. BVES Community Outreach and Engagement – Selected Target[154]

Initiative Activity	Target Unit	2023 Target	2024 Target	2025 Target
Best practice sharing with other utilities	Work groups/conferences	-	15	15

[152] Technical Guidelines, Section 8.5, "Community Outreach and Engagement," pages 179-194 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

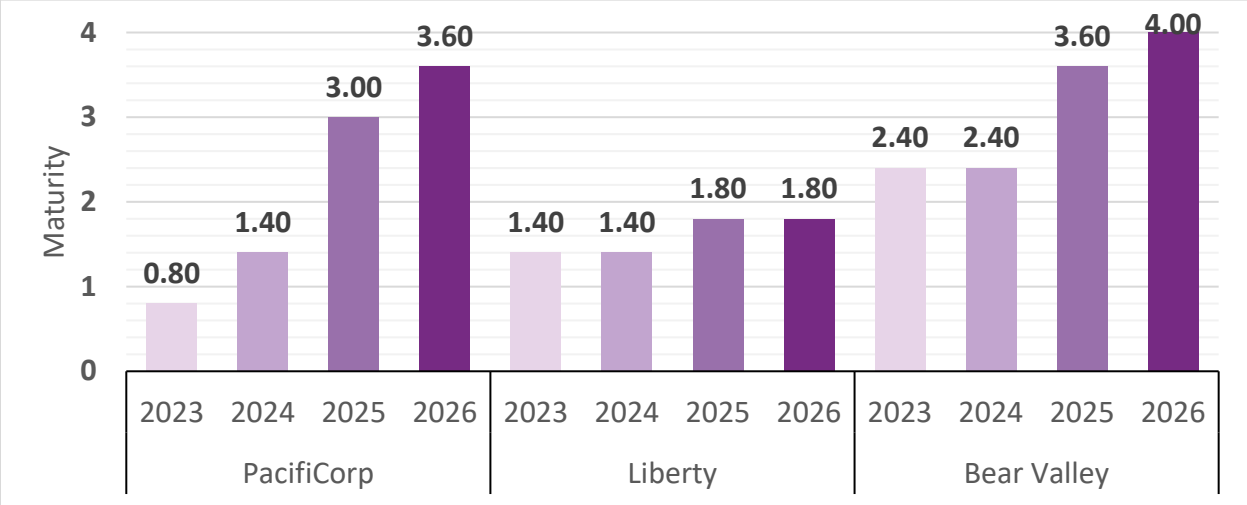
[153] BVES's 2023-2025 WMP, pages 343-346.

[154] BVES's 2023-2025 WMP, pages 347-348.

8.5.2 Maturity Survey Results

According to its responses to the 2023 Maturity Survey, BVES has a 2023 maturity level of 2.4 for community outreach and engagement. BVES projects no maturity level change for 2024, remaining at 2.4. For 2025, BVES projects that it will increase significantly in maturity to a level of 3.6 (Figure 8.5-1).

Figure 8.5-1. Cross-Utility Maturity for Community Outreach and Engagement (Minimum Values)

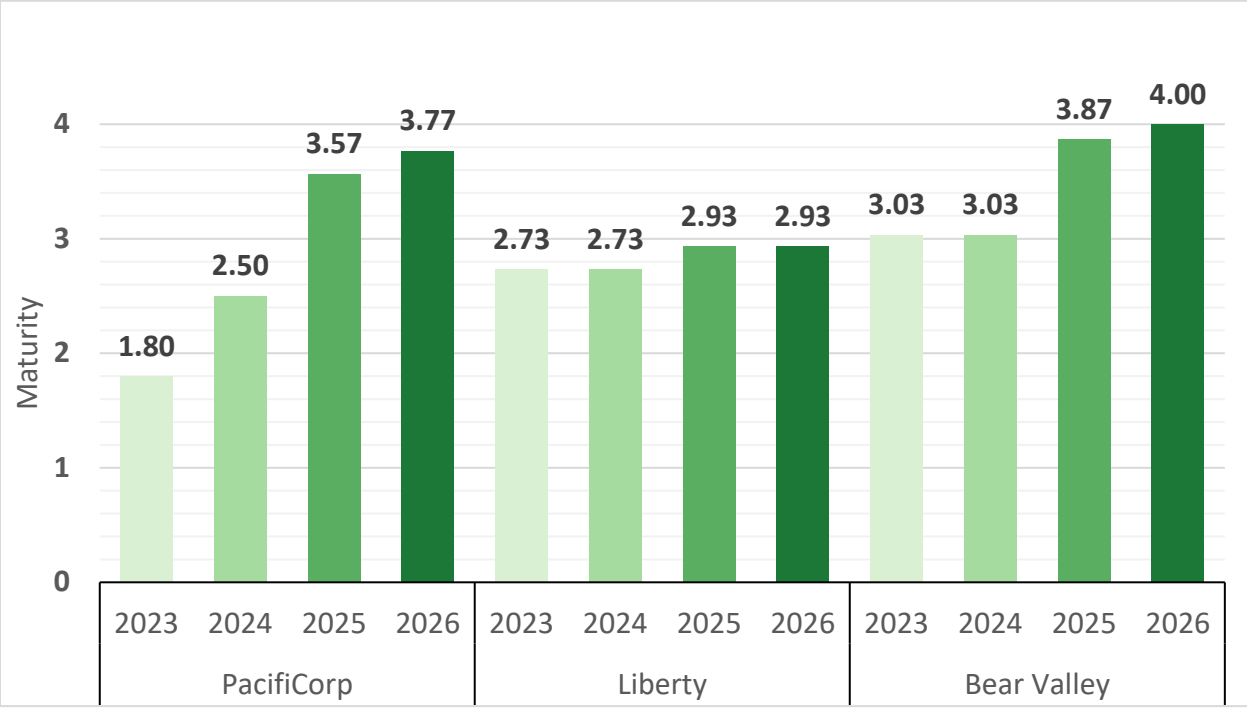


The utility's maturity level for the community outreach and engagement category described above is calculated using the minimum value sub-capability of each capability. Using the capability average is another way to look at BVES's performance in community outreach and engagement. The capability average is determined from the average of all component sub-capabilities and is an additional tool to evaluate the utilities' maturity.[155]

When the category maturity is calculated using the capability average (rather than the minimum), BVES has a maturity level for community outreach and engagement of 3.03 for 2023, 3.03 in 2024, and 3.87 in 2025 (Figure 8.5-2).

[155] For further information on maturity level determinations, see Section 4 of the 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (second revision), published February 21, 2023.

Figure 8.5-2. Cross-Utility Maturity for Community Outreach and Engagement (Average Values)



The rest of this section reports on maturity levels considering the minimum values.

BVES's current maturity level in this category, 2.4, is higher than its peers, with Liberty and PacifiCorp reporting at levels 1.4 and 0.8, respectively. See Figure 8.5-1.

Based on its responses to the 2023 Maturity Survey, BVES reported its highest levels of projected maturity in the following capability for 2023 and 2024:

- Public engagement in electrical corporation wildfire mitigation planning [156]

Based on its responses to the 2023 Maturity Survey, BVES reported its lowest levels of projected maturity in the following capability for 2023 and 2024:

- Cooperation and best practice sharing with other electrical corporations [157]

[156] BVES's responses to questions on the 2023 Maturity Survey under Category G "Community Outreach and Engagement," Capability 34 "Public engagement in electrical corporation wildfire mitigation planning."

[157] BVES's responses to questions on the 2023 Maturity Survey under Category G "Community Outreach and Engagement," Capability 37 "Cooperation and best practice sharing with other electrical corporations."

8.5.3 BVES's WMP Strengths

BVES projects improvement in community outreach and engagement over the WMP cycle in the following area: engagement with access and functional needs customers.

