Bear Valley Electric Service, Inc.
P.O. Box 9028
San Dimas, CA 91773-9028
A Subsidiary of American States Water Company

March 31, 2023

Caroline Thomas Jacobs, Director
Office of Energy Infrastructure Safety
715 P Street, 20th Floor
Sacramento, CA 95814
Caroline.ThomasJacobs@energysafety.ca.gov

RE: *Bear Valley Electric Service, Inc. 2022 Electrical Corporation Annual Report on Compliance Pursuant to Public Utilities Code Section 8386.3(c)(1).*

Dear Director Jacobs,

This report serves as Bear Valley Electric Service, Inc.'s ("BVES's") response to Public Utilities Code ("PUC") §8386.3(c)(1), where an electrical corporation ("EC") must file with the Office of Energy Infrastructure Safety ("Energy Safety")[1] annual reports addressing compliance of approved Wildfire Mitigation Plans ("WMPs") and associated activities during the prior calendar year. BVES submits this annual report addressing its compliance with the WMP during the 2022 calendar year.

If you have any questions or requests for additional information, please contact me at paul.marconi@bvesinc.com.

Sincerely,

/s/ Paul Marconi

Paul Marconi
President, Treasurer and Secretary
Bear Valley Electric Service, Inc.

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[1] Formerly known as the California Public Utilities Commission Wildfire Safety Division, which transitioned to the OEIS under the California Natural Resources Agency on July 1, 2021.

I. Background

The report is developed in accordance with the California Public Utilities Commission ("CPUC") Wildfire Safety Division *Compliance Operational Protocols* issued in November 2020 and modified in February 2021 under Resolution ("R.") WSD-012, which, among other items, directs the development of an Annual Report on Compliance ("ARC"). The *Compliance Operational Protocols* remain in effect under the regulatory authority of Energy Safety.

BVES submitted its 2022 WMP Update on May 6, 2022. In accordance with the July 22, 2022 *Revision Notice to Bear Valley Electric Service, Inc.* BVES submitted revisions to its 2022 WMP on August 29, 2022. After submission of the revised 2022 WMP, the OEIS brought forth several concerns for future remediation while addressing conditions for improvement when reviewing BVES's WMP for approval. BVES has made strides to rectify the issues identified in the *Final Decision on BVES's 2022 Wildfire Mitigation Plan Update*, issued on December 6, 2022. Additional directives are poised to be addressed within the 2023 WMP submission.

This EC ARC report serves to address PUC §8386.3(c)(1) addressing annual compliance for the 2022 calendar year. The italicized language in the sections below signal regulatory prompts for required content for this report.

II. Assessment of Initiative Risk Reduction

1.a) An assessment of whether the EC met the risk reduction intent by implementing all of their approved WMP initiatives, i.e., the degree to which initiative activities have reduced ignition probabilities;

1.a.i) If the EC fails to achieve the intended risk reduction, EC shall provide a detailed explanation of why and a reference to where associated corrective actions are incorporated into their most recently submitted WMP.

BVES focuses on implementing approved WMP initiatives that collectively reduce the probability of utility-caused ignitions, reduce the potential impact of wildfires on the BVES

system, and mitigate the need to activate Public Safety Power Shutoff ("PSPS") events in the future. In 2022, BVES did not experience and record any wildfire ignitions or PSPS events.

Risk reduction is measured through a variety of means including successful mitigation implementation, risk event tracking, and the modelling results of BVES's risk registry tools. While BVES is not required by the CPUC to develop either a Multi-Attribute Variable Function or Multi-Attribute Risk Score framework for Risk Assessment Mitigation Phase filings, BVES maintains a risk assessment toolkit to identify risk drivers and potential consequences of wildfire threat while gauging the success of mitigation initiatives.

BVES seeks to reduce risk on all circuits identified as "high risk" to reduce the prioritized circuit risk threshold. The intent is to further reduce the secondary risk category, "medium risk" circuits to bring all circuits into the low-risk range. The progress in this effort is demonstrated in Tables 1, 2, and 3 below.

Table 1: Risk Reduction Year over Year

Date	Risk Score (Per Fire Safety Matrix)
12/31/2019	115,969
12/31/2020	110,745
12/31/2021	90,386
12/31/2022	81,829

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Table 2: 2023 Estimated Reduction in Wildfire Risk by Circuit

Circuit	Substation	2019 Wildfire Risk Group[1]	2020 Wildfire Risk Group[1]	2021 Wildfire Risk Group[1]	2022 Wildfire Risk Group[1]
Radford	SCE Feed	30521	30621	31215	31215
Shay	SCE Feed	14230	13367	7103	3524
Baldwin	SCE Feed	7185	7763	7606	6891
Boulder	Village	3351	2951	1230	882
North Shore (Fawnskin	Fawnskin	7518	7538	6721	6717
Erwin Lake	Maltby	7401	3416	2006	0
Pioneer (Palomino)	Palomino	5706	5206	2426	2730
Clubview	Moonridge	3460	4060	3331	3225
Goldmine	Moonridge	5559	6659	4491	4539
Paradise	Maltby	3493	3493	2894	1810
Sunset	Maple	3583	3883	2533	2374
Sunrise (Maple)	Maple	2650	2650	2217	1857
Holcomb (Bear City)	Bear City	5916	4516	4205	4746
Georgia	Pineknot	1919	2019	1280	1384
Eagle	Pineknot	2072	2072	1813	1813
Harnish (Village)	Village	385	585	793	786
Garstin	Meadow	2440	1750	1392	1366
Lagonita	Village	2023	2323	1576	1533
Interlaken	Meadow	3275	2475	1652	1485
Castle Glen (Division)	Division	1982	2238	2365	1483
Country Club	Division	984	845	709	640
Fox Farm	Meadow	0	0	0	0
Pump House (Lake)	Lake	287	287	202	202
Lift (Summit TOU)	Summit	28	28	627	627
Skyline (Summit Res)	Summit	0	0	0	0
Geronimo (Bear Mtn.)	Bear Mtn.	0	0	0	0
		115969	**110745**	**90386**	**81829**

Table 3: Fire Safety Circuit Matrix Key

Wildfire Risk Groups	
High	≥3,000
Moderate	1201 to 2999
Low	≤1200

Tables 2 and 3, above, provide an estimation of the degree to which 2022 mitigation initiatives reduced wildfire risk at the circuit level. BVES has met its intent to reduce both the number of high-risk circuits and overall wildfire ignition risk.

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A. Risk Assessment and Mapping

In order to implement a method to assess risk at the circuit level and prioritize initiatives on the BVES sub-transmission and distribution system, BVES implemented the Fire Safety Circuit Matrix. This rudimentary model determines circuit-level risk under current and planned mitigation activities intended to reduce ignition potential. The purpose of the Fire Safety Circuit Matrix model is to assist as a planning tool in determining a circuit-level risk that accounts for the current and planned mitigation activities that intend to reduce ignition potential. The Fire Safety Circuit Matrix is utilized to inform the planning period of the WMP considering changes to the risk profile as mitigations are executed over time. Outputs (mitigations and controls) from the risk-based decision-making approach are integrated in the Fire Safety Circuit Matrix to establish where and in what sequence the mitigations or controls should be applied to the sub-transmission and distribution systems. BVES updates this model on a semi-annual basis as initiative targets are reviewed and revisited for the following year. The model uses historical weather data and vegetation density (based on LiDAR surveys) in order to determine the risk of wildfire and reduce reliance on SME evaluation.

In 2021, the utility contracted expert services to enhance current risk maps and expand its capability to model and better predict fire conditions and behaviours. The model aimed to address four separate subtasks of the Risk Mapping Program: (1) ignition probability mapping showing the probability of ignition along overhead electric lines and equipment; (2) match drop simulations showing the potential wildfire consequence of ignitions that occur along electric lines and equipment under current (2021) conditions; (3) match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment under future (2050) conditions; and (4) summarized risk maps showing overall ignition probability and estimated wildfire risk under current and future conditions. BVES's modelling package accounts for ignition risk probability and wildfire consequence (both area burned and structures impacted) through climate-driven factors. The visuals present a guide, which influences future planning targeting areas of greatest risk.

In June of 2022, BVES contracted with Technosylva, an expert wildfire risk modelling consultant firm, to further advance the Risk Mapping Program and enhance situational awareness. Better understanding of the risk environment will improve BVES's resource allocation. This effort leveraged Technosylva's Wildfire Analyst Enterprise (WFA-E)

software capabilities and solutions implemented across California for other electric utility companies. Engaging with Technosylva provided BVES software applications and analysis to generate the following:

- Through use of WFA-E FireSim, provision of on-demand, real time wildfire behaviour modelling, predictive spread conditions, and derivation of potential impacts analysis

- Ability to conduct simulations on-demand, to reflect changing conditions or local data observations, including proactive "what if" scenarios

- Weather and wildfire risk forecasting for customer assets and the service territory using daily weather prediction integration to support PSPS activation calls and response operations

- Asset risk analysis using historical weather climatology to support WMP development and mitigation planning

In 2023, the asset risk analysis will utilize Technosylva's Wildfire Risk Reduction Model (WRRM) which uses historical climatology (weather & fuel moisture data) as key input weather scenarios (~ 30 year and 2 km hourly re-analysis data). The model produces risk metrics by running fire spread simulations for each weather scenario territory wide. The outputs can be aggregated based on percentile and assigned to assets. The model uses historical or predicted fuels data (2030 etc.) and utilizes hundreds of millions of fire spread simulations across customer service territory. The outputs are to be used to support mitigation planning in addition to setting context for daily FireCast asset risk forecasts.

It is BVES's intent to transition from using the Fire Matrix to use the WRRM to prioritize its WMP initiatives. The first runs of the WRRM were not completed in time to inform the 2023 WMP grid hardening work plan, since much of the planning had to occur in the summer of 2022 so that design specifications could be identified sufficiently in advance due to the long procurement supply chain process that all utilities are currently experiencing. Initial WRRM results became available to BVES in late February 2023. Therefore, the WRRM will be used in the 2024 and 2025 WMP Updates. BVES believes that replacing the Fire Safety Circuit Matrix with the WRRM will provide a probabilistic model and the level of granularity will eventually shift from the circuit level to the segment or span level. The model will provide calculated probability, consequence, and risk.

