NAVIGANT
A Guidehouse Company

Bear Valley Electric Service

Wildfire Mitigation Plan

2020 *Errata*

Prepared for:

BEAR VALLEY ELECTRIC SERVICE
Dedicating Our Energy To You

Submitted by:
Navigant, A Guidehouse Company
35 Iron Point Circle
Suite 225
Folsom, CA 95630

858.354.8333
guidehouse.com

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DISCLAIMER

The state of California and the California Public Utilities Commission (Commission or CPUC) mandated in Order Instituting Rulemaking 18-10-007 that the electric utilities develop Wildfire Mitigation Plans (WMPs) pursuant to Senate Bill 901. The CPUC provided a specific outline for the 2019 WMPs with enhancements and additional requirements pursuant to Assembly Bill 1054 and the findings from the CPUC's determination of 2019 WMP approvals. Each electric utility adopted this template and filed their first WMP iterations to the CPUC on February 6, 2019. The utilities' WMPs aim to reduce risk of utility-posed ignitions or threats as well as mitigate the need for public safety power shut off events in the future. This is achieved through investments and enhanced operational practices that consider risk spend efficiency and trackable metrics, ad measured outcomes.

The state of California and the California Public Utilities Commission (Commission or CPUC) mandated through Order Instituting Rulemaking that the electric utilities develop Wildfire Mitigation Plans (WMPs or Plans) pursuant to Senate Bill 901. In Rulemaking 18-10-007, The Commission provided a specific outline for the 2020 WMPs with enhancements and additional requirements pursuant to Assembly Bill 1054 and the findings from the CPUC's determination of 2019 WMP approvals. The guidelines also provided a series of attachments that identify critical elements of wildfire data tracking to allow for detailed evaluation of the WMP's comprehensiveness and for public/Commission use.

Each electric utility filed their first WMP iterations to the CPUC on February 6, 2019. The utilities' WMPs aim to reduce risk of utility-posed ignitions or threats as well as mitigate the need for public safety power shut off events in the future. This is achieved through investments and enhanced operational practices that consider risk spend efficiency, trackable metrics, and measured outcomes. Bear Valley Electric Service, an affiliate of Golden State Water Company (BVES) retained Navigant Consulting, Inc., (n/k/a/ Guidehouse Consulting) (Guidehouse) to support the revision process of its 200 WMP filing to the Wildfire Safety Division of the CPUC on February 7, 2020. Guidehouse's approach in updating BVES' WMP included:

- **Data Requests & Response**: Guidehouse requested data, reports, and project updates to be incorporated into BVES' 2020 WMP as well as assisted in responding to Decision 19-05-036, which covered a series of attachment data requests intended to frontload review and information dissemination of the WMP's underlying data and analysis.

- **Interviewed BVES Personnel**: A series of interviews were held with BVES personnel to determine specific actions and strategies to be included in the next WMP update as well as progress reports to existing mitigation strategies already being implemented.

- **WMP Update**: Guidehouse revised the existing WMP based on the direction and information provided by BVES and the most current information available to Guidehouse at the time of this WMP's update.

- **Review of the WMP**: BVES reviewed and approved the WMP as it is presented below ahead of filing to the Commission.

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This report was prepared by Navigant Consulting, Inc., n/k/a Guidehouse Inc. (Navigant),[1] for Bear Valley Electric Service, an affiliate Golden State Water Company. The work presented in this report represents Navigant's professional judgment based on the information available at the time this report was prepared. Navigant is not responsible for the reader's use of, or reliance upon, the report, nor any decisions based on the report. NAVIGANT MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESSED OR IMPLIED. Readers of the report are advised that they assume all liabilities incurred by them, or third parties, as a result of their reliance on the report, or the data, information, findings and opinions contained in the report.

[1] On October 11, 2019, Guidehouse LLP completed its previously announced acquisition of Navigant Consulting Inc. In the months ahead, we will be working to integrate the Guidehouse and Navigant businesses. In furtherance of that effort, we recently renamed Navigant Consulting Inc. as Guidehouse Inc.

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0. GLOSSARY

Term	Definition
10-hour dead fuel moisture content	Moisture content of small dead vegetation (e.g. grass, leaves, which burn quickly but not intensely), which can respond to changes in atmospheric moisture content within 10 hours.
Access and functional needs populations	Per Government Code § 8593.3 and D.19-05-042, individuals who have developmental or intellectual disabilities, physical disabilities, chronic conditions, injuries, limited English proficiency or who are non-English speaking, older adults, children, people living in institutionalized settings, or those who are low income, homeless, or transportation disadvantaged, including, but not limited to, those who are dependent on public transit or those who are pregnant.
Authority Having Jurisdiction	AHJ, party with assigned responsibility, depending on location and circumstance.
Asset (utility)	Electric lines, equipment, or supporting hardware.
At-risk species	Species of vegetation that are particularly likely to contact power lines in the event of high winds and/or ignite if they catch a spark.
Baseline (ignition probability, maturity)	A measure, typically of the current state, to establish a starting point for comparison.
Carbon dioxide equivalent	Tons of greenhouse gases (GHG) emitted, multiplied by the global warming potential relative to carbon dioxide.
Contractor	Any individual in the temporary and/or indirect employ of the utility whose limited hours and/or time-bound term of employment are not considered as “full-time” for tax and/or any other purposes.
Critical facilities and infrastructure	In accordance with the interim definition adopted in D.19-05-042, those facilities and infrastructure that are essential to the public safety and that require additional assistance and advance planning to ensure resiliency during de energization events, namely: emergency services sector (police stations, fire stations, emergency operations centers), government facilities sector (schools, jails, prisons), healthcare and public health sector (public health departments, medical facilities, including hospitals, skilled nursing facilities, nursing homes, blood banks, health care facilities, dialysis centers and hospice facilities), energy sector (public and private utility facilities vital to maintaining or restoring normal service, including, but not limited to, interconnected publicly owned utilities and electric cooperatives), water and wastewater systems sector (facilities associated with the provision of drinking water or processing of wastewater including facilities used to pump, divert, transport, store, treat and deliver water or wastewater), communications sector (communication carrier infrastructure including selective routers, central offices, head ends, cellular switches, remote terminals and cellular sites), and chemical sector (facilities associated with the provision of manufacturing, maintaining, or distributing hazardous materials and chemicals).

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Customer hours	Total number of customers, multiplied by the average number of hours (e.g. of power outage).
Data cleaning	Calibrating raw data to remove errors (including typographical and numerical mistakes).
Dead fuel moisture content	Moisture content of dead vegetation, which responds solely to current environmental conditions and is critical in determining fire potential.
Detailed inspection	In accordance with GO 165, an inspection where individual pieces of equipment and structures are carefully examined, visually and through use of routine diagnostic test, as appropriate, and (if practical and if useful information can be so gathered) opened, and the condition of each rated and recorded.
Enhanced inspection	Inspection whose frequency and thoroughness exceeds the requirements of the detailed inspection, particularly if driven by risk calculations.
Evacuation impact	Number of people evacuated, with the duration for which they are evacuated, from homes and businesses, due to wildfires.
Evacuation zone	Areas designated by CAL FIRE and local fire agency evacuation orders, to include both “voluntary” and “mandatory” in addition to other orders such as “precautionary” and “immediate threat”.
Fuel density	Mass of fuel (vegetation) per area which could combust in a wildfire.
Fuel management	Removing or thinning vegetation to reduce the potential rate of propagation or intensity of wildfires.
Fuel moisture content	Amount of moisture in a given mass of fuel (vegetation), measured as a percentage of its dry weight.
Full-time employee	Any individual in the ongoing and/or direct employ of the utility whose hours and/or term of employment are considered as “full-time” for tax and/or any other purposes.
GO 95 nonconformance	Condition of a utility asset that does not meet standards established by General Order 95.
Greenhouse gas (GHG) emissions	Health and Safety Code 38505 identifies seven greenhouse gases that ARB is responsible to monitor and regulate in order to reduce emissions: carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF6), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and nitrogen trifluoride (NF3).
Grid hardening	Actions (such as equipment upgrades, maintenance, and planning for more resilient infrastructure) taken in response to the risk of undesirable events (such as outages) or undesirable conditions of the electrical system in order to reduce or mitigate those events and conditions, informed by an assessment of the relevant risk drivers or factors.
Grid topology	General design of an electric grid, whether looped or radial, with consequences for reliability and ability to support de-energization (e.g., being able to deliver electricity from an additional source).
High Fire Threat District (HFTD)	Per D.17-01-009, areas of the State designated by the CPUC and CAL FIRE to have elevated wildfire risk, indicating where utilities must take additional action (per GO 95, GO 165, and GO 166) to mitigate wildfire risk.

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Highly rural region	In accordance with 38 CFR 17.701, “highly rural” shall be defined as those areas with a population of less than 7 persons per square mile.
Ignition probability	The relative possibility that an ignition will occur, probability is quantified as a number between 0% and 100% (where 0% indicates impossibility and 100% indicates certainty). The higher the probability of an event, the more certainty there is that the event will occur. (Often informally referred to as likelihood or chance).
Ignition-related deficiency	Any condition which may result in ignition or has previously resulted in ignition, even if not during the past five years.
Impact/consequence of ignitions	The effect or outcome of a wildfire ignition, affecting objectives, which may be expressed by terms including, although not limited to health, safety, reliability, economic and/or environmental damage.
Initiative	Measure or activity proposed or in process designed to reduce the consequences and/or probability of wildfire or PSPS.
Inspection protocol	Documented procedures to be followed in order to validate that a piece of equipment is in good condition and expected to operate safely and effectively.
Invasive species	Non-native species whose proliferation increases the risk of wildfires.
Level 1 finding	In accordance with GO 95, an immediate safety and/or reliability risk with high probability for significant impact.
Level 2 finding	In accordance with GO 95, a variable (non-immediate high to low) safety and/or reliability risk.
Level 3 finding	In accordance with GO 95, an acceptable safety and/or reliability risk.
Life expectancy	Anticipated years that a piece of equipment can be expected to meet safety and performance requirements.
Limited English Proficiency (LEP)	Populations with limited English working proficiency based on the International Language Roundtable scale.
Live fuel moisture content	Moisture content within living vegetation, which can retain water longer than dead fuel.
Lost energy	Energy that would have been delivered were it not for an outage.
Major roads	Interstate highways, U.S. highways, state and county routes.
Match drop simulation	Wildfire simulation method that takes an arbitrary ignition and forecasts propagation and consequence/impact.
Member of the public	Any individual not employed by the utility.
Multi-attribute valuefunction	Risk calculation methodology introduced during CPUC's S-MAP and RAMP proceedings.
Near miss	An event with significant probability of ignition, including wires down, contacts with objects, line slap, events with evidence of significant heat generation, and other events that cause sparking or have the potential to cause ignition.
Near-miss simulation	Simulation of what the consequence would have been of an ignition had it occurred.
Need for PSPS	When utilities' criteria for utilizing PSPS are met.

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Noncompliant clearance	Rights-of-way whose vegetation is not trimmed in accordance with the requirements of GO 95.
Outages of the type that could ignite a wildfire	Outages that, in the judgement of the utility, could have ignited a wildfire.
Outcome metrics	Measurements of the performance of the utility and its service territory in terms of both leading and lagging indicators of wildfire, PSPS, and other consequences of wildfire risk, including the potential unintended consequences of wildfire mitigation work, such as acreage burned by utility-ignited wildfire.
Overcapacity	When the energy transmitted by utility equipment exceeds that of its nameplate capacity.
Patrol inspection	In accordance with GO 165, a simple visual inspection of applicable utility equipment and structures that is designed to identify obvious structural problems and hazards. Patrol inspections may be carried out in the course of other company business.
Percentile conditions	Top X% of a particular set (e.g. wind speed), based on a historical data set with sufficient detail.
Planned outage	Electric outage announced ahead of time by the utility.
Preventive maintenance (PM)	The practice of maintaining equipment on a regular schedule, based on risk, elapsed time, run-time meter readings, or number of operations. The intent of PM is to “prevent” maintenance problems or failures before they take place by following routine and comprehensive maintenance procedures. The goal is to achieve fewer, shorter, and more predictable outages.
Priority essential services	Critical first responders, public safety partners, critical facilities and infrastructure, operators of telecommunications infrastructure, and water utilities/agencies.
Program targets	terms of volume or scope of work, such as number trees trimmed or miles of power lines hardened.
Progress metrics	Measurements that track how much utility wildfire mitigation activity has changed the conditions of utility wildfire risk exposure or utility ability to manage wildfire risk exposure, in terms of leading indicators of ignition probability and wildfire consequences.
Property	Private and public property, buildings and structures, infrastructure, and other items of value that were destroyed by wildfire, including both third-party property and utility assets.
PSPS risk	The potential for the occurrence of a PSPS event expressed in terms of a combination of various outcomes of the event and their associated probabilities.
PSPS weather	Weather that exceeds a utility's risk threshold for initiating a PSPS.
Red Flag Warning	RFW, level of wildfire risk from weather as declared by the National Weather Service.
RFW Circuit Mile Day	Sum of miles of utility grid subject to Red Flag Warning each day. For example, if 100 circuit miles were under a RFW for 1 day, and 10 of those miles were under RFW for an additional day, then the total RFW circuit mile days would be 110.

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Risk-spend efficiency	An estimate of the cost-effectiveness of initiatives, calculated by dividing the mitigation risk reduction benefit by the mitigation cost estimate based on the full set of risk reduction benefits estimated from the incurred costs.
Rule	Section of public utility code requiring a particular activity or establishing a particular threshold.
Run-to-failure	A maintenance approach that replaces equipment only when it fails.
Rural region	In accordance with GO 165, "rural" shall be defined as those areas with a population of less than 1,000 persons per square mile as determined by the United States Bureau of the Census.
Safety Hazard	A condition that poses a significant threat to human life or property.
Simulated wildfire	Propagation and impact/consequence of a wildfire ignited at a particular point ('match drop'), as simulated by fire spread software.
Span	The space between adjacent supporting poles or structures on a circuit consisting of electric line and equipment. "Span level" refers to asset-scale granularity.
System Average Interruption Duration Index (SAIDI)	System-wide total number of minutes per year of sustained outage per customer served.
Third-party contact	Contact between a piece of electrical equipment and another object, whether natural (tree branch) or human (vehicle).
Time to expected failure	Time remaining on the life expectancy of a piece of equipment.
Top 30% of proprietary fire potential index	Top 30% of FPI or equivalent scale (e.g., “Extreme” on SCE’s FPI; “extreme”, 15 or greater, on SDG&E’s FPI; and 4 or above on PG&E’s FPI).
Trees with strike potential / hazard trees	Trees that could either 'fall in' to a power line, or have branches detach and 'fly in' to contact a power line in high-wind conditions.
Unplanned outage	Electric outage that occurs with no advance notice from the utility (e.g. blackout).
Urban region	In accordance with GO 165, "urban" shall be defined as those areas with a population of more than 1,000 persons per square mile as determined by the United States Bureau of the Census.
Utility-ignited wildfire	Wildfires ignited by utility infrastructure or employees, including all wildfires determined by AHJ investigation to originate from ignition caused by utility infrastructure.
Vegetation management	Trimming and clearance of trees, branches, and other vegetation that poses the risk of contact with electric equipment.
Vegetation risk index	Risk index indicating the probability of vegetation-related outages along a particular circuit, based on the vegetation species, density, height, and growth rate.
Weather normalization	Adjusting metrics based on relative weather risk, with RFW circuit mile days as the normalization factor.
Wildfire impact/ consequence	The effect or outcome of a wildfire affecting objectives, which may be expressed, by terms including, although not limited to health, safety, reliability, economic and/or environmental damage.
Wildfire risk	The potential for the occurrence of a wildfire event expressed in terms of a combination of various outcomes of the wildfire and their associated probabilities.

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Wildfire-only WMP programs	Activities, practices, and strategies that are only necessitated by wildfire risk, unrelated to or beyond that required by minimum reliability and/or safety requirements. Such programs are not indicated or in common use in areas where wildfire risk is minimal (e.g., territory with no vegetation or fuel) or under conditions where wildfires are unlikely to ignite or spread (e.g., when rain is falling).
Wildland urban interface (WUI)	A geographical area identified by the state as a “Fire Hazard Severity Zone”, or other areas designated by the enforcing agency to be a significant risk from wildfires, established pursuant to Title 24, Part 2, Chapter 7A.
Wire down	Instance where an electric transmission or distribution conductor is broken and falls from its intended position to rest on the ground or a foreign object.

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1. PERSONS RESPONSIBLE FOR EXECUTING THE WMP

1.1 Wildfire Mitigation Plan Overview

Given recent, catastrophic wildfires in California, Senate Bill (SB) 901 was signed into law in September 2018, amending Public Utilities Code (PUC) 8386. This bill required investor-owned utilities (IOUs) to prepare and file Wildfire Mitigation Plans (WMPs or Plans), the details of which were developed under regulatory discretion of the California Public Utilities Commission (Commission or CPUC). In response to SB 901, the Commission issued an Order Instituting Rulemaking (OIR) in the Utility Wildfire Mitigation Plans (SB 901) filed under docket Rulemaking (R.) 18-10-007. The OIR provides guidance to the utilities it governs about the framework and content of the WMP and a timeline and process for review and implementation moving forward.[2] In Phase 1 of the OIR, the Commission required that utilities submit their initial WMPs on February 6, 2019. The Commission reviewed the WMPs and considered party reply comments, issuing a decision to approve them on May 30, 2019. Revisions and recommendations for improvement through the issued decisions guide the IOUs to enhance their WMPs for the next filing cycle.

Phase 2 of the OIR investigated areas for further development in seeking to standardize utilities' data collection methods related to the WMP's contents, metrics to be applied under standardized risk indicator definitions, and a process to consider the independent evaluation process. In addition, the Commission discussed the implications of the amendment of PUC Section 8386 by Assembly Bill (AB) 1054 and AB 111, both of which were signed into law on July 12, 2019.[3][4] Several important mandates resulted from these bills. Electric corporations are to submit updated WMP by July 1 of each year beginning in 2020 to the California Wildfire Safety Advisory Board (WSAB) annually with a comprehensive update every three years. Utilities will receive review and advisory opinion from the WSAB. The filing cycles for the WMPs will be on a three-year projection, with mitigation strategies and programs reflecting that timeframe as well as a 10-year outlook for future opportunities. Under the CPUC, the Safety Enforcement Division as well as the new Wildfire Safety Division will be the responsible entities for reviewing and approving the 2020 WMPs as the process will eventually transition to the state-level under the WSAB. Effective July 1, 2021, the Office of Energy Infrastructure Safety (OEIS) will be established within the Natural Resources Agency overseeing the WSAB. The CPUC and OEIS will execute a memorandum of understanding to achieve consistent approaches in reviewing WMPs.

Bear Valley Electric Service (BVES), a division of Golden State Water Company (GSWC), has applied a thoughtful approach in developing a holistic strategy to mitigate utility-posed wildfire risks pursuant to PUC Section 8386.The process included a strategic, risk-based evaluation that resulted in efforts to improve operational practices, enhance existing preventative and response plans, and coordinate responsibilities within the utility to monitor and enhance the WMP over time. In addition to its 2020 WMP filing, a comprehensive data request and series of guidelines comprised of five attachments resulted from Decision (D.) 19-05-036, the *Administrative Law Judge's Ruling on Wildfire Mitigation Plan Templates and*

[2] The Commission calls for the following respondents: Pacific Gas & Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas & Electric Company (SDG&E), Liberty CalPeco, BVES, Pacific Power, Trans Bay Cable, and Horizon West.

[3] California Assembly Bill No. 1054. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200AB1054. Signed into law on July 12, 2019.

[4] California Assemble Bill No. 111. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200AB111. Signed into law on July 12, 2019.

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Related Material and Allowing Comment, (ALJ Ruling) issued on December 16, 2019.[5] IOUs are instructed to submit responses for several of the *Attachments* to the Wildfire Safety Division (WSD) by February 7, 2020 to aid in detailed evaluation of the WMP by frontloading the supporting elements of the WMP and associated underlying data.[6] *Attachment 2* depicts a methodology to create a baseline and measure the maturity of the utility's WMP efforts over time. *Attachment 4* serves as the new prescribed metrics for utilities to begin tracking that target progress and outcome-based metrics. Responses to Attachment 1 and Attachment A public version of disclosed data will also be provided upon submission. Pursuant to the *WMP Guidelines* from D. 19-05-036, BVES has restructured its WMP to align with the attachment to enable ease of information interpretation as readers cross reference areas of the WMP with the data request responses while ensuring statutory requirements are captured and addressed appropriately.

In addition to a robust mitigation strategy, BVES developed performance metrics to monitor their efforts and the WMP's effectiveness over time. The goal of these metrics is to provide a data-driven evaluation of performance to help BVES determine the effectiveness of the wildfire plan and identify areas of improvement. The performance plan is comprised of: Roles and Responsibilities, Metrics Reporting, Application of Metrics, Planning Processes, and Procedures.

1.2 Roles and Responsibilities for Plan Execution

Pursuant to *Attachment 1* Section 1, the following sections and subsections address the following:

1 Persons responsible for executing the WMP
Provide an accounting of the responsibilities of the responsible person(s) executing the plan, including:

1. **Executive level with overall responsibility**
2. **Program owners specific to each component of the plan**

Ensure that the plan components described in (2) include an accounting for each of the WMP sections and subsections.

The overall roles and responsibilities for the performance metrics align closely to those outlined in the broader plan. The Director will oversee implementation, ensuring staff follow procedures and protocols. The Operations and Planning Manager will manage the execution of the performance monitoring. This includes providing guidance to staff and leading the development of reports. The staff responsible for each metric area will aggregate relevant metrics at the direction of the Operations and Planning Manager. For example, the Customer Care and Operations Support Supervisor will assume responsibility for tracking customer-related metrics.

Figure 1-1 on the following page outlines the BVES WMP organization. Further descriptions of the roles and responsibilities are provided in Sections 1.2.1 for Executive Level and 1.2.2 for Program Owners.

[5] The full set of materials listed in the ALJ Ruling includes the following documents: *Attachment 1: WMP Guidelines (Attachment 1)*; *Attachment 2: Utility Wildfire Mitigation Maturity Model (Attachment 2)*; *Attachment 3: Utility Survey (Attachment 3)*; *Attachment 4: WMP Metrics (Attachment 4)*; and *Attachment 5: Supplemental Data Request (Attachment 5)*.

[6] *Attachment 3* will have submitted responses through a web-based portal with confirmation of submittal by February 10, 2020.

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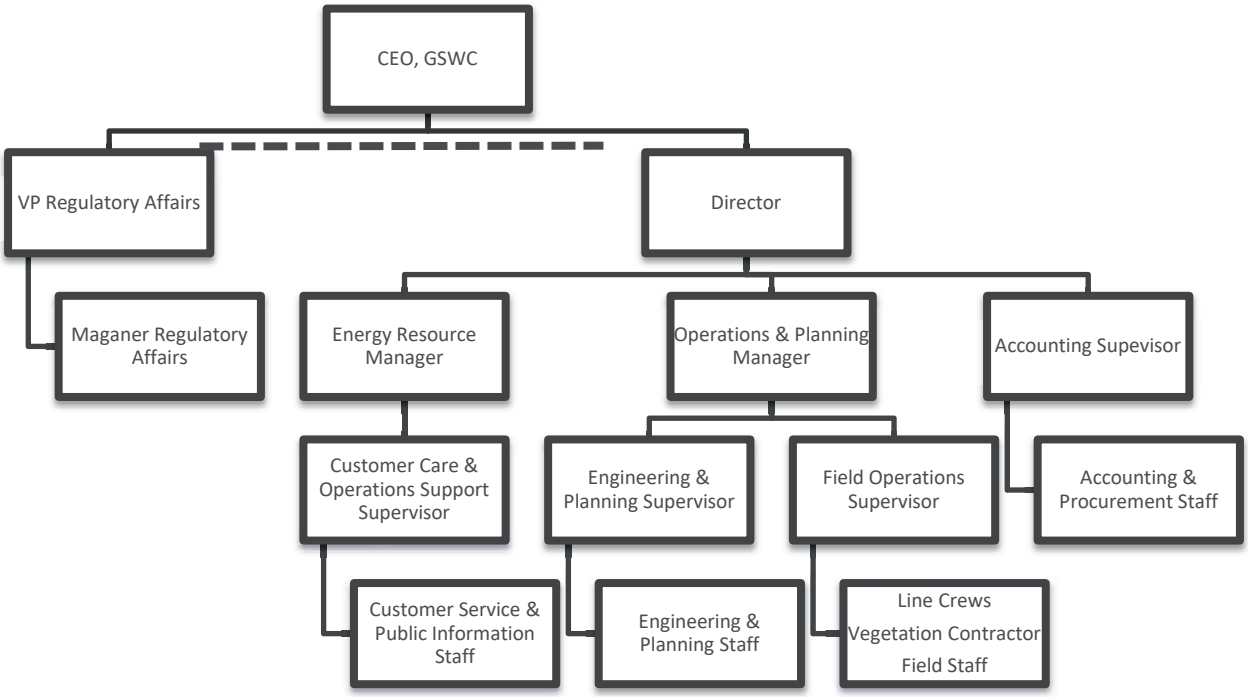
Figure 1-1. BVES Wildfire Mitigation Plan Organization



Source: BVES

1.2.1 Executive Level Responsibilities

The following Executive Level persons are responsible for execution of the BVES WMP:

- **Robert Sprowls, Chief Executive Officer (CEO), GSWC** is responsible for the overall management of BVES.
- **Keith Switzer, Vice President, Regulatory Affairs** is responsible for ensuring regulatory compliance on all matters concerning BVES including the plan.
- **Paul Marconi, Director, BVES** is directly responsible for ensuring all of the plan elements are executed as intended. The Director shall report directly to the CEO on all matters regarding the plan and be fully accountable for its proper execution. He shall provide the CEO periodic updates on plan execution; identify any problems, delays in schedule, and resource shortfalls; and propose solutions to issues and problems. He shall also keep the Vice President, Regulatory Affairs informed of all compliance and regulatory affairs issues regarding the plan. He shall communicate the plan to BVES staff and hold them fully accountable for executing their portions of the plan. He shall ensure the applicable portions of the plan is communicated to local government and agencies, key stakeholders, customers and the general public. He will all ensure lessons learned and metrics from the current WMP are incorporated into future WMPs as appropriate.

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- **Nguyen Quan, Manager, Regulatory Affairs** is directly responsible to the Vice President, Regulatory Affairs for ensuring regulatory compliance on all matters concerning the plan. He shall work closely with BVES Director and Managers to ensure regulatory compliance issues are promptly resolved and will be directly responsible for any communications between BVES and the Commission on any matter regarding the plan including required reports.

1.2.2 Program Owners

Execution will be implemented by key utility staff, working closely with public safety partners, local agencies and governments, fire and forestry management, first responders, and customers to enable information dissemination to vested stakeholders to the utility. The staff providing oversight of the program elements to the plan include the Operations & Planning Manager, Energy Resource Manager, Field Operations Supervisor, Engineering & Planning Supervisor, Customer Care & Operations Support Supervisor, and Accounting Supervisor. All implementation staff are highly qualified and will ensure prompt communications and restoration of service. These members will be critical to maintaining customer and system safety. Supporting Table 1-1 on the following page outlines each staff member's role in implementation of the plan and their relevant qualifications.