In 2022, BVES began exploring options to identify and track access and functional needs (AFN) customers beyond Medical Baseline (MBL) in its Customer Information System. Some of the additional AFN categories include customers with a chronic condition or injury, customers enrolled in low-income programs, and customers identifying with limited English proficiency (LEP).[158] BVES anticipates integrating the capability to map AFN customers beyond MBL within its Outage Management System in 2023 to gain more information about the AFN customers within its service territory. BVES also states that in 2022 it added a self-identification tool for AFN customers in both Spanish and English on its website.[159]

8.5.3.1 2022 Areas for Continued Improvement

Energy Safety evaluated the progress BVES made toward addressing areas for continued improvement identified in Energy Safety's 2022 WMP Decision. See Appendix B for the status of each 2022 area for continued improvement. Notable progress was made in the following selected areas:

To address BVES-22-21, Improving Stakeholder and Community Engagement, BVES provided information on its efforts to strengthen partnerships with organizations representing Native American, LEP, MBL, and AFN customers. BVES also provided information on its efforts to improve community awareness of its wildfire mitigation and PSPS strategies, including the results of its most recent community awareness survey.

8.5.4 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for BVES under the community outreach and engagement section of its Base WMP.

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[158] BVES's 2023-2025 WMP, page 353.

[159] BVES's 2023-2025 WMP, page 354.

9. Public Safety Power Shutoffs

In response to Section 9 of the Technical Guidelines,[160] BVES provided its key statistics regarding PSPS; circuits that have been frequently de-energized and measures for how to reduce PSPS implementation on those circuits; how its PSPS program will evolve over the next three and ten years; lessons learned for past PSPS events; and its protocols for PSPS implementation.

Below is Energy Safety's evaluation regarding BVES's objectives and targets, maturity levels, and strengths in these areas.

9.1 Objectives and Targets

As part of its Base WMP, BVES provided 3-year and 10-year objectives for its PSPS programs.[161]

BVES also defined quantitative targets for initiative activities for its PSPS programs. BVES's Base WMP includes end-of-year targets for 2023, 2024, and 2025. A selected target is included in Table 9.1-1 to demonstrate the utility's projected progress.

Table 9.1-1. BVES Public Safety Power Shutoffs – Selected Targets[162]

Initiative Activity	Target Unit	2023 Target	2024 Target	2025 Target
Number of PSPS events	Number of events	0.04	0.04	0.03
Number of customers impacted by PSPS	Number of customers	160	160	133
Number of circuits de-energized	Number of circuits	0.08	0.08	0.07

9.2 Maturity Survey Results

The Maturity Survey does not measure the maturity of a utility's PSPS operations separately from other mitigation efforts. While it does measure the maturity of PSPS likelihood, exposure potential, and vulnerability, these risk component maturity levels are primarily evaluated in Section 6, Risk Methodology and Assessment, and Section 7, Wildfire Mitigation

[160] Technical Guidelines, Section 9, pages 195-206 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[161] BVES's 2023-2025 WMP, pages 365-369.

[162] BVES's 2023-2025 WMP, pages 370-371.

Strategy Development. Individual maturity capabilities or survey questions related to PSPS are evaluated in the relevant subsection of Section 6.

9.3 BVES's WMP Strengths

BVES projects improvement in PSPS-related initiatives and activities over the WMP cycle in the following area: communication strategy for PSPS.

BVES states that the location with the greatest probability for a PSPS event is the SCE interconnection.[163] Though the line is de-energized on the BVES side from April to October of each year, the risk is not fully eliminated. BVES closely monitors and communicates with SCE to timely notify customers during a planned, or unplanned, de-energization by SCE.

9.3.1 2022 Areas for Continued Improvement

Energy Safety evaluated the progress BVES made toward addressing areas for continued improvement identified in Energy Safety's 2022 WMP Decision. See Appendix B for the status of each 2022 area for continued improvement. Notable progress was made in the following selected areas:

BVES notes improvement in the area referenced in BVES-22-22 for PSPS planning evolution. BVES initiated the use of third-party vendor software to advance its modeling capabilities.[164] These advancements allow near-real time analysis for determining the best courses of action. Currently, BVES must draw on best practices from other utilities across the state for both wildfire and PSPS events; as at the time of the WMP, BVES had not directly experienced either. Adopting the new technology builds BVES's territory specific data and enhancing in-house capabilities to plan future mitigation effort.

9.4 Revision Notice Critical Issues

As described in Section 3.4, Energy Safety issued BVES a Revision Notice in response to its WMP submitted on August 8, 2023. BVES submitted its Revision Notice Response on August 23, 2023. This section evaluates that response as it relates to PSPS.[165]

[163] BVES's 2023-2025 WMP, page 375.

[164] BVES's 2023-2025 WMP, Appendix D, pages 68-69.

[165] BVES's 2023-2025 WMP, Table 9-5 "PSPS Targets," pages 370-371.

9.4.1 RN-BVES-23-01: BVES is missing the completion date for the final objective in Section 9.1.3 Table 9-3

Energy Safety required BVES to provide a completion date for its "continue to conduct comprehensive outreach to identify households with AFN persons" 3-year objective in Table 9-3.

9.4.1.1 RN-BVES-23-01: BVES Response Summary

In BVES's response to the Revision Notice, it provided a completion date of "ongoing" for the "continue to conduct comprehensive outreach to identify households with AFN persons" objective.[166]

9.4.1.2 RN-BVES-23-01: Energy Safety Evaluation

BVES's intention to continually conduct outreach to identify households with AFN persons is reasonable. Though BVES is engaging with AFN persons. BVES must continue to monitor its PSPS outreach efforts to ensure that it is effective.

BVES has resolved the critical issue described in RN-BVES-23-01.

9.4.2 RN-BVES-23-02: PSPS targets are unsupported by its WMP narrative, PSPS projections, and past PSPS usage

Energy Safety required BVES to update Section 9, "Public Safety Power Shutoffs," of its WMP to bring targets into alignment with its narrative projecting few to no PSPS events.

9.4.2.1 RN-BVES-23-02: BVES Response Summary

In BVES's response to the Revision Notice, it revised its PSPS targets to those shown in Table 9.1-1 above. The PSPS targets are based on BVES's estimates of the PSPS risk (e.g., 1 in 30 year event affecting 2 circuits and 4,000 customers).[167]

9.4.2.2 RN-BVES-23-02: Energy Safety Evaluation

BVES's revised targets align with its WMP narrative. Given BVES's history of no PSPS events and its continued efforts to harden its system, BVES's revised targets are reasonable.

BVES must continue to refine its methodology for calculating PSPS risk. As BVES's risk methodology improves, Energy Safety expects BVES to better show how it calculates PSPS risk and associated targets and projections. BVES's area for continued improvement "Cross-Utility Collaboration on Best Practices for Inclusion of Climate Change Forecasts in

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[166] BVES's 2023-2025 WMP, page 368.

[167] BVES's 2023-2025 WMP, pages 370-371.

Consequence Modeling, Inclusion of Community Vulnerability in Consequence Modeling, and Utility Vegetation Management for Wildfire Safety" in this decision section 11, describes the requirements for improvements to BVES's risk methodology.

BVES has resolved the critical issue described in RN-BVES-23-02.

9.5 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for BVES under the PSPS section of its Base WMP.

10. BVES's Process for Continuous Improvement

In response to Sections 10, 11, and 12 of the Technical Guidelines,[168] BVES provided information on its lessons learned, a description of its corrective action program, and information on any Notices of Violation or Notices of Defects it has received.

Below is Energy Safety's evaluation regarding these steps to drive continuous improvement.

10.1 Lessons Learned

Section 10 of the Technical Guidelines requires a utility to use lessons learned to drive continuous improvement in its WMP. Lessons learned can be divided into the three main categories: (1) internal monitoring and evaluation, (2) external collaboration with other electrical corporations, and (3) feedback from Energy Safety or other authoritative bodies. This section includes an assessment of BVES's implementation of lessons learned.