B. Situational Awareness and Forecasting

Since 2019, BVES installed 20 weather stations, which it continuously monitors. The weather stations record weather data in a historian and the outputs are utilized by BVES's weather consultant, Technosylva's models, and are available to open-source forecasting (NOAA). Additionally, BVES worked with stakeholders to ensure the HD ALERTWildfire Network had sufficient cameras (15 total in 7 locations) to provide full visibility across the Big Bear Valley. As discussed above, during this period, BVES implemented Technosylva's Wildfire Analyst Enterprise (WFA-E) software capabilities and solutions to provide real time fire threat forecasts along BVES's circuits. This capability has enhanced BVES's ability to evaluate the potential for invoking Public Safety Power Shutoffs (PSPS).

BVES also began installing additional fault indicators (FIs) in its system. FIs are installed at specific distances along a circuit and at major branch lines so that when a fault occurs, the fault zone (where the fault occurred) is minimized, thereby reducing time to locate and identify the fault and, therefore, restore service to affected customers. Prior to 2022, BVES already had 110 FIs in its system. In 2022, BVES installed an additional 99 FIs under this initiative and will install an additional 30 FIs in 2023 to complete the project.

Mid-2022, BVES initiated a pilot program to install an Online Diagnostic System, which uses continuous monitor sensors to provide usable grid insight information that is measured, reported, and documented, on one of its circuits. The system is designed to pinpoint irregularities, which may be due to degrading/imminent hardware failures, as well as identify objects such as vegetation contacting the lines. This will assist BVES in rapidly inspecting potential problems before they develop into an ignition source. Bear Valley anticipates completing this pilot project in 2023.

C. Grid Design and System Hardening

Bear Valley achieved a significant amount of system hardening to mitigate ignitions, reduce consequence of wildfires, and minimize PSPS event impacts during the 2020-2022 WMP period. By the end of 2022, BVES achievements included the following:

- Completed a covered conductor pilot program (finished in 2020), which evaluated various covered conductor products.

- Replaced 30.2 bare wire circuit miles with covered conductors.

- Replaced all expulsion fuses (a total of 3,114) with 2,578 current limiting fuses and 536 electronic fuses.

- Completed technical and safety updates to the Pineknot Substation.

- Completed technical and safety updates to the Palomino Substation.

- Completed its evacuation route hardening pilot program, which validated the installation and efficacy of wire mesh wrap, fire resistant composite pole, and lightweight steel poles.

- Hardened all three primary evacuation routes to the Big Bear Lake and Big Bear City areas by installing a wire mesh wrap on 997 wood poles.

- Assessed a total of 3,641 poles. Replaced or remediated a total of 1,340 poles.

- Removed 644 tree attachments (563 remain to be removed).

- Installed a fiber optic network in its service area that will serve as the backbone for significant grid automation and situational awareness projects to enhance protective systems for safety and provide grid resiliency.

- Installed Fault Localization Isolation and Service Restoration (FLISR) system on its sub-transmission system.

- Replaced its three primary sub-transmission system auto-reclosures with Pulse Condition IntelliRupters.

- Connected into SCADA via the fiber network and automated three substations.

Bear Valley's plan to replace the Radford Line, a bare wire sub-transmission line that operates at 34.5 kV with a capacity of 8 MW and consists of 95 wood poles, with high-performance covered conductor and fire resistant (ductile iron) poles because it is located in the HFTD 3 (extreme fire risk), was not completed during this WMP cycle due to the US Forest Service (USFS) not yet approving the permit. The project is delayed and BVES is working with the USFS to gain approval of the project and currently projects completing the project in 2023.

These grid hardening efforts have reduced the risk of ignitions, consequences of wildfires, risk of invoking PSPS, impact of potential PSPS events, and built a strong foundation for further grid design and hardening efforts in BVES's next WMP cycle.

The map below depicts grid hardening along major routes, including the evacuation route progress performed through 2022.
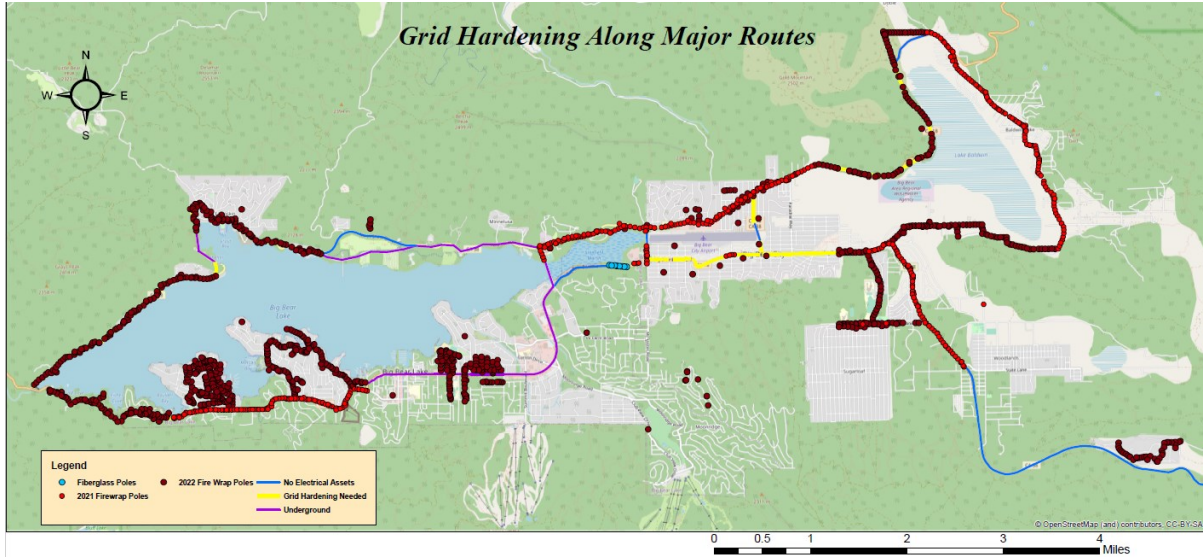
Figure 1 – Evacuation Route Progress

D. Asset Management and Inspections

During this WMP cycle, Bear Valley introduced several advanced technology inspection techniques beyond those required by GO-165 inspection compliance requirements (*i.e.,* Detailed Inspections, Patrol Inspections, and Intrusive Pole Inspections).

BVES established the following highly effective state-of-the-art inspection programs:

- Annual LiDAR surveys of all overhead circuits in its service area.
- Annual UAV HD photography and videography of all overhead circuits in its service area.
- Annual UAV thermography of all overhead circuits in its service area.
- Annual independent third-party patrol inspection of all overhead circuits in its service area.

Bear Valley also initiated a formal asset management quality assurance and quality control program aimed at grid hardening work as well as asset inspections. Additionally, BVES significantly upgraded its asset management enterprise system in terms of capability, geospatial data, and staff training on employing the system to enhance asset management activities.

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E. Vegetation Management and Inspections

During the 2020-2022 WMP cycle, Bear Valley focused on executing its enhanced vegetation management program, removing hazard-threat trees, introducing several advanced technology, state-of-the-art inspection techniques beyond those required by GO-165 inspection compliance requirements (Detailed Inspections and Patrol Inspections). The following are some highlights of vegetation management achievements:

- Annual LiDAR surveys of all overhead circuits in its service area.
- Annual UAV HD photography and videography of all overhead circuits in its service area.
- Annual independent third-party patrol inspection of all overhead circuits in its service area.
- Established having a fulltime contracted forester on staff.
- Removed 432 hazard-threat trees.
- Trimmed 18,417 trees to enhanced vegetation management specifications.
- Performed 270 vegetation management quality checks.
- Performed 10 vegetation management audits.

In 2020, vegetation density within a 24-foot corridor along all overhead ("OH") lines was 25.44 percent as measured by LiDAR surveys. In 2022, the vegetation density was 20.17 percent, indicating that the overall density of vegetation along BVES's lines have been reduced by 20.7 percent.

Bear Valley also improved its formal quality assurance and quality control program aimed at vegetation management work as well as vegetation management inspections. Additionally, BVES significantly upgraded its vegetation management enterprise system in both terms of capability, geospatial data, and staff training on employing the system to enhance asset management activities.

F. Grid Operations and Operating Protocols

BVES developed and implemented operational changes to be implemented during periods of high fire threat weather conditions to reduce the risk of ignitions. The operational changes are escalatory, with the invoking of a PSPS as the action of last resort. BVES determined

that during high fire threat weather, it is prudent and efficient for BVES to suspend work, by BVES staff or its contractors that might produce sparks or create fire hazards. Due to BVES's small size, BVES and its contractors are able to pivot to other low risk work during such conditions. Bear Valley refined its protocols for re-energization following a PSPS event to restore service in a safe and rapid manner. Staff are trained on these protocols which were exercised during functional and table-top exercises for PSPS events. BVES also determined the areas most likely to experience a PSPS event during high threat fire weather conditions. BVES then developed the ability to isolate these areas from its system such that only customers in these high-risk areas would be impacted by a PSPS event.

G. Data Governance

BVES made significant progress in migrating its many databases, which were mostly in spreadsheets, to a centralized geographic data repository. BVES engaged the support of a consultant to identify gaps and make recommendations for methods to address its GIS process and to immediately update the records in the required format. This initiative resulted in developing a common data definition, increase digitization of field work activities, and update system interfaces to automate data flow into GIS for Energy Safety reporting. Using the Energy Safety GIS Data Reporting Requirements and Schema as a guide, initial data governance steps were taken to define the system of record and assessing initial data quality for each of the required feature datasets in the OEIS schema.