Supporting Table 1-1. Plan Implementation Roles and Responsibilities

Staff Member	Role
Marc Stern, Operations & Planning Manager	• Responsible for overall execution of wildfire prevention strategy and programs and emergency operations • Ensures timely and accurate communications with other BVES staff performing Plan functions • Collaborates with counterparts at local governments and agencies during proactive de-energization procedures and emergency events • Ensures Field Operations Supervisor is adequately resourced to execute field operation activities per the plan • Ensures Engineering & Planning Supervisor is adequately resourced to execute engineering and planning activities per the plan • Manages all wildfire recovery activities • Reports on events and statuses as required by General Order (GO) 166 and Resolution ESRB-8 reporting requirements and those presented by R. 18-12-005 • Provides periodic updates to the Director on the status of the WMP initiatives • Identifies plan problems, delays in schedule, and resource shortfalls to the Director • Proposes solutions to issues and problems • Fully supports internal and external audits of the plan including the future independent third-party audit required by SB 901 • Evaluates the WMP annually and proposes future updates • Responsible for first draft of annual WMP update

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Sean Matlock, Energy Resources Manager	• Responsible for overall Customer and Stakeholder engagement and programs • Ensures Customer Care & Operations Support Superintendent is adequately resourced to execute Customer and Stakeholder engagement per the WMP • Ensures all customer support and communications during wildfire recovery are conducted per the WMP • Provides periodic updates to the Director on the status of WMP initiatives • Fully supports internal and external audits of the WMP including the future independent third-party audit required by SB 901 • Evaluates the WMP annually and submits recommendations to Operations and Planning Manager
Jeff Barber, Field Operations Supervisor	• Responsible for directing operations in the field • Monitors weather advisories and manages operational system line-ups based on weather advisories • Ensures timely and accurate communications with other BVES staff performing plan functions • Schedules and controls construction work on the distribution system by BVES and contracted crews in support of the WMP initiatives • Manages GO 165 inspections and patrols and other field inspection programs, document results, and follows-up as needed for corrective action • Manages Vegetation Management program execution to ensure contractor maintains program clearances • Provides periodic updates to the Operations & Planning Manager on the status of plan initiatives • Directs all field operations (BVES crews, contracted crews, and mutual aid crews) during wildfire recovering efforts • Identifies WMP problems, delays in schedule, and resource shortfalls to the Operations & Planning Manager • Proposes solutions to issues and problems • Collects relevant data and documentation • Evaluates plan annually and submits recommendations to Operations and Planning Manager

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Eric Cardella, Engineering & Planning Supervisor	• Responsible for wildfire mitigation planning and engineering design • Issues and manages Work Orders to support plan initiatives • Reviews and approves as applicable engineering design work performed by contractors in support of plan initiatives • Supports Field Operations and broader Emergency Response Team (ER) as directed • Manages proactive system-related elements of plan, including implementing design standards, policies and procedures to mitigate fires • Directs all engineering and planning activities during wildfire recovery • Provides periodic updates to the Operations & Planning Manager on the status of plan initiatives • Identifies to the Operations & Planning Manager plan problems, delays in schedule, and resource shortfalls • Proposes solutions to issues and problems • Collects relevant data and documentation • Evaluates plan annually and submits recommendations to Operations and Planning Manager
Roseana Portillo, Customer Care & Operations Support Supervisor	• Responsible for implementing communications plan and customer service programs • Notifies stakeholders, including local governments, agencies, and customers • Creates pre-planned statements to support proactive de-energization • Establishes and maintains customer communication methods, systems, and equipment to support the policies and procedures laid out in the WMP • Trains staff to perform customer and public information functions • Develops and maintains contact list of local governments and agencies • Directs customer education strategy to inform customers about BVES' fire mitigation and emergency plans • Directs all customer support and communications during wildfire recovery per the WMP • Evaluates plan annually and submits recommendations to Operations and Planning Manager • Provides periodic updates to the Energy Resource Manager on the status of plan initiatives • Identifies to the Energy Resource Manager plan problems, delays in schedule, and resource shortfalls • Proposes solutions to issues and problems • Collects relevant data and documentation • Evaluates plan annually and submits recommendations to Energy Resource Manager

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Kimberly Hauer, Accounting Supervisor	• Responsible for ensuring budget(s) developed to support the WMP's expenses (O&M) and capital investments • Processes Work Orders in support of the WMP in accordance with utility procedures • Ensures procurement of material, equipment, and services in support of the Plan comply with utility policies • Orders material and equipment to support the WMP and alerts applicable Supervisor when received • Issues contracts to support WMP initiatives as requested by Managers • Documents expenses in support of the WMP in accordance with Company procedures • Provides Director and Managers reports of the status of execution of expense and capital project budgets in support of the WMP • Identifies to the Director and Managers any resource shortfalls

Plan components as described in Supporting Table 1-1 will also have unique responsible parties for each of *Attachment 1's* WMP sections and subsections as presented in Supporting Table 1-2.

Supporting Table 1-2. Program Owners Specific to Each Component of the Plan

WMP Component	Accountable Utility Personnel
1. Executive level with overall responsibility	Robert Sprowls, Chief Executive Officer, GSWC
2. Program owners specific to each component of the plan	Various; Oversight: Paul Marconi, Director
1 Persons responsible for executing the WMP	Various; Oversight: Paul Marconi, Director
1.1 Verification	Keith Switzer, Vice President, Regulatory Affairs
2 Metrics and underlying data	Various; Oversight: Paul Marconi, Director
2.1 Lessons learned: how tracking metrics on the 2019 plan has informed the 2020 plan	Paul Marconi, Director & Marc Stern, Operations and Planning Manager
2.2 Recent performance on progress metrics, last 5 years	Paul Marconi, Director & Marc Stern, Operations and Planning Manager
2.3 Recent performance on outcome metrics, annual and normalized for weather, last 5 years	Paul Marconi, Director & Marc Stern, Operations and Planning Manager
2.4 Description of additional metrics	Paul Marconi, Director & Marc Stern, Operations and Planning Manager
2.5 Description of program targets	Paul Marconi, Director & Marc Stern, Operations and Planning Manager
2.6 Detailed information supporting outcome metrics	Paul Marconi, Director & Marc Stern, Operations and Planning Manager
2.7 Mapping recent, modelled, and baseline conditions	Paul Fuller, Engineering Technician
3 Baseline ignition probability and wildfire risk exposure	Paul Marconi, Director
3.1 Recent weather patterns, last 5 years	Paul Fuller, Engineering Technician
3.2 Recent drivers of ignition probability, last 5 years	Paul Marconi, Director
3.3 Recent use of PSPS, last 5 years	Paul Marconi, Director
3.4 Baseline state of equipment and wildfire and PSPS event risk reduction plans	Paul Marconi, Director
3.4.1 Current baseline state of service territory and utility equipment	Eric Cardella, Engineering & Planning Supervisor

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3.4.2 Planned additions, removal, and upgrade of utility equipment by end of 3-year plan term	Eric Cardella, Engineering & Planning Supervisor
3.4.3 Status quo ignition probability drivers by service territory	Eric Cardella, Engineering & Planning Supervisor
4 Inputs to the plan and directional vision for wildfire risk exposure	Eric Cardella, Engineering & Planning Supervisor
4.1 The objectives of the plan	Paul Marconi, Director
4.2 Understanding major trends impacting ignition probability and wildfire consequence	Paul Marconi, Director
4.2.1 Service territory fire threat evaluation and ignition risk trends	Paul Marconi, Director
4.3 Change in ignition probability drivers	Paul Marconi, Director
4.4 Directional vision for necessity of Public Safety Power Shutoff (PSPS)	Paul Marconi, Director
5.1 Wildfire mitigation strategy	Marc Stern, Operations and Planning Manager
5.2 Wildfire Mitigation Plan implementation	Marc Stern, Operations and Planning Manager
5.3 Detailed wildfire mitigation programs	Marc Stern, Operations and Planning Manager
5.3.1 Risk assessment and mapping	Paul Marconi, Director
5.3.2 Situational awareness and forecasting	Paul Fuller, Engineering Technician
5.3.3 Grid design and system hardening	Eric Cardella, Engineering & Planning Supervisor
5.3.4 Asset management and inspections	Bryan Kelly, Service Crew Foreman; Line Crew
5.3.5 Vegetation management and inspections	Bryan Kelly, Service Crew Foreman; Line Crew
5.3.6 Grid operations and protocols	Eric Cardella, Engineering & Planning Supervisor
5.3.7 Data governance	Paul Marconi, Director
5.3.8 Resource allocation methodology	Kimberly Hauer, Accounting Supervisor
5.3.9 Emergency planning and preparedness	Paul Marconi, Director
5.3.10 Stakeholder cooperation and community engagement	Roseana Portillo, Customer Care & Operations Support Supervisor
5.3.11 Definitions of initiative activities by category	Paul Marconi, Director
5.4 Methodology for enterprise-wide safety risk and wildfire-related risk assessment	Paul Marconi, Director
5.5 Planning for workforce and other limited resources	Paul Marconi, Director
5.6 Expected outcomes of 3-year plan	Paul Marconi, Director
5.6.1 Planned utility infrastructure construction and upgrades	Eric Cardella, Engineering & Planning Supervisor
5.6.2 Protocols on Public Safety Power Shut-off	Paul Marconi, Director
6.1 Recent weather patterns	Paul Fuller, Engineering Technician
6.2 Recent drivers of ignition probability	Paul Marconi, Director
6.3 Recent use of PSPS	Paul Marconi, Director
6.4 Current baseline state of service territory and utility equipment	Marc Stern, Operations and Planning Manager
6.5 Location of planned utility equipment additions or removal	Eric Cardella, Engineering & Planning Supervisor
6.6 Planned 2020 WMP initiative activity by end-2022	Marc Stern, Operations and Planning Manager

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2. METRICS AND UNDERLYING DATA

The following section responds to *Attachment 1* Section 2.

As described above, metrics will play a critical role in the overall WMP success. In order to improve upon or add emerging initiatives, BVES intends to leverage the data supporting the metrics to inform them about their progress on wildland risk reduction and determine potential gaps that may arise over time as conditions change. The metrics presented in Supporting Table 2-1 reflect the approved tracking criteria from BVES' first 2019 WMP. As a result of D. 19-05-036, the WSD and Commission developed overarching principles in tracking relevant data that is designed to have measurable results for progress updates. The new metrics are designed with a series of progress-based and outcome-based risk indicators. The following section describes the current 2019 metrics progress as well as presents the new metrics BVES will be tracking to better align and standardize results among the other IOUs.

BVES considered the 2019 metrics tracking and program implementation periods from approval of the 2019 WMPs on and for a 12-month duration. This period spans June 2019 – May 2020. Therefore, BVES has considered there are several months unaccounted for in meeting the annual targets presented in Supporting Table 2-1.

Supporting Table 2-1. 2019 Wildfire Prevention Plan Metrics

Metric Category	Metric	Rationale
Overall Plan	Number of utility-caused fires	Assess overall effectiveness of the WMP
Infrastructure	Number of bare line contact with vegetation	Assess if plan has reduced risk events
	Number of live wire down events	Assess if plan has reduced risk events
	Number of conventional blown fuse events	Assess if plan has reduced risk events
	Number of Poles Tested & Assessed	Determine if plan is on schedule
	Number of Tree Attachments Removed	Determine if plan is on schedule
	Length of Bare Wire Covered (Circuit Miles)	Determine if plan is on schedule
	Number of conventional fuses replaced by current limiting fuses *or fused trip savers (vacuum style)*	Determine if plan is on schedule
Operations	Average Time for Clearance Permissions from Local Agencies	Assess mitigation Plan Constraints and timelines
Customer Service	Number of Customer Service Calls about Tree Trimming	Assess if communications plan has reduced customer concerns and risk events
	SAIDI due to PSPS	Assess outage impact on customers as a result of PSPS

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Weather Conditions	Number of NFDRS "Very Dry" and "Dry" Days	Monitor changing climatic and weather patterns
PSPS	Number of PSPS Events	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns
	Maximum recorded sustained winds and wind gusts	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns
	Frequency of high sustained high winds and wind gusts	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns

Source: BVES

BVES will prepare formal reports, aggregating the monthly metrics, for review by the Director and other executives on an annual schedule. The reports will evaluate whether the metrics are below, meeting, or exceeding their targets. The reports will also include brief updates and correction plans for metrics below target. The Director will provide feedback and additional guidance as necessary.

2.1 Lessons Learned: How 2019 Progress Influenced the 2020 WMP

Attachment 1 Section 2.1 Lessons learned: how tracking metrics on the 2019 plan has informed the 2020 plan

Describe how the utility's plan has evolved since the 2019 WMP submission. Outline any major themes and lessons learned from the 2019 plan and subsequent implementation of the initiatives. In particular, focus on how utility performance against the metrics used has informed the utility's 2020 WMP.

Several challenges and successes resulted from the first year of implementing BVES' 2019 WMP. The utility understands that this process will continue to evolve as the Commission and IOUs aim to refine utility best practices to contribute to a statewide approach in reducing wildland fire risk. Major themes of overall lessons learned include resource/personnel planning for new/enhanced initiatives and recordkeeping practices, external constraints related to materials procurement and siting constraints, weather impacts shortening work order windows, and the continued need to engage public safety partners and community stakeholders to improve community response efforts during Public Safety Power Shutoff (PSPS) events.

BVES' service territory is characterized by mountainous high-altitude terrain. The entirety of its service area is above the 3,000-foot elevation threshold (which requires heavy loading construction standards) and has a high density of trees in a mostly dry environment. Certain remote and heavily forested regions of the utility's service territory contain critical infrastructure and are difficult to access – some mostly only accessible by foot – which creates challenges to upgrading infrastructure and maintaining visibility on the lines. Infrastructure changes to the Radford Area, for example, require the use of helicopters and specially trained linemen to work in the challenging environment. BVES has identified this area for proactive de-energization in the summer due to the high fire risk. The utility's unique local conditions

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require it to go beyond the regulated vegetation clearance standards, the details of which are included in Section 5 of BVES' WMP.

In evaluating the targets set out in this filing, BVES requests that the Commission consider the unique seasonal constraints that the utility faces when performing the necessary grid upgrades and allowing for more leeway in determining 2020 targets. While these service limitations will continue to restrict BVES' flexibility, the need for system and process upgrades to reduce risk of wildfires remains clear. As such, in 2020, BVES is planning to expeditiously address design and permitting needs of projects that typically incur seasonal constraints for years 2021 and beyond.

BVES continues to refine its PSPS protocols beyond the depiction in this WMP to ensure compliance with Phase 1 of R. 18-12-005, the docketed proceeding operating in parallel with the WMP OIR, and other PSPS guidance provided by the Commission. Within the next two to three years, BVES will evaluate any gaps in personnel sufficiency to execute all elements of the WMP and prioritize the resolution of the gaps. Plans for 2020 also include revamping the utility's data collection practices to better align with the ongoing material now required by the WSD and other parties.

BVES has also reviewed its successful project targets for the 2019 year. Deploying the iRestore Responder application for inspections and future response needs has been a successful initiative to prepare for emergency events and identify at-risk elements of the electric system. Data records associated with this software can be easily reviewed and compiled for subsequent evaluation, giving more direct visibility into all of the electrical assets and hazardous surrounding vegetation.

2.2 Recent Performance on Progress Metrics

This is the second annual Wildfire Mitigation Plan submitted by BVES to the Commission for approval. BVES examined past data and used insights and lessons learned from the data to inform the development of the new WMP.

While BVES started on several efforts immediately where applicable in 2019, formal tracking for metrics to illustrate the risk reduction impact have been collected from June 2019 to December 2019, with the intention of continuing to track through May 2020. This effectively would capture the 12-month span. Metrics from 2019 have been tracked on a monthly basis, with a central record-keeping file that is presented to departments to enable ease of tracking and mid-year program evaluations.

Supporting Table 2-2. 2019 WMP Metric Records

Metric Category	Metric	2019 Cycle Progress to Date / Lessons Learned
Overall WMP	Number of utility-caused fires	0 with 1 potential "Near Miss" event in 2019 / BVES evaluated the potential near miss and determined it was not a fire threat. BVES has not experienced a wildfire during the 2019 year and therefore has no direct lessons learned to apply to future practices.
Infrastructure	Number of bare line contact with vegetation	0 risks events identified in 2019.
	Number of live wire down events	0 risks events identified in 2019.
	Number of conventional blown fuse events	1 blown fuse event recorded in 2019.

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	Number of Poles Tested & Assessed	2,512 out of 8,737 poles were tested and assessed to date in this 5-year project (2018-2022) / While this activity has experienced several logistics challenges, it has steadily progressed and remains on track.
	Number of Tree Attachments Removed	273 out 1,207 tree attachment were removed to date in this 5-year project (2018 - 2022) / This activity has presented to have additional challenges in access and resource availability. Throughout 2019, BVES predominately removed tree attachments over the summer months.
	Length of Bare Wire Covered (Circuit Miles)	BVES is ahead of its planned goal of replacing 3 circuit miles (three conductors over the span of one physical mile) by May 2020 / BVES also plans to press forward targeting to exceed its original goal by May. BVES understands that several utilities have experienced postponements with deploying covered conductor due to issues that range from procurement arrivals, resource adequacy, operating windows, access to rough terrain, and permitting delays. BVES is still keeping these voiced concerns in mind for future covered conductor projects.
	Number of conventional fuses replaced by current limiting fuses *or fused trip savers (vacuum style)*	BVES replaced 612 out of a target of 1,602 conventional fuses with current limiting fuses and fused trip savers.
Operations	Average Time for Clearance Permissions from Local Agencies	An averaged time was not determined over 2019, however, BVES understands that this process with permitting and permissions/siting can take up to 12 months prior to a project's construction phase. This metric will be better tracked for projected timelines to enable efficient forecasting of hurdles that may arise that are external to the utility's controls.
Customer Service	Number of Customer Service Calls about Tree Trimming	0
	SAIDI due to PSPS	0 / BVES has not had to initiate a PSPS event from June – December 2019.
Weather Conditions	Number of NFDRS "Very Dry" and "Dry" Days	150 days of these categories combined occurred in (June – December) 2019.
PSPS	Number of PSPS Events	0 / BVES did not have an initiated PSPS event from June 2019 to date. BVES. However, SCE de-energized and/or placed SCE supply lines under PSPS consideration that could have resulted in a complete or partial loss of supply to BVES' customers.
	Maximum recorded sustained winds and wind gusts	For sustained winds: 33.0 mph as recorded by the National Weather Service (NWS) and 77.8 mph as recorded by BVES weather stations. For wind gusts: 53.0 mph for three second wind gust as recorded by NSW and 77.8 mph as recorded by BVES's weather stations.
	Frequency of high sustained high winds and wind gusts	BVES' weather stations captured 2 separate days in which the sustained wind exceeded 50 mph for brief periods while the NWS recorded 1 day of this indicator. BVES' weather stations captured 2 separate days in which the wind gusts exceeded 50 mph for brief periods while the NWS recorded 1 day of this indicator.

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A comprehensive table for recent performance on progress metrics for the last five years is located in the supplemental excel workbook for *Attachment 1*, also reflected below in Table 1.[7]

Table 1. Recent Performance on Progress Metrics: 2015 - 2019

#	Progress metric name				Annual performance					Unit(s)	Comments
					2015	2016	2017	2018	2019		
1	Grid condition findings from inspection	Findings per mile of circuit in HFTD	Level 1		N/A[1]	N/A[1]	0.00000	0.00000	0.00949	Number of Level 1, 2, and 3 findings per mile of circuit in HFTD, and per total miles of circuit for each of the following inspection types: 1. Patrol inspections 2. Detailed inspections 3. Other inspection types	Prior to 2017, inspection and other data which had been being maintained in a database system called Automated Line Patrol System (ALPS) were migrated to a new database system called "Partner." While the old database has been archived and retained, data prior to 2017 is not readily available. During that transition all level 1, 2 or 3 deficiencies had either been corrected or were entered into the new Partner system for tracking and remediation.
			Level 2		N/A[1]	N/A[1]	0.40321	0.25615	0.36526		
			Level 3		N/A[1]	N/A[1]	3.34424	14.93762	0.82539		
		Findings per total circuit miles by inspection type	Patrol Inspections	Level 1	N/A[1]	N/A[1]	0.00000	0.00000	0.00949		
				Level 2	N/A[1]	N/A[1]	0.36526	0.23244	0.23718		
				Level 3	N/A[1]	N/A[1]	1.70296	12.86466	0.09962		
			Detailed Inspections	Level 1	N/A[1]	N/A[1]	0.00000	0.00000	0.00000		
				Level 2	N/A[1]	N/A[1]	0.00000	0.00000	0.12808		
				Level 3	N/A[1]	N/A[1]	0.00474	0.01423	0.72577		
			Other Inspection Types	Level 1	N/A[1]	N/A[1]	0.00000	0.00000	0.00000		
				Level 2	N/A[1]	N/A[1]	0.03795	0.02372	0.00000		
				Level 3	N/A[1]	N/A[1]	1.63654	2.05873	0.00000		
2	Vegetation clearance findings from inspection		N/A[1]		N/A[1]		N/A[1]	N/A[1]	0.02	Percentage of right-of-way with noncompliant clearance based on applicable rules and regulations at the time of inspection, as a percentage of all right-of-way inspected	2019 figure is from October to December. Unable to locate any data prior to October 2019 with the granularity needed to respond.
3	Extent of grid modularization	1. In HFTD			144	144	144	144	144	Number of sectionalizing devices per circuit mile plus number of automated grid control equipment in: 1. HFTD 2. Non-HFTD	Entire BVES service territory is in HTFD 2 or 3.
		2. In Non-HFTD			N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]		
4	Data collection and reporting								97.10%	Percent of data requested in SDR and WMP collected in initial submission	

Note: Values for Table 1. "Grid condition findings from inspection" were calculated by dividing the total number of findings of each type by the total number of overhead circuit miles in BVES's service territory, assuming underground circuits are unaffected by wind conditions. Including underground circuit miles in this calculation would deflate the actual assessment of risk posed by wind and other wildfire-risk conditions.
1. No data available at this time.
2. BVES does not have any portions of its service in non-HFTD.

[7] The supporting workbook: *BVES 2020 WMP Attachment 1* is filed as supplemental material to the WMP narrative with Tables 1 – 31 in a spreadsheet format.

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2.3 Recent Performance on Outcome Metrics, Annual & Normalized for Weather, Last Five Years

A comprehensive table for recent performance on outcome metrics for the last five years is located in the supplemental excel workbook for *Attachment 1* as well as below in Table 2.

Table 2. Recent Performance on Outcome Metrics: 2015 - 2019

Metric type	#	Outcome metric name	Annual performance					Unit(s)	Comments
			2015	2016	2017	2018	2019		
1. Near misses	1.a.	Number of all events (such as unplanned outages, faults, conventional blown fuses, etc.) that could result in ignition, by type according to utility-provided list (total)	28	58	35	20	15	Number per year	
	1.b.	Number of all events (such as unplanned outages, faults, conventional blown fuses, etc.) that could result in ignition, by type according to utility-provided list (normalized)	0.04553	0.01942	0.01057	0.00896	0.01124	Number per RFW circuit mile day per year	
	1.c.	Number of wires down (total)	0	3	0	0	3	Number of wires down per year	
	1.d.	Number of wires down (normalized)	0.00000	0.00100	0.00000	0.00000	0.00225	Number per RFW circuit mile day per year	
2. Utility inspection findings	2.a.	Number of Level 1 findings that could increase the probability of ignition discovered per circuit mile inspected	N/A – no data available at this time	N/A – no data available at this time	0	0	0	Average number of Level 1 findings that could increase the probability of ignition discovered by all inspections per circuit mile per year	Prior to 2017, inspection and other data which had been being maintained in a database system called Automated Line Patrol System (ALPS) were migrated to a new database system called "Partner." While the old database has been archived and retained, data prior to 2017 is not readily available. During that transition all level 1, 2 or 3 deficiencies
	2.b.	Number of Level 2 findings that could increase the probability of ignition discovered per circuit mile inspected	N/A – no data available at this time	N/A – no data available at this time	0	0	0	Average number of Level 2 findings that could increase the probability of ignition discovered by all inspections per circuit mile per year	

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Metric type	#	Outcome metric name	Annual performance					Unit(s)	Comments
			2015	2016	2017	2018	2019		
	2.c.	Number of Level 3 findings that could increase the probability of ignition discovered per circuit mile inspected	N/A – no data available at this time	N/A – no data available at this time	0	0	0	Average number of Level 3 findings that could increase the probability of ignition discovered by all inspections per circuit mile per year	had either been corrected or were entered into the new Partner system for tracking and remediation.
3. Customer hours of PSPS and other outages	3.a.	Customer hours of planned outages including PSPS (total)	1,467	2,112	88,412	6,725	782	Total customer hours of planned outages per year	
	3.b.	Customer hours of planned outages including PSPS (normalized)	2.38563	0.70717	26.69925	3.01434	0.58574	Total customer hours of planned outages per RFW circuit mile day per year	
	3.c.	Customer hours of unplanned outages, not including PSPS (total)	73,785	129,310	155,513	73,619	121,869	Total customer hours of unplanned outages per year	
	3.d.	Customer hours of unplanned outages, not including PSPS (normalized)	119.98873	43.29752	46.96287	32.99817	91.28356	Total customer hours of unplanned outages per RFW circuit mile day per year	
	3.e.	Increase in System Average Interruption Duration Index (SAIDI)	0	0	0	0	0	Change in minutes compared to the previous year	
4. Utility ignited wildfire fatalities	4.a.	Fatalities due to utility-ignited wildfire (total)	0	0	0	0	0	Number of fatalities per year	BVES has not had any utility-ignited wildfires
	4.b.	Fatalities due to utility-ignited wildfire (normalized)	0	0	0	0	0	Number of fatalities per RFW circuit mile day per year	BVES has not had any utility-ignited wildfires
5. Accidental deaths resulting from utility wildfire mitigation initiatives	5.a.	Deaths due to utility wildfire mitigation activities (total)	0	0	0	0	0	Number of fatalities per year	

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Metric type	#	Outcome metric name	Annual performance					Unit(s)	Comments
			2015	2016	2017	2018	2019		
6. OSHA-reportable injuries from utility wildfire mitigation initiatives	6.a.	OSHA-reportable injuries due to utility wildfire mitigation activities (total)	0	0	0	1	0	Number of OSHA-reportable injuries per year	On July 19, 2018, a line worker and the owner of Teele Tree Services made contact with a high voltage power line and sustained non-fatal injuries. The injury did not require reporting under CalOSHA guidelines but BVES chose to report the incident.
	6.b.	OSHA-reportable injuries due to utility wildfire mitigation activities (normalized)	0	0	0	4.74361	0	Number of OSHA-reportable injuries per year per 1000 line miles of grid	BVES has only 210.81 miles of OH lines. Navigant Consulting interpreted this question to mean BVES would have 0.21081 "thousand line miles of grid."
7. Value of assets destroyed by utility-ignited wildfire, listed by asset type	7.a.	Value of assets destroyed by utility-ignited wildfire (total)	0	0	0	0	0	Dollars of damage or destruction per year	BVES has not had any utility-ignited wildfires
	7.b.	Value of assets destroyed by utility-ignited wildfire (normalized)	0	0	0	0	0	Dollars of damage or destruction per RFW circuit mile day per year	BVES has not had any utility-ignited wildfires
8. Structures damaged or destroyed by utility-ignited wildfire	8.a.	Number of structures destroyed by utility-ignited wildfire (total)	0	0	0	0	0	Number of structures destroyed per year	BVES has not had any utility-ignited wildfires
	8.b.	Number of structures destroyed by utility-ignited wildfire (normalized)	0	0	0	0	0	Number of structures destroyed per RFW circuit mile day per year	BVES has not had any utility-ignited wildfires
9. Acreage burned by utility-ignited wildfire	9.a.	Acreage burned by utility-ignited wildfire (total)	0	0	0	0	0	Acres burned per year	BVES has not had any utility-ignited wildfires
	9.b.	Acreage burned by utility-ignited wildfire (normalized)	0	0	0	0	0	Acres burned per RFW circuit mile day per year	BVES has not had any utility-ignited wildfires
10. Number of utility wildfire ignitions	10.a.	Number of ignitions (total) according to existing ignition data reporting requirement	0	0	0	0	0	Number per year	BVES had not had any ignitions

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Metric type	#	Outcome metric name	Annual performance					Unit(s)	Comments
			2015	2016	2017	2018	2019		
	10.b.	Number of ignitions (normalized)	0	0	0	0	0	Number per RFW circuit mile day per year	BVES had not had any ignitions
	10.c.	Number of ignitions in HFTD (subtotal)	0	0	0	0	0	Number in HFTD per year	BVES had not had any ignitions
	10.c.i.	Number of ignitions in HFTD Zone 1	0	0	0	0	0	Number in HFTD Zone 1 per year	BVES had not had any ignitions
	10.c.ii.	Number of ignitions in HFTD Tier 2	0	0	0	0	0	Number in HFTD Tier 2 per year	BVES had not had any ignitions
	10.c.iii.	Number of ignitions in HFTD Tier 3	0	0	0	0	0	Number in HFTD Tier 3 per year	BVES had not had any ignitions
	10.d.	Number of ignitions in HFTD (subtotal, normalized)	0	0	0	0	0	Number in HFTD per RFW circuit mile day per year	BVES had not had any ignitions
	10.d.i.	Number of ignitions in HFTD Zone 1 (normalized)	0	0	0	0	0	Number in HFTD Zone 1 per RFW circuit mile day per year	BVES had not had any ignitions
	10.d.ii.	Number of ignitions in HFTD Tier 2 (normalized)	0	0	0	0	0	Number in HFTD Tier 2 per RFW circuit mile day per year	BVES had not had any ignitions
	10.d.iii.	Number of ignitions in HFTD Tier 3 (normalized)	0	0	0	0	0	Number in HFTD Tier 3 per RFW circuit mile day per year	BVES had not had any ignitions
	10.e.	Number of ignitions in non-HFTD (subtotal)	0	0	0	0	0	Number in non-HFTD per year	BVES had not had any ignitions
	10.f.	Number of ignitions in non-HFTD (normalized)	0	0	0	0	0	Number in non-HFTD per RFW circuit mile day per year	BVES had not had any ignitions
11. Critical infrastructure impacted	11.a.	Critical infrastructure impacted by PSPS	0	0	0	0	0	Number of critical infrastructure (in accordance with D.19-05-042) locations impacted per hour multiplied by hours offline per year	BVES has not needed to initiate any PSPS events
	11.b.	Critical infrastructure impacted by PSPS (normalized)	0	0	0	0	0	Number of critical infrastructure (in accordance with D.19-05-042) locations impacted per hour multiplied by hours offline per RFW circuit mile day per year	BVES has not needed to initiate any PSPS events

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2.3.1 Wildfire Safety Division Adopted Standardized Metrics

As part of the response effort to frontload data supporting the underlying content of the WMP, BVES has incorporated the WSD's adopted metrics to begin tracking in 2020 in addition to BVES' 2019 WMP metrics. These metrics are intended to provide consistency across all respondents of the OIR, provide a holistic picture of the utility's contribution to and impact on objectives set by the WSD and CPUC, and inform utility decision-making for additional upgrades or enhancements. Supporting Table 2-3 presents the identified progress metrics to track implementation starting in 2020.