BVES provides 16 WMP improvements based on lessons learned from 2020-2022. It completed half of those by 2022.[169]

Through external collaboration with California's IOUs, BVES reports applying lessons learned in procurement and integrating RSE estimates into its decision making. For example, within grid hardening efforts based on replicating other IOU initiatives, BVES states in 2021 it better aligned accounting methodology allowing for year-ahead purchasing thus reducing impacts of supply chain delays and rising costs of covered conductor materials.[170] This decision allows BVES to maintain stock on hand and schedule hardening efforts more efficiently. Additionally, BVES's participation in the joint IOU covered conductor working group and Energy Safety-led risk modeling working group provide it with significant detailed information that is shared among the utilities, especially the large ones.

BVES reports working group participation led to internal monitoring and evaluation of lessons learned. The risk modeling collaboration has impacted six lessons learned on risk assessment and mapping. For example, BVES states it benefits from quantitively driven metrics and RSE values to adequately measure the effectiveness of numerous initiatives.

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[168] Technical Guidelines, Section 10, pages 207-209; Section 11, pages 210-211; Section 12, pages 212-213 (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53286&shareable=true, accessed May 5, 2023).

[169] BVES's 2023-2025 WMP, Table 10-1 "Lessons Learned," pages 388-396.

[170] BVES's 2023-2025 WMP, Table 10-1 "Lessons Learned," pages 388-389.

BVES replaced all conventional fuses in 2021 because it was able to prioritize efforts based on the new data and analysis.

Further, based on feedback from Energy Safety, BVES updated its spatial data to include more information for grid hardening, vegetation management, asset inspections and vegetation inspections.

10.2 Corrective Action Program

Section 11 of the Technical Guidelines requires a utility to describe its corrective action program and a summary of the relevant portions of its existing procedures. This section includes an assessment of BVES's implementation of its Corrective Action Program (CAP) relative to wildfire safety, including how it prevents recurrence of risk events; addresses findings from wildfire investigations; addresses findings from Energy Safety Compliance Assurance Division; and addresses areas for continued improvement identified by Energy Safety as applicable.

BVES describes its CAP, including how its CAP is maintained and the process by which each improvement area is reviewed. Table 11-1 lists seven items where BVES provided updates on issues from Energy Safety's feedback concerning its 2022 WMP. For example, BVES was lacking an asset inspection quality assurance and quality control program. BVES states it is working to improve the maturity of its asset inspection quality assurance and quality control program by 2023. BVES plans to focus on inspections which will be based on modeling and risk assessments. In addition, BVES will include performance history and past operating conditions when accounting for maintenance and repair procedures. BVES also provides plans to include more items responsible for ignitions and near misses and include predictive modeling for its inspection procedures and checklists. BVES states its asset inspection quality assurance and quality control program is no longer operating as an interim program.

10.3 Areas for Continued Improvement

Energy Safety has no areas for continued improvement for BVES in these areas of its Base WMP.

11. Required Areas for Continued Improvement

Energy Safety's evaluation of the 2023-2025 WMPs focused on each utility's strategies for reducing the risk of utility-related ignitions. The evaluation included assessing the utility's progress implementing wildfire mitigation initiatives, evaluating the feasibility of its strategies, and measuring year-to-year trends. As a result of this evaluation, Energy Safety identified areas where the utility should continue to improve its wildfire mitigation capabilities in future plans. The complete list of all BVES's areas for continued improvement follows below.

11.1 Cross-Category

- **BVES-23-01. Target Verification Methods**
  - Description: BVES lists "quantitative" for its targets' verification method. It is not clear from this word how BVES will provide to verify progress toward and achievement of the target.
  - Required Progress: In its 2026-2028 Base WMP, BVES must include all methods used to verify progress of year-to-year targets within the table. BVES must clearly articulate its verification methods that are effective for supporting progress on and achievement of each target.
  - Discussed in Section 8.1, "Grid Design, Operations, and Maintenance"; Section 8.2, "Vegetation Management and Inspections"; Section 8.3, "Situational Awareness and Forecasting"; Section 8.5, "Community Outreach and Engagement."

- **BVES-23-02. PSPS and Wildfire Risk Trade-Off Transparency**
  - Description: BVES does not provide adequate transparency regarding PSPS and wildfire risk trade-offs, or how it uses risk ranking and risk buy-down to determine risk mitigation selection.
  - Required Progress: In its 2025 Update, BVES must describe:
    - How it prioritizes PSPS risk in its risk-based decisions, including trade-offs between wildfire risk and PSPS risk.
    - How the rank order of its planned mitigation initiatives compares to the rank order of mitigation initiatives ranked by risk buy-down estimate, along with an explanation for any instances where the order differs.

- Discussed in Section 6, "Risk Methodology and Assessment"; Section 7, "Wildfire Mitigation Strategy Development."

- **BVES-23-03. Cross-Utility Collaboration on Best Practices for Inclusion of Climate Change Forecasts in Consequence Modeling, Inclusion of Community Vulnerability in Consequence Modeling, and Utility Vegetation Management for Wildfire Safety**
  - Description: BVES and the other IOUs have participated in past Energy Safety-sponsored scoping meetings on these topics but have not reported other collaboration efforts.
  - Required Progress: BVES and the other IOUs must participate in all Energy Safety-organized activities related to best practices for:
    - Inclusion of climate change forecasts in consequence modeling.
    - Inclusion of community vulnerability in consequence modeling.
    - Utility vegetation management for wildfire safety.

    BVES must collaborate with the other IOUs on developing the above-mentioned best practices. In their 2025 Updates, the IOUs (not including independent transmission operators) must provide a status update on any collaboration with each other that has taken place, including a list of any resulting changes made to their WMPs since the 2023-2025 WMP submission.
  - Discussed in Section 7, "Wildfire Mitigation Strategy Development"; 8.2, "Vegetation Management and Inspections."

11.2 Risk Methodology and Assessment

- **BVES-23-04. Cross-Utility Collaboration on Risk Model Development**
  - Description: BVES and the other IOUs have participated in past Energy Safety-led risk modeling working group meetings. The risk modeling working group meetings facilitate collaboration among the IOUs on complex technical issues related to risk modeling. The risk modeling working group meetings are ongoing.
  - Required Progress: BVES and the other IOUs must continue to participate in all Energy Safety-led risk modeling working group meetings.
  - Discussed in Section 6, "Risk Methodology and Assessment."

- **BVES-23-05. Collaboration Between Vendor and Utility Risk Teams**
  - Description: BVES has not shown how its internal team and risk model vendor will share risk modeling duties.
  - Required Progress: In its 2025 WMP update, BVES must:
    - Demonstrate how BVES differentiates between activities completed by the internal staff and vendor staff throughout risk modeling narratives. This includes processes, procedures, methodologies, flow charts, schematics, and any explanations that describe collaboration with a risk modeling vendor.
    - Demonstrate how BVES identifies activities that require vendor discretion and state whether final approval from the BVES risk team is required. This includes any decisions that need to be made, such as mitigation selection.
    - Indicate the source of the data where a description of data is required, specifically indicating whether the data are internally generated or vendor generated. If BVES cannot indicate the source of the data, it must explain why.
  - Discussed in Section 6, "Risk Methodology and Assessment"

11.3 Wildfire Mitigation Strategy Development

- **BVES-23-06. Vendor Fire Risk Model Implementation Milestones and Dates**
  - Description: BVES's operational and planning models may experience many changes once the vendor model implementation is complete. Energy Safety needs more information regarding improvements BVES expects in its operational and planning models along with expected milestones and dates to ensure BVES is being transparent about the state of its model maturity.
  - Required Progress: In its 2025 Update, BVES must describe how it will use the new vendor risk modeling software to improve operational and/or planning risk analysis and provide a plan with milestones and dates for achieving those improvements.
  - Discussed in Section 7, "Wildfire Mitigation Strategy Development."