Additionally, BVES recognizes the importance of carefully tracking and managing WMP data for all its activities and initiatives performed in accordance with this WMP. BVES records and manages data collected from numerous sources, in varying formats, and in several storage locations in the execution of its wildfire mitigation efforts. Table below highlights the types of data collected and the repository in use by BVES for such data.

Table 4 – Detailed Data Information

Data Source	Storage Location	Planned Next Steps	Storage Type (Excel, GIS, etc.)
Vegetation Management	Partners & Spreadsheet Database	Migration to iRestore (cloud-based) software Oct. 2022	Excel, Geo Database

Substation Inspections (GO 174)	Paper-based-database	Migration to iRestore (cloud-based) software Oct. 2022	Binder
GO 165 Inspections	iRestore	None planned	Cloud-based
LiDAR Inspections	Spreadsheet and web portal	Planning to import into Geo Database	Excel, Shapefile
UAV Inspections	Spreadsheet and web portal	N/A	Excel, Geo Database
Covered Conductor	Spreadsheet	N/A	Excel, Geo Database
Pole Replacement	Spreadsheet	N/A	Excel, Geo Database
Pole Remediation	Spreadsheet	N/A	Excel
Pole Assets	Spreadsheet	N/A	Excel
Fire Wrap	Spreadsheet	N/A	Excel, Geo Database
Fuse Replacement	Spreadsheet	N/A	Excel, Geo Database
VM QA/QC Inspections	Web Portal	N/A	Excel
Asset Inspection QA/QC	Spreadsheet	N/A	Excel
Outage Log	Spreadsheet	N/A	Excel, Geo Database

H. Resource Allocation Methodology

As previously discussed, BVES conducts its overall risk-based decision making in accordance with CPUC Decision D.19-04-020 of May 6, 2019, which provides the framework that the Small and Multi-jurisdictional Utilities (SMJUs) are required to follow. Using this framework BVES calculated Risk Spend Efficiencies (RSEs) and utilized the RSEs in the initiative selection process. BVES was able to successfully allocate sufficient resources to achieve WMP initiatives. No WMP initiatives during this period were not achieved because of inadequate resourcing.

I. Emergency Planning and Preparedness

During this WMP cycle, BVES updated its Emergency and Disaster Response Plan (EDRP) and its PSPS Procedures. Additionally, BVES worked with stakeholders to improve coordination on PSPS and emergency response. BVES conducted PSPS table-top and functional exercises with excellent stakeholder participation. Also, BVES took numerous steps to ensure its workforce is well positioned to conduct restoration efforts. BVES established routine briefings for the public and local government, agencies, and other key stakeholders (utilities, communications companies, etc.) to better coordinate emergency planning and preparedness. BVES also implemented a survey program to assess the effectiveness of its outreach programs so that it may improve its messaging. During this period, BVES established special customer service and assistance procedures to assist customers during any wildfire recovery.

J. Stakeholder Cooperation and Community Engagement

BVES developed a comprehensive community outreach program and made significant efforts to identify and engage key community stakeholders. These programs are maturing and will serve BVES well in further advancing its outreach programs and coordination with stakeholders. BVES made significant progress in identifying Access and Functional Needs (AFN) customers and developed and implemented a plan to better service customers in the event of a PSPS. Additionally, BVES put in place a process to identify AFN customers during new customer sign up and periodically throughout the year because the AFN population is not static. BVES identified all key stakeholders including those that own and operate critical infrastructure and developed primary, secondary, and tertiary points of contact.

BVES also implemented a Stakeholder Portal on its website to communicate more efficiently with stakeholders during PSPS events. BVES engaged with other utilities outside California on best practices and cooperation on wildfire mitigation and PSPS issues. This has been done primarily through participation at several major transmission and distribution (T&D) conferences. Additionally, BVES provided other utilities outside of California information on wildfire mitigation initiatives upon request. BVES has been coordinating with various stakeholders for years including BBFD, CAL FIRE, the USFS, county fire authorities, mutual aid organizations and more. BVES improved information sharing and coordination with

these organizations and others. BVES implemented an initiative that provides BBFD, Sheriff, and CHP the iRestore App, which enables first responders to report directly into BVES's dispatch using their mobile devices (phone) with a picture of the situation and the geo-coordinates for the location. By reporting this way, BVES will have the phone number of the first responder making the report and BVES dispatch will be able to discuss the issue further with the first responder.

III. Change Order and Operation Change Review

1.b) A full and complete listing of all change orders and any other operational changes, such as initiative location changes, made to WMP initiatives, with an explanation of why the changes were necessary, and an assessment of whether the changes achieved the same risk reduction intent;

BVES did not have a need to issue any change orders in the form of formal advice or notification letters and has not implemented any other operational changes to its WMP initiatives in 2022. The Radford Line Replacement Project (discussed earlier) is the most significant deviation from its expected timelines, due to permitting issues with the Forest Service, but this did not necessitate change orders.

No operational changes occurred during 2022. BVES has worked to satisfy resource allocation within the last three years.

IV. WMP Initiative Spend Review

1.c) Descriptions of all planned WMP initiative spend vs actual WMP initiative spend and an explanation of any differentials between the planned and actual spends;

The descriptions of all planned WMP initiative spend vs actual WMP initiative spend along with an explanation of any differentials[2] between the planned and actual spends is detailed in Attachment A of this report.

V. Initiative Impact on PSPS Thresholds

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[2] BVES only lists the discrepancies if the difference between the actual and planned spend is greater than 20 percent (in either direction) in accordance with the accounting style of the Risk Spending Accountability Reports to the CPUC.

1.d) A description of whether the implementation of WMP initiatives changed the threshold(s) for triggering a PSPS event and/or reduced the frequency, scale, scope and duration of PSPS events;

The triggering threshold for a PSPS event in the BVES PSPS Plan has not changed based upon the implementation of WMP initiatives. In the future, BVES anticipates continued re-designation of high-risk areas to lower risk designations after significant implementation of WMP activities. As can be seen in the snapshot of the Fire Safety Circuit Matrix in Table 1Table 2, BVES continues to lower the risk level of some circuits through its wildfire mitigation efforts. As more of this becomes apparent, BVES will re-evaluate its PSPS trigger threshold to determine if any changes are appropriate.

BVES has not experienced a utility-caused wildfire or a PSPS event, nor has it had to facilitate an evacuation. Currently, the highest probability for triggering a PSPS event within the BVES service territory is the loss of Southern California Edison (SCE) energy imports to the BVES service area due to a SCE-directed PSPS of the SCE supply lines. BVES imports from SCE are subject to PSPS activation initiated by SCE. SCE may activate a proactive de-energization of these lines even if conditions on these circuits within the BVES service area do not meet BVES PSPS thresholds. The designation of SCE supply lines into the BVES service territory is illustrated in Figure 2.

To address the possibility of SCE-directed PSPS events, BVES proposes to construct an energy storage project of approximately 5 MW/20 MWh (four-hour) lithium-ion utility-grade battery serving the BVES service area. In conjunction with the existing Bear Valley Power Plant, BVES would be able to initially meet its energy demands during a potential supply drop from SCE. BVES will continue with project planning and evaluation of an energy storage facility within the BVES service territory, though, this project timeline has been extended due to siting delays.
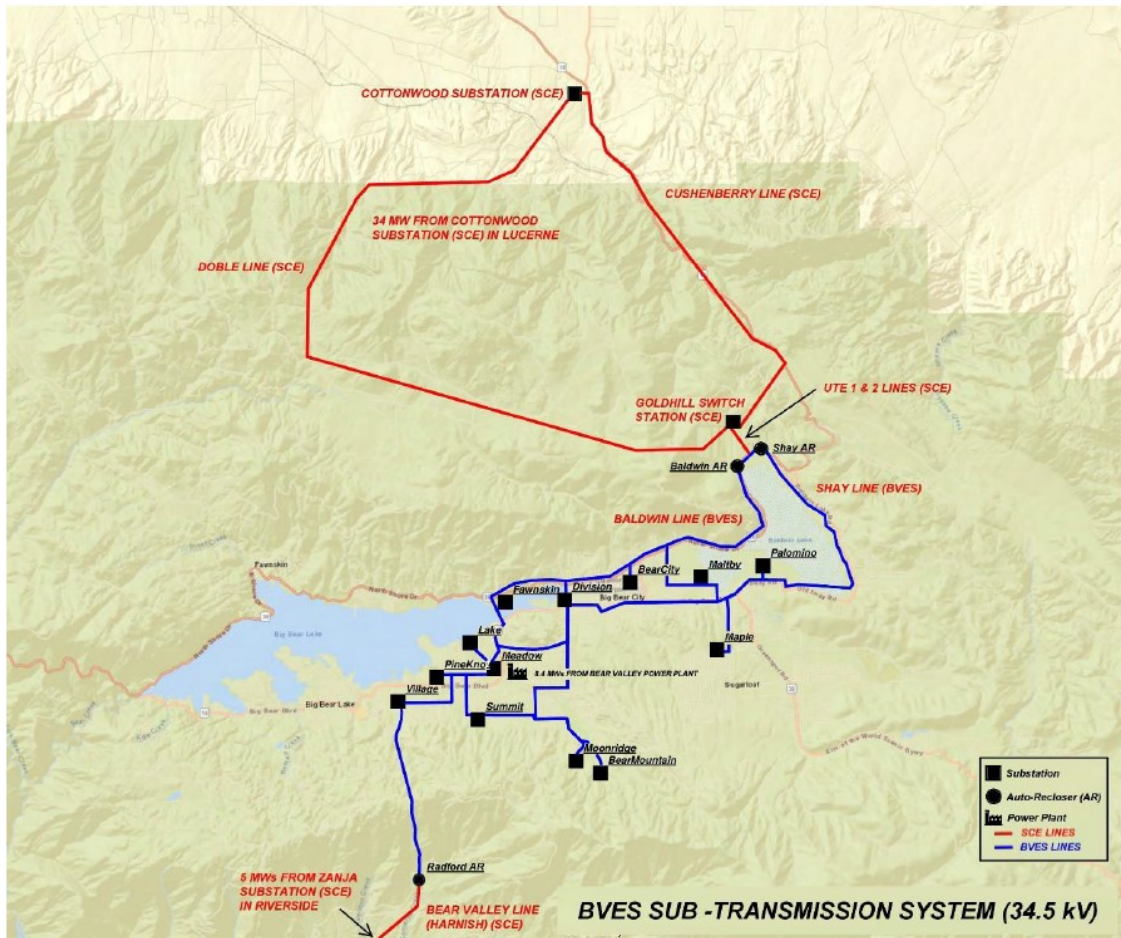
Figure 2: BVES Supply Lines, Sources of Power and Sub-Transmission System

Although BVES has never implemented a PSPS, BVES is committed to reducing the scope, frequency, and duration of PSPS events and will only implement PSPS as a measure of last resort when the safety risk of imminent fire danger is greater than the impact of de-energization. During 2021, BVES engaged an engineering firm to develop a series of risk maps. The resulting maps and models show the overall ignition probability and estimated wildfire consequence along electric lines and equipment. The high-risk areas and customers that may become affected by a PSPS event are presented in Attachment B.