Supporting Table 2-3. 2020 WMP Progress Metrics

#	Progress metric name	Unit(s)	Sources	Collection frequency	Example options for audit
1	Grid condition findings from inspection	Number of Level 1, 2, and 3 findings per mile of circuit in High Fire-Threat District (HFTD), and per total miles of circuit for each of the following inspection types: 1. Patrol inspections 2. Detailed inspections 3. Other inspection types	Utility reporting	Monthly	Deep-dive audits of select portions of utility grid
2	Vegetation clearance findings from inspection	Percentage of right-of-way with noncompliant clearance based on applicable rules and regulations at the time of inspection	Utility reporting	Monthly	Deep-dive audits of select portions of right-of-way
3	Extreme weather prediction accuracy	Percentage of total PSPS predictions that are false positives or false negatives 2 days before a potential PSPS event	Utility reporting	Post-event	NWS, UCSD, CAL FIRE Predictive Services
4	Extent of grid modularization	Number of sectionalizing devices per circuit mile and number of automated grid control equipment in: 1. HFTD 2. Non-HFTD	Utility reporting	Quarterly	Deep-dive audits of select portions of utility grid
5	Equipment operating load above nameplate capacity	Number of circuit hours operated above nameplate capacity in HFTD areas Average % above nameplate capacity when equipment operated above nameplate capacity in HFTD areas	Utility reporting	Quarterly	Deep-dive audits of select portions of utility grid, CAISO
6	Risk-spend efficiency of resources deployed towards wildfire mitigation efforts	Dollars per incremental life saved Dollars invested per estimated dollars of rebuilt structures avoided Dollars per customer hour of PSPS avoided	Utility reporting	Quarterly	Calculation inputs and methodology for re-computing by third-party

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7	Extent of hardening across grid	Percent of all grid assets in HFTD areas using proven and demonstrated wildfire-resistant equipment	Utility reporting	Monthly	Deep-dive audits of select portions of utility grid
8	Community engagement activity and effectiveness	Percent of residents made aware of PSPS and emergency response procedures in advance of events, according to post-event surveys Percent of residents agreeing to participate in utility wildfire risk-reduction activities (e.g., allowing access to property for utility hazard tree remediation)	Utility reporting	Quarterly	Resident survey, Fire Safety Councils, audit of wildfire risk reduction activity
9	Emergency planning and preparedness	Number of emergency response deficiencies reported by Cal OES, suppression agencies, and other emergency response personnel when plans tested or activated	Utility reporting	Post-event	CAL FIRE, Cal OES, employee survey, Fire Safety Councils
10	Data collection and reporting	Percent of data requested in SDR and WMP collected in initial submission Number of data elements shared publicly by utilities	Utility reporting	Quarterly	Database access and records, party listserv, and surveys

Supporting Table 2-4 below lists the identified outcome metrics to track wildfire risk reduction starting in 2020.

Supporting Table 2-4. 2020 WMP Outcome Metrics

Metric type	#	Outcome metric name	Unit(s)	Sources	Collection frequency	Example options for audit
Group 1A: Generally sourced from utility, leading indicators						
1. Near misses	1.a.	Number of all events (such as unplanned outages, faults, conventional blown fuses, etc.) that could result in ignition, by type according to utility- provided list (total)	Number per year	Utility reporting	Quarterly	Utility repair logs, smart meters, consumer surveys

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	1.b.	Number of all events (such as unplanned outages, faults, conventional blown fuses, etc.) that could result in ignition, by type according to utility-provided list (normalized)	Number per RFW circuit mile day per year	Utility reporting	Quarterly	Utility repair logs, smart meters, consumer surveys
	1.c.	Number of wires down (total)	Number of wires down per year	Utility reporting	Quarterly	Utility repair logs, smart meters, consumer surveys
	1.d.	Number of wires down (normalized)	Number per RFW circuit mile day per year	Utility reporting	Quarterly	Utility repair logs, Smart meters, consumer surveys
2. Utility inspection findings	2.a.	Number of Level 1 findings that could increase the probability of ignition discovered per circuit mile	Average number of Level 1 findings that could increase the probability of ignition discovered by all inspections per circuit mile per year	Utility reporting	Quarterly	Deep-dive audits of select portions of utility grid; utility inspection logs
	2.b.	Number of Level 2 findings that could increase the probability of ignition discovered per circuit mile	Average number of Level 2 findings that could increase the probability of ignition discovered by all inspections per circuit mile per year	Utility reporting	Quarterly	Deep-dive audits of select portions of utility grid; utility inspection logs
	2.c.	Number of Level 3 findings that could increase the probability of ignition discovered per circuit mile	Average number of Level 3 findings that could increase the probability of ignition discovered by all inspections per circuit mile per year	Utility reporting	Quarterly	Deep-dive audits of select portions of utility grid; utility inspection logs
3. Risk spend efficiency of WMP programs	3.a.	Average risk spend efficiency of all WMP programs being undertaken by utility	Incremental cost per grid-wide 1% reduction in utility ignition in HFTD areas	Utility reporting	Quarterly	GRC, wildfire memorandum accounts, third party recalculation
	3.b.	Average risk spend efficiency of wildfire-only WMP programs being undertaken by utility	Incremental cost per grid-wide 1% reduction in utility ignition in HFTD areas	Utility reporting	Quarterly	GRC, third party recalculation

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4. Planned procurement	4.a.	Contracts for future purchases of renewable energy	% of total estimated electricity procurement per year	Utility reporting	Quarterly	Contract review
5. Customer hours of PSPS-based on stress test conditions	5.a.	Percent of customers experiencing PSPS given 95th percentile fire weather conditions along entire grid using utility PSPS decision protocols	Percent of all customers	Utility reporting and modeling, using agreed historical weather conditions	Annual	Third party expert evaluation using utility PSPS decision protocol
	5.b.	Percent of customers experiencing PSPS given 99th percentile fire weather conditions along entire grid using utility PSPS decision protocols	Percent of all customers	Utility reporting and modeling, using agreed historical weather conditions	Annual	Third party expert evaluation using utility PSPS decision protocol
Group 1B: Generally sourced from utility, lagging indicators						
6. Customer hours of PSPS and other outages	6.a.	Customer hours of planned outages including PSPS (total)	Total customer hours of planned outages per year	Utility reporting	Quarterly	Consumer survey, additional data from smart meters
	6.b.	Customer hours of planned outages including PSPS (normalized)	Total customer hours of planned outages per RFW circuit mile day per year	Utility reporting	Quarterly	Consumer survey, additional data from smart meters
	6.c.	Customer hours of unplanned outages, not including PSPS (total)	Total customer hours of unplanned outages per year	Utility reporting	Quarterly	Consumer survey, additional data from smart meters
	6.d.	Customer hours of unplanned outages, not including PSPS (normalized)	Total customer hours of unplanned outages per RFW circuit mile day per year	Utility reporting	Quarterly	Consumer survey, additional data from smart meters
	6.e.	Increase in System Average Interruption Duration Index (SAIDI)	Change in minutes compared to the previous year	Utility reporting	Quarterly collection	Third party auditor, consumer survey, smart meter data

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7. Electricity cost to ratepayers	7.a.	Increase in electric costs to ratepayer due to wildfires (total)	Dollar value rates increase attributable to wildfires per year	Utility reporting	Collected at GRC cadence	TURN, utility reports, consumer surveys
	7.b.	Increase in electric costs to ratepayer due to wildfires (normalized)	Dollar value rates increase attributable to wildfires per RFW circuit mile per year	Utility reporting	Collected at GRC cadence	TURN, utility reports, consumer surveys
	7.c.	Increase in electric costs to ratepayer due to wildfire mitigation activities (total)	Dollar value rates increase attributable to WMPs per year	Utility reporting	Collected at GRC cadence	TURN, utility reports, consumer surveys
8. Actual renewable energy procurement	8.a.	Electricity procured from renewable sources	Percentage of total electricity procured per year	Utility reporting	Annual	Review of contracts with generation companies
Group 2A: Generally sourced from a variety of other stakeholders, leading indicators						
9. Impact of utility ignitions based on ignition simulation	9.a.	Potential impact of ignitions (total)	Number of people residing in evacuation zones of wildfires simulated for each ignition per year, based on in-house or contractors' fire spread models	CAL FIRE and utility reporting	Annual	Satellite data, Fire Safety Council interviews, utility ignition reporting and fire spread modelling
	9.b.	Potential impact of ignitions (normalized)	Number of people residing in evacuation zones of wildfires simulated for each ignition per RFW circuit mile day per year	CAL FIRE and utility reporting	Annual	Satellite data, Fire Safety Council interviews, utility ignition reporting and fire spread modelling
	9.c.	Potential impact of ignitions in HFTD (subtotal)	Number of people residing in evacuation zones of wildfires simulated for each ignition in HFTD per year	CAL FIRE and utility reporting	Annual	Satellite data, Fire Safety Council interviews, utility ignition reporting and fire spread modelling

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9.c.i.	Potential impact of ignitions in HFTD Zone 1	Number of people residing in evacuation zones of wildfires simulated for each ignition in HFTD Zone 1 per year	CAL FIRE and utility reporting	Annual	Satellite data, Fire Safety Council interviews, utility ignition reporting and fire spread modelling
9.c.ii.	Potential impact of ignitions in HFTD Tier 2	Number of people residing in evacuation zones of wildfires simulated for each ignition in HFTD Tier 2 per year	CAL FIRE and utility reporting	Annual	Satellite data, Fire Safety Council interviews, utility ignition reporting and fire spread modelling
9.c.iii.	Potential impact of ignitions in HFTD Tier 3	Number of people residing in evacuation zones of wildfires simulated for each ignition in HFTD Tier 3 per year	CAL FIRE and utility reporting	Annual	Satellite data, Fire Safety Council interviews, utility ignition reporting and fire spread modelling
9.d.	Potential impact of ignitions in HFTD (subtotal, normalized)	Number of people residing in evacuation zones of wildfires simulated for each ignition in HFTD per RFW circuit mile day per year	CAL FIRE and utility reporting	Annual	Satellite data, Fire Safety Council interviews, utility ignition reporting and fire spread modelling
9.d.i	Potential impact of ignitions in HFTD Zone 1 (normalized)	Number of people residing in evacuation zones of wildfires simulated for each ignition in HFTD Zone 1 per RFW circuit mile day	CAL FIRE and utility reporting	Annual	Satellite data, Fire Safety Council interviews, utility ignition reporting and fire spread modelling
9.d.ii.	Potential impact of ignitions in HFTD Tier 2 (normalized)	Number of people residing in evacuation zones of wildfires simulated for each ignition in HFTD Tier 2 per RFW circuit mile day per year	CAL FIRE and utility reporting	Annual	Satellite data, Fire Safety Council interviews, utility ignition reporting and fire spread modelling

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	9.d.iii.	Potential impact of ignitions in HFTD Tier 3 (normalized)	Number of people residing in evacuation zones of wildfires simulated for each ignition in HFTD Tier 3 per RFW circuit mile day per year	CAL FIRE and utility reporting	Annual	Satellite data, Fire Safety Council interviews, utility ignition reporting and fire spread modelling
	9.e.	Potential impact of ignitions in non-HFTD (subtotal)	Number of people residing in evacuation zones of wildfires simulated for each ignition in non-HFTD per year	CAL FIRE and utility reporting	Annual	Satellite data, Fire Safety Council interviews, utility ignition reporting and fire spread modelling
	9.f.	Potential impact of ignitions in non-HFTD (normalized)	Number of people residing in evacuation zones of wildfires simulated for each ignition in non-HFTD per RFW circuit mile day per year	CAL FIRE and utility reporting	Annual	Satellite data, Fire Safety Council interviews, utility ignition reporting and fire spread modelling
Group 2B: Generally sourced from a variety of other stakeholders, lagging indicators						
10. Utility-ignited wildfire fatalities	10.a.	Fatalities due to utility-ignited wildfire (total)	Number of fatalities per year	Classification by fire authority having jurisdiction, utility reporting	Post-incident collection	Satellite data, Cal OES, CAL FIRE
	10.b.	Fatalities due to utility-ignited wildfire (normalized)	Number of fatalities per RFW circuit mile day per year	Classification by fire authority having jurisdiction, utility reporting	Post-incident collection	Satellite data, Cal OES, CAL FIRE
11. Fatalities from utility wildfire mitigation activities	11	Fatalities due to utility wildfire mitigation activities (total)	Number of fatalities per year	Utility OSHA reporting	Post-incident collection	OSHA, utility reporting

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12. OSHA-reportable injuries from utility wildfire mitigation activities	12.a.	OSHA-reportable injuries due to utility wildfire mitigation activities (total)	Number of OSHA-reportable injuries per year	Utility OSHA reporting	Post-incident collection	OSHA, utility reporting
	12.b.	OSHA-reportable injuries due to utility wildfire mitigation activities (normalized)	Number of OSHA-reportable injuries per year per 1000 line miles of grid	Utility OSHA reporting	Post-incident collection	OSHA, utility reporting
13. Value of assets destroyed by utility-ignited wildfire, listed by asset type	13.a.	Value of assets destroyed by utility-ignited wildfire (total)	Dollars of damage or destruction per year	CAL FIRE reporting; financial experts	Post-incident collection	Satellite data, insurance claims, state funding claims
	13.b.	Value of assets destroyed by utility-ignited wildfire (normalized)	Dollars of damage or destruction per RFW circuit mile day per year	CAL FIRE reporting; financial experts	Post-incident collection	Satellite data, insurance claims, state funding claims
14. Structures damaged or destroyed by utility-ignited wildfire	14.a.	Number of structures destroyed by utility-ignited wildfire (total)	Number of structures destroyed per year	CAL FIRE reporting	Post-incident collection	Satellite data, insurance claims, state funding claims
	14.b.	Number of structures destroyed by utility-ignited wildfire (normalized)	Number of structures destroyed per RFW circuit mile day per year	CAL FIRE reporting	Post-incident collection	Satellite data, insurance claims, state funding claims
15. Public impacted by utility-ignited wildfire evacuation	15.a.	Number of people residing in evacuation zone of utility-ignited wildfire (total)	Number of people in evacuation zones of utility ignited wildfire	CAL FIRE and Cal OES reporting	Post-incident collection	State evacuation notices, population density map
	15.b.	Number of people residing in evacuation zone of utility-ignited wildfire (normalized)	Number of people per RFW circuit mile day per year	CAL FIRE and Cal OES reporting	Post-incident collection	State evacuation notices, population density map
	15.c.	Impact of evacuations for utility-ignited wildfire (total)	Person-hours per year	CAL FIRE and Cal OES reporting	Post-incident collection	State evacuation notices, population density map

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	15.d.	Impact of evacuations for utility-ignited wildfire (normalized)	Person-hours per RFW circuit mile day per year	CAL FIRE and Cal OES reporting	Post-incident collection	State evacuation notices, population density map
16. Acreage burned by utility- ignited wildfire	16.a.	Acreage burned by utility-ignited wildfire (total)	Acres burned per year	CAL FIRE	Post-incident collection	Satellite data, post-incident investigation
	16.b.	Acreage burned by utility-ignited wildfire (normalized)	Acres burned per RFW circuit mile day per year	CAL FIRE	Post-incident collection	Satellite data, post-incident investigation
17. Number of utility wildfire ignitions	17.a.	Number of ignitions (total) according to existing ignition data reporting requirement	Number per year	CAL FIRE and utility reporting	Post-incident collection	Satellite data, Fire Safety Council interviews, utility ignition reporting
	17.b.	Number of ignitions (normalized)	Number per RFW circuit mile day per year	CAL FIRE and utility reporting	Post-incident collection	Satellite data, Fire Safety Council interviews, utility ignition reporting
	17.c.	Number of ignitions in HFTD (subtotal)	Number in HFTD per year	CAL FIRE and utility reporting	Post-incident collection	Satellite data, Fire Safety Council interviews, utility ignition reporting
	17.c.i.	Number of ignitions in HFTD Zone 1	Number in HFTD Zone 1 per year	CAL FIRE and utility reporting	Post-incident collection	Satellite data, Fire Safety Council interviews, utility ignition reporting
	17.c.ii.	Number of ignitions in HFTD Tier 2	Number in HFTD Tier 2 per year	CAL FIRE and utility reporting	Post-incident collection	Satellite data, Fire Safety Council interviews, utility ignition reporting
	17.c.iii.	Number of ignitions in HFTD Tier 3	Number in HFTD Tier 3 per year	CAL FIRE and utility reporting	Post-incident collection	Satellite data, Fire Safety Council interviews, utility ignition reporting

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	17.d.	Number of ignitions in HFTD (subtotal, normalized)	Number in HFTD per RFW circuit mile day per year	CAL FIRE and utility reporting	Post-incident collection	Satellite data, Fire Safety Council interviews, utility ignition reporting
	17.d.i.	Number of ignitions in HFTD Zone 1 (normalized)	Number in HFTD Zone 1 per RFW circuit mile day per year	CAL FIRE and utility reporting	Post-incident collection	Satellite data, Fire Safety Council interviews, utility ignition reporting
	17.d.ii.	Number of ignitions in HFTD Tier 2 (normalized)	Number in HFTD Tier 2 per RFW circuit mile day per year	CAL FIRE and utility reporting	Post-incident collection	Satellite data, Fire Safety Council interviews, utility ignition reporting
	17.d.iii.	Number of ignitions in HFTD Tier 3 (normalized)	Number in HFTD Tier 3 per RFW circuit mile day per year	CAL FIRE and utility reporting	Post-incident collection	Satellite data, Fire Safety Council interviews, utility ignition reporting
	17.e.	Number of ignitions in non-HFTD (subtotal)	Number in non-HFTD per year	CAL FIRE and utility reporting	Post-incident collection	Satellite data, Fire Safety Council interviews, utility ignition reporting
	17.f.	Number of ignitions in non-HFTD (normalized)	Number in non-HFTD per RFW circuit mile day per year	CAL FIRE and utility reporting	Post-incident collection	Satellite data, Fire Safety Council interviews, utility ignition reporting
18. Estimated GHG emissions from utility- ignited wildfire	18.a.	GHG emissions from utility-ignited wildfires (total)	Estimated tons of carbon dioxide equivalent emitted per year	Cal ARB	Annual	CNRA calculations, USGS, independent analysis
	18.b.	GHG emissions from utility-ignited wildfires (normalized)	Estimated tons of carbon dioxide equivalent emitted per RFW circuit mile day per year	Cal ARB	Annual	CNRA calculations, USGS, independent analysis

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19. Transportation impacted by PSPS	19.a.	Critical transportation infrastructure impacted due to PSPS	Driver and rider-hours lost (in ridership per hour multiplied by incremental increase in commute time by hours closed) per year	Cal OES	Post-incident collection	California Transit Association, contemporary Google maps estimated travel time estimates
	19.b.	Major roads impacted due to PSPS (normalized)	Driver and rider-hours lost (in ridership per hour multiplied by incremental increase in commute time by hours closed) per RFW circuit mile day per year	Cal OES	Post-incident collection	California Transit Association, contemporary Google maps estimated travel time estimates
20. Critical infrastructure impacted	20.a.	Critical infrastructure impacted by PSPS	Number of critical infrastructure locations impacted per hour multiplied by hours offline per year	Utility, Cal OES	Post-incident collection	Utility data, Cal OES, survey of critical infrastructure personnel
	20.b.	Critical infrastructure impacted by PSPS (normalized)	Number of critical infrastructure locations impacted per hour multiplied by hours offline per RFW circuit mile day per year	Utility, Cal OES	Post-incident collection	Utility data, Cal OES, survey of critical infrastructure personnel

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2.4 Description of Additional Metrics

A comprehensive table that lists and describes additional metrics over the last five years is located in the supplemental excel workbook for *Attachment 1* as well as below in Table 3.

Table 3. List and Description of Additional Metrics: 2015 - 2019

Metric Category	Metric	Performance					Units	Underlying assumptions	Third-party validation
		2015	2016	2017	2018	2019			
Overall Plan	Number of reportable fire incidents (D14-02-015 Appendix C: Fire Incident Data Collection Plan)	N/A[1]	N/A[1]	N/A[1]	N/A[1]	0	Number of incidents	Assess overall effectiveness of the plan	Contracted 3rd party analysts or academic researchers could review open as well as closed work orders, BVES GIS databases, staff interviews, as well as spot-checking select items for confirmation of status.
Infrastructure	Number of bare line contact with vegetation	N/A[1]	N/A[1]	N/A[1]	N/A[1]	0	Number of contact events	Assess if plan has reduced risk events	Contracted 3rd party analysts or academic researchers could review open as well as closed work orders, BVES GIS databases, staff interviews, as well as spot-checking select items for confirmation of status.
	Number of live wire down events	N/A[1]	N/A[1]	N/A[1]	N/A[1]	0	Number of events	Assess if plan has reduced risk events	
	Number of conventional blown fuse events	N/A[1]	N/A[1]	N/A[1]	N/A[1]	1	Number of events	Assess if plan has reduced risk events	
	Number of poles assessed	N/A[1]	N/A[1]	N/A[1]	N/A[1]	553	Number of poles	Determine if plan is on schedule	
	Number of poles that failed assessment (wind loading, age, deterioration, unfixable GO-95 violation)	N/A[1]	N/A[1]	N/A[1]	N/A[1]	384	Number of poles	Determine if plan is on schedule	
	Number of poles replaced as a result of failed assessments	N/A[1]	N/A[1]	N/A[1]	N/A[1]	215	Number of poles	Determine if plan is on schedule	
	Number of poles remediated as a result of failed assessments	N/A[1]	N/A[1]	N/A[1]	N/A[1]	61	Number poles	Determine if plan is on schedule	
	Number of Tree Attachments Removed	N/A[1]	N/A[1]	N/A[1]	N/A[1]	43	Number of attachments	Determine if plan is on schedule	
	Number of new poles installed as a result of Tree Attachments Removed	N/A[1]	N/A[1]	N/A[1]	N/A[1]	9	Number of poles	Determine if plan is on schedule	
	Length of Bare Wire Covered (Circuit Miles)	N/A[1]	N/A[1]	N/A[1]	N/A[1]	1	Length of wire (circuit miles)	Determine if plan is on schedule	
	Number of conventional fuses replaced by current limiting fuses	N/A[1]	N/A[1]	N/A[1]	N/A[1]	285	Number of fuses	Determine if plan is on schedule	

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Metric Category	Metric	Performance					Units	Underlying assumptions	Third-party validation
		2015	2016	2017	2018	2019			
	Number of conventional fuses replaced by fused trip savers (vacuum style)	N/A[1]	N/A[1]	N/A[1]	N/A[1]	8	Number of fuses	Determine if plan is on schedule	
System Hardening	Number of Conventional fuses in system	N/A[1]	N/A[1]	N/A[1]	N/A[1]	3,374	Number of fuses	Assess overall system hardening	Contracted 3rd party analysts or academic researchers could review open as well as closed work orders, BVES GIS databases, staff interviews, as well as spot-checking select items for confirmation of status.
	Percent of 34.5 kV System that is Overhead Bare Wire	N/A[1]	N/A[1]	N/A[1]	N/A[1]	93.93%	Percent of 34.5 kV circuit miles	Assess overall system hardening	
	Percent of 34.5 kV System that is Underground	N/A[1]	N/A[1]	N/A[1]	N/A[1]	2.74%	Percent of 34.5 kV circuit miles	Assess overall system hardening	
	Percent of 34.5 kV System that is Covered Wire	N/A[1]	N/A[1]	N/A[1]	N/A[1]	3.33%	Percent of 34.5 kV circuit miles	Assess overall system hardening	
	Percent of 4 kV System that is Overhead Bare Wire	N/A[1]	N/A[1]	N/A[1]	N/A[1]	71.56%	Percent of 4 kV circuit miles	Assess overall system hardening	
	Percent of 4 kV System that is Underground	N/A[1]	N/A[1]	N/A[1]	N/A[1]	28.44%	Percent of 4 kV circuit miles	Assess overall system hardening	
	Percent of 4 kV System that is Covered Wire	N/A[1]	N/A[1]	N/A[1]	N/A[1]	0.00%	Percent of 4 kV circuit miles	Assess overall system hardening	
	Number of Tree Attachments Remaining in System	N/A[1]	N/A[1]	N/A[1]	N/A[1]	973	Number of attachments	Assess overall system hardening	
Operations	Number of "Urgent" Vegetation Orders Issued (must be corrected w/30 days)	N/A[1]	N/A[1]	N/A[1]	N/A[1]	34	Number of orders	Assess if vegetation management plan has reduced risk events	Contracted 3rd party analysts or academic researchers could review open as well as closed work orders, BVES GIS databases, staff interviews, as well as spot-checking select items for confirmation of status.
	Number of "Urgent" Vegetation Orders Outstanding	N/A[1]	N/A[1]	N/A[1]	N/A[1]	0	Number of orders	Determine if plan is on schedule	
	Number of Trees Trimmed	N/A[1]	N/A[1]	N/A[1]	N/A[1]	5,378	Number of trees	Determine if plan is on schedule	
	Number of Trees Removed	N/A[1]	N/A[1]	N/A[1]	N/A[1]	87	Number of trees	Determine if plan is on schedule	
	Percent of OH System Cleared by Tree Trimming Crews	N/A[1]	N/A[1]	N/A[1]	N/A[1]	30.61%	Percent of OH system	Determine if plan is on schedule	
	Number of Level 1 GO-95 Potential Non-Compliance (Immediate risk of high potential impact to safety or reliability) Items Identified	N/A[1]	N/A[1]	N/A[1]	N/A[1]	0	Number of Items	Determine if plan is on schedule	
	Number of Level 1 GO-95 Potential Non-Compliance (Immediate risk of high potential impact to safety or reliability) Items Outstanding	N/A[1]	N/A[1]	N/A[1]	N/A[1]	0	Number of Items	Determine if plan is on schedule	
	Number of Level 2 GO-95 Potential Non-Compliance (Any other risk of at least moderate potential impact to safety or reliability) Items Identified	N/A[1]	N/A[1]	N/A[1]	N/A[1]	52	Number of Items	Determine if plan is on schedule	

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Metric Category	Metric	Performance					Units	Underlying assumptions	Third-party validation
		2015	2016	2017	2018	2019			
	Number of Level 2 GO-95 Potential Non-Compliance (Any other risk of at least moderate potential impact to safety or reliability) Items Outstanding	N/A[1]	N/A[1]	N/A[1]	N/A[1]	0	Number of Items	Determine if plan is on schedule	
	Number of Level 3 GO-95 Potential Non-Compliance (Any risk of low potential impact to safety or reliability) Items Identified	N/A[1]	N/A[1]	N/A[1]	N/A[1]	139	Number Items	Determine if plan is on schedule	
	Number of Level 3 GO-95 Potential Non-Compliance (Any risk of low potential impact to safety or reliability) Items Outstanding	N/A[1]	N/A[1]	N/A[1]	N/A[1]	0	Number Items	Determine if plan is on schedule	
	Number of Circuit Miles Patrolled per GO-165	N/A[1]	N/A[1]	N/A[1]	N/A[1]	118.61	Number of Circuit Miles	Determine if plan is on schedule	
	Number of Circuit Miles Inspected per GO-165 (detailed inspection)	N/A[1]	N/A[1]	N/A[1]	N/A[1]	12	Number of Circuit Miles	Determine if plan is on schedule	
	Number of Poles Intrusively Inspected	N/A[1]	N/A[1]	N/A[1]	N/A[1]	46	Number of Poles	Determine if plan is on schedule	
	Number of Poles Failing Intrusive Inspection	N/A[1]	N/A[1]	N/A[1]	N/A[1]	9	Number of Poles	Determine if plan is on schedule	
	Number of Circuit Miles of LiDAR Survey	N/A[1]	N/A[1]	N/A[1]	N/A[1]	0	Number of Circuit Miles	Determine if plan is on schedule	
	Number of LiDAR trouble spots	N/A[1]	N/A[1]	N/A[1]	N/A[1]	0	Number of spots	Determine if plan is on schedule	
	Number of Circuit Miles of Exacter Survey	N/A[1]	N/A[1]	N/A[1]	N/A[1]	120	Number of Circuit Miles	Assess if communications plan has reduced customer concerns and risk events	
	Number of Exacter trouble spots	N/A[1]	N/A[1]	N/A[1]	N/A[1]	10	Number of trouble spots	Assess outage impact on customers as a result of PSPS	
Customer Service	Number of Customer Service Calls about Tree Trimming	N/A[1]	N/A[1]	N/A[1]	N/A[1]	0	Number of Calls	Monitor changing climatic and weather patterns	Contracted 3rd party analysts or academic researchers could review open as well as closed work orders, BVES GIS databases, staff interviews, as well as spot-checking select items for confirmation of status.
	SAIDI due to PSPS	N/A[1]	N/A[1]	N/A[1]	N/A[1]	0	System Average Interruption Duration Index	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	
Weather Conditions	Number of NFDRS "Very Dry" and "Dry" Days	N/A[1]	N/A[1]	N/A[1]	N/A[1]	150	Number of Days	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	Contracted 3rd party analysts or academic researchers could review open as well as closed work orders, BVES GIS databases, staff interviews, as well as

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Metric Category	Metric	Performance					Units	Underlying assumptions	Third-party validation
		2015	2016	2017	2018	2019			
									spot-checking select items for confirmation of status.
PSPS	Number of PSPS Events	N/A[1]	N/A[1]	N/A[1]	N/A[1]	0	Number of Events	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	Contracted 3rd party analysts or academic researchers could review open as well as closed work orders, BVES GIS databases, staff interviews, as well as spot-checking select items for confirmation of status.
	Maximum recorded sustained winds Recorded by NWS	N/A[1]	N/A[1]	N/A[1]	N/A[1]	33	Miles per Hour	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	
	Maximum recorded sustained winds Recorded by BVES Weather Stations	N/A[1]	N/A[1]	N/A[1]	N/A[1]	77.8	Miles per Hour	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	
	Maximum recorded wind gusts Recorded by NWS	N/A[1]	N/A[1]	N/A[1]	N/A[1]	53	Miles per Hour	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	
	Maximum recorded wind gusts Recorded by BVES Weather Stations	N/A[1]	N/A[1]	N/A[1]	N/A[1]	77.8	Miles per Hour	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	
	Frequency of sustained high winds (number of days sustained wind > 50 mph) recorded by NWS	N/A[1]	N/A[1]	N/A[1]	N/A[1]	0	Number of Days	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	
	Frequency of sustained high winds (number of days sustained wind > 50 mph) recorded by BVES weather stations	N/A[1]	N/A[1]	N/A[1]	N/A[1]	2	Number of Days	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	
	Frequency of high wind gusts (number of days wind gusts > 50 mph) recorded by NWS	N/A[1]	N/A[1]	N/A[1]	N/A[1]	1	Number of Days	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	
	Frequency of high wind gusts (number of days wind gusts > 50 mph) recorded by BVES weather stations	N/A[1]	N/A[1]	N/A[1]	N/A[1]	2	Number of Days	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	

Note: Data from 2015-2018 is unavailable as these metrics were not recorded prior to implementation of the current (2019) WMP, which took effect June 2019.
1. BVES has not previously recorded this metric prior to the 2019 WMP.