11.4 Grid Design, Operations, and Maintenance

- **BVES-23-07. Risk Informed Prioritization of Grid Hardening Installation**
  - Description: BVES's current covered conductor scope does not demonstrate proper decision-making considerations regarding project prioritization.
  - Required Progress: In its 2026-2028 Base WMP, BVES must:

        - Explain how it is focusing its covered conductor and other grid hardening projects in the areas of highest risk based on the most recent and available WRRM output.
        - Adjust its targets as needed based on its analysis.
    - Discussed in Section 8.1, "Grid Design, Operations, and Maintenance" (8.1.2 "Grid Design and System Hardening").

- **BVES-23-08. Covered Conductor Mitigation Selection**
    - Description: BVES's current covered conductor scope does not demonstrate proper decision-making considerations regarding mitigation selection.
    - Required Progress: In its 2026-2028 Base WMP, BVES must:
        - Demonstrate how it compares alternative initiatives, mitigations, and combinations of mitigations to covered conductor, and provide the analyses used for such comparisons.
        - Adjust its targets as needed based on its analysis.
    - Discussed in Section 8.1, "Grid Design, Operations, and Maintenance" (8.1.2 "Grid Design and System Hardening").

- **BVES-23-09. Radford Line Project**
    - Description: BVES's covered conductor replacement for the Radford Line has been delayed continuously since 2019.
    - Required Progress: In its 2025 Update, BVES must provide a status update on the completion of the Radford line project, including how it plans to expedite construction after receiving a permit from the USFS and provide a threshold date by which time the lack of a permit would delay completion of the project past 2023. If the permit from USFS continues to delay the project, BVES must provide an update on how it has been working with the USFS to expedite completion of the permit, including a description of all interactions BVES has had with USFS regarding permit issuance. Additionally, BVES must provide plans on how it will reduce impacts and delays for any similar hardening projects moving forward.
    - Discussed in Section 8.1, "Grid Design, Operations, and Maintenance" (8.1.2 "Grid Design and System Hardening").

- **BVES-23-10. Grid Hardening Pilots**
  - Description: BVES's 2023-2025 WMP lacks discussion of exploration, piloting, and monitoring of new technologies, such as DFA, EFD, and REFCL.
  - Required Progress: In its 2025 Update, BVES must:
    - Explain BVES's specific process for monitoring pilot programs being performed by IOUs, including BVES's plan and criteria on how and when to decide which technologies to select. This should include dates of meetings held in which BVES conferred with IOUs on piloted technologies, including specifics on which technologies were discussed.
    - Provide an update on BVES's assessments of technologies being explored by IOUs, including specifics on DFA, EFD, and REFCL. This should detail why and how BVES is moving forward with any such technologies. Details should include analysis of feasibility and barriers for implementation, and risk mitigation benefits.
  - Discussed in Section 8.1, "Grid Design, Operations, and Maintenance" (8.1.2 "Grid Design and System Hardening").

- **BVES-23-11. Covered Conductor Inspections and Maintenance**
  - Description: BVES does not incorporate checks in its inspection programs that address failures specific to covered conductor. BVES must tailor its inspection practices to address failure modes specifically related to covered conductor.
  - Required Progress: In its 2025 Update, BVES must discuss how failure modes unique to covered conductor will be accounted for in its inspections, including water intrusion, splice covers, and surface damage. If BVES determines any or all the above changes are unnecessary, then it must discuss how its current inspection and maintenance processes address covered conductor failure modes.
  - Discussed in Section 8.1, "Grid Design, Operations, and Maintenance" (8.1.3 "Asset Inspections").

- **BVES-23-12. Distribution Detailed Inspection Frequency**
  - Description: BVES performs the minimum frequency of detailed inspections required by GO 95 and 165.
  - Required Progress: BVES must strive to adopt a risk-based approach by increasing the frequency of detailed inspections on assets that have the highest risk according to its risk model. In its 2025 Update, BVES must either:

- Outline a plan to update its detailed inspections in higher risk areas, including:
  - An analysis for determining the updated frequency for performing detailed inspections.
  - A description of how it prioritized higher risk areas based on risk analysis and risk model output, including HFTD Tier 3 lands.
  - Updates to inspection checklists to account for equipment or configurations that may pose greater wildfire risk.
  - A plan to obtain any needed workforce for performing more frequent inspections.

  OR

  - Provide information demonstrating that its existing inspection program adequately addresses risk, including an analysis of the number of Level 1 or critical issues found during detailed inspections.

- Discussed in Section 8.1, "Grid Design, Operations, and Maintenance" (8.1.3 "Asset Inspections").

- **BVES-23-13. Asset Inspection QA/QC Program**
  - Description: BVES has not implemented a QA/QC process for its asset inspections.
  - Required Progress: In its 2025 Update, BVES must demonstrate progress toward implementing a comprehensive QA/QC process for each of its asset inspections (detailed, patrol, UAV thermography, UAV photography/video, LiDAR, intrusive pole, and substation inspections), including plans and timelines for the following:
    - Written procedures for performing each type of inspection.
    - Standardized inspection forms to be used and completed during each inspection.
    - A system for timestamping and filing photographs taken during inspections.
    - Written procedures for performing QA/QC on each type of inspection.

    In its 2025 Update, BVES must also include the following information regarding its asset inspection QA/QC activities:
    - Inspection sample size.
    - Verification methods.
    - Pass rate targets.

        - Actual pass rates.
    - Discussed in Section 8.1, "Grid Design, Operations, and Maintenance" (8.1.3 "Asset Inspections").

- **BVES-23-14. Non-Exempt Surge Arrester Replacement**
    - Description: BVES states that it is replacing lightning/surge arresters that are not exempted by CAL FIRE with CAL FIRE-exempt arresters171 but BVES does not provide targets or procedural updates in its 2023-2025 WMP.
    - Required Progress: In its 2025 Update, BVES must provide its plan to identify and replace currently installed non-exempt lightning arresters with exempt lightning arresters. The plan should include:
        - The progress made identifying currently installed non-exempt arresters.
        - The number of non-exempt arresters replaced in 2023.
        - A set target for number of arresters to replace in 2024 and 2025.
        - The estimated completion date of the project.
        - Adding associated numeric targets as necessary.
    - Discussed in Section 8.1, "Grid Design, Operations, and Maintenance" (8.1.4 "Equipment Maintenance and Repair").

- **BVES-23-15. Reliability Impacts of Fast Trip Settings**
    - Description: BVES has not demonstrated an understanding of the reliability impacts of using fast trip settings.
    - Required Progress: In its 2025 Update, BVES must provide the following information for 2023 outages that occurred while fast curve settings were enabled in a spreadsheet format:
        - Circuit impacted by outage.
        - Circuit segment impacted by outage.
        - Cause of outage (in line with QDR Table 6 drivers).
        - Number of customers impacted.

[171] Data Request OEIS-P-WMP_2023-BVES-004 (Question1), (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=54419&shareable=true, accessed September 20, 2023).

        - Number of customers impacted belonging to vulnerable populations (such as customers with access and functional needs and Medical Baseline customers).
        - Duration of outage.
        - Response time to outage.
        - Customer minutes of interruption.
    - Discussed in Section 8.1, "Grid Design, Operations, and Maintenance" (8.1.5 "Grid Operations and Procedures").

11.5 Vegetation Management and Inspections

- **BVES-23-16. Vegetation Management Quality Control Personnel Qualifications.**
    - Description: In its response to BVES-22-16, Vegetation Management Quality Control Personnel Qualifications, BVES has not demonstrated that it has considered alternative staffing for its vegetation management quality control checks. BVES has not shown that it has properly identified trained and qualified personnel for its vegetation quality control checks.
    - Required Progress: In its 2026-2028 Base WMP, BVES must:
        - Present a plan to improve the utility vegetation management-related qualifications of its QC check personnel.
        - Explain and provide the decision-making process on its consideration of alternative staffing for its vegetation management QC checks, including consideration of employing or contracting with certified arborists or registered professional foresters to perform these checks.
    - Discussed in Section 8.2, "Vegetation Management and Inspections."