In 2022, BVES hired Technosylva to model the fire risk and potential spread on a near real-time basis based upon up-to-date weather inputs. BVES is currently working with Technosylva to better define when PSPS thresholds may be met based upon actual and expected conditions across the service territory.

Currently, BVES does not estimate the reduced frequency, scale, scope, and duration of PSPS events as a result of implementation of wildfire mitigation programs because no such PSPS

triggering conditions have been met. However, by their very nature, wildfire mitigation programs such as grid design and system hardening, and situational awareness and forecasting reduce the frequency, scale, scope, and duration of PSPS events by reducing the probability of utility-involved ignitions and reducing the potential impact of wildfires on the BVES system. Additionally, BVES is working to automate its network with increased remote monitoring and operating capabilities which will allow BVES to quickly enact a PSPS in a manner that is limited in scope and duration necessary to mitigate the threat to a particular circuit or set of circuits in extreme risk situations.

As BVES continues to reduce ignition risk through the deployment of wildfire mitigation programs, BVES anticipates the likelihood to use its PSPS to become even more remote, but BVES will continue to evaluate the risk and necessity for its use. BVES notes the sufficient progress made on the eastern side of its territory in hardening efforts, which may lead to a threshold increase for PSPS triggers. This means that wind gusts and/or speed triggers may rise to activate a PSPS, particularly for the Erwin circuit on the eastern side, as the risks become lowered through mitigation measures such as covered conductor hardening, the completed fuse replacement project, and pole reinforcements.

VI. OEIS Defect Review

1.e) A summary of all defects identified by the WSD within the annual compliance period, the corrective actions taken and the completion and/or estimated completion date.

Throughout 2022, BVES did not receive during its compliance assessments any Notice of Violation nor Notice of Defect documents issued by Energy Safety.

Table 4 below provides discussions of the issues communicated to BVES as part of the Final Action Statement with progress updates, plans for fully remedying the issues, and alternative timelines, as applicable. A full report and update will be communicated in BVES's next 2023 WMP filing set to be filed on May 8, 2023.

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Table 5: Progress Report Issue Updates

Utility -#	Issue title	Issue description	Remedies required and alternative timeline if applicable	Remedy Update
BVES-22-01	Collaboration and Research in Best Practices in Relation to Climate Change Impacts and Wildfire Risk and Consequence Modeling	While BVES includes some climate projections within its modeling, BVES does not sufficiently account for climate change in its planning.	Prior to the submission of their 2023 WMPs, all electrical corporations (not including independent transmission operators) must participate in an Energy Safety-led scoping meeting to discuss how utilities can best learn from each other, external agencies, and outside experts on the topic of integrating climate change into projections of wildfire risk. They must also participate in any follow-on activities from this meeting. In addition, the climate change and risk modeling scoping meeting will identify future topics to explore regarding climate change modeling and impacts relating to wildfire risk. This scoping meeting may result in additional meetings or workshops or the formation of a working group. Energy Safety will provide additional details on the specifics of this scoping meeting in due course.	BVES is an active participant in Risk Modeling Workshop Group which includes discussions on climate change projections of wildfire risk.
BVES-22-02	Inclusion of Community Vulnerability in Consequence Modeling	BVES does not currently include the impacts of wildfire on communities, such as community vulnerability, within consequence modeling.	Prior to the submission of their 2023 WMPs, all electrical corporations (not including independent transmission operators) must participate in an Energy Safety-led scoping meeting to discuss how to best learn from each other, external agencies and outside experts on the topic of community vulnerability. They must also participate in any follow-on activities from this meeting. In addition, the community vulnerability scoping meeting will identify future topics to explore regarding integration of community vulnerability into consequence modeling and impacts relating to wildfire risk. This scoping meeting may result in an additional meetings or workshops or the formation of a working group. Energy Safety will provide additional details on the specifics of this scoping meeting in due course.	BVES is an active participant in Risk Modeling Workshop Group which includes discussions on community vulnerability scoping.
BVES-22-03	Wildfire Consequence	BVES's risk model is limited in its evaluation of wildfire spread based on	As part of Energy Safety's final decisions on the 2022 Updates of PG&E, SCE, and SDG&E, the large IOUs are	During discussions in the Risk Modeling Workshop

Utility -#	Issue title	Issue description	Remedies required and alternative timeline if applicable	Remedy Update
	Modeling Improvements	timing limitations as well as suppression effects.	required to evaluate spread timing and suppression effects for wildfire consequence modeling. BVES must leverage these findings and implement the measures identified by the large IOUs into its consequence modeling, where appropriate. In its 2023 WMP, BVES must explain which measures it selected for implementation and provide a report on its progress.	Group, there was no consensus from the large utilities as to how to evaluate spread timing and suppression effects for wildfire consequence modeling. BVES will implement additional modeling for evaluation spread timing and suppression effects when a consensus is reached on how to proceed.
BVES-22-04	Integration of Consequence into Risk Assessment	BVES has not yet integrated consequence modeling into its Fire Safety Circuit Matrix.	In its 2023 WMP, BVES must: a) Describe how BVES captures safety, reliability, financial, and environmental impacts within its consequence modeling. b) Provide details on its integration of consequence into its modeling efforts. If BVES makes limited progress, it must include justification as well as an estimated timeline for completion. c) Explain how integration of consequence has shifted its understanding of risk and subsequent prioritization of projects.	This issue is poised to be addressed within the 2023-2025 WMP filing.

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Utility -#	Issue title	Issue description	Remedies required and alternative timeline if applicable	Remedy Update
BVES-22-05	Prioritization Based on Risk Analysis	In Table 5.3-1, BVES only calculated the cumulative top risk coverage estimates since BVES's service territory is only within HFTD Tiers	In its 2023 WMP, BVES must provide an update on its progress using risk model output to inform its initiative plans based on highest-risk areas, including determination of the riskiest areas, for all initiatives. This should include: a) A discussion of the work completed and/or planned within the top risk ranked circuits, segments, or spans based on BVES's risk modeling. b) An explanation of how BVES is using its internal risk-modeling outputs (including ignition and consequence risks) to inform the scope of work, location, resource allocation, and timeline/scheduling of initiatives.	This issue is poised to be addressed within the 2023-2025 WMP filing.
BVES-22-06	Fire Potential Index	BVES does not use a Fire Potential Index (FPI) to forecast its fire potential, instead using the National Fire Danger Rating System (NFDRS).	In its 2023 WMP, BVES must describe how it has explored and/or will explore the development and use of an FPI in its service territory to forecast fire potential. If BVES determines there is no value in developing its own FPI and believes the NFDRS fire potential has sufficient granularity, it must describe the analysis that was conducted to make that determination.	This issue is poised to be addressed within the 2023-2025 WMP filing.
BVES-22-07	Integration of SCADA with Weather Station Network	BVES has not integrated its weather station network into SCADA.	In its 2023 WMP, BVES must commit to a timeline for deciding whether or not it plans to integrate its weather stations into SCADA. If BVES determines to integrate its weather stations, it must provide a timeline for development and implementation. If it does not plan to integrate its weather stations into SCADA, BVES must describe its evaluation process, including considerations and outcomes, that led to this decision.	This issue is poised to be addressed within the 2023-2025 WMP filing.
BVES-22-08	Apply Joint Lessons Learned Concerning Covered	BVES has not yet provided goals or timelines for implementing lessons learned from the covered conductor effectiveness joint study	In its 2023 WMP, BVES must: a) Provide a list of goals with planned dates of implementation for any lessons learned from the covered conductor	This issue is poised to be addressed within the 2023-2025 WMP filing.