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2.5 Description of Program Targets

A comprehensive table describing the program targets for the WMP is located in the supplemental excel workbook for *Attachment 1* as well as below in Table 4.

Table 4. List and Description of Program Targets: 2015 - 2019

Metric Category	Metric	Program target	2019 performance	Units	Underlying assumptions	Third-party validation
Overall Plan	Number of reportable fire incidents (D14-02-015 Appendix C: Fire Incident Data Collection Plan)	0	0	Number of incidents	Assess overall effectiveness of the plan	Contracted 3rd party analysts or academic researchers could review open as well as closed work orders, BVES GIS databases, staff interviews, as well as spot-checking select items for confirmation of status.
Infrastructure	Number of bare line contact with vegetation	<5	0	Number of contact events	Assess if plan has reduced risk events	Contracted 3rd party analysts or academic researchers could review open as well as closed work orders, BVES GIS databases, staff interviews, as well as spot-checking select items for confirmation of status.
	Number of live wire down events	<1	0	Number of events	Assess if plan has reduced risk events	
	Number of conventional blown fuse events	<5	1	Number of events	Assess if plan has reduced risk events	
	Number of poles assessed	500	553	Number of poles	Determine if plan is on schedule	
	Number of poles that failed assessment (wind loading, age, deterioration, unfixable GO-95 violation)	N/A – this program does not have a specific target	384	Number of poles	Determine if plan is on schedule	
	Number of poles replaced as a result of failed assessments	N/A – this program does not have a specific target	215	Number of poles	Determine if plan is on schedule	
	Number of poles remediated as a result of failed assessments	N/A – this program does not have a specific target	61	Number poles	Determine if plan is on schedule	
	Number of Tree Attachments Removed	75	43	Number of attachments	Determine if plan is on schedule	

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Metric Category	Metric	Program target	2019 performance	Units	Underlying assumptions	Third-party validation
	Number of new poles installed as a result of Tree Attachments Removed	N/A – this program does not have a specific target	9	Number of poles	Determine if plan is on schedule	
	Length of Bare Wire Covered (Circuit Miles)	1	1	Length of wire (circuit miles)	Determine if plan is on schedule	
	Number of conventional fuses replaced by current limiting fuses	1,288	583	Number of fuses	Determine if plan is on schedule	
	Number of conventional fuses replaced by fused trip savers (vacuum style)	314	29	Number of fuses	Determine if plan is on schedule	
System Hardening	Number of Conventional fuses in system	N/A – this program does not have a specific target	3374	Number of fuses	Assess overall system hardening	Contracted 3rd party analysts or academic researchers could review open as well as closed work orders, BVES GIS databases, staff interviews, as well as spot-checking select items for confirmation of status.
	Percent of 34.5 kV System that is Overhead Bare Wire	N/A – this program does not have a specific target	0.9393	Percent of 34.5 kV circuit miles	Assess overall system hardening	
	Percent of 34.5 kV System that is Underground	N/A – this program does not have a specific target	0.0274	Percent of 34.5 kV circuit miles	Assess overall system hardening	
	Percent of 34.5 kV System that is Covered Wire	N/A – this program does not have a specific target	0.0333	Percent of 34.5 kV circuit miles	Assess overall system hardening	
	Percent of 4 kV System that is Overhead Bare Wire	N/A – this program does not have a specific target	0.7156	Percent of 4 kV circuit miles	Assess overall system hardening	
	Percent of 4 kV System that is Underground	N/A – this program does not have a specific target	0.2844	Percent of 4 kV circuit miles	Assess overall system hardening	
	Percent of 4 kV System that is Covered Wire	N/A – this program does not have a specific target	0	Percent of 4 kV circuit miles	Assess overall system hardening	
	Number of Tree Attachments Remaining in System	N/A – this program does not have a specific target	973	Number of attachments	Assess overall system hardening	

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Metric Category	Metric	Program target	2019 performance	Units	Underlying assumptions	Third-party validation
Operations	Number of "Urgent" Vegetation Orders Issued (must be corrected w/30 days)	N/A – this program does not have a specific target	34	Number of orders	Assess if vegetation management plan has reduced risk events	Contracted 3rd party analysts or academic researchers could review open as well as closed work orders, BVES GIS databases, staff interviews, as well as spot-checking select items for confirmation of status.
	Number of "Urgent" Vegetation Orders Outstanding)	0	0	Number of orders	Determine if plan is on schedule	
	Number of Trees Trimmed	N/A – this program does not have a specific target	5378	Number of trees	Determine if plan is on schedule	
	Number of Trees Removed	N/A – this program does not have a specific target	87	Number of trees	Determine if plan is on schedule	
	Percent of OH System Cleared by Tree Trimming Crews	0.15	0.306122449	Percent of OH system	Determine if plan is on schedule	
	Number of Level 1 GO-95 Potential Non-Compliance (Immediate risk of high potential impact to safety or reliability) Items Identified	0	0	Number of Items	Determine if plan is on schedule	
	Number of Level 1 GO-95 Potential Non-Compliance (Immediate risk of high potential impact to safety or reliability) Items Outstanding	0	0	Number of Items	Determine if plan is on schedule	
	Number of Level 2 GO-95 Potential Non-Compliance (Any other risk of at least moderate potential impact to safety or reliability) Items Identified	<50	52	Number of Items	Determine if plan is on schedule	

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Metric Category	Metric	Program target	2019 performance	Units	Underlying assumptions	Third-party validation
	Number of Level 2 GO-95 Potential Non-Compliance (Any other risk of at least moderate potential impact to safety or reliability) Items Outstanding	0	0	Number of Items	Determine if plan is on schedule	
	Number of Level 3 GO-95 Potential Non-Compliance (Any risk of low potential impact to safety or reliability) Items Identified	< 1500	139	Number Items	Determine if plan is on schedule	
	Number of Level 3 GO-95 Potential Non-Compliance (Any risk of low potential impact to safety or reliability) Items Outstanding	0	0	Number Items	Determine if plan is on schedule	
	Number of Circuit Miles Patrolled per GO-165	118	118.61	Number of Circuit Miles	Determine if plan is on schedule	
	Number of Circuit Miles Inspected per GO-165 (detailed inspection)	12	12	Number of Circuit Miles	Determine if plan is on schedule	
	Number of Poles Intrusively Inspected	45	46	Number of Poles	Determine if plan is on schedule	
	Number of Poles Failing Intrusive Inspection	N/A – this program does not have a specific target	9	Number of Poles	Determine if plan is on schedule	
	Number of Circuit Miles of LiDAR Survey	211	0	Number of Circuit Miles	Determine if plan is on schedule	
	Number of LiDAR trouble spots	N/A – this program does not have a specific target	0	Number of spots	Determine if plan is on schedule	
	Number of Circuit Miles of Exacter Survey	<30	120	Number of Circuit Miles	Assess if communications plan has reduced customer concerns and risk events	

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Metric Category	Metric	Program target	2019 performance	Units	Underlying assumptions	Third-party validation
	Number of Exacter trouble spots	N/A – this program does not have a specific target	10	Number of trouble spots	Assess outage impact on customers as a result of PSPS	
Customer Service	Number of Customer Service Calls about Tree Trimming	N/A – this program does not have a specific target	0	Number of Calls	Monitor changing climatic and weather patterns	Contracted 3rd party analysts or academic researchers could review open as well as closed work orders, BVES GIS databases, staff interviews, as well as spot-checking select items for confirmation of status.
	SAIDI due to PSPS	N/A – this program does not have a specific target	0	System Average Interruption Duration Index	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	
Weather Conditions	Number of NFDRS "Very Dry" and "Dry" Days	N/A – this program does not have a specific target	150	Number of Days	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	Contracted 3rd party analysts or academic researchers could review open as well as closed work orders, BVES GIS databases, staff interviews, as well as spot-checking select items for confirmation of status.
PSPS	Number of PSPS Events	N/A – this program does not have a specific target	0	Number of Events	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	Contracted 3rd party analysts or academic researchers could review open as well as closed work orders, BVES GIS databases, staff interviews, as well as spot-checking select items for confirmation of status.
	Maximum recorded sustained winds Recorded by NWS	N/A – this program does not have a specific target	33	Miles per Hour	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	
	Maximum recorded sustained winds Recorded by BVES Weather Stations	N/A – this program does not have a specific target	77.8	Miles per Hour	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	
	Maximum recorded wind gusts Recorded by NWS	N/A – this program does not have a specific target	53	Miles per Hour	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	

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Metric Category	Metric	Program target	2019 performance	Units	Underlying assumptions	Third-party validation
	Maximum recorded wind gusts Recorded by BVES Weather Stations	N/A – this program does not have a specific target	77.8	Miles per Hour	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	
	Frequency of sustained high winds (number of days sustained wind > 50 mph) recorded by NWS	N/A – this program does not have a specific target	0	Number of Days	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	
	Frequency of sustained high winds (number of days sustained wind > 50 mph) recorded by BVES weather stations	N/A – this program does not have a specific target	2	Number of Days	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	
	Frequency of high wind gusts (number of days wind gusts > 50 mph) recorded by NWS	N/A – this program does not have a specific target	1	Number of Days	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	
	Frequency of high wind gusts (number of days wind gusts > 50 mph) recorded by BVES weather stations	N/A – this program does not have a specific target	2	Number of Days	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	

Note: The “2019 Performance” column only captures data from June 2019 (2019 WMP implementation start) to January 2020. Some "Program Targets" are estimates for May 2020 (2019 WMP end) based on June 2019-January 2020 performance.

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2.6 Detailed information supporting outcome metrics

The tables below describe accidental deaths, OSHA-reported injuries, and a description of BVES' methodology for potential impact of ignitions. See Table 5, Table 6, and Table 7. These tables are also presented in the supplemental excel workbook for *Attachment 1*.

Table 5. Accidental Deaths due to Utility Wildfire Mitigation Initiatives: 2015 - 2019

Activity	Victim															Total
	Full-time employee					Contractor					Member of public					
Year	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	
Inspection	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vegetation management	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utility fuel management	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grid hardening	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 6. OSHA-Reportable Injuries due to Utility Wildfire Mitigation Initiatives: 2015 - 2019

Activity	Victim															Total
	Full-time employee					Contractor					Member of public					
Year	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	
Inspection	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vegetation management	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Utility fuel management	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grid hardening	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	

Note: On July 19, 2018, a line worker and the owner of Teele Tree Services made contact with a high voltage power line and sustained non-fatal injuries. The injury did not require reporting under CalOSHA guidelines but BVES chose to report the incident.

Table 7. Methodology for Potential Impact of Ignitions

List of all data inputs used in impact simulation	Sources of data inputs	Data selection and treatment methodologies	Assumptions, including SME input	Equation(s), functions, or other algorithms used to obtain output	Output type(s), e.g., wind speed model	Comments
N/A - Bear Valley Electric Service does not have a proprietary model or methodology for evaluating the potential impact of	N/A - Bear Valley Electric Service does not have a proprietary model or methodology for evaluating the potential impact of	N/A - Bear Valley Electric Service does not have a proprietary model or methodology for evaluating the potential impact of ignitions. The utility's Subject	N/A - Bear Valley Electric Service does not have a proprietary model or methodology for evaluating the potential impact of	N/A - Bear Valley Electric Service does not have a proprietary model or methodology for evaluating the potential impact of ignitions. The utility's Subject Matter Expert	N/A - Bear Valley Electric Service does not have a proprietary model or methodology for evaluating the potential impact of	N/A - Bear Valley Electric Service does not have a proprietary model or methodology for evaluating the potential impact of ignitions. The utility's Subject Matter Expert evaluates the

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List of all data inputs used in impact simulation	Sources of data inputs	Data selection and treatment methodologies	Assumptions, including SME input	Equation(s), functions, or other algorithms used to obtain output	Output type(s), e.g., wind speed model	Comments
ignitions. The utility's Subject Matter Expert evaluates the frequency of potential ignition events versus a set of impact categories (reliability, compliance, quality of service, safety and environmental) to develop total risk impact and scores.	ignitions. The utility's Subject Matter Expert evaluates the frequency of potential ignition events versus a set of impact categories (reliability, compliance, quality of service, safety and environmental) to develop total risk impact and scores.	Matter Expert evaluates the frequency of potential ignition events versus a set of impact categories (reliability, compliance, quality of service, safety and environmental) to develop total risk impact and scores.	ignitions. The utility's Subject Matter Expert evaluates the frequency of potential ignition events versus a set of impact categories (reliability, compliance, quality of service, safety and environmental) to develop total risk impact and scores.	evaluates the frequency of potential ignition events versus a set of impact categories (reliability, compliance, quality of service, safety and environmental) to develop total risk impact and scores.	ignitions. The utility's Subject Matter Expert evaluates the frequency of potential ignition events versus a set of impact categories (reliability, compliance, quality of service, safety and environmental) to develop total risk impact and scores.	frequency of potential ignition events versus a set of impact categories (reliability, compliance, quality of service, safety and environmental) to develop total risk impact and scores.

Note: Bear Valley Electric Service does not have a proprietary model or methodology for evaluating the potential impact of ignitions. The utility's Subject Matter Expert evaluates the frequency of potential ignition events versus a set of impact categories (reliability, compliance, quality of service, safety and environmental) to develop total risk impact and scores.

2.7 Mapping Recent, Modeled, and Baseline Conditions

Table 8 below describes the map file requirements for recent and modelled conditions of the service territory over the last five years. This table is also included in the supplemental excel workbook for *Attachment 1*.

Table 8. Map File Requirements for Recent and Modeled Conditions of Utility Service Territory: 2015 - 2019

Layer name	Measurements	2015	2016	2017	2018	2019	Average	Units	Attachment location	Comments
Recent weather patterns	Average annual number of Red Flag Warning days per square mile across service territory	0.0912	0.4427	0.4909	0.3307	0.1979	0.3107	Area, days, square mile resolution	N/A[1]	BVES's service territory is 32 square miles
	Average 95th percentile wind speed and prevailing direction (actual)	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	Area, miles per hour, at a square mile resolution or better, noting where measurements are actual or interpolated		BVES is unable to provide this data for each year at this time.
	Average 99th percentile wind speed and prevailing direction (actual)	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]			

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Layer name	Measurements	2015	2016	2017	2018	2019	Average	Units	Attachment location	Comments
Recent drivers of ignition probability	Date of recent ignitions categorized by ignition probability driver	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	Point, GPS coordinate, days, square mile resolution	N/A[2]	BVES has not had any recent ignitions
Recent use of PSPS	Duration of PSPS events and area of the grid affected in customer hours per year	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	Area, customer hours, square mile resolution	N/A[2]	BVES has not had any recent use of PSPS

Note: BVES is unable to provide the above requested data in GIS map file format at this time. BVES has no non-HFTD territory, i.e., the territory is completing within the HFTD and include entirely rural communities respective to the WUI designations.
1. BVES is unable to provide this data at this time.
2. Events did not occur within 2015 – 2019; not applicable

The tables below describe the map files for which BVES maintains records. Table 9 and the associated tables are broken out to provide additional detail on the required items and are also included in the supplemental excel workbook for *Attachment 1*.

Table 9. Map File Requirements for Baseline Condition of Utility Service Territory Projected for 2020

Layer Name	Measurements/Variables	Value	Unit(s)	Appendix Location
Current baseline state of service territory and all utility equipment	Non-HFTD vs HFTD (Zone 1, Tier 2, Tier 3) regions of utility service territory	N/A[1]	Area, square mile resolution per type	N/A[1]
	Urban vs. rural vs. highly rural regions of utility service territory	N/A[1]	Area, square mile resolution per type	
	WUI regions of utility service territory	N/A[1]	Area, square mile resolution per type	

Note: BVES is unable to provide most of the data requested in GIS format at this time. The GIS file(s) provided with this WMP submission include information on customer distribution location of all utility assets such as distribution lines (the utility does not operate any transmission lines according to the Commission's definition thereof), substations, generating facilities, switches, etc.
1. BVES does not have this information at this time and only has service territory within Tier 2 and 3 of the HFTD with the territory being entirely rural.

Where such data cannot be provided in GIS format at this time, the utility has provided the data it can in the following tables below. Line items in red text under "Location of Weather Stations" represent planned future additions.

Table 9a. Map File Requirements for Baseline Condition of Utility Service Territory: Critical Facilities

Layer Name	Measurements /Variables	Critical Facility	Address	GPS Coordinate	Unit(s)	Appendix Location
Current baseline state of service territory and utility equipment	Number and location of critical facilities	City of Big Bear Lake (CBBL)	39707 Big Bear Blvd. Big Bear Lake, CA	34.238138, -116.935334	Point, GPS Coordinate	N/A
		Big Bear Fire Department	41090 Big Bear Blvd. Big Bear Lake CA	34.244454, -116.905308		
		Mountaintop Ranger District, U.S. Forest Service	41374 North Shore Drive, Highway 38 Fawnskin, CA 92333	34.263421, -116.900904		

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Layer Name	Measurements /Variables	Critical Facility	Address	GPS Coordinate	Unit(s)	Appendix Location
		San Bernardino County Sherriff's Department Big Bear Lake Patrol Station	477 Summit Blvd. Big Bear Lake, CA 92315	34.243900, -116.887824		
		Big Bear Area Regional Wastewater Agency (BBARWA)	121 Palomino Dr, Big Bear City, CA 92314	34.267869, -116.814973		
		Big Bear City Community Services District (CSD)	139 E. Big Bear Blvd. Ca 92314	34.261530, -116.844248		
		Big Bear Lake Water Department (DWP)	41972 Garstin Dr. Big Bear Lake, CA 92315	34.246650, -116.886294		
		Big Bear Municipal Water District (MWD)	40524 Lakeview CT, Big Bear Lake, CA 92315	34.242787, -116.917948		
		Southwest Gas Corporation	140 Business Center Dr. Big Bear Lake, CA 92315	34.249530, -116.888579		
		Bear Valley Community Hospital	41870 Garstin Dr. Big Bear Lake, Ca 92315	34.246529, -116.881211		
		Bear Valley Unified School District	42271 Moonridge Rd. CA 92315	34.242345, -116.881211		
		Big Bear Chamber of Commerce	630 Bartlett Rd. Big Bear Lake, CA 92315	34.241133, -116.912336		
		Big Bear Airport District	501 W. Valley Blvd. Big Bear City, CA 92314	34.261844, -116.853605		
		Big Bear Mountain Resort/ Summit	880 Summit Blvd. Big Bear Lake, Ca 92315	34.236417, -116.889272		

Table 9b. Map File Requirements for Baseline Condition of Utility Service Territory: Customers & OH T&D Lines

Layer Name	Measurements/Variables	Value	Unit(s)	Appendix Location
Current baseline state of service territory and all utility equipment	Number and location of customers	N/A[1]	Area, number of people, square mile resolution	N/A[1]
	Number and Location of customers belonging to access and functional needs populations	N/A[1]	Area, number of people, square mile resolution	
	Overhead transmission lines	N/A[1]	Line, quarter mile resolution	
	Overhead distribution lines	N/A[1]	Line, quarter mile resolution	

1. BVES does not have this information at this time.

Table 9c. Map File Requirements for Baseline Condition of Utility Service Territory: Substation Locations

Layer Name	Measurements / variables	Substation Name	Address	GPS Coordinates	Unit(s)	Appendix Location
Current baseline state of service territory	Location of Substations	Bear City Sub	322 West Meadow Ln. Big Bear city, 92314	34.265381, -116.849596	Point, GPS Coordinate	6.4
		Bear Mountain Sub	Lassen Dr, 1500 Ft W/O Primrose dr. big Bear City, 92314	34.224328, -116.857868		
		Division Sub	150' W/O Division Dr. Big Bear Lake, 92314	34.261855, -116.866588		

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Layer Name	Measurements / variables	Substation Name	Address	GPS Coordinates	Unit(s)	Appendix Location
and utility equipment		Fawnskin Sub	S/E Corner of Mast Dr. Big Bear Lake, 92314	34.261406, -116.882163		
		Lake Sub	Garstin Dr. N/O Fox Farm Rd, Big Bear Lake, 92315	34.253290, -116.891879		
		Maltby Sub	S/E Corner of Maltby Blvd. & Shore Dr. Big Bear City, 92314	34.266335, -116.830982		
		Maple Sub	N/O Baldwin Ln & 500' W/O Maple Ln. Big Bear City, 92314	34.250630, -116.827014		
		Meadow Sub	N/O 42020 Garstin Dr. Big Bear Lake, 92315	34.247049, -116.885375		
		Moonridge Sub	S/E Corner of Clubview Dr. & Clover Dr. Big Bear Lake, 92315	34.226772, -116.863810		
		Palomino Sub	N/O Shay Rd & E/O Palomino Dr. Big Bear City, 92314	34.268660, -116.814846		
		Pine Knot Sub	S/E Corner of Lahontan Dr. & Georgia St. Big Bear Lake, 92315	34.245323, -116.900342		
		Summit Sub	S/W Corner of Summit Blvd, Snow Summit Parking Lot, Big Bear Lake 92315	34.236216, -116.889647		
		Village Sub	150' W/O Knickerbocker Rd Big Bear Lake, 92315	34.240145, -116.910389		

Table 9d. Map File Requirements for Baseline Condition of Utility Service Territory: Weather Station Locations

Layer Name	Measurements / variables	Weather Station Name	X	Y	Pole #	Unit(s)	Appendix Location
Current baseline state of service territory and all utility equipment	Location of Weather Stations	Boulder	6882767.31835688	1910907.25969201	12524BV	Point, GPS Coordinate	6.4
		Radford	6892602.18168080	1897637.83429690	12188BV		
		Clubview	6903791.35668582	1911748.75614971	13117BV		
		Garstin	6897851.88115513	1913880.76244089	13050BV		
		Erwin	6926748.82992281	1909355.71965373	12671BV		
		Sunrise	6917065.08124572	1917065.08124572	9784BV		
		North Shore	6871890.65026930	1913238.01733531	6984BV		
		Lagonita	6883474.20244181	1914092.67622142	11054BV		
		Goldmine	6911505.43455663	1907868.05465005	7319BV		
		Baldwin	6920144.53342013	1931400.02595873	10170BV		
		Pioneer	6927051.82242705	1920353.18781623	11967BV		
		Fawnskin	6883614.95687313	1920094.83006522	12535BV		
		Big Bear Dam	6870626.31191872	1912112.98119956	1210284CTC		
		Sugarloaf	6913024.86393248	1912860.05418047	5026BV		
		Lake Williams	6932440.04655872	1909063.86361015	9607BV		
		2N10	6891981.36336863	1902964.04116414	4254BV		
		Erwin Lake	6924113.84897231	1912944.49659689	7025BV		

Table 9e. Map File Requirements for Baseline Condition of Utility Service Territory: All Utility Assets

Layer Name	Measurement/variables	Value	Unit(s)	Appendix Location
Current baseline state of service territory and utility equipment	All utility assets by asset type, model, age, specifications, and condition	N/A[1]	Point, GPS Coordinate	N/A[1]

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1. BVES does not have this information at this time.

Table 9f. Map File Requirements for Baseline Condition of Utility Service Territory: Location of Planned Equipment Additions / Removals

Layer Name	Measurement/variables	Value	Unit(s)	Appendix Location
Location of planned utility equipment additions or removal	Non-HFTD vs HFTD (Zone 1, Tier 2, Tier 3) regions of utility service territory	N/A[1]	Line, quarter mile resolution	N/A[1]
	Urban vs. rural vs. highly rural regions of utility service territory	N/A[1]	Line, quarter mile resolution	
	WUI regions of utility service territory	N/A[1]	Line, quarter mile resolution	
	Circuit miles of overhead transmission lines	N/A[1]	Line, quarter mile resolution	
	Circuit miles of overhead distribution lines	N/A[1]	Line, quarter mile resolution	
	Location of substations	N/A[1]	Point, GPS coordinate	

1. BVES does not have this information at this time.

Table 9g. Map File Requirements for Baseline Condition of Utility Service Territory: Planned 2020 WMP Initiative Activity

Layer Name	Measurement/variables	Value	Unit(s)	Appendix Location
Planned 2020 WMP initiative activity per year	Location of 2020 WMP initiative activity for each activity as planned to be completed by the end of each year of the plan term	N/A[1]	Line, quarter mile resolution	N/A[1]

1. BVES does not have this information at this time.

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3. BASELINE IGNITION PROBABILITY AND WILDFIRE RISK EXPOSURE

As mentioned above, BVES understands that it operates within a high-risk wildfire environment. All decisions and plans made in this document use risk-based decision-making protocols. This provides an overview of this process as it relates to wildfire mitigation.

3.1 Recent Weather Patterns over the Last Five Years

BVES uses a contracted meteorologist that integrates data from the National Fire Danger Rating System (NFDRS), National Weather Service (NWS), and local real-time data from BVES' distributed weather stations (to account for local micro-climates) to ultimately assess relative local fire danger and risk. Reports are normally given weekly, and more often -- up to several times a day -- during heightened threat conditions. Operations personnel and leadership receive automated real-time alerts from BVES' weather stations when local winds exceed thresholds.

Table 10 below presents the recorded weather patterns over the last five years. This information is also included in the supplemental *Attachment 1*.

Table 10. Weather Patterns: 2015 - 2019

Weather measurement	2015	2016	2017	2018	2019	5-year historical average	Unit(s)
Red Flag Warning days	614.93	2,986.55	3,311.40	2,231.00	1,335.06	2,095.79	RFW circuit mile days per year
Days rated at the top 30% of proprietary fire potential index or similar fire risk index measure	107	151	118	129	87	118.40	Circuit mile days where proprietary measure rated above top 30% threshold per year
95th percentile wind conditions	5,691.87	8,221.59	8,643.21	6,956.73	14,967.51	8,896.18	Circuit mile days with wind gusts over 95th percentile historical (meaning the prior 10 years, 2005-2014) conditions per year
99th percentile wind conditions	1,897.29	2,318.91	2,318.91	1,686.48	6,535.11	2,951.34	Circuit mile days with wind gusts over 99th percentile historical (meaning

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Weather measurement	2015	2016	2017	2018	2019	5-year historical average	Unit(s)
							the prior 10 years, 2005-2014) conditions per year
Other	N/A - Bear Valley Electric Service cannot provide data on any other weather patterns to the specificity requested at this time	N/A - Bear Valley Electric Service cannot provide data on any other weather patterns to the specificity requested at this time	N/A - Bear Valley Electric Service cannot provide data on any other weather patterns to the specificity requested at this time	N/A - Bear Valley Electric Service cannot provide data on any other weather patterns to the specificity requested at this time	N/A - Bear Valley Electric Service cannot provide data on any other weather patterns to the specificity requested at this time	N/A - Bear Valley Electric Service cannot provide data on any other weather patterns to the specificity requested at this time	N/A - Bear Valley Electric Service cannot provide data on any other weather patterns to the specificity requested at this time

Note: Navigant Consulting, Inc. (n/k/a Guidehouse) (Navigant) assessed the NFDRS and estimated fire ratings of Brown ("Very Dry") or more severe as falling within the top 30% of the NFDRS. When calculating circuit-mile days, Navigant multiplied the corresponding metric (RFW days, 95th/99th percentile wind conditions days) by the total number of overhead circuit miles in BVES' service territory, assuming that underground circuit miles are unaffected by wind conditions. Including underground circuit miles in this calculation would deflate the actual assessment of risk posed by wind and other wildfire-risk conditions. When a Red Flag Warning is issued for the San Bernardino Mountains, - including Big Bear Valley, which encompasses the entirety of BVES' service territory - the Warning applies to 100% of BVES' service territory.

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3.2 Recent Drivers of Ignition Probability over the Last Five Years

Table 11 below presents the recent drivers of ignition probability over the last five years. This information is also included in the supplemental *Attachment 1* workbook.

Table 11. Key Recent Drivers of Ignition Probability: 2015 - 2019

Incident type by ignition probability driver		Near misses tracked (y/n)?	Number of incidents per year						Average percentage probability of ignition per incident						Number of ignitions per year from this driver					
			2015	2016	2017	2018	2019	Average	2015	2016	2017	2018	2019	Average	2015	2016	2017	2018	2019	Average
Contact from object	All types of object contact	Y	6	35	12	8	4	13	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0
	Animal contact	Y	0	0	1	1	1	0.6	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0
	Balloon contact	Y	0	1	0	0	0	0.2	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0
	Veg. contact	Y	6	34	11	7	3	12.2	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0
	Vehicle contact	Y	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0
All types of equipment / facility failure	All types	Y	40	40	42	23	16	32.2	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0
	Capacitor bank failure	Y	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0
	Conductor failure—all	Y	0	3	0	0	3	1.2	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0
	Conductor failure—wires down	Y	0	3	0	0	3	1.2	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0
	Fuse failure—all	Y	18	15	20	12	4	13.8	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0
	Fuse failure—conventional blown fuse	Y	18	15	20	10	4	13.4	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0

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Incident type by ignition probability driver		Near misses tracked (y/n)?	Number of incidents per year						Average percentage probability of ignition per incident						Number of ignitions per year from this driver					
			2015	2016	2017	2018	2019	Average	2015	2016	2017	2018	2019	Average	2015	2016	2017	2018	2019	Average
	Lightning arrestor failure	Y	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0
	Switch failure	Y	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0
	Transformer failure	Y	4	4	2	1	2	2.6	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0
Wire-to-wire contact / contamination		Y	0	0	1	1	2	0.8	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0
Other		Y	0	1	0	0	0	0.2	0%	0%	0%	0%	0%	0%	0	0	0	0	0	0

Note: In 2018, an umbrella was caught in one of BVES's overhead distribution lines.