11.6 Situational Awareness and Forecasting

- **BVES-23-17. Weather Station Maintenance and Calibration**
    - Description: BVES reports having over 20 weather stations in its network that collect weather data.[172] Frequent calibration and maintenance of weather stations is critical for ensuring accurate, reliable, and high-quality data. As BVES performs its annual weather station maintenance and calibration, Energy Safety will need BVES to report on the following to verify the integrity of the data collected from its weather station network.
    - Required Progress: BVES must:

[172] BVES's 2023-2025 WMP, page 234.

        - Continue to maintain and keep a log of all the annual maintenance calibration for each weather station, including the station name, location, and conducted maintenance. The log must include the length of time from initiation of a repair ticket to completion and the corrective maintenance performed to bring the station back into functioning condition.
        - In its 2025 Update, provide documentation indicating the number of weather stations that received their annual calibration and the number of stations that were unable to undergo annual maintenance and/or calibration due to factors such as remote location, weather conditions, customer refusals, environmental concerns, and safety issues. This documentation must include:
            - The station name and location.
            - The reason for the inability to conduct maintenance and/or calibration.
            - The length of time since the last maintenance and calibration.
            - The number of attempted but incomplete maintenance or calibration events for these stations in each calendar year.
    - Discussed in Section 8.3, "Situational Awareness and Forecasting."

- **BVES-23-18. Fire Potential Index**
    - Description: BVES reports that it is developing and implementing a FPI through a third-party vendor by the end of 2023.[173] However, BVES's 2023-2025 WMP lacks any specific details concerning the development, validation, or implementation of its future FPI.
    - Required Progress: In its 2025 Update, BVES must:
        - Specify the inputs and the data sources used to calculate its FPI.
        - Describe the methodology and threshold values for varying fire potential levels.
        - Describe how the FPI will be used in its daily operations and how it plans to validate the predictions measuring against actual wildfire events.
        - Discuss any planned improvements or future updates on its FPI.
    - Discussed in Section 8.3, "Situational Awareness and Forecasting."

[173] BVES's 2023-2025 WMP, page 251

12. Conclusion

BVES's 2023-2025 Wildfire Mitigation Plan is approved.

Catastrophic wildfires remain a serious threat to the health and safety of Californians. Electrical corporations, including BVES, must continue to make progress toward reducing utility-related ignition risk. Energy Safety expects BVES to effectively implement its wildfire mitigation activities to reduce the risk of utility-related ignitions and the potential catastrophic consequences if an ignition occurs, as well as to reduce the scale, scope, and frequency of PSPS events. BVES must meet the commitments in its WMP and fully address areas for continued improvement identified within this Decision to ensure it meaningfully reduces utility-related ignition and PSPS risk within its service territory over the plan cycle.

Shannon O'Rourke
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Office of Energy Infrastructure Safety

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APPENDICES

APPENDICES

Appendix A. Glossary of Terms

Term	Definition
AFN	Access and functional needs
BVES	Bear Valley Electric Service
CAISO	California Independent System Operator
Cal Advocates	The Public Advocates Office at the California Public Utilities Commission
CAL FIRE	California Department of Forestry and Fire Protection
Cal OES	California Office of Emergency Services
CAP	Corrective Action Program
CBO	Community-based organization
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEJA	California Environmental Justice Alliance
CNRA	California Natural Resources Agency
CPUC	California Public Utilities Commission
D.	CPUC decision
DR	Data request
DWR	Department of Water Resources
EBMUD	East Bay Municipal Utility District
EFD	Early fault detection

Term	Definition
EPUC	Energy Producers and Users Coalition
EVM	Enhanced vegetation management
FERC	Federal Energy Regulatory Commission
FPI	Fire potential index
FWI	Fire weather index
GFN	Ground-fault neutralizers
GIS	Geographic information systems
GO	General order
GPI	The Green Power Institute
GRC	General rate case
HD	High definition
HFRA	High Fire Risk Area
HFTD	High fire threat district
HWT or Horizon West	Horizon West Transmission
I.	CPUC Investigation
ICS	Incident command system or structure
IOU	Investor-owned utility
IR	Infrared
ISA	International Society of Arboriculture
ITO	Independent transmission operator
kV	Kilovolt
Liberty	Liberty Utilities

Term	Definition
LiDAR	Light detection and ranging
Maturity Model	Electrical Corporation Wildfire Mitigation Maturity Model
Maturity Survey	Electrical Corporation Wildfire Mitigation Maturity Survey
MAVF	Multi-attribute value function
MBL	Medical Baseline
MGRA	Mussey Grade Road Alliance
ML	Machine learning
NDVI	Normalized difference vegetation index
NERC	North American Electric Reliability Corporation
NFDRS	National Fire Danger Rating System
NOD	Notice of defect
NOV	Notice of violation
OCM	Overhead circuit miles
OEIS or Energy Safety	Office of Energy Infrastructure Safety
PG&E	Pacific Gas and Electric Company
PoF	Probability of failure
PoI	Probability of ignition
PRC	Public Resources Code
PSPS	Public Safety Power Shutoff
Pub. Util. Code or PU Code	Public Utilities Code

Term	Definition
QA	Quality assurance
QC	Quality control
QDR	Quarterly Data Report
R.	CPUC rulemaking
RAMP	Risk Assessment and Management Phase
RCRC	Rural County Representatives of California
REFCL	Rapid earth fault current limiter
RFW	Red Flag Warning
RSE	Risk-spend efficiency
SAWTI	Santa Ana Wildfire Threat Index
SCADA	Supervisory control and data acquisition
SCE	Southern California Edison Company
SDG&E	San Diego Gas & Electric Company
S-MAP	Safety Model Assessment Proceeding, now the Risk-Based Decision-Making Framework Proceeding
SMJU	Small and multijurisdictional utility
TAT	Tree Assessment Tool
TBC	Trans Bay Cable
TURN	The Utility Reform Network
USFS	United States Forest Service
VM	Vegetation management
VRI	Vegetation risk index
WMP	Wildfire Mitigation Plan

Term	Definition
WRRM	Wildfire Risk Reduction Model
WSAB	Wildfire Safety Advisory Board
WSD	Wildfire Safety Division
WUI	Wildland-urban interface

Appendix B. Status of 2022 Areas for Continued Improvement

Energy Safety's 2022 Decision[174] for each utility identified areas for continued improvement and associated required progress. Areas for continued improvement are where the utility must continue to improve its wildfire mitigation capabilities. As part of the 2023 WMP evaluation process, Energy Safety has reviewed the progress reported by BVES and is satisfied that BVES has made sufficient progress in all the identified areas for continued improvement.

Areas for continued improvement identified in 2022 either have been addressed or any outstanding matters are incorporated in the 2023 areas for continued improvement. BVES's 2022 areas for continued improvement are listed in Table A-1. The status column indicates whether each has been fully addressed. If not, the column notes where to find more information in this Decision.

[174] Final Decision on BVES's 2022 WMP Update (December 2022), (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53284&shareable=true, accessed August 9, 2023).

Table A-1. BVES 2022 Areas for Continued Improvement

ID	Title	Status
BVES-22-01	Collaboration and Research in Best Practices in Relation to Climate Change Impacts and Wildfire Risk and Consequence Modeling	BVES has sufficiently addressed the required progress thus far; Energy Safety will continue to monitor progress.
BVES-22-02	Inclusion of Community Vulnerability in Consequence Modeling	BVES has sufficiently addressed the required progress thus far; Energy Safety will continue to monitor progress.
BVES-22-03	Wildfire Consequence Modeling Improvements	BVES has sufficiently addressed the required progress.
BVES-22-04	Integration of Consequence into Risk Assessment	BVES has sufficiently addressed the required progress.
BVES-22-05	Prioritization Based on Risk Analysis	BVES has sufficiently addressed the required progress.
BVES-22-06	Fire Potential Index	BVES has sufficiently addressed the required progress.
BVES-22-07	Integration of SCADA with Weather Station Network	BVES has sufficiently addressed the required progress.
BVES-22-08	Apply Joint Lessons Learned Concerning Covered Conductor	BVES has sufficiently addressed the required progress thus far; Energy Safety will continue to monitor progress.
BVES-22-09	Determine Best Practices for Covered Conductor Inspection and Maintenance	BVES has not sufficiently addressed the required progress. For related areas for continued improvement, see Sections 8.1.3 and 11 of this Decision.
BVES-22-10	Failure to Demonstrate Installation of Covered Conductor in Highest-Risk Areas	BVES has sufficiently addressed the required progress thus far; Energy Safety will continue to monitor progress.
BVES-22-11	Pole Replacements Aggregated with Covered Conductor	BVES has sufficiently addressed the required progress.