Utility -#	Issue title	Issue description	Remedies required and alternative timeline if applicable	Remedy Update
	Conductor		effectiveness joint study. b) Provide a table indicating which WMP sections include changes (compared to its 2021 and 2022 Updates) as a result of the covered conductor effectiveness joint study. This should include, but not be limited to: • Changes made to covered conductor effectiveness calculations. • Changes made to initiative selection based on effectiveness and benchmarking across alternatives. • Inclusion of rapid earth fault current limiter (REFCL), open phase detection (OPD), early fault detection (EFD), and distribution fault anticipation (DFA) as alternatives, including for PSPS considerations. • Changes made to cost impacts and drivers. • An update on data sharing across utilities on measured effectiveness of covered conductor in-field and pilot results, including collective evaluation.	
BVES-22-09	Determine Best Practices for Covered Conductor Inspection and Maintenance	BVES lacks specific directives for inspection procedures regarding covered conductor inspection and maintenance.	All electrical corporations (not including independent transmission operators) must work to share and determine best practices for inspecting and maintaining covered conductor, including either augmenting existing practices or developing new programs. This should be considered as a continuation of the covered conductor effectiveness joint study established by Energy Safety's 2021 WMP Action Statements. The study will continue to be utility-led, with the expectation for Energy Safety to be included as a participant. A report on progress on this continuation of the covered conductor effectiveness joint study will be expected in the 2023 WMPs.	The Covered Conductor Working Group shares best practices and is conducting several studies on covered conductor effectiveness and reliability. Updated information is supplied in the Joint IOU Covered Conductor Working Group Report.
BVES-22-10	Failure to	BVES continues to tie identification of	In its 2023 WMP, BVES must:	This issue is poised to be

Utility -#	Issue title	Issue description	Remedies required andalternative timeline if applicable	Remedy Update
	Demonstrate Installation of Covered Conductor in Highest-Risk Areas	highest-risk areas to HFTD tier designations and does not provide direct correlations of highest risk areas with covered conductor project location selection.	a) Demonstrate how BVES's risk modeling informs its prioritization of projects based on sequencing of risk ranking relating to ignition and consequence risk. b) Provide a ranked list of BVES's circuit segments based on risk analysis performed. c) Provide BVES's analysis on alternative initiatives compared to covered conductor, including effectiveness of risk reduction for BVES's covered conductor program scope.	addressed within the 2023-2025 WMP filing.
BVES-22-11	Pole Replacements Aggregated with Covered Conductor	BVES's pole replacement program as it relates to wildfire risk is integrated into its covered conductor program and does not describe how BVES identifies and prioritizes pole replacements outside of covered conductor installation.	In its 2023 WMP, BVES must: a) Disaggregate its pole replacement program to include targeted replacements to address known wildfire risk, including egress/ingress issues; OR b) Demonstrate that complete aggregation of its covered conductor and pole replacement programs provides the most cost/benefit efficiency.	This issue is poised to be addressed within the 2023-2025 WMP filing.
BVES-22-12	Exploration of New Technologies	BVES's WMP lacks discussion of exploration, piloting, and monitoring of new technologies, such as DFA, EFD, and REFCL.	In its 2023 WMP, BVES must: a) Explain BVES's 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. b) Provide an update on BVES's exploration of technologies being explored by IOUs, including DFA, EFD, and REFCL. This should detail why and how BVES is moving forward with any such technologies.	This issue is poised to be addressed within the 2023-2025 WMP filing.
BVES-22-13	Demonstration of QA/QC Progress for Asset Inspections	BVES does not provide adequate details demonstrating use of a formal QA/QC program for its asset inspections, including documentation of	In its 2023 WMP, BVES must: a) Describe the processes for its QA/QC of asset inspections, including supporting documentation of procedures. b) Provide the results of the QA/QC of its asset inspections	This issue is poised to be addressed within the 2023-2025 WMP filing.

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Utility -#	Issue title	Issue description	Remedies required and alternative timeline if applicable	Remedy Update
		its processes and results.	performed in 2022. c) Provide quantitative targets for BVES's QA/QC of asset inspections (such as pass rates per quarter). d) Demonstrate how BVES documents and performs corrective actions based on QA/QC results and associated programmatic lessons learned.	
BVES-22-14	Decline in Pole Loading Assessments	BVES is closing out its pole loading assessment program in 2023, despite high failure rates during the assessments completed in 2020 and 2021.	In its 2023 WMP, BVES must: a) Provide justification for why BVES is planning to close out its pole loading assessment program in 2023, including supporting data. b) Describe the results of the pole loading assessments completed from 2020 to 2022, including analysis on trends for number and types of failures found.	This issue is poised to be addressed within the 2023-2025 WMP filing.
BVES-22-15	Effectiveness of Various Asset Inspection Initiatives	BVES is conducting multiple types of additional inspections but has not provided data demonstrating justification and effectiveness of these initiatives.	In its 2023 WMP, BVES must: a) Include a list of the data being tracked to measure effectiveness across asset inspection initiatives (third-party ground patrols, light detection and ranging (LiDAR), unmanned aerial vehicle (UAV) imagery, UAV thermography, etc.). b) Describe BVES's findings based on the data provided in (a), including lessons learned on the scale and scope of these programs moving forward. c) Provide any best practices and lessons learned gathered from other utilities regarding asset inspections that BVES has implemented.	This issue is poised to be addressed within the 2023-2025 WMP filing.
BVES-22-16	Vegetation Management Quality Control Personnel Qualifications	BVES staff who perform vegetation management QC checks have limited direct experience in arboriculture or forestry, other than performing BVES's QC checks.	BVES must: a) Consider alternative staffing for its vegetation management QC checks, including considering employing or contracting with certified arborists or registered professional foresters to	BVES employs a contracted certified arborist who provides training to the BVES staff for conducting management QC Checks. In addition, the

Utility -#	Issue title	Issue description	Remedies required and alternative timeline if applicable	Remedy Update
			perform these checks. b) In its 2023 WMP, report on how it considered alternative staffing for vegetation management QC checks and any resulting action it has taken or will take.	arborist conducts an annual program audit.
BVES-22-17	Participate in Vegetation Management Best Management Practices Scoping Meeting	Vegetation management processes and protocols for the reduction of wildfire risk are not uniform across electrical corporations.	Prior to the submission of their 2023 WMPs, BVES and all other electrical corporations (not including independent transmission operators) must participate in an Energy Safety-led scoping meeting to discuss how utilities can best learn from each other and future topics to explore regarding vegetation management best management practices for wildfire risk reduction. BVES must also participate in any follow-on activities to this meeting. This vegetation management best management practices scoping meeting may result in additional meetings or workshops or the formation of a working group. Energy Safety will provide additional details on the specifics of this scoping meeting later in 2022.	In 2023, BVES has joined the Vegetation Management Working Group.
BVES-22-18	Updates on Protective Device Settings	BVES does not currently implement changes to protective device settings, such as fast-trip or fast-curve settings	In its 2023 WMP, BVES must: a) Include its timeline for exploration of sensitivity changes to protective device settings. b) Provide an update on its progress towards exploring sensitivity changes to protective device settings, including findings from coordination studies and details on any changes made to settings, if applicable.	This issue is poised to be addressed within the 2023-2025 WMP filing.
BVES-22-19	Reporting of Data Management Systems	BVES has not fully described its data management systems and planned improvements in accordance with the WMP Guidelines.	In its 2023 WMP, BVES must provide detailed descriptions of its existing data systems, integration, and planned upgrades, in the following sections: • Section 8.1.5, "Asset Management and Inspection Enterprise System" • Section 8.2.4, "Vegetation Management Enterprise System"	This issue is poised to be addressed within the 2023-2025 WMP filing.

Utility -#	Issue title	Issue description	Remedies required and alternative timeline if applicable	Remedy Update
			• Section 8.3.2, "Environmental Monitoring Systems" • Section 8.3.3.5, "Grid Monitoring Enterprise System" • Section 8.3.4.5, "Ignition Detection Enterprise System" • Section 8.3.5.5, "Weather Forecasting Enterprise System" In general, the 2023-2025 WMP Technical Guidelines182 require the electrical corporations to describe the parameters of each enterprise system for data management, including inputs, data storage, integration with other systems, and any planned updates. Each section above has slightly different requirements, tailored to the system being discussed. Considering the identified need for improvement in data governance reporting, BVES must avoid providing only general information and describe each system in detail.	
BVES-22-20	Updating Decision-Making Process	BVES's current decision-making process for initiative selection is linear and does not adequately demonstrate where and how BVES considers risk and risk-spend efficiencies (RSEs) in its project selection.	In its 2023 WMP, BVES must: a) Provide a more dynamic decision-making flow chart that considers "if-then" scenarios and more accurately demonstrates considerations across different initiatives, as well as lessons learned. b) Provide more details on how risk reductions and RSEs are weighted within the decision-making process, including details on how both are considered for actual project selection.	This issue is poised to be addressed within the 2023-2025 WMP filing.
BVES-22-21	Improving Stakeholder and Community Engagement	BVES lacks a plan for improving the effectiveness of its stakeholder and community engagement efforts	In its 2023 WMP, BVES must provide a plan that includes, but need not be limited to, the following components: a) Strategies for developing partnerships with organizations representing Native American, limited English proficiency, MBL, and AFN communities. b) Actions planned to improve community-level awareness of BVES wildfire mitigation and PSPS strategies.	This issue is poised to be addressed within the 2023-2025 WMP filing.

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			c) The most recent community awareness survey results, target benchmarks for improving the level of community awareness, and a timeline for reaching those benchmarks.	
BVES-22-22	Describe How PSPS Planning Is Evolving	BVES's 2022 Update does not fully describe how it will evolve its PSPS planning beyond 2022.	In its 2023 WMP, BVES must continue to apply up-to-date capabilities, protocols, and lessons learned from exercises and other utilities and incorporate them into an annually updated PSPS plan.	This issue is poised to be addressed within the 2023-2025 WMP filing.
BVES-22-23	Commit to Short-Term PSPS Reduction Targets	BVES's 2022 Update does not fully describe quantified short term PSPS reduction commitments and mitigation initiative targets either in Table 11 or in Section 8	In its 2023 WMP, BVES must provide quantifiable risk reduction projections of potential need for and potential frequency, scope, and duration of PSPS events during the plan term, including timelines for achieving these reduction projections. Energy Safety expects that BVES will be able to more fully quantify this information as it deploys its risk consequence modeling capability in 2023.	This issue is poised to be addressed within the 2023-2025 WMP filing.