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3.3 Recent Use of PSPS over the Last Five Years

Table 12 below presents the recent use of PSPS over the last five years. This information is also included in the supplemental *Attachment 1* workbook.

Table 12. Recent Use of PSPS: 2015 - 2019

PSPS characteristic	2015	2016	2017	2018	2019	Unit(s)
Frequency of PSPS events (total)	0	0	0	0	0	Number of instances where utility operating protocol requires de-energization of a circuit or portion thereof to reduce ignition probability, per year
Frequency of PSPS events (normalized)	0	0	0	0	0	Number of instances where utility operating protocol requires de-energization of a circuit or portion thereof in order to reduce ignition probability, per RFW circuit mile day per year
Scope of PSPS events (total)	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	Circuit-events, measured in number of events multiplied by number of circuits de-energized per year
Scope of PSPS events (normalized)	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	Circuit-events, measured in number of events multiplied by number of circuits targeted for de-energization per RFW circuit mile day per year
Duration of PSPS events (total)	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	Customer hours per year
Duration of PSPS events (normalized)	N/A[1]	N/A[1]	N/A[1]	N/A[1]	N/A[1]	Customer hours per RFW circuit mile day per year
Other	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]

Note: 1. BVES has not had any recent use of PSPS over the 2015-2019 period.
2. No other PSPS-related data to report.

3.4 Baseline State of Equipment and Wildfire and PSPS Event Risk Reduction Plans

3.4.1 Current Baseline State of Service Territory and Utility Equipment

Table 13 below presents the summary data table for current baseline state of HFTD and non-HFTD service territory in terms of identified characteristics. This information is also included in the supplemental *Attachment 1* workbook.

Table 13. Current baseline state of service territory and utility equipment

Land use	Characteristic tracked	In non-HFTD	In HFTD Zone 1	In HFTD Tier 2	In HFTD Tier 3
In urban areas	Circuit miles	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Circuit miles in WUI	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Number of critical facilities	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Number of critical facilities in WUI	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Number of customers	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Number of customers in WUI	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Number of customers belonging to access and functional needs populations	N/A[1]	N/A[1]	N/A[1]	N/A[1]

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Land use	Characteristic tracked	In non-HFTD	In HFTD Zone 1	In HFTD Tier 2	In HFTD Tier 3
	Number of customers belonging to access and functional needs populations in WUI	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Circuit miles of overhead transmission lines	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Circuit miles of overhead transmission lines in WUI	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Circuit miles of overhead distribution lines	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Circuit miles of overhead distribution lines in WUI	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Number of substations	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Number of substations in WUI	N/A[1]	N/A[1]	N/A[1]	N/A[1]
In rural areas	Circuit miles	N/A[1]	N/A[1]	263.62	1.27
	Circuit miles in WUI	N/A[1]	N/A[1]	0.00	0.00
	Number of critical facilities	N/A[1]	N/A[1]	14	0.00
	Number of critical facilities in WUI	N/A[1]	N/A[1]	0.00	0.00
	Number of customers	N/A[1]	N/A[1]	24,424	0.00
	Number of customers in WUI	N/A[1]	N/A[1]	N/A[2]	0.00
	Number of customers belonging to access and functional needs populations	N/A[1]	N/A[1]	0.00	0.00
	Number of customers belonging to access and functional needs populations in WUI	N/A[1]	N/A[1]	N/A[2]	0.00
	Circuit miles of overhead transmission lines	N/A[1]	N/A[1]	N/A[3]	N/A[3]
	Circuit miles of overhead transmission lines in WUI	N/A[1]	N/A[1]	0.00	0.00
	Circuit miles of overhead distribution lines	N/A[1]	N/A[1]	209.54	1.27
	Circuit miles of overhead distribution lines in WUI	N/A[1]	N/A[1]	0.00	0.00
	Number of substations	N/A[1]	N/A[1]	13	0.00
	Number of substations in WUI	N/A[1]	N/A[1]	0.00	0.00
In highly rural areas	Circuit miles	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Circuit miles in WUI	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Number of critical facilities	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Number of critical facilities in WUI	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Number of customers	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Number of customers in WUI	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Number of customers belonging to access and functional needs populations	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Number of customers belonging to access and functional needs populations in WUI	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Circuit miles of overhead transmission lines	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Circuit miles of overhead transmission lines in WUI	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Circuit miles of overhead distribution lines	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Circuit miles of overhead distribution lines in WUI	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Number of substations	N/A[1]	N/A[1]	N/A[1]	N/A[1]
	Number of substations in WUI	N/A[1]	N/A[1]	N/A[1]	N/A[1]

Note: BVES had not previously tracked which portions of its distribution system and other utility-owned infrastructure or assets are located in WUI-designated areas.
1. BVES does not have any urban or highly rural areas within its service territory. The utility's service territory is entirely rural and either HFTD Tier 2 or Tier 3.
2. BVES does not currently have this data.
3. The utility does not have any transmission lines as all of its lines are below 65 kV.

Table 14 below summarizes the utility's weather stations located in the service territory by type. This information is also included in the supplemental *Attachment 1* workbook.

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Table 14. Summary Data on Weather Station Count

Weather station count type	Current count	Unit(s)
Number of weather stations (total)	11	Total number located in service territory and operated by utility
Number of weather stations (normalized)	0.0522	Total number located in service territory and operated by utility, divided by total number of circuit miles in utility service territory
Number of weather stations in non-HFTD (total)	0	Total number located in non-HFTD service territory and operated by utility
Number of weather stations in non-HFTD (normalized)	0	Total number located in non-HFTD service territory and operated by utility, divided by total number of circuit miles in non-HFTD service territory
Number of weather stations in HFTD Zone 1 (total)	0	Total number located in HFTD Zone 1 service territory and operated by utility
Number of weather stations in HFTD Zone 1 (normalized)	0	Total number located in HFTD Zone 1 service territory and operated by utility, divided by total number of circuit miles in HFTD Zone 1 service territory
Number of weather stations in HFTD Tier 2 (total)	10	Total number located in HFTD Tier 2 service territory and operated by utility
Number of weather stations in HFTD Tier 2 (normalized)	0.0477	Total number located in HFTD Tier 2 service territory and operated by utility, divided by total number of circuit miles in HFTD Tier 2 service territory
Number of weather stations in HFTD Tier 3 (total)	1	Total number located in HFTD Tier 3 service territory and operated by utility
Number of weather stations in HFTD Tier 3 (normalized)	0.7874	Total number located in HFTD Tier 3 service territory and operated by utility, divided by total number of circuit miles in HFTD Tier 3 service territory

Note: The utility's service territory is entirely rural and either HFTD Tier 2 or Tier 3. Circuit miles were calculated as the total overhead circuit miles, assuming that underground circuit miles are unaffected by wind conditions. Including underground circuit miles in this calculation would deflate the actual assessment of risk posed by wind and other wildfire-risk conditions.

Table 15 below presents the summary data of fault indicators accounted for by the utility. This information is also included in the supplemental *Attachment 1* workbook.

Table 15. Summary Data on Fault Indicator Count

Fault indicator count type	Current count	Unit(s)
Number of fault indicators (total)	87	Total number located in service territory and operated by utility
Number of fault indicators (normalized)	0.4127	Total number located in service territory and operated by utility, divided by total number of circuit miles in utility service territory
Number of fault indicators in non-HFTD (total)	0	Total number located in non-HFTD service territory and operated by utility
Number of fault indicators in non-HFTD (normalized)	0	Total number located in non-HFTD service territory and operated by utility, divided by total number of circuit miles in non-HFTD service territory
Number of fault indicators in HFTD Zone 1 (total)	0	Total number located in HFTD Zone 1 service territory and operated by utility
Number of fault indicators in HFTD Zone 1 (normalized)	0	Total number located in HFTD Zone 1 service territory and operated by utility, divided by total number of circuit miles in HFTD Zone 1 service territory
Number of fault indicators in HFTD Tier 2 (total)	87	Total number located in HFTD Tier 2 service territory and operated by utility
Number of fault indicators in HFTD Tier 2 (normalized)	0.4152	Total number located in HFTD Tier 2 service territory and operated by utility, divided by total number of circuit miles in HFTD Tier 2 service territory
Number of fault indicators in HFTD Tier 3 (total)	0	Total number located in HFTD Tier 3 service territory and operated by utility
Number of fault indicators in HFTD Tier 3 (normalized)	0	Total number located in HFTD Tier 3 service territory and operated by utility, divided by total number of circuit miles in HFTD Tier 3 service territory

Note: The utility's service territory is entirely rural and either HFTD Tier 2 or Tier 3. Circuit miles were calculated as the total overhead circuit miles, assuming that underground circuit miles are unaffected by wind conditions. Including underground circuit miles in this calculation would deflate the actual assessment of risk posed by wind and other wildfire-risk conditions.

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3.4.2 Planned Additions, Removal, and Upgrade of Utility Equipment by 3-Year Plan Term

Table 16 below summarizes information for planned additions or removals planned for completion by 2022.This information is also included in the supplemental *Attachment 1* workbook.

Table 16. Location of Planned Utility Equipment Additions or Removal by End of 3-Year Plan Term

Land use	Characteristic tracked	Changes by end-2022			
		In non-HFTD	In HFTD Zone 1	In HFTD Tier 2	In HFTD Tier 3
In urban areas	Circuit miles of overhead transmission lines	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.
	Circuit miles of overhead distribution lines	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.
	Circuit miles of overhead transmission lines in WUI	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.
	Circuit miles of overhead distribution lines in WUI	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.
	Number of substations	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.
	Number of substations in WUI	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.

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	Number of weather stations	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.
	Number of weather stations in WUI	N/A - Bear Valley Electric Service has not previously tracked the number of weather stations in the WUI and could not determine this data within the timeframe given for this Plan. The utility will do so going forward. Additionally, BVES does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service has not previously tracked the number of weather stations in the WUI and could not determine this data within the timeframe given for this Plan. The utility will do so going forward. Additionally, BVES does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service has not previously tracked the number of weather stations in the WUI and could not determine this data within the timeframe given for this Plan. The utility will do so going forward. Additionally, BVES does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service has not previously tracked the number of weather stations in the WUI and could not determine this data within the timeframe given for this Plan. The utility will do so going forward. Additionally, BVES does not have any urban areas. The utility's service territory is entirely rural.
In rural areas	Circuit miles of overhead transmission lines	N/A - Bear Valley Electric Service does not have any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have any transmission lines. All of the utility's electric lines are below 65 kV.
	Circuit miles of overhead distribution lines	N/A - Bear Valley Electric Service has not planned any overhead distribution line additions or removals in this HFTD over the 3-year plan term	N/A - Bear Valley Electric Service has not planned any overhead distribution line additions or removals in this HFTD over the 3-year plan term	0	0
	Circuit miles of overhead transmission lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead transmission lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI
	Circuit miles of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI
	Number of substations	N/A - Bear Valley Electric Service does not have any planned substation additions or removals by end of 3-year plan term in this HFTD	N/A - Bear Valley Electric Service does not have any planned substation additions or removals by end of 3-year plan term in this HFTD	13	0

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	Number of substations in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of substations in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of substations in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of substations in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of substations in WUI
	Number of weather stations	N/A - Bear Valley Electric Service does not have any planned weather station additions or removals by end of 3-year plan term in this HFTD	N/A - Bear Valley Electric Service does not have any planned weather station additions or removals by end of 3-year plan term in this HFTD	9	0
	Number of weather stations in WUI	N/A - Bear Valley Electric Service has not previously tracked the number of weather stations in the WUI and could not determine this data within the timeframe given for this Plan. The utility will do so going forward.	N/A - Bear Valley Electric Service has not previously tracked the number of weather stations in the WUI and could not determine this data within the timeframe given for this Plan. The utility will do so going forward.	N/A - Bear Valley Electric Service has not previously tracked the number of weather stations in the WUI and could not determine this data within the timeframe given for this Plan. The utility will do so going forward.	N/A - Bear Valley Electric Service has not previously tracked the number of weather stations in the WUI and could not determine this data within the timeframe given for this Plan. The utility will do so going forward.
In highly rural areas	Circuit miles of overhead transmission lines	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.
	Circuit miles of overhead distribution lines	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.
	Circuit miles of overhead transmission lines in WUI	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.
	Circuit miles of overhead distribution lines in WUI	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.

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	Number of substations	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.
	Number of substations in WUI	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.
	Number of weather stations	N/A - Bear Valley Electric Service has not previously tracked weather stations within the WUI but will do so going forward. does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service has not previously tracked weather stations within the WUI but will do so going forward. does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service has not previously tracked weather stations within the WUI but will do so going forward. does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service has not previously tracked weather stations within the WUI but will do so going forward. does not have any highly rural areas. The utility's service territory is entirely rural.
	Number of weather stations in WUI	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.

Note: The utility does not have any transmission lines as all of its lines are below 65kV. The utility does not plan to add or remove any overhead distribution lines. BVES does not track which portions of its distribution system and other utility-owned infrastructure or assets are located in WUI-designated areas. The utility does not have any urban or highly rural areas. BVES' entire service territory is rural.

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Table 17 below refers to the program targets discussed above, presenting a report plan for hardening upgrades in detail. This information is also included in the supplemental *Attachment 1* workbook.

Table 17. Location of Planned Utility Infrastructure Upgrades

Land use	Characteristic tracked	In non-HFTD			In HFTD Zone 1			In HFTD Tier 2			In HFTD Tier 3		
		2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
Total circuit miles planned for hardening each year, all types and locations		N/A - Bear Valley Electric Service's entire Service Territory is in HFTD 2 or 3	N/A - Bear Valley Electric Service's entire Service Territory is in HFTD 2 or 3	N/A - Bear Valley Electric Service's entire Service Territory is in HFTD 2 or 3	N/A - Bear Valley Electric Service's entire Service Territory is in HFTD 2 or 3	N/A - Bear Valley Electric Service's entire Service Territory is in HFTD 2 or 3	N/A - Bear Valley Electric Service's entire Service Territory is in HFTD 2 or 3	6	8	8	2	0	0
Total number of substations planned for hardening each year, all locations		N/A - Bear Valley Electric Service's entire Service Territory is in HFTD 2 or 3	N/A - Bear Valley Electric Service's entire Service Territory is in HFTD 2 or 3	N/A - Bear Valley Electric Service's entire Service Territory is in HFTD 2 or 3	N/A - Bear Valley Electric Service's entire Service Territory is in HFTD 2 or 3	N/A - Bear Valley Electric Service's entire Service Territory is in HFTD 2 or 3	N/A - Bear Valley Electric Service's entire Service Territory is in HFTD 2 or 3	1	1	1	0	0	0
In urban areas	Circuit miles planned for grid hardening of overhead transmission lines	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory	N/A - Bear Valley Electric Service does not have any urban areas. The utility's	N/A - Bear Valley Electric Service does not have any urban areas. The utility's	N/A - Bear Valley Electric Service does not have any urban areas. The utility's	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is

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Land use	Characteristic tracked	In non-HFTD			In HFTD Zone 1			In HFTD Tier 2			In HFTD Tier 3		
		2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
		is entirely rural.	service territory is entirely rural.	service territory is entirely rural.	service territory is entirely rural.	entirely rural.	entirely rural.	entirely rural.	entirely rural.	entirely rural.	entirely rural.	entirely rural.	entirely rural.
	Circuit miles of overhead transmission lines in WUI to harden	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.
	Circuit miles of overhead distribution lines to harden	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.
	Circuit miles of overhead distribution	N/A - Bear Valley Electric	N/A - Bear Valley	N/A - Bear Valley	N/A - Bear Valley	N/A - Bear Valley Electric	N/A - Bear Valley Electric	N/A - Bear Valley Electric	N/A - Bear Valley Electric	N/A - Bear Valley Electric	N/A - Bear Valley Electric	N/A - Bear Valley Electric	N/A - Bear Valley Electric

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Land use	Characteristic tracked	In non-HFTD			In HFTD Zone 1			In HFTD Tier 2			In HFTD Tier 3		
		2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
	lines in WUI to harden	Service does not have any urban areas. The utility's service territory is entirely rural.	Electric Service does not have any urban areas. The utility's service territory is entirely rural.	Electric Service does not have any urban areas. The utility's service territory is entirely rural.	Electric Service does not have any urban areas. The utility's service territory is entirely rural.	Service does not have any urban areas. The utility's service territory is entirely rural.	Service does not have any urban areas. The utility's service territory is entirely rural.	Service does not have any urban areas. The utility's service territory is entirely rural.	Service does not have any urban areas. The utility's service territory is entirely rural.	Service does not have any urban areas. The utility's service territory is entirely rural.	Service does not have any urban areas. The utility's service territory is entirely rural.	Service does not have any urban areas. The utility's service territory is entirely rural.	Service does not have any urban areas. The utility's service territory is entirely rural.
	Circuit miles of overhead transmission lines in WUI to harden	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.
	Number of substations to harden	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory	N/A - Bear Valley Electric Service does not have any urban areas. The utility's	N/A - Bear Valley Electric Service does not have any urban areas. The utility's	N/A - Bear Valley Electric Service does not have any urban areas. The utility's	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is

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Land use	Characteristic tracked	In non-HFTD			In HFTD Zone 1			In HFTD Tier 2			In HFTD Tier 3		
		2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
		is entirely rural.	service territory is entirely rural.	service territory is entirely rural.	service territory is entirely rural.	entirely rural.	entirely rural.	entirely rural.	entirely rural.	entirely rural.	entirely rural.	entirely rural.	entirely rural.
	Number of substations in WUI to harden	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any urban areas. The utility's service territory is entirely rural.
In rural areas	Circuit miles of overhead transmission lines to harden	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.

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Land use	Characteristic tracked	In non-HFTD			In HFTD Zone 1			In HFTD Tier 2			In HFTD Tier 3		
		2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
			below 65 kV.	below 65 kV.	below 65 kV.								
	Circuit miles of overhead transmission lines in WUI to harden	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.
	Circuit miles of overhead distribution lines to harden	N/A - Bear Valley Electric Service has not planned any overhead distribution line hardening in this HFTD in this year	N/A - Bear Valley Electric Service has not planned any overhead distribution line hardening in this HFTD in this year	N/A - Bear Valley Electric Service has not planned any overhead distribution line hardening in this HFTD in this year	N/A - Bear Valley Electric Service has not planned any overhead distribution line hardening in this HFTD in this year	N/A - Bear Valley Electric Service has not planned any overhead distribution line hardening in this HFTD in this year	N/A - Bear Valley Electric Service has not planned any overhead distribution line hardening in this HFTD in this year	6	8	8	2	0	0

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Land use	Characteristic tracked	In non-HFTD			In HFTD Zone 1			In HFTD Tier 2			In HFTD Tier 3		
		2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
	Circuit miles of overhead distribution lines in WUI to harden	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of overhead distribution lines in WUI
	Circuit miles of overhead transmission lines in WUI to harden	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.	N/A - Bear Valley Electric Service does not have and is not planning to harden any transmission lines. All of the utility's electric lines are below 65 kV.
	Number of substations to harden	N/A - Bear Valley Electric	N/A - Bear Valley	N/A - Bear Valley	N/A - Bear Valley	N/A - Bear Valley Electric	N/A - Bear Valley Electric	1	1	1	0	0	0

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Land use	Characteristic tracked	In non-HFTD			In HFTD Zone 1			In HFTD Tier 2			In HFTD Tier 3		
		2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
		Service has not planned any substation hardening in this HFTD in this year	Electric Service has not planned any substati on hardenin g in this HFTD in this year	Electric Service has not planned any substati on hardenin g in this HFTD in this year	Electric Service has not planned any substatio n hardenin g in this HFTD in this year	Service has not planned any substation hardening in this HFTD in this year	Service has not planned any substation hardening in this HFTD in this year						
	Number of substations in WUI to harden	N/A - Bear Valley Electric Service has not yet tracked the number of substation s in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of substati ons in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of substati ons in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of substatio ns in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of substations in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of substations in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of substations in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of substations in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of substations in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of substations in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of substations in WUI	N/A - Bear Valley Electric Service has not yet tracked the number of substations in WUI
In highly rural areas	Circuit miles of overhead transmission lines to harden	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.

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Land use	Characteristic tracked	In non-HFTD			In HFTD Zone 1			In HFTD Tier 2			In HFTD Tier 3		
		2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
			entirely rural.	entirely rural.	entirely rural.								
	Circuit miles of overhead transmission lines in WUI to harden	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.
	Circuit miles of overhead distribution lines to harden	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.
	Circuit miles of overhead distribution	N/A - Bear Valley Electric Service	N/A - Bear Valley Electric	N/A - Bear Valley Electric	N/A - Bear Valley Electric	N/A - Bear Valley Electric Service	N/A - Bear Valley Electric Service	N/A - Bear Valley Electric Service	N/A - Bear Valley Electric Service	N/A - Bear Valley Electric Service	N/A - Bear Valley Electric Service	N/A - Bear Valley Electric Service	N/A - Bear Valley Electric Service

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Land use	Characteristic tracked	In non-HFTD			In HFTD Zone 1			In HFTD Tier 2			In HFTD Tier 3		
		2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
	lines in WUI to harden	does not have any highly rural areas. The utility's service territory is entirely rural.	Service does not have any highly rural areas. The utility's service territory is entirely rural.	Service does not have any highly rural areas. The utility's service territory is entirely rural.	Service does not have any highly rural areas. The utility's service territory is entirely rural.	does not have any highly rural areas. The utility's service territory is entirely rural.	does not have any highly rural areas. The utility's service territory is entirely rural.	does not have any highly rural areas. The utility's service territory is entirely rural.	does not have any highly rural areas. The utility's service territory is entirely rural.	does not have any highly rural areas. The utility's service territory is entirely rural.	does not have any highly rural areas. The utility's service territory is entirely rural.	does not have any highly rural areas. The utility's service territory is entirely rural.	does not have any highly rural areas. The utility's service territory is entirely rural.
	Circuit miles of overhead transmission lines in WUI to harden	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.
	Number of substations to harden	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's	N/A - Bear Valley Electric Service does not have any highly rural areas.	N/A - Bear Valley Electric Service does not have any highly rural areas.	N/A - Bear Valley Electric Service does not have any highly rural areas.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service

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Land use	Characteristic tracked	In non-HFTD			In HFTD Zone 1			In HFTD Tier 2			In HFTD Tier 3		
		2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
		service territory is entirely rural.	The utility's service territory is entirely rural.	The utility's service territory is entirely rural.	The utility's service territory is entirely rural.	territory is entirely rural.	territory is entirely rural.	territory is entirely rural.	territory is entirely rural.	territory is entirely rural.	territory is entirely rural.	territory is entirely rural.	territory is entirely rural.
	Number of substations in WUI to harden	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.	N/A - Bear Valley Electric Service does not have any highly rural areas. The utility's service territory is entirely rural.

Note: The utility does not have any transmission lines as all of its lines are below 65kV. The utility does not plan to add or remove any overhead distribution lines. BVES does not track which portions of its distribution system and other utility-owned infrastructure or assets are located in WUI-designated areas. The utility does not have any urban or highly rural areas. BVES' entire service territory is rural.

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3.4.3 Status Quo Ignition Probability Drivers by Service Territory

Table 18 below presents the five-year historical average drivers of ignition probability. This information is also included in the supplemental *Attachment 1* workbook.

Table 18. Key Drivers of Ignition Probability

Ignition probability drivers		Number of incidents per year (according to 5-year historical average)	Average likelihood of ignition per incident	Ignitions from this driver (according to 5-year historical average)				
				Total	In non-HFTD	In HFTD Zone 1	In HFTD Tier 2	In HFTD Tier 3
Contact from object	All types of object contact	13	0%	0	N/A[1]	N/A[1]	0	0
	Animal contact	0.6	0%	0	N/A[1]	N/A[1]	0	0
	Balloon contact	0.2	0%	0	N/A[1]	N/A[1]	0	0
	Vegetation contact	12.2	0%	0	N/A[1]	N/A[1]	0	0
	Vehicle contact	0	0%	0	N/A[1]	N/A[1]	0	0
All types of equipment / facility failure	All types	32.2	0%	0	N/A[1]	N/A[1]	0	0
	Capacitor bank failure	0	0%	0	N/A[1]	N/A[1]	0	0
	Conductor failure—all	1.2	0%	0	N/A[1]	N/A[1]	0	0
	Conductor failure—wires down	1.2	0%	0	N/A[1]	N/A[1]	0	0
	Fuse failure—all	13.8	0%	0	N/A[1]	N/A[1]	0	0
	Fuse failure—conventional blown fuse	13.4	0%	0	N/A[1]	N/A[1]	0	0
	Lightning arrestor failure	0	0%	0	N/A[1]	N/A[1]	0	0
	Switch failure	0	0%	0	N/A[1]	N/A[1]	0	0
	Transformer failure	2.6	0%	0	N/A[1]	N/A[1]	0	0
Wire-to-wire contact / contamination		0.8	0%	0	N/A[1]	N/A[1]	0	0
Other		0.2	0%	0	N/A[1]	N/A[1]	0	0

Note: 1. The utility's service territory is in either HFTD Tier 2 or Tier 3. None is within the non-HFTD or Zone 1.

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4. INPUTS TO THE WMP AND VISION FOR WILDFIRE RISK EXPOSURE

4.1 Objectives of the Plan by Timeline

In compliance with AB 1054's statutory amendment to PUC Section 8386 and the CPUC's related OIR, the following WMP aims to prevent the threat of utility-caused wildfires by identifying mitigation measures and in the event of a wildfire affecting the BVES service area, to provide emergency response and restoration actions regardless of cause.

Specifically, the WMP aims to fulfill the requirements detailed in PUC Section 8386, which has been modified by AB 1054 and AB 111. The requirements are outlined in the OIR to Implement Electric Utility Wildfire Mitigation Plans Pursuant to Senate Bill 901 (2018). The high-level requirements include an outline of wildfire risks within the service territory; overview of strategies, protocols, plans and programs to mitigate wildfires; metrics to monitor the Plan's performance; and protocols for communicating with customers throughout any wildfire mitigation or emergency events.

This Plan is effective upon CPUC approval for a period of 12 months. Based on the current schedule of OIR R. 18-10-007, it is anticipated that the Plan will be effective 90 days after submission (May 2020), pending approvals, and the timeline presented in *Attachment 1: WMP Guidelines*. However, BVES will commence executing the Plan effective immediately where reasonable and prudent upon filing.

Attachment 1 Section 4.1 The Objectives of the Plan

The objectives of the plan shall, at a minimum, be consistent with the requirements of California Public Utilities Code §8386(a). Describe utility WMP objectives, categorized by each of the following timeframes:

1. **Before the upcoming wildfire season, as defined by the California Department of Forestry and Fire Protection (CAL FIRE),**
2. **Before the next annual update,**
3. **Within the next 3 years, and**
4. **Within the next 10 years.**

Since the Plan will evolve over time, BVES has defined objectives for the following timeframes: before the upcoming fire season, as defined by the CPUC and CAL FIRE, before the next Plan filing with the CPUC, and within the next five years. The objectives are as follows:

- Before the upcoming fire season and annual update:
  - Identify "quick wins" or near-term, cost-effective mitigation measures that can be implemented quickly
  - Explore new technologies and strategies to be established in the long-term and create plans for implementation
  - Identify costs associated with both "quick-wins" and longer-term mitigation measures
  - Create metrics to begin monitoring Plan effectiveness
- Before the next Plan filing with the WSD:
  - Monitor implementation of approved near-term mitigation measures

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  - Evaluate effectiveness of mitigation measures already implemented, using metrics identified in this Plan
  - Revisit long-term technologies and strategies to determine feasibility of implementation
  - Continue exploring new technologies and strategies to mitigate wildfire risks
- Within in the next three years:
  - Execute existing/approved measures
  - Fully integrate SCADA with the installed weather stations
- Within the next ten years:
  - Monitor implementation of approved long-term mitigation measures
  - Continue evaluating the effectiveness of mitigation measures already implemented, adjusting measures and metrics as needed
  - Continue exploring new technologies and strategies to mitigate wildfire risks

The WMP is intended to be iterative, promote continuous improvement year over year, and implement industry best practices in a prudent and reasonable manner. Additionally, some of the projects and programs are part of a multi-year long-range improvement plan. These will be indicated in the Plan where applicable, so the overall vision and strategy are clear for both the short-term and long-term. Details on specific initiative execution timelines are described in Section 5 below.

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4.2 Understanding Major Trends Impacting Ignition Probability and Wildfire Consequence

Attachment 1 Section 4.2 Understanding Major Trends Impacting Ignition Probability and Wildfire Consequence

Describe how the utility assesses wildfire risk in terms of ignition probability and estimated wildfire consequence, including use of Multi-Attribute Risk Score (MARS) and Multi-Attribute Value Function (MAVF) as in the Safety Model and Assessment Proceeding (S-MAP) and Risk Assessment Mitigation Phase (RAMP). Include description of how the utility distinguishes between these risks and the risks to safety and reliability. List and describe each "known local condition" that the utility monitors per GO 95, Rule 31.1, including how the condition is monitored and evaluated. In addition:

A. Describe how the utility monitors and accounts for the contribution of weather to ignition probability and estimated wildfire consequence in its decision-making, including describing any utility-generated Fire Potential Index or other measure (including input variables, equations, the scale or rating system, an explanation of how uncertainties are accounted for, an explanation of how this index is used to inform operational decisions, and an explanation of how trends in index ratings impact medium-term decisions such as maintenance and longer-term decisions such as capital investments, etc.).