ID	Title	Status
BVES-22-12	Exploration of New Technologies	BVES has not sufficiently addressed the required progress. For related areas for continued improvement, see sections 8.1.2.4 and 11 of this Decision.
BVES-22-13	Demonstration of QA/QC Progress for Asset Inspections	BVES has not sufficiently addressed the required progress. For related areas for continued improvement, see sections 8.1.3 and 11 of this Decision.
BVES-22-14	Decline in Pole Loading Assessments (Ethan)	BVES has sufficiently addressed the required progress.
BVES-22-15	Effectiveness of Various Asset Inspection Initiatives	BVES has sufficiently addressed the required progress.
BVES-22-16	Vegetation Management Quality Control Personnel Qualifications	BVES has not sufficiently addressed the required progress. For related areas for continued improvement, see Sections 8.2.5 and 11 of this Decision.
BVES-22-17	Participate in Vegetation Management Best Management Practices Scoping Meeting	BVES has sufficiently addressed the required progress.
BVES-22-18	Updates on Protective Device Settings	BVES has sufficiently addressed the required progress.
BVES-22-19	Reporting of Data Management Systems	BVES has sufficiently addressed the required progress.
BVES-22-20	Updating Decision-Making Process	BVES has sufficiently addressed the required progress.
BVES-22-21	Improving Stakeholder and Community Engagement	BVES has sufficiently addressed the required progress.
BVES-22-22	Describe How PSPS Planning Is Evolving	BVES has sufficiently addressed the required progress.
BVES-22-23	Commit to Short-Term PSPS Reduction Targets	BVES has sufficiently addressed the required progress.

Appendix C.
BVES 2023 Revision Notice Critical Issues

As discussed in Section 3.4 of this Decision, Energy Safety issued BVES a Revision Notice on August 8, 2023. The Revision Notice required BVES to remedy two critical issues identified by Energy Safety during evaluation of BVES's 2023-2025 Wildfire Mitigation Plan. Each critical issue is discussed in detail under the respective Decision section; Table A-2 below lists both critical issues and provides a status of each issue.

Table A-2. BVES 2022 Areas for Continued Improvement

Critical Issue ID & Title	Critical Issue Description	Required Remedy	Critical Issue Status
RN-BVES-23-01	BVES is missing the completion date for the final objective in Section 9.1.3 Table 9-3.	BVES must provide a completion date for the "continue to conduct comprehensive outreach to identify households with AFN persons" objective in its list of three-year PSPS objectives (Table 9-3).	BVES has resolved the critical issue and has satisfied the required remedy for RN-BVES-23-02.
RN-BVES-23-02	PSPS targets are unsupported by BVES's WMP narrative, PSPS projections, and past PSPS usage.	BVES must update its WMP's Section 9, "Public Safety Power Shutoff," to bring its targets into alignment with its narrative (including historical number of PSPS events, number of customers impacted by PSPS events, and number of circuits de-energized in PSPS events).	BVES has resolved the critical issue and has satisfied the required remedy for RN-BVES-23-02.

Appendix D. Stakeholder Data Request Responses Used in WMP Evaluation

Energy Safety appreciates stakeholder involvement in the WMP evaluation process. The following stakeholder data requests and utility responses were reviewed, used, and cited in this Decision.

PUBLIC ADVOCATES OFFICE DATA REQUEST:
CalAdvocates-BVES-2023WMP-06[175]
BVES RESPONSE
Request Date: February 22, 2023
Response Date: April 19, 2023

QUESTION 7
For the Radford Line Covered Conductor Project, please state the month and year that BVES completed or currently plans to complete:
a) Project planning
b) Design and engineering
c) Permitting
d) Construction

RESPONSE 7
a) Completed in September 2019
b) Completed in November 2019
c) Currently plans to complete June of 2023
d) Currently plans to complete October of 2023

CalAdvocates-BVES-2023WMP-07[176]

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[175] Data Request CalAdvocates-BVES-2023WMP-06 (Question 7), (https://www.bvesinc.com/assets/documents/wildfire-mitigation-plan/gpi/caladvocates-bves-2023wmp-06-response-final.pdf, accessed August 28, 2023).

[176] Data Request CalAdvocates-BVES-2023WMP-07 (Question 9), (https://www.bvesinc.com/assets/documents/wildfire-mitigation-plan/calad/4-20-2023/caladvocates-bves-2023wmp-07-final.pdf, accessed October 24, 2023).

BVES RESPONSE
Request Date: May 17, 2023
Response Date: May 22, 2023

QUESTION 9
Attachment 1 of your response to CalAdvocates-BVES-2023WMP-05 states, "BVES cross-checks detailed inspection findings with findings from other inspections (patrol, 3rd party, UAV, LiDAR) to verify quality."
a) What percentage of detailed inspections does BVES cross check with other inspections in this
manner?
b) How many such cross-checks did BVES perform in 2022?
c) Please describe the process for the cross-checks described above.
d) How does BVES record the findings or results of these cross-checks?
e) If a cross-check suggests that the detailed inspection missed or incorrectly classified an issue, how
does BVES resolve this discrepancy?
f) Please provide records of the cross-checks described above that were performed in 2022. If this
would result in more than 25 documents, please provide a sample of 25 records of cross-checks
performed in 2022.

RESPONSE 9
Response for a) through f):
BVES utilizes cross-checks in a couple different ways. Every quarter BVES personnel cross-checks detailed inspections with the many other inspection types that BVES conducts, to help identify trends and possible errors that may have been found during the detailed inspection. Another way BVES utilizes cross-checks is by helping BVES crews to help gather more information about potential findings. Detailed inspections are cross-checked with the high resolution pictures provided by the UAV. The photos are able to provide angles and images not able to be seen by an inspector. When an error is found, the violation is reclassified to the appropriate level. BVES does not formally document cross-checks that are conducted and does not have any records of cross checks.

CalAdvocates-BVES-2023WMP-11[177]
BVES RESPONSE
Request Date: June 2, 2023

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[177] Data Request CalAdvocates-BVES-2023WMP-11 (Question 6), (https://www.bvesinc.com/assets/documents/wildfire-mitigation-plan/calad/caladvocates-bves-2023wmp-11-response.pdf, accessed October 24, 2023).

Response Date: June 7, 2023

QUESTION 6
Please describe the specific actions BVES will take in 2023 to audit the quality and completeness of its asset inspections for each of the following inspection types:
a) Detailed inspection program (initiative GD_25),
b) Patrol inspection program (initiative GD_26),
c) UAV HD photography/videography (GD_28),
d) 3rd party ground patrol (initiative GD_30).

RESPONSE 6
Response a), b), c), & d):
Every quarter BVES personnel cross-checks inspection types that BVES conducts, to help identify trends and possible errors that may have been found. Another way BVES utilizes cross-checks is by helping BVES crews gather more information about potential findings. When an error is found, the violation is reclassified to the appropriate level.