ATTACHMENT A:
2021 Forecast and Actual Spend Differentials

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Table 6: 2021 ARC Forecast and Actual Spend with Variance Drivers

Mitigation Category	2022 WMP - Initiative Activity #	WMP Initiative Activity	WMP Activity Program/Project Title	2022 Forecast CAPEX ($000)	2022 Forecast OPEX ($000)	2022 Actuals CAPEX ($000)	2022 Actuals OPEX ($000)	CAPEX ($000) Variance Overrun / (Underrun)	CAPEX (%) Variance Overrun / (Underrun)	OPEX ($000) Variance Overrun / (Underrun)	OPEX (%) Variance Overrun / (Underrun)	Variance Drivers (Results +/- 20%)
Risk Assessment & Mapping	7.3.1.1.	A summarized risk map that shows the overall ignition probability and estimated wildfire consequence along the electric lines and equipment	Risk Mapping Program	0.00	29.98	0.00	30.47	0.00	0%	0.49	2%	Within 20%
Risk Assessment & Mapping	7.3.1.2.	Climate-driven risk map and modelling based on various relevant weather scenarios	Risk Mapping Program	0.00	8.16	0.00	8.62	0.00	0%	0.46	6%	Within 20%
Risk Assessment & Mapping	7.3.1.3.	Ignition probability mapping showing the probability of ignition along the electric lines and equipment	Risk Mapping Program	0.00	28.17	0.00	28.56	0.00	0%	0.39	1%	Within 20%
Risk Assessment & Mapping	7.3.1.4.	Initiative mapping and estimation of wildfire and PSPS risk-reduction impact	Risk Mapping Program	0.00	27.49	0.00	27.84	0.00	0%	0.35	1%	Within 20%

Risk Assessment & Mapping	7.3.1.5.	Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment	Risk Mapping Program	0.00	27.72	0.00	28.08	0.00	0%	0.36	1%	Within 20%
Situational Awareness & Forecasting	7.3.2.1.	Advanced weather monitoring and weather stations	Weather Station Installation Program	0.00	3.72	0.00	3.45	0.00	0%	-0.27	-7%	Within 20%
Situational Awareness & Forecasting	7.3.2.2.	Continuous monitoring sensors	ALERTWildfire Camera Installation Program	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	Within 20%
Situational Awareness & Forecasting	7.3.2.3.	Fault indicators for detecting faults on electric lines and equipment	Situational Awareness Hardware Program // Fault Indicator Installation Project	263.26	0.00	244.03	0.00	-19.23	-7%	0.00	0%	Within 20%
Situational Awareness & Forecasting	7.3.2.4.	Forecast of a fire risk index, fire potential index, or similar	Weather Consultant // Fire Risk Index Activity	0.00	13.00	0.00	13.60	0.00	0%	0.60	5%	Within 20%

Situational Awareness & Forecasting	7.3.2.5.	Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions	Personnel Sufficiency // High Risk Conditions Protocols	0.00	11.52	0.00	0.00	0.00	0%	-11.52	-100%	**OPEX Underrun:** BVES did not experience any elevated fire risk events requiring staff to monitor areas of electric lines and equipment in elevated fire risk conditions in 2022.
Situational Awareness & Forecasting	7.3.2.6.	Weather forecasting and estimating impacts on electric lines and equipment	Weather Consultant // Weather Forecasting	0.00	13.00	0.00	13.60	0.00	0%	0.60	5%	Within 20%
Grid Design & System Hardening	7.3.3.1.	Capacitor maintenance and replacement program	Capacitor Replacement & Maintenance Projects (Capacitor Bank Upgrade Project - 2023)	0.00	8.99	0.00	9.27	0.00	0%	0.28	3%	Within 20%
Grid Design & System Hardening	7.3.3.2.	Circuit breaker maintenance and installation to de-energize lines upon detecting a fault	Circuit Breaker Maintenance & Installation Program	0.00	60.64	0.00	62.57	0.00	0%	1.93	3%	Within 20%

Category												
Grid Design & System Hardening	7.3.3.3.	Covered conductor installation	Covered Conductor Project - (4kV & 34.5 kV Systems)(7.3.3.3.1 & 7.3.3.3.2)	6570.39	0.00	9538.93	0.00	2968.54	45%	0.00	0%	**CAPEX Overrun:** Project costs were higher than projected due to higher number of poles requiring replacement as well as higher material costs.
Grid Design & System Hardening	7.3.3.4.	Covered conductor maintenance	Covered Conductor Maintenance Activities	0.00	30.14	0.00	34.23	0.00	0%	4.09	14%	Within 20%
Grid Design & System Hardening	7.3.3.5.	Crossarm maintenance, repair, and replacement	Crossarm Maintenance Activities	0.00	52.74	0.00	59.90	0.00	0%	7.16	14%	Within 20%
Grid Design & System Hardening	7.3.3.6.	Distribution pole replacement and reinforcement, including with composite poles	Distribution Pole Replacement and Reinforcement – GO 95 Projects (7.3.3.6.1)	400.00	0.00	1357.77	0.00	957.77	239%	0.00	0%	**CAPEX Overrun:** Spend was higher than estimated because the a larger number of poles required replacement or remediation as a result of inspections.
Grid Design & System Hardening	7.3.3.7.	Expulsion fuse replacement	Fuse Replacement Program	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	Within 20%

Category	Ref	Activity	Sub-activity									Notes
Grid Design & System Hardening	7.3.3.8.	Grid topology improvements to mitigate or reduce PSPS events	Grid Topology Improvement Activities (Switch and Field Device Automation - 2023)	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	Within 20%
Grid Design & System Hardening	7.3.3.9.	Installation of system automation equipment	Grid Automation Program // SCADA (7.3.3.9.1)	210.00	0.00	679.58	0.00	469.58	224%	0.00	0%	**CAPEX Overrun:** The automation of three substation was completed at a significantly higher cost that originally anticipated. These were the first three substations that BVES automated. BVES has updated its cost estimation for this type of work based on its experience in 2022.
Grid Design & System Hardening	7.3.3.10.	Maintenance, repair, and replacement of connectors, including hotline clamps	Connector Maintenance Repair & Replacement	0.00	12.73	0.00	13.13	0.00	0%	0.40	3%	Within 20%
Grid Design & System Hardening	7.3.3.11.	Mitigation of impact on customers and other residents affected during PSPS event	Bear Valley Energy Storage Facility (7.3.3.11.1)	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	Within 20%

Grid Design & System Hardening	7.3.3.12.	Other corrective action	Safety & Technical Upgrades to Substations(7.3.3.12.1)	0.00	97.62	0.00	101.09	0.00	0%	3.47	4%	Within 20%
Grid Design & System Hardening	7.3.3.13.	Pole loading infrastructure hardening and replacement program based on pole loading assessment program	Pole Loading Assessment & Remediation Program	1216.16	0.00	1011.84	0.00	-204.32	-17%	0.00	0%	Within 20%
Grid Design & System Hardening	7.3.3.14.	Transformers maintenance and replacement	Transformer Maintenance & Replacement Activities	70.00	13.32	0.00	15.30	-70.00	-100%	1.98	15%	**CAPEX Underrun:** No transformers were required to be purchased in 2022 due to inventory not going below minimum. Transformer replacements that were made as part of other work (e.g., covered conductor replacement project) were charged to those applicable projects.
Grid Design & System Hardening	7.3.3.15.	Transmission tower maintenance and replacement	Not Applicable	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	NA

Category	No.	Activity	Project/Program									Notes
Grid Design & System Hardening	7.3.3.16.	Undergrounding of electric lines and/or equipment	Minor Undergrounding Upgrades Projects	75.00	0.00	283.58	0.00	208.58	278%	0.00	0%	**CAPEX Overrun:** Underground work was significantly higher than estimated mainly due to more public works and new customer project scope of work than anticipated.
Grid Design & System Hardening	7.3.3.17.	Updates to grid topology to minimize risk of ignition in HFTDs	No Active Project or Program	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	NA
Asset Management & Inspections	7.3.4.1.	Detailed inspections of distribution electric lines and equipment	Detailed Inspection Program	0.00	8.42	0.00	16.43	0.00	0%	8.00	95%	**OPEX Overrun:** The labor hours to achieve the intended scope of work, which was achieved, was higher than forecasted. The BVES Field Inspector is using a more thorough approach which is increasing the hours per circuit mile.
Asset Management & Inspections	7.3.4.2.	Detailed inspections of transmission electric lines and equipment	Not Applicable	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	NA
Asset Management & Inspections	7.3.4.3.	Improvement of inspections	Improvement of Electrical Inspection Procedures	130.00	20.39	150.69	21.55	20.69	16%	1.16	6%	Within 20%

Category		Activity	Program									Notes
Asset Management & Inspections	7.3.4.4.	Infrared inspections of distribution electric lines and equipment	Infrared Inspection Program	0.00	59.40	0.00	54.19	0.00	0%	-5.21	-9%	Within 20%
Asset Management & Inspections	7.3.4.5.	Infrared inspections of transmission electric lines and equipment	Not Applicable	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	NA
Asset Management & Inspections	7.3.4.6.	Intrusive pole inspections	Pole Loading Assessment & Remediation Program // Intrusive Pole Inspection Activities	0.00	33.00	0.00	18.82	0.00	0%	-14.18	-43%	**OPEX Underrun:** BVES was able to contract the work for lower cost than projected. Intended scope of work was achieved.
Asset Management & Inspections	7.3.4.7.	LiDAR inspections of distribution electric lines and equipment	LiDAR Inspection Program	0.00	65.00	0.00	62.03	0.00	0%	-2.98	-5%	Within 20%
Asset Management & Inspections	7.3.4.8.	LiDAR inspections of transmission electric lines and equipment	Not Applicable	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	NA
Asset Management & Inspections	7.3.4.9.	Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations	3rd Party Ground Patrol (7.3.4.9.1)	0.00	40.00	0.00	23.66	0.00	0%	-16.35	-41%	**OPEX Underrun:** BVES was able to contract the work for lower cost than projected. Intended scope of work was achieved.