B. Describe how the utility monitors and accounts for the contribution of fuel conditions to ignition probability and estimated wildfire consequence in its decision-making, including describing any proprietary fuel condition index (or other measures tracked), the outputs of said index or other measures, and the methodology used for projecting future fuel conditions. Include discussion of measurements and units for live fuel moisture content, dead fuel moisture content, density of each fuel type, and any other variables tracked. Describe the measures and thresholds the utility uses to determine extreme fuel conditions, including what fuel moisture measurements and threshold values the utility considers "extreme" and its strategy for how fuel conditions inform operational decision-making.

BVES has not previously been directed by the CPUC to develop either a MAVF or MARS framework for RAMP filings, however, the utility has maintained an assessment toolkit to identify risk drivers and potential consequences of wildfire threat while gauging the success of mitigation initiatives.

Description of Risk Methodology

On December 4, 2014, the Commission issued Decision 14-12-025 and directed BVES to transition to a risk-based decision-making framework in their General Rate Case (GRC) application filings beginning in December 2017. BVES adopted a risk-based decision-making framework ahead of the deadline and presented its framework to the CPUC in Volume 7, Direct Testimony Risk-Based Decision-Making Framework, of its 2018 GRC filing in May 2017. This framework is based upon the 10 steps of the ISO 31000 risk management process and includes six steps; the first three focus on understanding and evaluating risks, and the last three on understanding and evaluating risk mitigation strategies. Since its development, BVES has developed additional mitigation measures for wildfire risks. Figure 4-1 provides an overview of the steps.

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Figure 4-1. BVES Risk-Based Decision-Making Framework

Source: BVES

BVES' Risk-Based Decision-Making Framework is consistent with peer investor-owned utilities', including SCE.[8] For example, SCE's framework consists of six steps: (1) risk identification, (2) risk evaluation, (3) risk mitigation identification, (4) risk mitigation identification, (5) decision-making and planning, and (6) monitoring and reporting. From a fundamental perspective, identifying threats, risk characterization, assigning appropriate measures, implementing remedies, and monitoring the results are components of the described assessment strategy above and those of other, similar utilities.

Risk Assessment Mitigation Prioritization

The CPUC has not required BVES to conduct a RAMP in prior GRC filings, however through its risk-based decision-making framework, BVES has created a list of risks and a prioritized list of mitigation measures. The following subsections outline these lists.

According to the US Forest Service (USFS), there are three essential elements in the "fire triangle": heat, fuel, and oxygen.[9] The first, heat, provides the initial ignition of fire and helps it spread. The second, fuel, is any form of combustible material; combustibility is mainly defined by moisture content. Finally, the third, oxygen, is a chemical that supports the burning; most fires require roughly 16 percent oxygen content and air contains roughly 21 percent. The conditions necessary for these elements to come together have created an increasing number of wildfires in recent years.[10] For example, the increasing complexity of implementing fire suppression and fuel treatment programs has resulted in accumulations of debris, such as leaves, branches, excessive overgrowth, and dead vegetation. Additionally, climate change patterns have exacerbated and continue to exacerbate wildfire-conducive conditions.

Given the elements of the fire triangle, BVES' electrical infrastructure poses several wildfire risks, including heat or an ignition source that can be caused by the electric grid and proximity to combustion materials, such as trees and dry vegetation. Once these materials come into contact, such as through wind gusts or other weather phenomena, the risk of wildfire is extremely high.

[8] Southern California Edison, Prepared Testimony in Support of Southern California Edison Company's Application for Approval of its Grid Safety and Resiliency Program Before the Public Utilities Commission of the State of California, September 10, 2018, https://www.edison.com/content/dam/eix/documents/investors/wildfires-document-library/201809-gsrp-filing.pdf.

[9] US Forest Service Smokey Bear, "Elements of Fire", 2018, https://smokeybear.com/en/about-wildland-fire/fire-science/elements-of-fire.

[10] US Forest Service Smokey Bear, "Fire Science", 2018, https://smokeybear.com/en/about-wildland-fire/fire-science.

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4.2.1 Service Territory Fire-Threat Evaluation and Ignition Risk Trends

Attachment 1 Subsection 4.2.1 Understanding Major Trends Impacting Ignition Probability and Wildfire Consequence

Discuss fire-threat evaluation of the service territory to determine whether an expanded High Fire Threat District (HFTD) is warranted (i.e., beyond existing Tier 2 and Tier 3 areas). This section shall include a discussion of any fire threat assessment of its service territory performed by the electrical corporation. In the event that the electrical corporation's assessment determines the fire threat rating for any part of its service territory is insufficient (i.e., the actual fire threat is greater than what is indicated in the CPUC Fire Threat Map and High Fire Threat District designations), the corporation shall identify those areas for consideration of HFTD modification, based on the new information or environmental changes. To the extent this identification relies upon a meteorological or climatological study, a thorough explanation and copy of the study shall be included.

BVES has not performed any study in 2019 to determine whether expansion of the HFTD tiers are necessary, though is aware of the need to reevaluate these designations from time to time and will consider this effort in subsequent WMP filings. BVES operates with the inherent risk factor of the service area's mountainous, alpine terrain, which makes up Tier 2 and Tier 3 regions of the HFTD. Field operational practices that include fire-threat conditions/stipulations are considered as part of general business practice. BVES did not meet trigger thresholds to initiate a PSPS event during the 2019 fire season, leading to the understanding that the Commission has suitably mapped the fire threat profile for the service territory at this time.

An immediate activity the utility will pursue before the next wildfire season will be addressing the Wildland Urban Interface (WUI) designations, as the utility has not previously tracked these zones in wildfire mitigation planning. BVES understands that the risk area for the WUI maps atop the Tier 2 and 3 designations from the HFTD. The utility does not have any urban or highly rural areas; the entire service territory is rural.

4.2.1.1 Service Territory Description & Risks

As part of its risk understanding, BVES examined its service territory to identify risks unique to its geography. This section provides an overview of the service territory and details the risks BVES factored into its mitigation strategy.

BVES' service territory is in the mountain resort community of Big Bear Lake, California, with approximately 24,427 customers in a 31 square-mile service area. Located in the San Bernardino Mountains of Southern California, 80 miles east of Los Angeles, the region is rural and mountainous. Figure 4-2 below shows the service territory and key customer and system areas.

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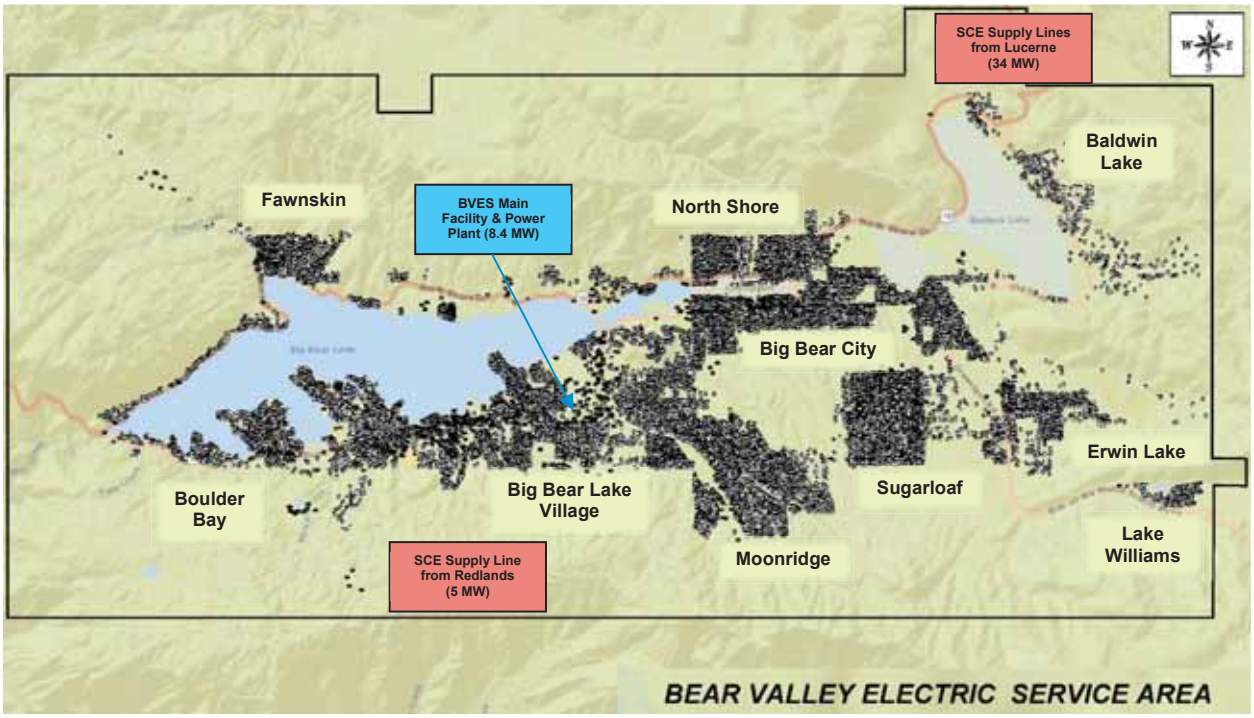
Figure 4-2. Map of BVES Service Territory and Key Areas



Source: BVES

Given its unique service territory, BVES must consider the following when making decisions and implementing plans related to wildfire mitigation: (1) electrical system design and assets, (2) complex jurisdictional structure, (3) local load profile, and (4) geographic location.

- **Electrical System Design & Assets:** BVES owns and operates 87.8 miles of overhead (OH) 34.5 kilovolt (kV) sub-transmission miles, 2.7 miles of 34.5 kilovolt underground (U/G) sub-transmission miles, 488.6 miles of overhead distribution circuit lines, 89.1 miles of underground distribution circuit lines, 13 substations, and a natural gas-fueled 8.4 megawatt (MW) peaking generation facility. These assets will need to be considered when creating and implementing the WMP.
- **Jurisdictional Structure:** BVES' entire service area is under the jurisdictional responsibility of the City of Big Bear Lake, with some areas (unincorporated) under the responsibility of the County of San Bernardino. The San Bernardino Mountains and forests are managed by the USFS, California Environmental Protection Agency, and the California Department of Fish and Wildlife. This complex jurisdictional structure is a key consideration when developing or implementing any strategic plan, including one related to wildfires.
- **Local Load Profile:** Big Bear Lake mainly serves as a vacation destination during the winter months. This results in a winter peaking profile that occurs due to increased load from population influx and local snow-making activity in the late evening hours. Throughout the rest of the year, system load returns to normal. Understanding this local load profile will be a key element of implementing a successful WMP.
- **Geographic Location:** BVES' service area is entirely above the 3,000-foot elevation threshold (which requires heavy loading construction standards) and has a high density of trees in a mostly dry environment.

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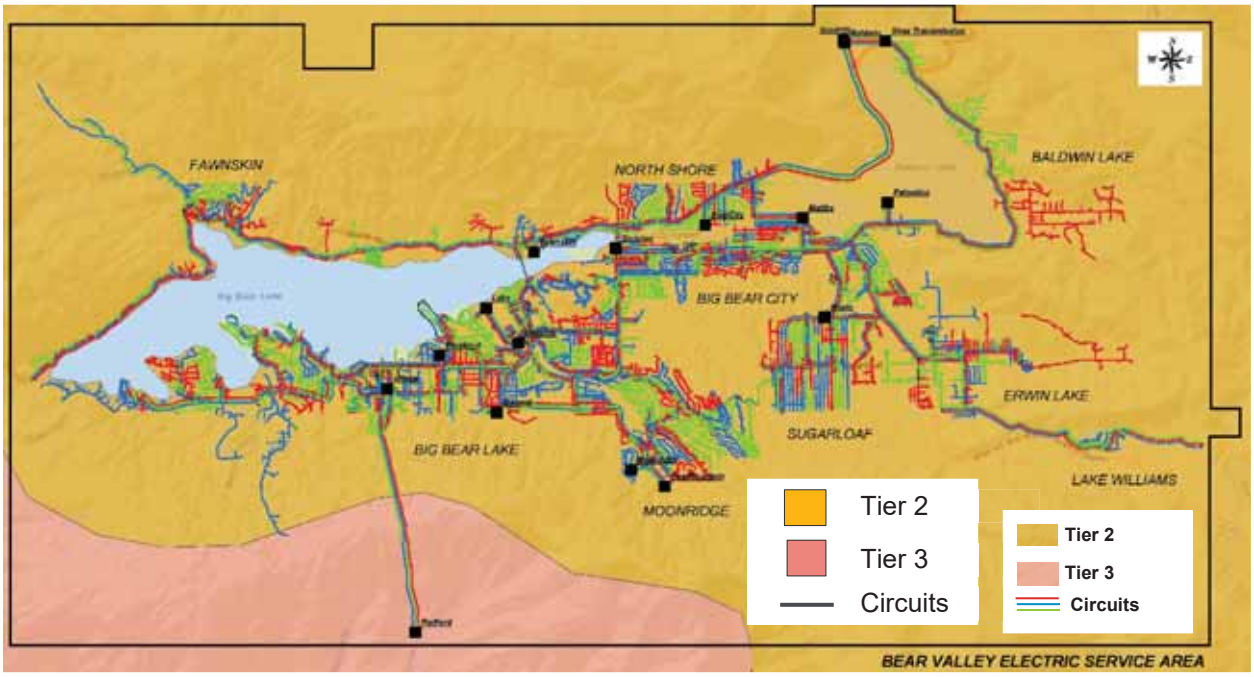
Identified Wildfire Risk Areas

There are several wildfire risk assessment designations from various organizations, including the CPUC, the California Department of Forestry and Fire Protection (CAL FIRE), and the US Department of Agriculture (USDA). Each designation provides a different perspective of potential fire danger. For example, the USDA's National Fire Danger Rating System (NFDRS) assesses fire-threats at the county-level based on weather, while CAL FIRE includes four fire-hazard severity zones based on various factors. Figure 4-3 shows the CPUC designated fire hazard zone tiers within BVES' service territory.

Figure 4-3. BVES CPUC Designated Tier 2 and Tier 3 Fire Hazard Zones



Source: CPUC, Fire-Threat Map

BVES monitors these assessment systems regularly and has created procedures and protocols accordingly. Supporting Table 4-1 below outlines the various rating systems and BVES' rating in that system.

Supporting Table 4-1. Wildfire Risk Assessments in BVES Service Territory

Agency and Rating Name	Scope of Rating	BVES Rating
CPUC, Fire-Threat Map Adopted January 19, 2018[11]	Areas or zones where enhanced fire safety regulations in Decision 17-12-024 will apply[12]	High Fire-Threat District; Mostly Tier 2 (elevated risk) with some Tier 3 (extreme risk) areas.

[11] CPUC, CPUC Fire Safety Rulemaking Background, 2018, http://www.cpuc.ca.gov/firethreatmaps/.

[12] CPUC, CPUC Adopts New Fire-Safety Regulations, December 14, 2017, http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M201/K352/201352402.PDF.

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USDA Forest Service, National Fire Danger Rating System (NFDRS)[13]	County-Level assessment of fire danger for that day or the next day based on fuels, weather, topography, and risks	76.11% of the time "Very Dry" or "Dry"
CAL FIRE, California Fire Hazard Severity Zone Map Update Project[14]	City and County-level assessments of fire "hazard" zones	Very High Fire Hazard Severity Zone

Source: BVES

Table 19 below ranks the trends anticipated to exhibit the greatest change related to wildfire ignition and/or consequence. BVES has not historically had utility-involved ignitions or catastrophic wildfires reportable or not. This information is also included in the supplemental *Attachment 1* workbook.

Table 19. Macro trends impacting ignition probability and/or wildfire consequence

Rank	Macro trends impacting utility ignited ignition probability and estimated wildfire consequence by year 10	Comments
1	Change in ignition probability and estimated wildfire consequence due to climate change	The utility expects climate change to produce significant increase in ignition probability over the 10-year period. Based on 2017 Climate Change and Health Profile Report San Bernardino County (UC Davis), California Fourth Climate Assessment.
3	Change in ignition probability and estimated wildfire consequence due to relevant invasive species, such as bark beetles	The Big Bear Lake region has previously been affected by bark beetles, notably in the Summer of 2018 as a result of the then-ongoing drought in California. While the utility has not experienced any ignition events, increased dead tree density is likely as climate change creates more favorable Summer conditions for bark beetle populations.
2	Change in ignition probability and estimated wildfire consequence due to other drivers of change in fuel density and moisture	The utility's service territory is in a heavily forested alpine environment. Any increase in fuel density and dryness creates a disproportionate increase in ignition probability and/or estimated wildfire consequences.
5	Population changes (including Access and Functional Needs population) that could be impacted by utility ignition	The utility's service territory is entirely in a mountain resort region. BVES does not expect significant population changes within its service territory and does not foresee measurable changes impacting ignition probability and/or wildfire consequence as a result thereof.
6	Population changes in HFTD that could be impacted by utility ignition	The utility's service territory is entirely in a mountain resort region. BVES does not expect significant population changes within its service territory and does not foresee measurable changes impacting ignition probability and/or wildfire consequence as a result thereof.
4	Population changes in WUI that could be impacted by utility ignition	The utility's service territory is entirely in a mountain resort region. BVES does not expect significant population changes within its service territory and does not foresee measurable changes impacting ignition probability and/or wildfire consequence as a result thereof.

[13] USDA Forest Service, National Fire Danger Rating System, https://www.fs.usda.gov/detail/inyo/home/?cid=stelprdb5173311.; BVES Analysis

[14] CAL FIRE, Wildland Hazard & Building Codes Cities for which CAL FIRE has made recommendations on Very High Fire Hazard Severity Zones (VHFHSZ), http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps_citylist.

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Rank	Macro trends impacting utility ignited ignition probability and estimated wildfire consequence by year 10	Comments
7	Utility infrastructure location in HFTD vs non-HFTD	The utility's service territory is entirely in HFTD 2 or HFTD3. As a result, BVES does not foresee any differentiated impacts in ignition probability and/or wildfire consequence due to the location of utility infrastructure in HFTD vs non-HFTD
8	Utility infrastructure location in urban vs rural vs highly rural areas	The utility's service territory is entirely rural. As a result, BVES does not foresee any differentiated impacts in ignition probability and/or wildfire consequence due to the location of utility infrastrucutre in urban vs rural vs highly rural areas

Attachment 1 Subsection 4.2.1 Table 19 Macro Trends Impacting Ignition Probability and/or Wildfire Consequence

List and describe any additional macro trends impacting ignition probability and estimated wildfire consequence within utility service territory, including trends within the control of the utility, trends within the utility's ability to influence, and externalities (i.e., trends beyond the utility's control, such as population changes within the utility's territory).

List and describe all relevant drivers of ignition probability and estimated wildfire consequences and the mitigations that are identified in the Risk Assessment Mitigation Phase (RAMP) and not included in the above, including how these are expected to evolve. Rank these drivers from highest to lowest risk and describe how they are expected to evolve.

In addition to gaining a deeper understanding of its wildfire risks, BVES analyzed its reliability data to prioritize its risks. Table 11 provides the analysis focused on recent incident data (2015-2019) and examined three types of events: contacts from objects, all types of equipment and/or facility failures, and wire-to-wire contact, since these events may result in wildfires. Vegetation and bare line contact events pose the most frequent risk for wildfires in the BVES system. These events are mainly caused by weather and third parties. This makes sense given the dense tree coverage of the mountainous terrain and the susceptibility of the area to winter snow storms. It should be noted that during winter snow storms, the moisture level in surrounding vegetation is typically high, reducing the risk of wildfire. The second most frequent cause of these events is proximity to vegetation, which also makes sense given the tree density. The system has approximately 1200 existing tree attachments, in compliance with previous system design standards and vegetation management protocols, which may also cause vegetation and bare line events. In addition, the mountainous terrain and dry California climate may be contributing factors to these types of events.

Wire down events also pose a risk to the system, however these events occur less frequently. Notably, the total number of such events accounts for less than 15 percent of the risk events studied.[15] Of these events, weather was the greatest contributor to wire down events. It should be noted that wire down events, among other hazards, have the potential to trigger an underbrush fire, which may lead to a larger wildfire, and are, perhaps, a more severe risk than vegetation and bare line contact. Of these wire down events, weather was again the greatest contributor.

Another risk event that BVES considered is a "blown conventional fuse." Conventional fuses expel hot particles and gases when operated, which can start fires. BVES reviewed data from 2015 to 2019 and found that 67 conventional blown fuse events occurred for a variety of reasons throughout the service area.

[15] Percentage related to 2019 WMP outage study from 2009 – 2015 recorded outage incidents.

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4.3 Change in Ignition Probability Drivers

Attachment 1 Section 4.3 Change in Ignition Probability Drivers

Based on the implementation of the above wildfire mitigation initiatives, explain how the utility sees its ignition probability drivers evolving over the 3 year term of the WMP. Focus on ignition probability and estimated wildfire consequence reduction by ignition probability driver, detailed risk driver, and include a description of how the utility expects to see incidents evolve over the same period, both in total number (of occurrence of a given incident type, whether resulting in a near miss or in an ignition) and in likelihood of causing an ignition by type. Outline methodology for determining ignition probability from events, including data used to determine likelihood of ignition probability, such as past ignition events, number of near misses, and description of events (including vegetation and equipment condition).

Based on this understanding, BVES identified applicable risks from its risk-based decision-making framework filing and added to the list, based on gaps identified through its Wildfire Mitigation Plan development. The risks identified as part of the BVES risk-based decision-making framework filing are scored according to frequency and impact. The latter includes the effect of events on reliability, compliance, quality of service, safety, and environmental quality. All other risks, identified outside of the formal filing, have not been formally scored. However, BVES qualitatively evaluated costs, technological effectiveness, and implementation feasibility when determining which mitigation measures should be implemented as part of its WMP. The list below organizes all the strategies included in the Plan shown below in Supporting Table 4-2.

Supporting Table 4-2. List of Wildfire Risks and Risk Score (Priority)

Risk Event	*Total Risk Score*
Design & Construction	
Line Attached to Fallen Tree	88,191
Sparking Caused by Equipment/Infrastructure Settings	NA
Inspection & Maintenance	
Pole Failures	49,702
Downed Wire	114,944
Aging Infrastructure	4,966
Vegetation in Proximity to Infrastructure	NA
Quickly Changing Conditions	NA
Operational Practices	
Unclear Protocols & Procedures During High-Risk Conditions	NA
Situational & Conditional Awareness	
Inability to Visualize Equipment in Hard-to-Patrol Areas	NA
Imprecise Weather Forecasting	NA

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Response & Recovery	
Fatality caused by wildfire / emergency	1,275,706
Sustained outages affecting health	124,339

Source: BVES
Note: Risks with "NA" represent risks identified after BVES' formal risk-based decision-making process. Although these risks have not been formally scored, BVES has used qualitative information and evaluated cost-effectiveness and implementation-feasibility to prioritize these measures.

In addition to assessing its territory at a high level, BVES conducted a detailed analysis based on the NFDRS evaluation. This analysis uses available weather data to determine the percentage of days for each rating. BVES found that on average its service area was "Very Dry" or "Dry" approximately 76.11 percent of the time over the 2015-2019 period, which significantly contributes to the high fire risk. Supporting Table 4-3 below shows the full analysis.

Supporting Table 4-3. BVES NFDRS Rating Analysis (% Days per Rating)

NFDRS Rating	Dryness	Fire Risk	2015	2016	2017	2018	2019	Avg
Green	Moist	Little or No	7.12%	19.40%	29.86%	8.02%	55.26%	23.89%
Yellow	Dry	Low	63.56%	39.34%	37.81%	52.16%	19.30%	42.51%
Brown	Very Dry	Moderate	28.77%	37.70%	28.22%	37.65%	22.81%	30.99%
Orange (Wind)	Very Dry	High	0.00%	2.46%	4.11%	2.16%	2.63%	2.27%
Red (Lightning)	Very Dry	High	0.55%	1.09%	0.00%	0.00%	0.00%	0.34%

Source: BVES NFDRS Analysis
Note: Data begins 1/15/2015, ends 12/31/2019; 41 and 23 erroneous or missing days were not included from 2018 and 2019, respectively

There are also specific areas that are considered high-risk and would be more adversely affected in a wildfire or emergency. These areas consist of dense vegetation coverage, populations, and or critical infrastructure. The areas identified and their risks are listed below. This section details the wildfire prevention activities for these locales.

- **Radford Area**: The area is remote, mountainous, heavily forested and mostly only accessible by foot. Additionally, BVES has critical infrastructure running through this area, creating challenges in upgrading the infrastructure and maintaining visibility on the lines. Specifically, infrastructure changes require the use of helicopters and specially trained linemen to work in the challenging environment. Currently, BVES de-energizes the infrastructure in this area in the summer due to the high fire risk.
- **Boulder Area:** BVES has identified this area as high-risk due to the number of customers in the area (~1,000), the dense tree coverage, the adverse terrain, abundant available fuel, and the high number of tree attachments. This area includes the Boulder and Lagonita distribution circuits.
- **North Shore Area:** Like the Boulder Area, this area is susceptible to fires due to its tree density, available fuel, high number of tree attachments, and difficult terrain, which make operations & maintenance and access to facilities difficult. Additionally, certain areas have a high density of customers.
- **Moonridge Area:** Like the Boulder Area, this area is identified as high-risk due to the number of customers in the area (~1,000), the dense tree coverage, the adverse terrain, and abundant available fuel. This area includes the Goldmine and Club View distribution circuits.

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- **Erwin Lake Area:** Like the Boulder Area, this area is identified as high-risk due to the number of customers in the area (~1,000), the dense tree coverage, the adverse terrain, and abundant available fuel.

As described above, the service territory's high elevation means the area consists of a heavily forested, alpine, mountainous environment, which is highly vulnerable to wildfires. BVES understands this risk and has prepared its fire mitigation plans accordingly. Furthermore, it has complied with all fire-safety regulations adopted to date, including those set out in GO 95, 165, and 166.

Evaluation of Higher Fire-Threat Areas

As it evaluated fire risks, BVES noted particularly high fire-threat areas for additional monitoring and assessment. These areas include those that are more prone to fires than others due to increased vegetation or exposed lines, or areas where a wildfire would be particularly destructive such as those with high customer densities. By prioritizing these higher fire-threat areas, BVES can further mitigate wildfires. The table below outlines the parameters of the analysis.

Supporting Table 4-4. Evaluation of Higher Fire-Threat Areas

Circuit	Voltage (kV)	Fire Threat Tier	Customers	# of Poles	Total Circuit Miles	OH Circuit Miles	Percent OH	UG Circuit Miles	Percent UG
Radford	34.5	3	0	89	2.84	2.82	99.30%	0.02	0.70%
Shay	34.5	2	9,627	610	17.56	17.17	97.78%	0.39	2.22%
Baldwin	34.5	2	11,305	256	9.44	8.94	94.70%	0.50	5.30%
Boulder	4.16	2	2,046	917	19.48	17.68	90.76%	1.80	9.24%
North Shore (Fawnskin)	4.16	2	1,523	745	23.92	15.83	66.18%	8.09	33.82%
Erwin Lake	4.16	2	2,533	1,042	29.24	21.83	74.66%	7.41	25.34%
Pioneer (Palomino)	4.16	2	537	599	19.34	16.39	84.75%	2.95	15.25%
Clubview	4.16	2	1,984	504	10.45	10.18	97.42%	0.27	2.58%
Goldmine	4.16	2	1,698	550	18.46	13.20	71.51%	5.26	28.49%
Paradise	4.16	2	1,895	549	11.85	9.85	83.12%	2.00	16.88%
Sunset	4.16	2	1,918	505	11.17	10.67	95.52%	0.50	4.48%
Sunrise (Maple)	4.16	2	1,506	347	11.65	7.79	66.87%	3.86	33.13%
Holcomb (Bear City)	4.16	2	1,587	614	14.10	13.25	93.97%	0.85	6.03%
Georgia	4.16	2	1,023	345	9.86	5.91	59.94%	3.95	40.06%
Eagle	4.16	2	959	322	8.91	7.38	82.83%	1.53	17.17%
Harnish (Village)	4.16	2	254	82	2.55	1.34	52.55%	1.21	47.45%
Garstin	4.16	2	1,055	276	8.91	5.91	66.33%	3.00	33.67%
Lagonita	4.16	2	1,103	451	8.89	7.46	83.91%	1.43	16.09%
Interlaken	4.16	2	880	280	10.00	6.45	64.50%	3.55	35.50%
Castle Glen (Division)	4.16	2	1,188	343	10.61	6.93	65.32%	3.68	34.68%
Country Club	4.16	2	605	177	4.12	3.18	77.18%	0.94	22.82%
Fox Farm	4.16	2	35	4	0.84	0.00	0.00%	0.84	100.00 %
Pump House (Lake)	4.16	2	4	22	0.66	0.64	96.97%	0.02	3.03%
Lift (Summit TOU)	4.16	2	1	1	0.10	0.10	100.00 %	0.00	0.00%

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Skyline (Summit Res)	4.16	2	0	0	0.00	0.00	NA	0.00	NA
Geronimo (Bear Mtn.)	4.16	2	1	0	0.03	0.00	0.00%	0.03	100.00 %

Source: BVES

According to the analysis, BVES identified the higher fire-threat areas outlined above to include the following circuits: (1) Radford, (2) Boulder, (3) Northshore, (4) Moonridge (Goldmine and Clubview), and (5) Erwin. BVES has paid special attention to and in many cases prioritized mitigation strategies in these areas. At this time, BVES believes that the Tier 2 and Tier 3 HFTD ratings used by the CPUC adequately account for these higher fire-threat areas.