Appendix E. Stakeholder Comments on the 2023-2025 Wildfire Mitigation Plans

Energy Safety invited stakeholders, including members of the public, to provide comments on the utilities' 2023-2025 WMPs. Opening WMP comments were due on June 29, 2023, and reply comments were due on July 10, 2023. The following individuals and organizations submitted comments:

- California Department of Fish and Wildlife (CDFW)
- City of Moorpark
- City of Oakland
- Counties of Marin, Napa, San Luis Obispo, and Sonoma, and the City of Santa Rosa (Joint Local Governments)
- Marin Clean Energy, Sonoma Clean Power Authority, Pioneer Community Energy, and East Bay Community Energy (Joint CCAs)
- Mussey Grade Road Alliance (MGRA)
- Rural County Representatives of California (RCRC)
- The Green Power Institute (GPI)
- The Public Advocates Office at the California Public Utilities Commission (Cal Advocates)
- The Utility Reform Network (TURN)
- Julia and David Allenby
- Cynthia Barbera
- Richard Buckingham
- Beverly Christenson
- Curren Meechem Family
- Maureen Isola
- Janani Ramachandran, Oakland City Council
- Brenda So
- Southard
- George Troy

Comments received on the 2023-2025 WMPs can be viewed in the 2023-2025 Wildfire Mitigation Plan (2023-2025-WMPs) docket log.

Energy Safety evaluated these comments and concurred with and in some instances incorporated stakeholder input on BVES's 2023-2025 WMP.

Energy Safety found the following stakeholder comments to concur with topics already included in Energy Safety's findings:

- Cal Advocates
    - QA/QC process and documentation
    - Risk informed system hardening
- GPI
    - Asset inspection QA/QC
    - Planning and Operational Models
    - Risk Modeling Software Use Cases

The following stakeholder comments introduced new information that influenced Energy Safety's findings:

- Cal Advocates
    - Bear valley is not performing standard QA/QC on its asset inspections. It is performing undocumented "cross-checks" in place of QA/QC.
    - Helped inform decision on ACI for covered conductor as it relates to risk analysis and comparison to other mitigations

In addition to the above, Energy Safety's evaluation of the utilities' 2023-2025 WMPs benefited from the discovery materials generated by data requests submitted to BVES by the some of the stakeholders named above, in particular Cal Advocates; see Appendix D for associated stakeholder data requests.

Appendix F. Stakeholder Comments on the Revision Notice Response

Energy Safety invited stakeholders, including members of the public, to provide comments on BVES Revision Notice Response. Opening comments on BVES's Revision Notice Response were due on September 7, 2023, and reply comments were due on September 18, 2023. There were no comments submitted.

Appendix G. Stakeholder Comments on the Draft Decision

The Green Power Institute (GPI) submitted comments regarding Energy Safety's draft Decision on BVES's 2023-2025 WMP (published for comment September 21, 2023). GPI was the only stakeholder to submit comments during the open comment period. BVES submitted the sole reply comment.

Below is a summary of comments resulting in changes to this Decision and those changes:

1. GPI stated the strength noted in Section 6.4 included conjecture and equivocal language. GPI further suggested not considering BVES's plans as a strength until the plan is operationalized.
    a. Energy Safety modified for clarity Section 6.4.
2. GPI recommended expanding BVES-23-07 beyond covered-conductor to include all system hardening efforts.
    a. Energy Safety modified for clarity BVES-23-07.
3. GPI recommended including more detail and expanding the required progress for Grid Hardening Pilots area of continued improvement (BVES-23-10) to address how BVES will move forward with pilot and implementation.
    a. Energy Safety modified BVES-23-10.

Appendix H. Maturity Survey Results

Energy Safety's 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model[178] (Maturity Model) and 2023 Electrical Corporation Wildfire Mitigation Maturity Survey[179] (Maturity Survey) together provided a quantitative method to assess the maturity of each utility's wildfire risk mitigation program.

The Maturity Model consists of 37 individual capabilities describing the ability of electrical corporations to mitigate wildfire risk within their service territory. The 37 capabilities are aggregated into seven categories. The seven mitigation categories are:

A. Risk Assessment and Mitigation Selection
B. Situational Awareness and Forecasting
C. Grid Design, Inspections, and Maintenance
D. Vegetation Management and Inspections
E. Grid Operations and Protocols
F. Emergency Preparedness
G. Community Outreach and Engagement

Maturity levels range from 0 (below minimum requirements) to 4 (beyond best practice). Electrical corporations' responses to the Maturity Survey, listed by mitigation category, are depicted in the figures and tables below.

Tables A-3 and A-4 compare SMJU maturity levels across mitigation categories. Figure A-1 shows BVES's projected maturity growth throughout the WMP cycle. Figure A-2 provides a one-page look at all electrical corporation's maturity levels for the WMP cycle, including at the capability and sub-capability levels, showing both minimum and average calculations.

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[178] 2023-2025 Electrical Corporation Wildfire Mitigation Maturity Model (Second Revised Final, Feb. 2023) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53394&shareable=true, accessed May 5, 2023).

[179] 2023 Electrical Corporation Wildfire Mitigation Maturity Survey (Revised Final, April 2023) (https://efiling.energysafety.ca.gov/eFiling/Getfile.aspx?fileid=53708&shareable=true, accessed May 5, 2023). This is the version used by Energy Safety when scoring the survey.

Table A-3. Cross-Utility Maturity Level by Category[180] (Minimum Values)

Maturity Category	PacifiCorp		Liberty		Bear Valley	
	2023	2026	2023	2026	2023	2026
A. Risk Assessment and Mitigation Selection	0.00	1.83	0.00	0.00	0.83	1.33
B. Situational Awareness and Forecasting	0.00	2.33	0.00	0.50	0.83	2.00
C. Grid Design, Inspections, and Maintenance	0.40	2.40	0.20	0.60	1.00	2.80
D. Vegetation Management and Inspections	0.00	2.25	0.00	0.00	1.00	2.25
E. Grid Operations and Protocols	0.20	2.40	0.60	1.40	0.80	2.00
F. Emergency Preparedness	0.33	2.83	0.50	1.17	1.50	2.17
G. Community Outreach and Engagement	0.80	3.60	1.40	1.80	2.40	4.00

[180] Table A-3 displays the utilities maturity level at the start of the current WMP cycle (2023) and their level at the end of the cycle (2026).

Table A-4. Cross-Utility Maturity Level by Category[181] (Average Values)

Maturity Category	PacifiCorp		Liberty		Bear Valley	
	2023	2026	2023	2026	2023	2026
A. Risk Assessment and Mitigation Selection	0.86	3.35	0.43	0.51	3.01	3.37
B. Situational Awareness and Forecasting	1.60	3.43	0.64	2.40	2.99	3.46
C. Grid Design, Inspections, and Maintenance	1.23	3.47	1.28	2.27	2.77	3.58
D. Vegetation Management and Inspections	1.06	3.31	2.19	2.19	2.69	3.31
E. Grid Operations and Protocols	1.49	3.42	1.77	2.98	2.48	3.50
F. Emergency Preparedness	1.18	3.31	1.61	1.89	2.58	3.19
G. Community Outreach and Engagement	1.80	3.77	2.73	2.93	3.03	4.00

[181] Table A-4 displays the utilities maturity level at the start of the current WMP cycle (2023) and their level at the end of the cycle (2026).