Category	Number	Activity	Program									Comments
Asset Management & Inspections	7.3.4.10.	Other discretionary inspection of transmission electric lines and	Not Applicable	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	NA
Asset Management & Inspections	7.3.4.11.	Patrol inspections of distribution electric lines and equipment	Ground Patrol Inspection Program	0.00	19.65	0.00	38.33	0.00	0%	18.68	95%	**OPEX Overrun:** The labor hours to achieve the intended scope of work, which was achieved, was higher than forecasted. The BVES Field Inspector is using a more thorough approach which is increasing the hours per circuit mile.
Asset Management & Inspections	7.3.4.12.	Patrol inspections of transmission electric lines and equipment	Not Applicable	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	NA
Asset Management & Inspections	7.3.4.13.	Pole loading assessment program to determine safety factor	Pole Loading Assessment & Remediation Program	64.01	0.00	53.25	0.00	-10.75	-17%	0.00	0%	Within 20%
Asset Management & Inspections	7.3.4.14.	Quality assurance / quality control of inspections	Inspection Improvement Activities // QA/QC Activities	0.00	20.39	0.00	21.55	0.00	0%	1.16	6%	Within 20%

Category	ID	Initiative	Program									Notes
Asset Management & Inspections	7.3.4.15.	Substation inspections	Substation Inspection Program	0.00	228.84	0.00	288.00	0.00	0%	59.16	26%	**OPEX Overrun:** The contracted portion of this initiative (equipment testing and diagnostics) cost more than anticipated.
Vegetation Management & Inspections	7.3.5.1.	Additional efforts to manage community and environmental impacts	Forester Service // Community & Environmental Impact Mitigation Activities	0.00	38.41	0.00	48.12	0.00	0%	9.72	25%	**OPEX Overrun:** Actual effort and cost to manage community and environmental impacts was higher than anticipated. These higher costs were drive by the increased clearing of vegetation from lines and tree removal and remediation activities.
Vegetation Management & Inspections	7.3.5.2.	Detailed inspections and management practices for vegetation clearances around distribution electrical lines and equipment	Enhanced Vegetation Management Program // Detailed Inspections	0.00	8.42	0.00	16.43	0.00	0%	8.00	95%	**OPEX Overrun:** The labor hours to achieve the intended scope of work, which was achieved, was higher than forecasted. The BVES Field Inspector is using a more thorough approach which is increasing the hours per circuit mile.
Vegetation Management & Inspections	7.3.5.3.	Detailed inspections and management practices for vegetation clearances around transmission electrical lines and equipment	Not Applicable	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	NA

												Notes
Vegetation Management & Inspections	7.3.5.4.	Emergency response vegetation management due to red flag warning or other urgent weather conditions	Resource Sufficiency // High Risk Conditions Procedures	0.00	97.25	0.00	131.18	0.00	0%	33.93	35%	**OPEX Overrun:** Actual effort and cost to provide emergency response vegetation management due to red flag warning or other urgent weather conditions was higher than anticipated. A significant weather event in November 2022 drove emergency response costs significantly higher than originally forecasted.
Vegetation Management & Inspections	7.3.5.5.	Fuel management (including all wood management) and management of "slash" from vegetation management activities	Enhanced Vegetation Management Program // Fuels Mitigation Activities	0.00	115.00	0.00	153.90	0.00	0%	38.90	34%	**OPEX Overrun:** Actual effort and cost to remove "slash" from vegetation management activities was higher than anticipated. More trees were removed or remediated and more circuit miles were cleared than originally projected.
Vegetation Management & Inspections	7.3.5.6.	Improvement of inspections	Inspection Improvement Activities	130.00	41.56	150.69	52.96	20.69	16%	11.40	27%	**OPEX Overrun:** Actual effort and cost to implement improvement of inspection initiatives was higher than anticipated. More labor hours were dedicated to implementing new inspection documentation applications.

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Category	ID	Description	Program									Notes
Vegetation Management & Inspections	7.3.5.7.	Remote sensing inspections of vegetation around distribution electric lines and equipment	LiDAR Inspection Program	0.00	65.00	0.00	62.03	0.00	0%	-2.98	-5%	Within 20%
Vegetation Management & Inspections	7.3.5.8.	Remote sensing inspections of vegetation around transmission electric lines and equipment	Not Applicable	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	NA
Vegetation Management & Inspections	7.3.5.9.	Other discretionary inspections of vegetation around distribution electric lines and equipment	3rd Party Ground Patrol (7.3.5.9.1)	0.00	40.00	0.00	23.66	0.00	0%	-16.35	-41%	**OPEX Underrun:** BVES was able to contract the work for lower cost than projected. Intended scope of work was achieved.
Vegetation Management & Inspections	7.3.5.10.	Other discretionary inspections of vegetation around transmission electric lines and equipment	Not Applicable	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	NA
Vegetation Management & Inspections	7.3.5.11.	Patrol inspections of vegetation around distribution electric lines and equipment	Enhanced Vegetation Management Program // Patrol Inspections	0.00	19.65	0.00	38.33	0.00	0%	18.68	95%	**OPEX Overrun:** The labor hours to achieve the intended scope of work, which was achieved, was higher than forecasted. The BVES Field Inspector is using a more thorough approach which is increasing the hours per circuit mile.
Vegetation Management & Inspections	7.3.5.12.	Patrol inspections of vegetation around transmission electric lines and equipment	Not Applicable	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	NA

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Vegetation Management & Inspections	7.3.5.13.	Quality assurance / quality control of vegetation management	Inspection Improvement Activities // QA/QC Activities	0.00	60.24	0.00	76.22	0.00	0%	15.98	27%	**OPEX Overrun:** Actual effort and cost to conduct quality assurance and quality control of vegetation management was higher than anticipated. More QCs were performed than originally planned.
Vegetation Management & Inspections	7.3.5.14.	Recruiting and training of vegetation management personnel	Forester Contractor Services	0.00	31.61	0.00	40.94	0.00	0%	9.33	30%	**OPEX Overrun:** Actual effort and cost to recruit and train vegetation management personnel was higher than anticipated.
Vegetation Management & Inspections	7.3.5.15.	Identification and remediation of "at-risk species"	Enhanced Vegetation Management Program // Hazardous Tree Removal	0.00	125.50	0.00	170.03	0.00	0%	44.53	35%	**OPEX Overrun:** Actual effort and cost to identify and remediated "at-risk species" was higher than anticipated. More "at risk species" were remediated than originally planned.
Vegetation Management & Inspections	7.3.5.16.	Removal and remediation of trees with strike potential to electric lines and equipment	Enhanced Vegetation Management Program // Hazardous Tree Removal	0.00	137.00	0.00	185.42	0.00	0%	48.42	35%	**OPEX Overrun:** Actual effort and cost to remove and remediate hazardous trees was higher than anticipated. More hazardous trees were removed or remediated than originally planned.
Vegetation Management & Inspections	7.3.5.17.	Substation inspection	Substation Inspection Program	0.00	5.20	0.00	5.30	0.00	0%	0.10	2%	Within 20%

Category	ID	Activity	Sub-activity									Notes
Vegetation Management & Inspections	7.3.5.18.	Substation vegetation management	Substation Inspection Program // Vegetation Management	0.00	17.86	0.00	19.88	0.00	0%	2.02	11%	NA
Vegetation Management & Inspections	7.3.5.19.	Vegetation management enterprise system	Enhanced Vegetation Management Program // Inventory System Activities	0.00	171.50	0.00	231.59	0.00	0%	60.09	35%	**OPEX Overrun:** Actual effort and cost to inventory vegetation was higher than anticipated.
Vegetation Management & Inspections	7.3.5.20	Vegetation management to achieve clearances around electric lines and equipment	Enhanced Vegetation Management Program // Equipment Vegetation Clearances	0.00	1725.00	0.00	2308.56	0.00	0%	583.56	34%	**OPEX Overrun:** Actual effort and cost to achieve clearances around electric lines and equipment was higher than anticipated. More circuit miles were cleared than originally planned. Additionally, the level of effort to clear some of the planned circuits was higher than anticipated.
Vegetation Management & Inspections	7.3.5.21	Vegetation management activities post-fire		0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	Within 20%
Grid Operations & Operating Protocols	7.3.6.1.	Automatic recloser operations	Automatic Recloser Operational Protocols	0.00	20.39	0.00	21.55	0.00	0%	1.16	6%	Within 20%

Category		Name	Program									Status
Grid Operations & Operating Protocols	7.3.6.2.	Protective equipment and device settings		0.00	12.46	0.00	13.17	0.00	0%	0.71	6%	Within 20%
Grid Operations & Operating Protocols	7.3.6.3.	Crew-accompanying ignition prevention and suppression resources and services	No Applicable Program	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	NA
Grid Operations & Operating Protocols	7.3.6.4.	Personnel work procedures and training in conditions of elevated fire risk	Personnel Sufficiency // High Risk Conditions Protocols	0.00	7.93	0.00	8.38	0.00	0%	0.45	6%	Within 20%
Grid Operations & Operating Protocols	7.3.6.5.	Protocols for PSPS re-energization	PSPS Re-Energization Protocols	0.00	28.16	0.00	10.13	0.00	0%	-18.03	-64%	**OPEX Underrun:** Actual costs were lower than projected due to BVES not invoking any PSPS events in 2022.
Grid Operations & Operating Protocols	7.3.6.6.	PSPS events and mitigation of PSPS impacts	PSPS Mitigation Activities	0.00	7.79	0.00	8.24	0.00	0%	0.44	6%	Within 20%
Grid Operations & Operating Protocols	7.3.6.7	Stationed and on-call ignition prevention and suppression resources and services	No Applicable Program	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	NA

												Notes
Data Governance	7.3.7.1.	Centralized repository for data	GIS-Based Applications	0.00	101.28	0.00	123.80	0.00	0%	22.52	22%	**OPEX Overrun:** Actual costs to continue upgrading GIS database to conform the data schema required to document WMP initiatives and grid assets was higher than estimated.
Data Governance	7.3.7.2.	Collaborative research on utility ignition and/or wildfire	GIS-Based Applications // Research on Ignition Discovery	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	Within 20%
Data Governance	7.3.7.3.	Documentation and disclosure of wildfire-related data and algorithms	GIS-Based Applications // Data Sharing Activities	0.00	8.38	0.00	8.86	0.00	0%	0.48	6%	Within 20%
Data Governance	7.3.7.4.	Tracking and analysis of near miss data	GIS-Based Applications // Risk Event Tracking Activities	0.00	7.25	0.00	7.66	0.00	0%	0.41	6%	Within 20%