Risk Mitigation Strategy (Prioritization)

Using its risk understanding, BVES developed a risk mitigation strategy, prioritizing the most cost-and operationally-effective strategies for its risk-based decision-making framework filing. This prioritization included evaluating the risk reduction relative to the cost of the mitigation using a Risk Spend Efficiency (RSE) analysis. This analysis focused on a complete review of ongoing and potential new projects to mitigate the two primary wildfire related risk events, which are:

- Utility caused wildfire results in multiple public fatalities or firefighter fatalities.
- During extreme fire threat weather and conditions, such as a major Santa Ana wind event, SCE Doble, Cushenberry, and/or Bear Valley Lines are de-energized by SCE for PSPS for a period of 48 hours (or more).

The review produced a list of mitigation projects and programs and quantified the risk benefit (reduction) and the RSE. This process allows BVES to better evaluate projects in terms of risk reduction and select the best alternatives where an alternative exists. For example, BVES evaluated undergrounding its sub-transmission system (34.5 kV) versus installing covered wire on the sub-transmission system. This analysis resulted in the two figures below.

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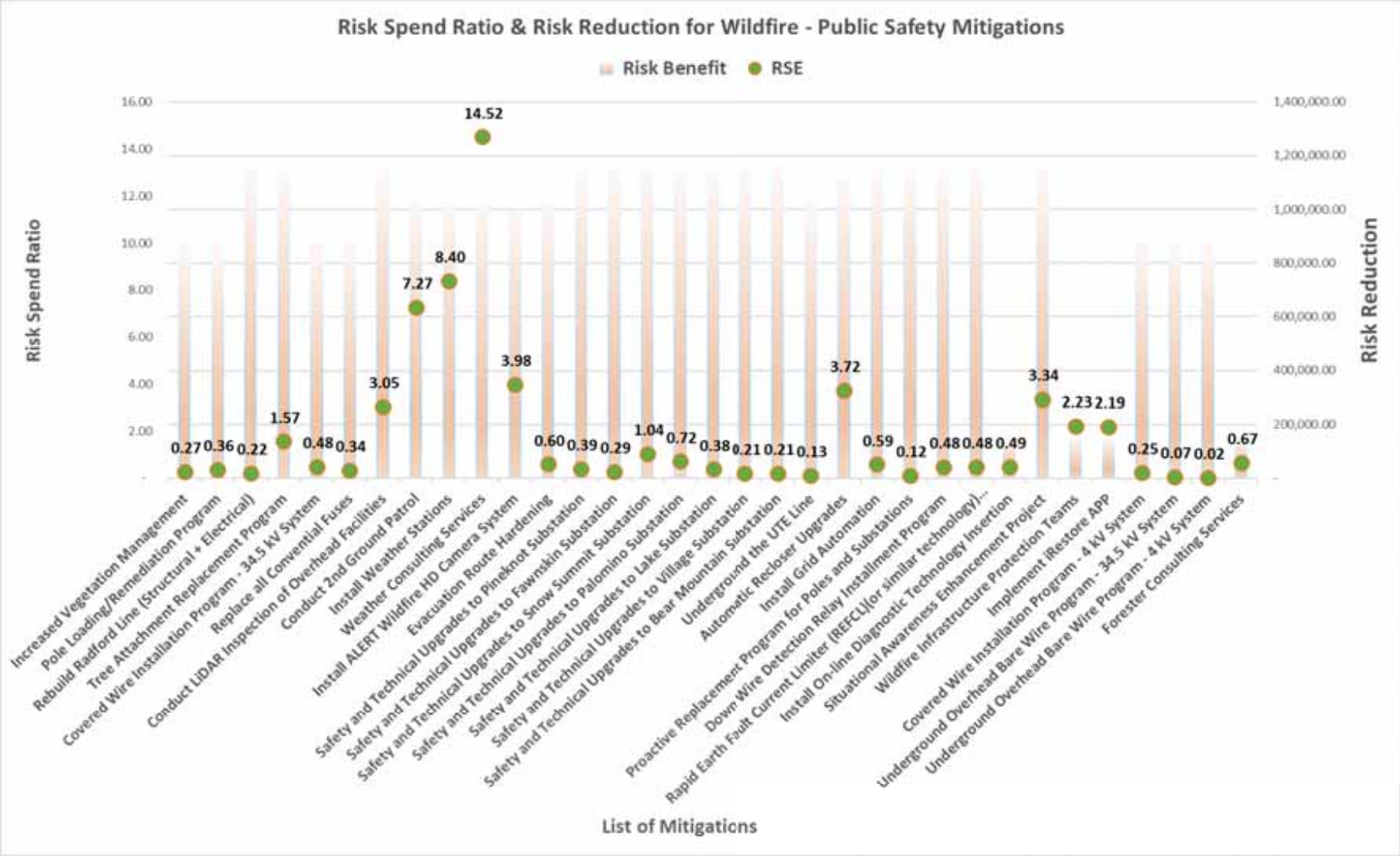
Figure 4-4. Risk Reduction and Efficiencies of Mitigation Initiatives



Source: BVES, 2020

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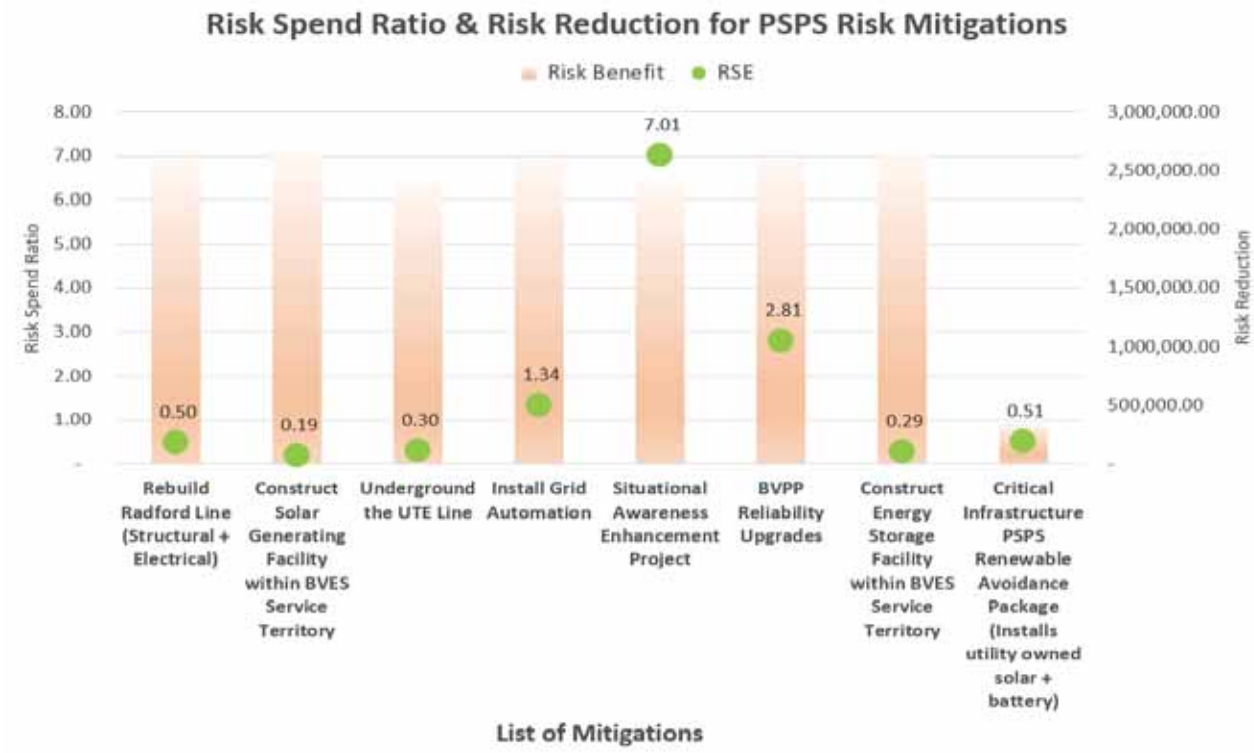
Figure 4-5. Risk Spend Ratio / Risk Reduction for PSPS Mitigations



In addition to evaluating the risk reduction and RSEs, one also must take into account the timing and proper sequencing of the projects. For example, while the Situational Awareness Enhancement Project offers a relatively high RSE, it should not be fully completed until the Grid Automation project is near completion in 2022.

Description of How the Plan Accounts for Identified Risks

Since BVES identified risk mitigation strategies based on its list of potential risk events, the Plan aligns closely with its risk-based decision-making framework. Supporting Table 4-5 below details how the Plan accounts for identified risks. It should be noted that mitigation measures may span several different categories and help mitigate multiple risks.

Supporting Table 4-5. Risk & Risk Mitigation Mapping

Risk Event	*Proposed Mitigation Measures*
Design & Construction	
Line Attached to Fallen Tree	• Continue Tree Attachment Replacement Program

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Ignition Caused by Equipment/Infrastructure Settings	• Continue Fusing Upgrades (install current limiting fuses & electronic fuses) • Continue covering bare lines, prioritizing high-risk areas (e.g. the Radford Line) to prevent ignition • Underground high-risk overhead lines, where appropriate • Continue to enclose substations and related infrastructure
Inspection & Maintenance	
Pole Failures	• Continue Vegetation Management Program • Continue Pole Loading Assessment & Remediation
Downed Wire	• Continue Vegetation Management Program • Continue Pole Loading Assessment & Remediation • Continue to install grid automation equipment • Continue Tree Attachment Replacement Program • Implement Down Wire Detection Relay Installment Program • Continue increased on-ground inspections
Aging Infrastructure	• Continue Pole Loading Assessment & Remediation Program • Continue Electrical Preventative Maintenance Program • Continue Upgrade Program for Substations • Continue increased on-ground inspections • Continue LIDAR inspections
Vegetation in Proximity to Infrastructure	• Continue increased on-ground inspections • Continue LIDAR inspections • Continue Vegetation Management Program • Continue covered wire program • Implement Forrester Program
Quickly Changing Environmental Conditions Due to Climate Change	• Continue increased on-ground inspections • Continue weather consultant services • Continue weather station installation and integration with SCADA • Continue expanding use of HD cameras to monitor remote areas with stakeholder engagement
Operational Practices	
Unclear Protocols & Procedures During High-Risk Conditions	• Continue to update protocols and procedures on an as-needed basis
Situational & Conditional Awareness	
Inability to Visualize Equipment in Hard-to-Patrol Areas	• Continue increased on-ground inspections • Continue expanding use of HD cameras to monitor remote areas • Continue LIDAR inspections • Continue to install grid automation equipment
Imprecise Weather Forecasting	• Continue using consultant meteorologist to analyze weather data • Continue to monitor publicly available weather data in the area • Monitor BVES-owned weather stations (all remaining for target to be installed by May 2020)
Response & Recovery	

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Fatality caused by wildfire / emergency	• Continue vegetation management program • Continue Pole Loading Assessment & Remediation • Continue fusing program (install current limiting fuses and electronic fuses) • Continue covered wire program • Continue Tree Attachment Replacement Program • Rebuild Radford Line (Structural + Electrical)
Sustained outages affecting health	• Continue Vegetation Management Program • Continue Pole Loading Assessment & remediation • Continue Electrical Preventative Maintenance Program • continue to install grid automation equipment • Continue covered wire program

Source: BVES

Based on the items identified, BVES evaluated the impact for risk mitigation, feasibility, and cost-effectiveness of each item. The items that passed the evaluation are included in BVES wildfire mitigation portfolio and described in Section 5. BVES will continue to monitor all items not currently planned for inclusion and explore new technologies as they arise.

4.4 Directional Vision for Necessity of PSPS

Attachment 1 Section 4.4 Directional Vision for Necessity of PSPS

Describe any lessons learned from PSPS since the utility's last WMP submission and expectations for how the utility's PSPS program will evolve over the coming 1, 3, and 10 years. Be specific by including a description of the utility's protocols and thresholds for PSPS implementation. Include a quantitative description of how the circuits and numbers of customers that the utility expects will be impacted by any necessary PSPS events is expected to evolve over time. The description of protocols must be sufficiently detailed and clear to enable a skilled operator to follow the same protocols. When calculating anticipated PSPS, consider recent weather extremes, including peak weather conditions over the past 10 years as well as recent weather years and how the utility's current PSPS protocols would be applied to those years.

BVES has had no PSPS events over the past year and does not forecast an imminent need to de-energize in the future based on a three-year forecast. However, the utility has identified seven sections of "at-risk" areas based on type of distribution facilities (overhead bare conductions, high voltage, etc.), tree and vegetation density, available dry fuel, and other factors that make certain locations vulnerable to wildfire risk. These line sections may be de-energized by "opening" the Auto-Reclosers (AR); each circuit affects a varying number of customers, as outlined in Supporting Table 4-6 below.

Supporting Table 4-6. Circuits Identified for De-Energization & Customers Affected

Circuit (AR To Be Opened)	Number of Customers
Radford 34kV	0[16]

[16] When this line is de-energized, the load is shifted to the Shay 34kV line.

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North Shore 4kV (Open AR)	1021
Erwin 4 kV (Open AR 1128)	197
Boulder 4kV (Open AR 105)	1063
Lagonita 4kV (Open AR 145)	946
Club View 4kV (Open AR 424)	740
Goldmine 4kV (Open AR 405)	950

Source: BVES

Execution: BVES' procedures include two aspects: (1) field operations and (2) communications. The first includes the planned actions of service crews and BVES staff and the second, notifications to stakeholders. Supporting Table 4-7 below outlines these procedures.

Supporting Table 4-7. Operating Procedures

Fire Conditions	Planned Actions	Planned Notifications
Forecasted Extreme Fire Weather Conditions	• Monitor existing wind speed in "at risk" locations • Determine if conditions warrant specific actions • Communicate with Customer Service to ensure accurate communications with stakeholders	• Notify local government and agencies • Post notification of potential power outages on website and social media • Issue press release to local media
Imminent Extreme Fire Weather Conditions (Wind Speeds measured at 50 mph for > 3 seconds)	• Dispatch crews to monitor field conditions for dangerous conditions throughout service area and "at risk" locations • De-energize any power line that may pose a hazard	• Continue to coordinate with local government and agencies • Update notifications on website and social media to warn of potential for power shutoff • Issue updated press release to local media
Validated Extreme Fire Weather Conditions (Wind Speeds measured at 55 mph or greater for > 3 seconds)	• Monitor local wind gusts and de-energize circuits in "at risk" areas as gusts reach 55mph for 3 or more seconds • Patrol service area and "at risk" areas to monitor actual conditions • De-energize additional power lines as needed	• Continue to coordinate with local government and agencies • Update notifications on website and social media • Send notification via Interactive Voice Response (IVR) • Issue updated press release to local media • Notify CPUC and Warning Center at the Office of Emergency Services per protocols

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Weather Subsides to Safe Levels	• Validate that extreme fire weather conditions have subsided to safe levels[17] • Conduct field inspections and patrols of de-energized facilities • Restore power once field inspections and patrols are completed	• Continue to coordinate with local government and agencies • Update notifications on website, social media and IVR • Issue updated press release to local media

For the purpose of the procedure discussed in the table above, the Operations and Planning Manager will be in charge of the execution. The Field Operations Supervisor will direct field activities and operations. The Service Crew (or Dutyman outside normal working hours) will provide initial field response. Additional linemen will be called out as needed. Furthermore, Customer Service staff and/or additional staff may be called out to assist with notification procedures as needed. Other staff may be called out at the direction of the Operations and Planning Manager to assist, as needed. For example, Engineering staff may be called out to assist linemen in monitoring local wind speeds. Collectively, these staff described above are referred to as the Emergency Response Team (ERT).

When de-energization is deemed necessary, BVES crews will manually shut off at risk circuits, lines, and other infrastructure. In the future, as it implements SCADA and other technologies, BVES will consider remote shut-off implementation, where cost-effective. The utility has worked closely and will continue to work closely with local stakeholders that own or operate critical facilities, including hospitals and police and fire departments, to ensure their facilities remain operational and/or they have back-up plans in PSPS situations. Additionally, BVES will plan to update these plans in accordance with changes to the CPUC proceeding 18-12-005, Order Instituting Rulemaking to Examine Electric Utility De-Energization of Power Lines in Dangerous Conditions.

Table 20 below ranks the characteristic of PSPS events. This information is also included in the supplemental *Attachment 1* workbook.

Table 20. Anticipated characteristics of PSPS use over next 10 years

Rank order 1-9	PSPS characteristic	Significantly increase; increase; no change; decrease; significantly decrease	Comments
N/A[1]	Number of customers affected by PSPS events (total)	No change	BVES has not implemented any PSPS does not anticipate the need for PSPS over the next 10 years
N/A[1]	Number of customers affected by PSPS events (normalized by fire weather, e.g., Red Flag Warning line mile days)	No change	BVES has not implemented any PSPS does not anticipate the need for PSPS over the next 10 years
N/A[1]	Frequency of PSPS events in number of instances where utility operating protocol requires de-energization of a circuit or	No change	BVES has not implemented any PSPS does not anticipate the need for PSPS over the next 10 years

[17]Safe levels are defined as wind speeds in the affected area calming below 50 mph for a minimum period of 20 minutes. Crews may extend the calm period beyond 20 minutes, if they assess that further wind gusts greater than 50 mph are likely.

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Rank order 1-9	PSPS characteristic	Significantly increase; increase; no change; decrease; significantly decrease	Comments
	portion thereof to reduce ignition probability (total)		
N/A[1]	Frequency of PSPS events in number of instances where utility operating protocol requires de-energization of a circuit or portion thereof to reduce ignition probability (normalized by fire weather, e.g., Red Flag Warning line mile days)	No change	BVES has not implemented any PSPS does not anticipate the need for PSPS over the next 10 years
N/A[1]	Scope of PSPS events in circuit-events, measured in number of events multiplied by number of circuits targeted for de-energization (total)	No change	BVES has not implemented any PSPS does not anticipate the need for PSPS over the next 10 years
N/A[1]	Scope of PSPS events in circuit-events, measured in number of events multiplied by number of circuits targeted for de-energization (normalized by fire weather, e.g., Red Flag Warning line mile days)	No change	BVES has not implemented any PSPS does not anticipate the need for PSPS over the next 10 years
N/A[1]	Duration of PSPS events in customer hours (total)	No change	BVES has not implemented any PSPS does not anticipate the need for PSPS over the next 10 years
N/A[1]	Duration of PSPS events in customer hours (normalized by fire weather, e.g., Red Flag Warning line mile days)	No change	BVES has not implemented any PSPS does not anticipate the need for PSPS over the next 10 years
N/A[1]	Other	No change	BVES has not implemented any PSPS does not anticipate the need for PSPS over the next 10 years

1. BVES does not anticipate future PSPS events to occur and has not initiated proactive de-energization within 2015 - 2019.

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5. WILDFIRE MITIGATION STRATEGY AND PROGRAMS FOR 2019 AND EACH YEAR OF THE 3-YEAR WMP TERM

This section provides an overview of the preventative strategies and programs established in the Plan. The information provided includes the overarching Plan components, programs implemented or proposed, and the timing of proposed implementations. It should be noted that BVES did not split its preventative strategies into transmission and distribution categories, since BVES does not own and operate any transmission infrastructure. Although it has sub-transmission lines (34.4 kV), it considers the lines distribution assets, given the voltage.[18]

BVES' wildfire preventative strategy and programs encompass five main components and align with best practices. Together the five components create a comprehensive wildfire preparedness and response plan with an overarching focus on stringent construction standards, fire prevention through system design, proactive operations and maintenance programs, and well-socialized operating procedures and staff training. Figure 5-1 outlines the five main components.

Figure 5-1. Preventative Strategy & Program Overview

Source: BVES

- **Design & Construction**: These strategies consist of system, equipment, and structure design and technical upgrades. The practices in this category aim to improve system hardening to prevent contact between infrastructure and fuel sources, such as vegetation. For example, BVES plans to upgrade the Radford Line with a covered wire, mitigating the risk of bare line contact with vegetation or other fuel sources.
- **Inspection & Maintenance:** These strategies consist of assessment and diagnostic activities as well as associated corrective actions. The practices in this category aim to ensure all infrastructure is in working condition and vegetation adheres to defined minimum distance specifications.
- **Operational Practices:** These strategies consist of proactive, day-to-day actions taken to mitigate wildfire risks. The practices in this category aim to ensure BVES is prepared in high-risk situations, such as dry, windy environmental conditions. For example, should the weather forecast predict NFDRS high-risk warning conditions, the Wildfire Information Protection Team (WIPT) will begin to prepare the system for a potential de-energization event, if needed.

[18] Distribution lines are defined as all lines below 65 kV per Attachment 1 to R. 18-10-007 filed 12/16/19 at 11:53 AM

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- **Situational & Conditional Awareness:** These strategies consist of methods to improve system visualization and awareness of environmental conditions. The practices in this category aim to provide tools to improve the other components of the Plan. For example, camera installation will improve system and vegetation inspection and maintenance practices.
- **Response & Recovery:** These strategies consist of procedures to react to de-energization, wildfire, or other related emergency conditions. The practices aim to formalize protocols for these situations, so BVES can provide an adequate response and recovery.

BVES has also outlined emergency preparedness plans, including customer support and communications protocols, as well as performance metrics to monitor its Plan over time.

5.1 *Wildfire Mitigation Strategy*

Attachment 1 Section 5.1 Wildfire Mitigation Strategy

Describe organization-wide wildfire mitigation strategy and goals for each of the following time periods:

1. **Before the upcoming wildfire season, as defined by the California Department of Forestry and Fire Protection (CAL FIRE),**
2. **Before the next annual update,**
3. **Within the next 3 years, and**
4. **Within the next 10 years.**

The description of utility wildfire mitigation strategy shall:

A. **Discuss the utility's approach to determining how to manage wildfire risk (in terms of ignition probability and estimated wildfire consequence) as distinct from managing risks to safety and/or reliability. Describe how this determination is made both for (1) the types of activities needed and (2) the extent of those activities needed to mitigate these two different groups of risks. Describe to what degree the activities needed to manage wildfire risk may be incremental to those needed to address safety and/or reliability risks.**

B. **Include a summary of what major investments and implementation of wildfire mitigation initiatives achieved over the past year, any lessons learned, any changed circumstances for the 2020 WMP term (i.e., 2020-2022), and any corresponding adjustment in priorities for the upcoming plan term. Organize summaries of initiatives by the wildfire mitigation categories listed in Section 5.3.**

C. **List and describe all challenges associated with limited resources and how these challenges are expected to evolve over the next 3 years.**

D. **Outline how the utility expects new technologies and innovations to impact the utility's strategy and implementation approach over the next 3 years, including the utility's program for integrating new technologies into the utility's grid.**

5.1.1 Design and Construction

Leveraging the risk-based decision-making framework, BVES has enhanced its existing wildfire mitigation practices. The updated programs and practices are categorized into 5 key areas, including: (1) design and construction, (2) inspection and maintenance, (3) operational practices, (4) situational/conditional

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awareness, and (5) response and recovery. These areas align with those identified in the risk-based decision-making framework. Each subsection is further divided into planning, execution, and cost components, providing details about how the practices mitigate fires, the financial impact of each practice, the time required to establish each practice, and any applicable regulatory requirements. All mitigation practices in this section will be reviewed annually to evaluate progress and determine if modification to the Plan is appropriate.

The first category, Design and Construction, encompasses practices that relate to system infrastructure or design, such as design and technical upgrades to substations, poles, wires, and other utility structures. Notably, BVES has traditionally designed its system to provide safe, reliable power to customers in alignment with best practices from other utilities. However, some of these practices, such as the use of bare wire, have been reexamined in the context of wildfire risks. This section details the updated practices.

5.1.2 Detailed Strategy & Program Timing Overview

Each of the components outlined above have several sub-practices, many of which have already been implemented. Furthermore, the sub-practices align with the objectives outlined in Section 4. Supporting Table 5-1 below outlines the sub-practices and their implementation status since the last WMP filing.

Supporting Table 5-1. Prevention Strategy Program Descriptions & Updates

	Mitigation Measure	Description	Status
Design & Construction			
1	Pineknot Substation Upgrades	Technical and safety upgrades to prevent equipment exposure to the elements and human contact	Complete
2	Ute Undergrounding	Asset transfer from SCE; line undergrounding to mitigate proximity to forested areas	Conducting preliminary planning & discussions.
3	Fuse Upgrades	Conventional fuse replacements with current limiting fuses and electronic programmable (vacuum switch) tripsaver technology to limit potential sparking when faults occur	In progress. 38% complete.
4	Tree Attachment Removal Project	Removal of tree attachments to avoid proximity of fuel and ignition sources	In progress. 22.6% complete.
5	Pole Loading Assessment & Remediation Program	Increase rate of pole assessments to identify pole issues, which can result in wildfires, sooner	In progress. 28.8% complete.
6	Covered Conductor Replacement Pilot Program	Pilot to determine the effectiveness of using covered tree wire conductor to test feasibility of a larger rollout	50% Complete. ECD April 2020.
7	Covered Conductor Wrap Pilot Program	Pilot of a wire wrap for high-risk wires to test feasibility of a larger rollout	As of this point, not considered acceptable for use.

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8	Radford Line Covered Conductor Replacement Project	Radford Line replacement with a covered conductor to mitigate bare wire contact with fuel sources in HFTD Tier 3 area	Design complete. Construction ECD October, 2020.
Inspection & Maintenance			
9	First Annual On-Ground Inspection (GO 165)	One annual system patrol to inspect the condition of assets to avoid faults, which can result in fires	Completed.
10	Second Annual On-Ground Inspection	One more system patrol in addition to the annual GO 165 patrol to ensure all assets are in good condition to avoid faults, which can result in fires	In progress. ECD February 2020.
12	Electrical Preventative Maintenance Program	System examination using additional diagnostics on assets to further inspect the condition of assets	Complete.
13	LIDAR Inspection	Light Detection and Ranging (LIDAR) inspections of the overhead facilities in difficult-to-patrol areas to visualize vegetation growth proximity to the system for targeted maintenance	In progress. ECD February 2020.
14	GIS Data Collection & Sharing	Geographic Information System (GIS) database on system infrastructure for asset management and planning with key stakeholders	In progress.
15	Vegetation Management Plan	Vegetation maintenance program to avoid system proximity, which may cause wildfires	In progress.
Operational Practices			
16	Operational Considerations / Special Work Procedures	Protocols and procedures for staff during high-risk fire conditions	Completed.
17	Automatic Recloser Upgrades	Recloser replacement to reduce electrical sparking, while also helping mitigate power outages and equipment damage	In progress. ECD March 2020.
18	Emergency Reporting	Protocols and procedures for staff when third parties (e.g. customers) report potential fires, including "arcing, sparks, smoldering, smoke, or fire"	Completed.
19	Wildfire Infrastructure Protection Teams	Roles and responsibilities for staff to respond to protect system infrastructure in case of emergencies	Completed.
Situational & Conditional Awareness			
20	SCADA Installations	Included in the Grid Automation project	In progress. ECD March 2020.
21	GIS-Based Applications (e.g. Outage Management System)	Implementation of GIS-based systems, such as outage management systems and interactive voice response systems, which allow BVES to locate outages and respond to customers more promptly in the case of a wildfire or related emergency	Completed.

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22	Web-Based Weather Resources	Monitoring of publicly available weather resources to evaluate forecasted weather and monitor for potential extreme fire conditions to prepare the system during high-risk events	Completed.
23	BVES-Owned Weather Stations	Monitoring of BVES-specific weather stations in strategic locations to evaluate forecasted weather and monitor potential extreme fire conditions	55% complete. ECD April 2020.
24	Weather Forecasting	Analysis of weather feeds to predict and respond to extreme weather events, which may result in wildfires. BVES currently analyzes this in-house but proposes to contract out the services on a weekly basis for additional analysis	In progress
25	Remote Monitoring	Monitoring of system and assets in remote areas using HD cameras to improve situational awareness and maintenance of key assets	In progress. ECD April, 2020
26	Grid Automation	Grid automation to improve system responses to prevent wildfires and enhance safety	In progress. 45% complete.
Response & Recovery			
27	PSPS Protocols	Protocols and procedures to respond to and recover from de-energization events, which proactively prevent wildfires	Completed.
28	Post Incident Recovery, Restoration & Remediation	Protocols and procedures to respond to and recover from any wildfire or related emergency events	Completed.

Completed or Implemented as Ongoing Program | On Track | Not Started

Source: BVES, 2019

5.1.3 Cost Information

BVES has incorporated some costs of planned measures into the 2018 GRCs. However, due to recent regulatory updates, BVES has updated its WMP and some proposed measures have not been previously captured. Supporting Table 5-2 below outlines the proposed costs and cost recovery of the measures included in this plan.