Figure A-1. BVES Projected Growth in Maturity throughout Current WMP Cycle by Category

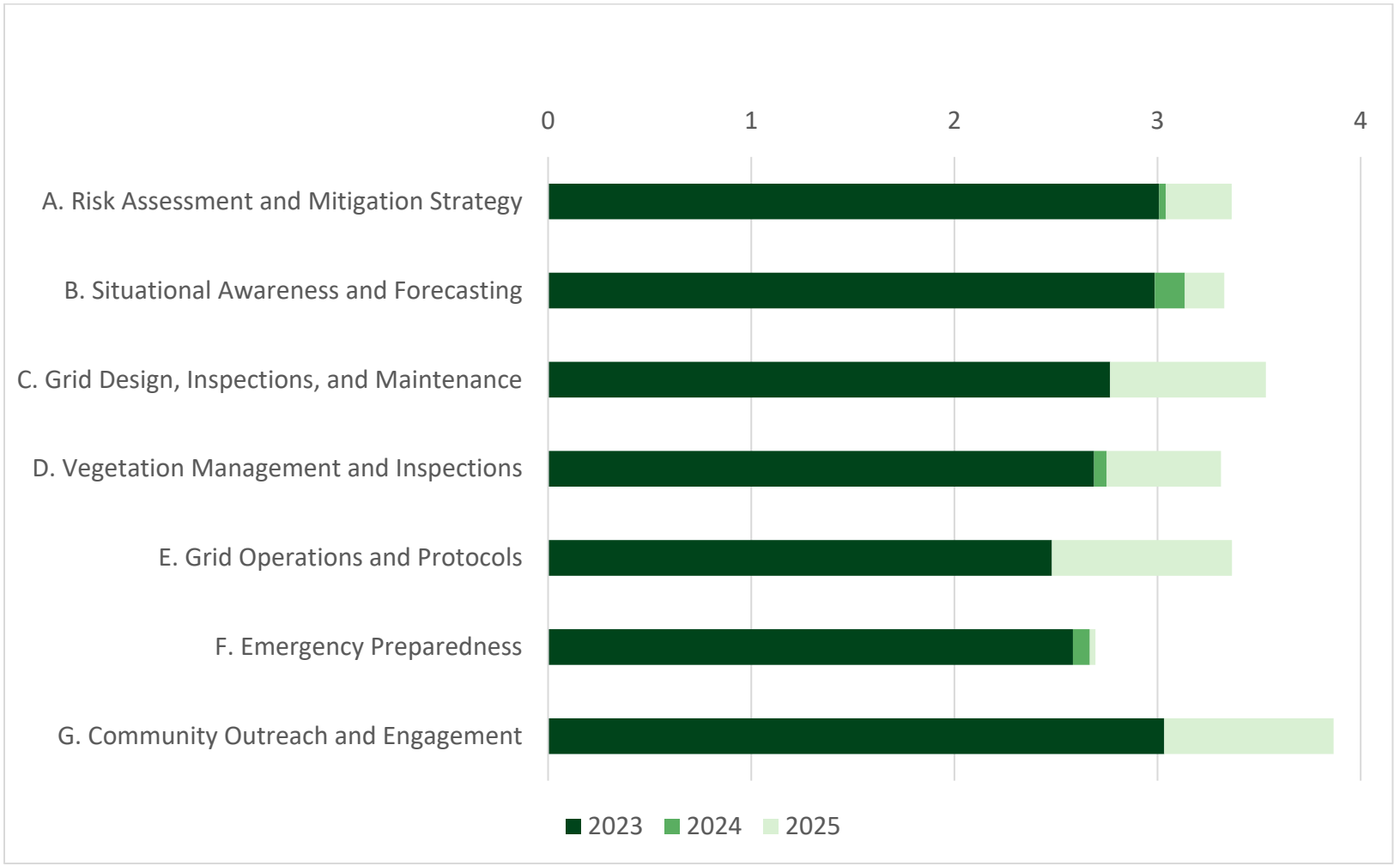

Figure A-2. BVES Comprehensive Maturity Survey Results

		1. Capability				2. Capability				3. Capability				4. Capability				5. Capability				6. Capability			
		2023	2024	2025	2026	2023	2024	2025	2026	2023	2024	2025	2026	2023	2024	2025	2026	2023	2024	2025	2026	2023	2024	2025	2026
A. Risk Assessment and Mitigation Strategy		1. Statistical weather, climate, and wildfire modeling				2. Calculation of wildfire and PSPS risk exposure for societal values				3. Calculation of community vulnerability to wildfire and Public Safety Power Shutoffs (PSPS)				4. Calculation of risk and risk components				5. Risk event tracking and integration of lessons learned				6. Risk-informed wildfire mitigation strategy			
	Minimum of Sub-Cap.	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	1.0	1.0	2.0	2.0	3.0	3.0	1.0	1.0	1.0	1.0
	Average of Sub-Cap.	2.2	2.4	3.0	3.0	3.3	3.3	3.3	3.3	3.5	3.5	3.5	3.5	2.8	2.8	3.3	3.3	3.6	3.6	3.9	3.9	2.8	2.8	3.3	3.3
B. Situational Awareness and Forecasting		7. Ignition likelihood estimation				8. Weather forecasting ability				9. Wildfire spread forecasting				10. Data collection for near-real-time conditions				11. Wildfire detection and alarm systems				12. Centralized monitoring of real-time conditions			
	Minimum of Sub-Cap.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0	2.0	2.0	4.0	4.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	4.0
	Average of Sub-Cap.	3.3	3.3	3.5	3.5	3.2	3.2	3.3	3.3	2.0	2.6	2.7	2.7	3.6	3.6	4.0	4.0	2.7	3.0	3.3	3.3	3.2	3.2	3.2	4.0
C. Grid Design, Inspections, and Maintenance		13. Asset inventory and condition database				14. Asset inspections				15. Asset maintenance and repair				16. Grid design and resiliency				17. Asset and grid personnel training and quality							
	Minimum of Sub-Cap.	1.0	1.0	3.0	3.0	1.0	1.0	3.0	3.0	1.0	1.0	2.0	2.0	1.0	1.0	2.0	2.0	1.0	1.0	4.0	4.0				
	Average of Sub-Cap.	2.5	2.5	3.5	3.8	3.0	3.0	3.7	3.7	2.3	2.3	3.0	3.0	2.8	2.8	3.5	3.5	3.3	3.3	4.0	4.0				
D. Vegetation Management and Inspections		18. Vegetation inventory and condition database				19. Vegetation inspections				20. Vegetation treatment				21. Vegetation personnel training and quality											
	Minimum of Sub-Cap.	1.0	1.0	3.0	3.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	0.0	0.0	3.0	3.0								
	Average of Sub-Cap.	3.0	3.0	3.5	3.5	2.0	2.0	2.5	2.5	3.3	3.5	3.5	3.5	2.5	2.5	3.8	3.8								
E. Grid Operations and Protocols		22. Protective equipment and device settings				23. Incorporation of ignition risk factors in grid control				24. PSPS operating model				25. Protocols for PSPS re-energization				26. Ignition prevention and suppression							
	Minimum of Sub-Cap.	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	3.0	3.0	1.0	1.0	1.0	1.0	1.0	1.0	4.0	4.0				
	Average of Sub-Cap.	2.2	2.2	2.7	3.3	2.4	2.4	3.0	3.0	3.3	3.3	3.8	3.8	2.8	2.8	3.3	3.3	1.7	1.7	4.0	4.0				
F. Emergency Preparedness		27. Wildfire and PSPS emergency and disaster preparedness plan				28. Collaboration and coordination with public safety partners				29. Public emergency communication strategy				30. Preparedness and planning for service restoration				31. Customer support in wildfire and PSPS emergencies				32. Learning after wildfires and PSPS incidents			
	Minimum of Sub-Cap.	4.0	4.0	4.0	4.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	4.0	1.0	1.0	1.0	1.0
	Average of Sub-Cap.	4.0	4.0	4.0	4.0	2.5	3.0	3.0	3.0	3.5	3.5	3.7	3.7	3.0	3.0	3.0	3.0	1.0	1.0	1.0	4.0	1.5	1.5	1.5	1.5
G. Community Outreach and Engagement		33. Public outreach and education awareness				34. Public engagement in electrical corporation wildfire mitigation planning				35. Engagement with AFN and socially vulnerable populations				36. Collaboration on local wildfire mitigation planning				37. Cooperation and best practice sharing with other electrical corporations							
	Minimum of Sub-Cap.	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	1.0	1.0	2.0	4.0	3.0	3.0	4.0	4.0	1.0	1.0	4.0	4.0				
	Average of Sub-Cap.	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	2.3	2.3	3.3	4.0	3.0	3.0	4.0	4.0	2.3	2.3	4.0	4.0				