Category	No.	Activity	Program									Notes
Resource Allocation Methodology	7.3.8.1.	Allocation methodology development and application	Resource Allocation Methodology // Personnel Sufficiency	0.00	7.93	0.00	8.38	0.00	0%	0.45	6%	Within 20%
Resource Allocation Methodology	7.3.8.2.	Risk reduction scenario development and analysis	Risk Mapping Program // Risk Reduction Scenario Modeling	0.00	29.76	0.00	30.23	0.00	0%	0.48	2%	Within 20%
Resource Allocation Methodology	7.3.8.3.	Risk spend efficiency analysis	Risk Mapping Program / Risk Spend Efficiency	0.00	29.76	0.00	30.23	0.00	0%	0.48	2%	Within 20%
Emergency Planning & Preparedness	7.3.9.1.	Adequate and trained workforce for service restoration	Personnel Sufficiency // Service Restoration Activities	0.00	8.06	0.00	8.50	0.00	0%	0.45	6%	Within 20%
Emergency Planning & Preparedness	7.3.9.2.	Community outreach, public awareness, and communications efforts	Community Outreach Program	0.00	81.58	0.00	101.32	0.00	0%	19.74	24%	**OPEX Overrun:** Public outreach costs were significantly higher than projected because the actual costs of effective

Category													
													public outreach were higher than anticipated.
Emergency Planning & Preparedness	7.3.9.3	Customer support in emergencies	Emergency Response Plan	0.00	61.98	0.00	49.98	0.00	0%	-12.01	-19%		NA
Emergency Planning & Preparedness	7.3.9.4.	Disaster and emergency preparedness plan	Emergency Response Plan	0.00	7.30	0.00	7.71	0.00	0%	0.41	6%		Within 20%
Emergency Planning & Preparedness	7.3.9.5.	Preparedness and planning for service restoration	Emergency Response Plan	0.00	6.98	0.00	7.37	0.00	0%	0.40	6%		Within 20%
Emergency Planning & Preparedness	7.3.9.6.	Protocols in place to learn from wildfire events	Emergency Response Plan	0.00	6.89	0.00	7.28	0.00	0%	0.39	6%		Within 20%
Stakeholder Cooperation & Community Engagement	7.3.10.1	Community engagement	Community Outreach Program	0.00	30.74	0.00	26.49	0.00	0%	-4.24	-14%		Within 20%

Category	ID	Initiative	Project									
Stakeholder Cooperation & Community Engagement	7.3.10.2	Cooperation and best practice sharing with agencies outside CA	Community Outreach Program // Continuous Learning	0.00	17.22	0.00	18.20	0.00	0%	0.98	6%	Within 20%
Stakeholder Cooperation & Community Engagement	7.3.10.3	Cooperation with suppression agencies	Community Outreach Program // Fire District Engagements	0.00	7.25	0.00	7.66	0.00	0%	0.41	6%	Within 20%
Stakeholder Cooperation & Community Engagement	7.3.10.4	Forest service and fuel reduction cooperation and joint roadmap	Contracted Forester Services // future collaborative work with land agencies	0.00	13.65	0.00	20.96	0.00	0%	7.31	54%	**OPEX Overrun:** Labor hours dedicated to this initiative were higher than forecasted.
Grid Design & System Hardening	7.3.3.3.3	Covered conductor installation	Covered Conductor Project - Radford Line	1235.99	0.00	109.03	0.00	1126.96	-91%	- 0.00	0%	**CAPEX Underrun:** Radford project was delayed beyond 2022 due to permit in processing with US Forest Service. BVES anticipates obtaining permit mid-2023.
Grid Design & System Hardening	7.3.3.6.2	Distribution pole replacement and reinforcement, including with composite poles	Covered Conductor Project - Radford Line (7.3.3.3.3)	4382.14	0.00	386.56	0.00	3995.58	-91%	- 0.00	0%	**CAPEX Underrun:** Radford project was delayed beyond 2022 due to permit in processing with US Forest Service. BVES anticipates obtaining permit mid-2023.

Grid Design & System Hardening	7.3.3.6.3	Distribution pole replacement and reinforcement, including with composite poles	Evacuation Route Hardening Program (Pilot)	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	Within 20%
Grid Design & System Hardening	7.3.3.6.4	Distribution pole replacement and reinforcement, including with composite poles	Evacuation Route Hardening Program	576.80	0.00	389.79	0.00	-187.01	-32%	0.00	0%	**CAPEX Underrun:** The labor hours required to install the wire mesh was higher than estimated.
Grid Design & System Hardening	7.3.3.9.2	Installation of system automation equipment	Fault Isolation Localization and Service Restoration (FLISR)	123.61	0.00	167.19	0.00	43.58	35%	0.00	0%	**CAPEX Overrun:** Final testing and commissioning labor hours were higher than forecasted so expenses were higher.
Grid Design & System Hardening	7.3.3.9.3	Installation of system automation equipment	Fuse TripSaver Automation	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	Within 20%
Grid Design & System Hardening	7.3.3.11.2	Mitigation of impact on customers and other residents affected during PSPS event	BVPP Phase 4 Upgrade Project	0.00	0.00	0.00	0.00	0.00	0%	0.00	0%	Within 20%
Grid Design & System Hardening	7.3.3.12.2	Other corrective action	Tree Attachment Removal Program	661.81	0.00	709.11	0.00	47.30	7%	0.00	0%	Within 20%

Asset Management & Inspections	7.3.4.9.2	Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations	UAV HD Photography/Videography Inspection Program	0.00	59.40	0.00	54.19	0.00	0%	-5.21	-9%	Within 20%
Vegetation Management & Inspections	7.3.5.9.2	Other discretionary inspections of vegetation around distribution electric lines and equipment	UAV HD Photography/Videography Inspection Program	0.00	59.40	0.00	54.19	0.00	0%	-5.21	-9%	Within 20%

ATTACHMENT B:
High Risk Areas for PSPS Consideration
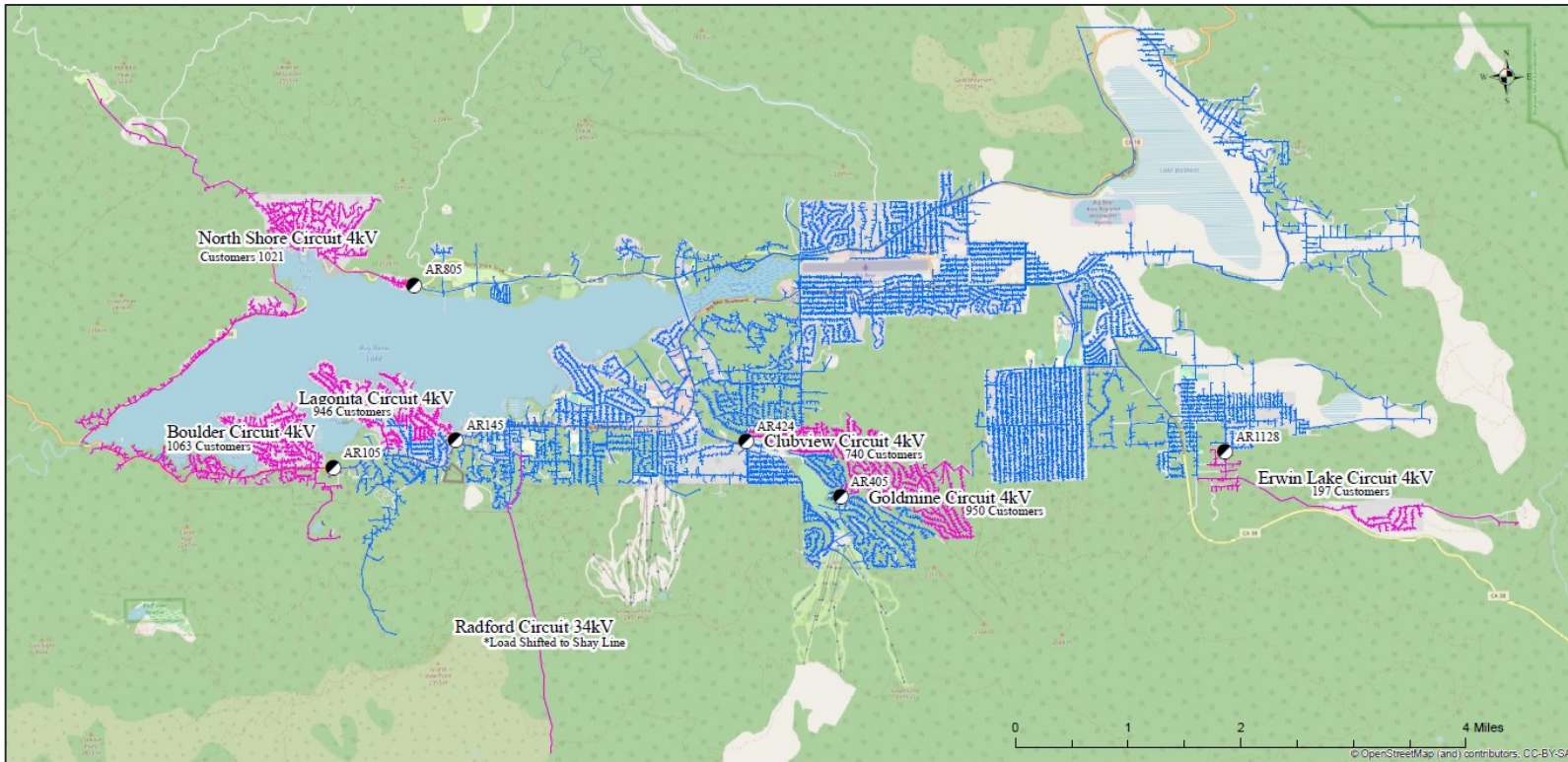
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BVES "High Risk Areas" for PSPS Consideration

Legend
- Auto-Reclosers
- De-energized Lines
- Energized Lines

Figure 3: High Risk Areas for PSPS Consideration and Customer Count