Supporting Table 5-2. Mitigation Measures Cost Information

	Mitigation Measure	Cost Covered Previously	Cost Recovery
Design & Construction			
1	Pineknot Substation Upgrades	Y	GRC[A]
2	Palomino Substation Safety and Technical Upgrades	Y	GRC[A]

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3	Ute Undergrounding	N	Separate Application to Commission $3.5 million
4	Construct an Energy Storage Facility within BVES' Service Territory	N	Separate Application to Commission Cost TBD
5	Critical Infrastructure PSPS Renewable Avoidance Package	N	Cost Recovery TBD Cost TBD
6	Fuse Upgrades	N	Memorandum Account[B] $5.2 million total ($2.6 million/year)
7	Tree Attachment Removal Project	Y	GRC[A]
8	Evacuation Route Hardening (Pilot Program)	N	Memorandum Account[B] $200,000
9	Pole Loading Assessment & Remediation Program	Y	GRC[A]
10	Radford Line Covered Conductor Replacement Project	N	Memorandum Account[B] $5.6 million
11	Covered Wire Installation Program – 35.5 kV System	N	Memorandum Account[B] $10,931,962 (6-year project) $1,832,933/year
12	Covered Wire Installation Program – 4 kV System	N	Memorandum Account[B] $35,130,371 (10-year project starting 2021) $3,513,037/year
13	Alternative Technologies (Down Wire Detection Relay Installment Program, Rapid Earth Fault Current Limiter (REFCL), Install On-line Diagnostic Technology Insertion, etc.)	N	Cost Recovery TBD Cost TBD
Inspection & Maintenance			
14	First Annual On-Ground Inspection	Y	GRC[A]
15	Second Annual On-Ground Inspection	N	Memorandum Account[B] $90,000/year
16	Electrical Preventative Maintenance Program	Y	GRC[A]
17	LIDAR Inspection	N	Memorandum Account[B] $240,000/year
18	GIS Data Collection & Sharing	Y	GRC[A]
19	Vegetation Management Plan	Y	GRC[A] and FHPMA[C]

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20	Forester Consulting Services	N	Memorandum Account[B] $145,000/year
Operational Practices			
16	Operational Considerations / Special Work Procedures	Y	GRC[A]
17	Automatic Recloser Upgrades	Y	GRC[A]
18	Emergency Reporting	Y	GRC[A]
19	Wildfire Infrastructure Protection Teams	Y	GRC[A]
Situational & Conditional Awareness			
20	SCADA Installations	Y	GRC[A]
21	GIS-Based Applications (e.g. Outage Management System)	Y	GRC[A]
22	Web-Based Weather Resources	Y	GRC[A]
23	BVES-Owned Weather Stations (Integrate all 20 stations with SCADA)	N	Memorandum Account[B] $27,000
24	Weather Forecasting (Consulting services)	N	Memorandum Account[B] $45,000
25	Remote Monitoring (Cameras)	N	Memorandum Account[B] $500,000 (2-year project) $250,000/year
26	Grid Automation	Y	GRC[A]
Response & Recovery			
27	PSPS Protocols	Partial	GRC[A] and Memorandum Account[B] $42,000
28	Post Incident Recovery, Restoration & Remediation	Y	GRC[A] plus CEMA if applicable

[A] Expense is addressed in the BVES' General Rate Case A.17-05-004 submitted on May 1, 2017, approved by D. 19-08-027 August 15, 2019.
[B] Expense not covered in BVES' General Rate Case Decision 19-08-027 of August 15, 2019; therefore, to be covered by memorandum account for WMP.
[C] BVES' Fire Hazard Prevention Memorandum Account (FHPMA).
Source: BVES

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5.2 Wildfire Mitigation Plan Implementation

5.2.1 Monitoring and Auditing the Plan

Attachment 1 Section 5.2 Wildfire mitigation Plan Implementation

Describe the processes and procedures the electrical corporation will use to do all the following:

A. Monitor and audit the implementation of the plan. Include what is being audited, who conducts the audits, what type of data is being collected, and how the data undergoes quality assurance and quality control.
B. Identify any deficiencies in the plan or the plan's implementation and correct those deficiencies.
C. Monitor and audit the effectiveness of inspections, including inspections performed by contractors, carried out under the plan and other applicable statutes and commission rules.
D. For all data that is used to drive wildfire-related decisions, including grid operations, capital allocation, community engagement, and other areas, provide a thorough description of the utility's data architecture and flows. List and describe 1) all dashboards and reports directly or indirectly related to ignition probability and estimated wildfire consequences and reduction, and 2) all available GIS data and products. For each, include metadata and a data dictionary that defines all information about the data. For each, also describe how the utility collects data, including a list of all wildfire-related data elements, where it is stored, how it is accessed, and by whom. Explain processes for QA/QC, cleaning and analyzing, normalizing, and utilizing data to drive internal decisions. Include list of internal data standards and cross-reference for they datasets or map products to which the standards apply.

The Operations & Planning Manager and Energy Resource Manager will update the Director on the status of the WMP initiatives at regularly scheduled Management Meetings. Additionally, the WMP and its program targets will be included as a discussion item on the agenda at regularly scheduled Manager and Supervisor Meetings.

As mentioned above, the Operations & Planning Manager will collect and submit a report of the WMP metrics each month to the Director as well as BVES Managers and Supervisors. Based on the results, the Operations & Planning Manager will make recommendations to the Director on action to be implemented, if warranted. Additionally, work orders, contracts, purchase orders and other expense mechanisms will be subject to the Company's internal and external audit procedures.

BVES shall engage one of the CPUC approved listed independent evaluators to review and assess BVES' compliance with its Plan upon the list issuing, expected on or around March of 2021. Phase 2 of the OIR opened discussion into the structure, focus, and priorities that evaluators will apply to their audits. The process for procuring an independent evaluator has not yet been formalized at the time of this filing. It is expected that the evaluator will:

- Consult with, and operate under direction of, the Wildfire Safety Division and Safety and Enforcement Division.
- Issue a report of each comprehensive review to the Commission/WSD based upon future decisions in R. 18-10-007.

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- Determine whether the utility submitted a comprehensive WMP with justified mitigation strategies poised to effectively reduce wildfire risk.
- Incorporate review of the supplemental and underlying data responses that will be filed in parallel with the 2020 WMP and presumably future iterations.

5.2.2 Identifying and Correcting Deficiencies in the Plan

BVES staff and qualified external stakeholders are encouraged to identify plan deficiencies or potential deficiencies to the Operations & Planning Manager as soon as possible when observed. The Operations & Planning Manager shall evaluate each reported deficiency and, if the deficiency is determined to be a valid plan deficiency, he shall enter the deficiency into a log with the following information:

- Date the deficiency was discovered
- Description of the deficiency
- Source identifying the deficiency (e.g., Internal Audit)
- Priority based on deficiency severity
- Assigned corrective action including the date when it must be completed by
- Assigned staff responsible for completing the corrective action
- Date corrective action completed

The Operations & Planning Manager will go over the log at regularly scheduled Manager and Supervisor Meetings. It should also be noted that the log is not a substitute for tracking specific program deficiencies (e.g., vegetation management discrepancies are tracked via the vegetation management Quality Control (QC) program (not in the WMP deficiency log).

5.2.3 Monitoring and Auditing the Effectiveness of Equipment and Line Inspections

The Operations & Planning Manager will assign qualified internal staff or engage a third party to review and audit the equipment and line inspection programs called out in the WMP after the completion of the first six months of the plan. Ideally, the audit is to be conducted between the 6-month and 8-month point of the plan period. The assigned auditor will:

- Review records for the inspection programs,
- Interview staff performing inspections to assess their knowledge of the inspection programs,
- Monitor staff performing inspection activities,
- Review deficiencies noted in the programs,
- Identify systemic issues or problems,
- Note the timeliness of corrective actions,
- Pick a random sample of some completed corrective actions and verify the effectiveness of the corrective actions, and
- Issue a written report of findings.

The Operations & Planning Manager will review the audit findings and assign corrective action as applicable. A copy of the audit report will be provided to the Director.

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5.2.4 Utility Data Architecture and Flow

The following information refers to BVES' Data Collection for WMP report, filed with the Commission in July 2019. The data architecture and products are discussed in the following tables.

While BVES has sufficient supporting data sources to evaluate their WMP, the utility plans to continue to improve data collection, analysis, and reporting practices surrounding the evaluation of their WMP. Future plans include incorporating a data collection and tracking spreadsheet within its collection of data sources that intends to aggregate the elements of various mitigation strategy results. This Data Product Catalogue for Wildfire Mitigation would allow for better, more transparent data collection and tracking both internally and externally. Finally, BVES will continue to identify new metrics and data sources to help assess the effectiveness of its implementation of the WMP.

Supporting Table 5-3: Data Product Catalogue for Wildfire Mitigation

Data Collection Area	Data / Map Products	Software / File Type	Description	Assessment Value
Fault / Outage Tracking	*Outage Log*	Excel Workbook	Collection of incidents detailing the duration, weather conditions, cause, and impacted facilities associated with each outage event.	Fire Incident Data collection is annually updated by the CPUC Safety Enforcement Division (SED) and is an approved reporting method. This supports as the underlying data.
Vegetation Management	***Proposed*** *WMP Vegetation Call Tracker*[19]	*Excel Workbook*	*Number of bare line contacts with vegetation, as reported by customer service calls and verified by roll-out crew.*[20]	*This will aid in determining links to customer-reported vegetation-related service calls and track if mitigation activities are required as a result.*
	Vegetation Inspection Report	Software Database	Captures and records results of the inspection practices for vegetation management.	Inspections of vegetation will help prevent overgrowth or impact from subject trees. Inspections can lead to prevention and remediation activities, thus reducing risk. Showing consistency or an increase in recorded vegetation inspection practices will help convey Plan effectiveness.
	Vegetation Management Report	Software Database	Captures and records results of the activities (trimming, removal) for vegetation management.	Reducing the amount of fuel surrounding the electrical equipment will greatly reduce the likelihood of ignition. Frequency of vegetation mitigation activities would provide a valuable assessment.

[19] As a result of the consultation, BVES plans to implement this data collection activity to help support the Plan's mitigation strategies. The data product will not be presented in the Data Dictionary as it is in preliminary stages of refinement.

[20] BVES would first engage in training the customer service representative group to catalogue vegetation risk-related calls and determine responsibility for logging the events within the proposed tracking spreadsheet.

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Vegetation Management	*Right of Way (ROW) Map for Vegetation Management*	Geographic Information System (GIS) Map Package	Presents, through mapping, results and characteristics of the vegetation surrounding circuits and electrical equipment.	These maps serve to verify data through visualizations to present whether a utility is effectively inspecting vegetation and taking appropriate action to mitigate fire ignition and spread risks.
	Tree-Trimming QC Log	Software Database	Number of successful trimming services and inspections for at-risk vegetation as reported by tree trimming crews by identified circuits.	The tracking of these reports supports the successful implementation of the Plan's elements through quality checks and monthly reports as well as indicate reduced vegetation risk for wildfire initiation.
Infrastructure / Operations	*Expulsion Limiting Fuse Locations*	GIS Data Base, Excel Workbook	Tracks and accounts for the replacement of conventional fuses with current-limiting fuses.	The planned fuses are designed to minimize the occurrence of sparks and can be measured against current conditions of wildfire risk once the strategy has been fully executed.
	Substation Inspection Report	Document Records Kept	Provides results of substation inspections.	Frequency or an increase from the baseline of substation inspections would illustrate Plan effectiveness by reducing the risks that substations and their perimeters pose.
	Circuit Map Product	GIS Map	Details the circuits presented in the territory field view.	Verification of infrastructure and related circuits that are within fire threat areas.
	Detailed Circuit Map Product	GIS Data Base	Illustrates the locations of distribution circuits and related electrical equipment within the service territory in detail.	Supporting data to ensure mitigation strategies are addressing the correct circuit or related infrastructure.
	Distribution Circuit Map by Substation	GIS Data Base	Illustrates the locations of distribution circuits and related electrical equipment within the service territory.	Supporting data to ensure mitigation strategies are addressing the correct circuit or related infrastructure.
	Pole Replacement Work Order	GIS Data Base, WO Tracking Excel Workbook	Number of poles replaced annually for any reason.	The remediation and removal of aged or damaged poles will enable effective preventative measures to ensure structural integrity and reduction of ignition or fire risk.
	Covered Wire Program Phase 1 & Phase 2 Map	GIS Map	Illustrates the phases of the covered conductor project.	Helps align the Plan's progress with the performed activities and overall helps reduce contact and spark risk.

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Infrastructure / Operations	*Covered Wire Pilot Program*	GIS Map	Percentage of bare wire replaced and planned represented as a map product.	Allows metric tracking of covered conductor project and reduces the risk potential for contacts from objects causing arcs and potential ignitions.
	Field Activity	Document Records Kept	Provides results and conditions of reported or routine roll-out/field activities.	Fire and outage related reports are useful for metric verifications of incident reduction.
Wildfire Ignitions	*Fire Incident Data Report*	Excel Workbook	Number of utility-caused wildfires reported to the CPUC SED.	Recently recognized that the small investor-owned utilities would now be reporting this data. The format is useful for determining unique aspects of wildfire events for targeted mitigation efforts.
	Fire Safety Circuit Matrix	Outage log, Excel Workbook	Number of potential ignition events, as determined by presence of specific criteria.	This matrix demonstrates the fire potential through the collated data attributes from various data product sources. This provides a comprehensive determination of risk drivers for the listed items.
Situational Awareness / Weather Conditions	*NFDRS Fire Conditions*	Comma-Separated Value (CSV) dataset file	Number of elevated fire days and dry days as determined by National Fire Danger Rating System (NFDRS) through an associated scale.	This resource provides meteorological data that signal to utilities when and how to prepare for fire weather conditions. The utilization of this information corresponding with reported activities to prevent/mitigate wildfire threat could be valuable to assess.
	BVES Weather Station Database	Database Software, GIS and .CSV	Live map that presents the server data form BVES' weather stations on a weather system vendor platform.	The information available from the server reads will allow more comprehensive evaluation of the fire risk potential at a given time.
	BVES Weather Station Locations Map	GIS Map	Map representing the locations of BVES' weather stations.	These locations provide detailed understanding of unique conditions within those microclimates.
De-Energization	*ESRB-8*	Report Filing	Required incident report to the SED addressing utility de-energization events to prevent or minimize wildfire risk as a method of last resort.	Useful to track the cause and procedural follow-through of practices related to de-energization events and customer notification and communication.

The details provided in the Data Dictionary capture the detailed descriptions of the correlating data product. Evaluation of BVES' metrics and Plan effectiveness is not contingent on the level of granular detail described below. BVES understands the importance of delivering concise, meaningful data resources to facilitate a thorough review of the Plan and metrics. Therefore, BVES recommends providing the Commission or third-party stakeholders with the corresponding raw data used to calculate the metrics

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listed in this report to evaluate the Plan's effectiveness rather than every item listed in the table below, as some information stored is deemed sensitive or customer-related information.

Supporting Table 5-4: Data Dictionary

Data Product	Field ID / Metadata	Description
BVES Weather Station Database	Metadata	Server queries include recorded data points for meteorological conditions at the located weather station. These include: temperature, wind chill, heat index, dew point, density altitude, humidity, wind speeds (over various intervals), wind direction, wind gust (over various intervals), barometer pressure, vapor pressure, dry air pressure, saturated vapor pressure, rain, hail
	Measurements	Averages, rolling averages, peak measurements, rates, time of events, and forecasts of related data collection attributes
Circuit Map Product	Metadata	The base layer includes the service territory area layered with circuit lines and load center shapefiles
Covered Wire Pilot Program	Task #	Header depicts milestones within the pilot program
	Steps	Subset list that itemizes the necessary activities in achieving goals of associated Task
	Metrics/Comments	Presents the milestone or goal that will be met in completion of the task, with any additional comments
	Evaluation	Determination if the activity passes internal quality check
Covered Wire Program Phase 1 & Phase 2 Map	Metadata	The map layers include the base layer for service territory, the circuit identified for the phases, and distinct polygons that outline each segment related to its specific phase
	Measurements	The outlined phase segments that will be replaced with covered wire are displayed with the circuit mile length associated with the phase activities
Detailed Circuit Map Product	Metadata	The base layers include distribution and transmission circuits with attributes that include electrical equipment locations, meters, and other related data points.
Distribution Circuit Map by Substation	Metadata	Map includes base layer of selected substation service territory by streets/roads and feeders, and lines (overhead and underground and single or three phase). Additional data points reflect vaults, transformers, capacitors, PM-XFR, reclosers, fuses, pedestal, and whether a switch is opened or closed.
ESRB-8 De-Energization Incident Report	Date IOU Contacted Local Community Representatives	The date in which the local communities' representatives were contacted by the utility
	Local Communities Affected by De-Energization Event	List of communities impacted by the de-energization events
	Affected Area	Zone 1, Tier 2, or Tier 3 per General Order (GO) 95, Rule 21.2-D
	Customer Notification	Explanation describing the conditions why if the utility was not able to provide notice at least two hours in advance of de-energization
	Number and Nature of Complaints	Summarization of the number of complaints resulting from the de-energization event as well as claims that are filed against the utility
	Restoration Steps	Detailed description of the steps taken to restore power

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	Community Assistance Location	Identification of the address of each location during a de-energization event
	Location Description	Description of the building or structure
	Assistance Services	Description of the available services at each location
	Operational Hours	The days and hours that the community assistance location was open and operational
Expulsion Limiting Fuse Locations	Pole #	The associated pole identified in the fuse location
	Location	The address, location, or description of where the fuse locations are
	# of Transformers	The number of identified transformers
	Transformer Voltage	The associated voltage of the transformer
	Transformer Brand	Manufacturer of the transformer
	Transformer Serial #	Serial number of the transformer
	Transformer Sizes (KVA)	The determined kva size rating of the transformer
	Elf Fuse Size	The size of the fuse
Field Activity	Premise	Location of field activity
	Existing Conditions	Current status of the reported incident or necessary activity
	Actions Taken	Description of the actions taken by field crew
Fire Incident Data Template	Utility Name	Name of reporting utility
	Fire Start Date	The date recorded of the fire incident
	Time	The time associated with the fire incident
	Latitude / Longitude	The exact location of the fire ignition
	Material at Origin	Determination of vegetation is present at the location
	Land Use at Origin	Description of urban or rural interface at the origin of the fire incident
	Fire Size	The size, in acres, of the recorded fire incident at the time of extinguish
	Suppressed by	The determination of how the fire was suppressed
	Suppressing Agency	The agency or involved party/parties that suppressed the fire
	Facility Identification	Facilities recorded directly at the source
	Other Companies	Listed affected companies' equipment involved or as part of the fire incident
	Voltage (Volts)	Voltage of the affected electrical equipment
	Equipment Involved with Ignition	The utility's equipment involved with the ignition
	Type	The determination of the Equipment type
	Outage "Was There an Outage"	Indication of a resulting outage from the fire ignition
	Date	Date of the outage
	Time	Time of the outage
	Field Observations "Suspected Initiating Event"	Determination of the cause of ignition

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	Equipment / Facility Failure	Determination of any electrical equipment that failed
	Contact from Object	Determination of third-party contact with the equipment if the cause of the incident
	Facility Contacted	The determination of the facility impacted if part of the cause of the ignition
	Contributing Factor	Determination of any contributing factors to the ignition cause
	Notes	Additional comments regarding the incident
Fire Safety Circuit Matrix	Circuit	List of circuits located in High Fire-Threat Districts, which determines the scope of data collection and presentation within the matrix
	Voltage	Kilovolt listing for each identified circuit
	Fire Threat Tier	Acknowledgment of the fire threat Zone/Tier in which the circuit resides
	# of Poles	The number of poles within the identified circuit segments
	# of Tree Attachments	The number of tree attachments catalogued with the identified circuit segments
	UG Circuit Miles	The length of undergrounded circuit miles respective to the listed circuit
	UG Circuit Miles	The length of undergrounded circuit miles respective to the listed circuit
	Substation	Associated substation, if any, by circuit
	De-Energize In Unfavorable Condition?	This column provides the allowance of which lines are permitted to be de-energized if fire potential threat exists
	Exacter Survey	Determined if exacter survey process has started, is in progress, or is completed, by circuit
	Pole Loading	Based on parameters of pole loading, GO 95, and age of the pole (70yrs.+), this column tracks the status of pole loading, intrusive testing, or pole replacement needs by circuit
	Tree Attachment Removal Program	Determines the status of tree attachment removal activities by circuit
	Tree Wire	The status of investigation determining the need for tree wire by circuit
	Covered wire	The status, by circuit, of covered conductor implementation and evaluation
	Replace Expulsion Fuses	The status of evaluation of where fuse replacements from convention to current-limiting fuses are warranted, by circuit
	IntelliRupters Pulsing Auto Reclosers	The status of determining whether fault interrupters are warranted on the identified circuit
	System Instrumentation	The status, by circuit, of investigations of where further instrumentation is warranted
	Switch Automation Opportunities	The status, by circuit, of evaluated opportunities for switch automation that would enhance fire safety
	Branch Line Fusing Options	The status of investigation, by circuit, of additional related fusing opportunities that would enhance fire safety
	Evaluate Protective Settings	The status of evaluation, by circuit, for protective setting determinations for breakers, switches, reclosers, fuse trip savers, fuses, and other trip devices
	Consider Partial Undergrounding	The status of investigation, by circuit, of additional related fusing options

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NFRDS Fire Conditions / Threat Days	GACC	The region (state) in which the data is being populated
	PSA	The region within the state for which the dryness level forecast is being made
	Published Timestamp (UTC)	The date and time that the data is posted
	Forecast Date	The date forecasted for Dryness levels
	Dryness	The level indicated with the associated forecast of dryness from 1 - 5
	Trigger	Determines if a response is required as a result of the Dryness rank
	Risk	The highest risk level out of the various daily forecasts from 1 - 5, shown as the day's risk projection
	Dryness / Risk Key	Little or no risk/Green = 1, Low Risk-Dry/Yellow = 2, Moderate Risk-Very Dry/Brown = 3, High Risk-Windy & Dry/Orange = 4, High Risk-Lightening/Red = 5
	Days of Risk	Days of risk based upon the level are captured monthly for BVES service territory
Outage Log	Type	Determination of "Planned" versus "Unplanned" outages that take place within the annual dataset
	Outage Date	Date of outage incident recorded
	Circuit	Name of circuit impacted
	Substation	Name of substation associated with circuit and location
	Location	Address of the fault / trip (general outage) event
	Regional Area	Associated geographic region
	Number of Customers Out	Count of customers impacted by the outage event
	Outage Duration	Represented in minutes and Customer Minutes as an account of aggregated outage time the customers experience in total
	Event SAIDI	System Average Interruption Duration Index rating
	Cause/Comments	Determined cause of outage from supporting ListSets sheet descriptions in line with patrol / inspection results
	Blown Fuse Type	Reports applicable blown fuses and their types
	Work Order	Identification of required mitigations in the form of a work order as a result of the outage event
	GO 166 Report	Indication of whether a GO 166 report was made as a result of the outage
	Cause Category	Indication of the standalone cause of the outage event as stated in the field report
	NFRDS Rating	Color representation from NFRDS of fire weather conditions recorded at the time of the outage
	2019ResultsToDate	Collated measurements of reliability ratings based on outage report base data
Right of Way Map for Vegetation Management Map Package	Metadata	Data points represent activities related to vegetation management and inspection based upon the parameters of the ROW in view
Substation Inspection Report	Appearance	Description of surroundings

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	Metering	Description of the conditions of the equipment
	Transformers / Voltage Regulators / Recloser & Auto Switches	Parameters specific to determine operational status
	Other	Additional items for inspection
	Date	Date of the performed inspection
Tree Trimming QC Module	Record Number	ID of the Tree Trimming request
	Address	Location of the tree to be trimmed. Usually includes the pole number nearest to the tree
	Infract or Type	The type of job to be performed, depends on the type of tree and the rating of the conductors
	Complete	Flag to identify if the job was completed.
	Comments	Additional comments regarding the job
	Time Frame	General time frame by when the job should be done
	Date Complete	Date When the job was complete
	Due Date (If urgent)	Date by which the job needs to be completed. Only provided if the job is urgent.
	Completed by	Name of the person who did the job
	Reason	Description of the job that was completed
Vegetation Management Report	Corrective / Preventative	Each form must indicate whether the vegetation management work was corrective or preventative
	Due At:	Data by which the vegetation management work is to be performed
	Crew Size:	Number of personnel to engage in the work
	Scheduled Work:	Date and time of the scheduled work
	Pole Number:	Location marker by the adjacent pole number
	Line Number:	The associated line nearby the work performed
	Underground Device #:	If applicable, the underground device related to the vegetation management activity
	Photo Before:	Illustration of the vegetation prior to corrective/preventative action
	Photo After:	Illustration of the vegetation after the corrective/preventative action
	Comments:	Additional comments related to the scope of work
Vegetation Inspection Report	Tree Species:	Toggle options that list the classification of tree based upon the service territory ecology
	Density of Vegetation:	The level of vegetation density determined from the inspection
	Height of Vegetation:	Measurement of the identified vegetation species
	Type of Permission:	Determination of permission of utility to remedy vegetation concerns
	Proof of Permission:	Supporting documents demonstrating permissions
	Trim Info	Check boxes for information related to the status of the tree and nearby lines
	Amount Trimmed (FTS):	The reported amount of vegetation trimmed
	Width:	Width of vegetation
	Work Info:	Check boxes for work completion items

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	Date of Visit	Recorded time and date of inspection
	Priority:	Determination of the rank of priority
	Suggested Return Date:	Date determined for return routine inspection or as part of a corrective action, depending on the priority level
	Permits	Check boxes for permits in hand related to selected agencies and jurisdictions
	Inaccessible / Special Equipment Needed	Yes / No with additional comments
	Comments:	Additional comments on the scope of work
Weather Stations Map	Metadata	The map base layer includes the terrain of the service territory with layers added that include the latitude/longitude markers for each weather station

5.3 Detailed Wildfire Mitigation Programs

5.3.1 Risk Assessment and Mapping

Table 21 below presents program details related to risk assessment and mapping activities. This information is also included in the supplemental *Attachment 1* workbook.

Table 21. Risk Assessment & Mapping

Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
1. A summarized risk map showing the overall ignition probability and estimated wildfire consequence along electric lines and equipment	2019 plan	Bear Valley Electric Service has implemented the CPUC Fire-Threat Map Adopted January 2018 throughout its service territory. This map shows the CPUC-designated fire hazard zone tiers within BVES' service territory, which quantify specific geography that could be subject to elevated fire risk under historically viable fire weather conditions. The utility has also identified seven sections of "at-risk" areas within its service territory based on the type of distribution facilities (overhead bare conductors, high voltage, etc.), tree and vegetation density, available dry fuel, and other factors that make certain locations vulnerable to wildfire risk. The “at-risk” line sections are shown and further outlined in the utility's WMP submission. BVES' wildfire mapping efforts are foundational to determining and executing on priorities amongst the utility’s risk mitigation efforts as well as its day-to-day operations. BVES employs tier designations to inform inspection, vegetation management, correction timeframes, and prioritized hardening efforts. Wildfire risk mapping is foundational to prioritizing efforts for a variety of activities undertaken throughout the business. There are no specifically designated expenses, risk reductions, or any of the other column headings above associated with this initiative. Bear Valley Electric Service is very small, compared to the other IOUs (only 31 square miles in the entire service area) and its initiatives, which are described in detail in this plan, apply generally throughout its mostly homogeneous area.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
2. Climate-driven risk map and modelling based on	2019 plan	Bear Valley Electric Service has implemented the CPUC Fire-Threat Map Adopted January 2018 throughout its service territory. This map shows the CPUC-designated fire hazard zone tiers within BVES' service territory, which quantify specific geography that could be subject to elevated fire risk under historically viable fire weather conditions. The utility has also identified seven sections of "at-risk" areas within its service territory based on the type of distribution facilities (overhead bare conductors, high voltage, etc.), tree and vegetation density, available dry fuel, and other factors that make certain														
	2019 actual															
	2020															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
various relevant weather scenarios	2021	locations vulnerable to wildfire risk. The "at-risk" line sections are shown and further outlined in the utility's WMP submission. BVES' wildfire mapping efforts are foundational to determining and executing on priorities amongst the utility's risk mitigation efforts as well as its day-to-day operations. BVES employs tier designations to inform inspection, vegetation management, correction timeframes, and prioritized hardening efforts. Wildfire risk mapping is foundational to prioritizing efforts for a variety of activities undertaken throughout the business. Bear Valley Electric Service does not have a proprietary model or methodology for evaluating the potential impact of ignitions. The utility's Subject Matter Expert evaluates the frequency of potential ignition events versus a set of impact categories (reliability, compliance, quality of service, safety and environmental) to develop total risk impact and scores. There are no specifically designated expenses, risk reductions, or any of the other column headings above associated with this initiative. Bear Valley Electric Service is very small, compared to the other IOUs (only 31 square miles in the entire service area) and its initiatives, which are described in detail in this plan, apply generally throughout its mostly homogeneous area.														
	2022															
	2020-2022 plan total															
3. Ignition probability mapping showing the probability of ignition along the electric lines and equipment	2019 plan	Bear Valley Electric Service has implemented the CPUC Fire-Threat Map Adopted January 2018 throughout its service territory. This map shows the CPUC-designated fire hazard zone tiers within BVES' service territory, which quantify specific geography that could be subject to elevated fire risk under historically viable fire weather conditions. The utility has also identified seven sections of "at-risk" areas within its service territory based on the type of distribution facilities (overhead bare conductors, high voltage, etc.), tree and vegetation density, available dry fuel, and other factors that make certain locations vulnerable to wildfire risk. The "at-risk" line sections are shown and further outlined in the utility's WMP submission. BVES' wildfire mapping efforts are foundational to determining and executing on priorities amongst the utility's risk mitigation efforts as well as its day-to-day operations. BVES employs tier designations to inform inspection, vegetation management, correction timeframes, and prioritized hardening efforts. Wildfire risk mapping is foundational to prioritizing efforts for a variety of activities undertaken throughout the business. Bear Valley Electric Service does not have a proprietary model or methodology for evaluating the potential impact of ignitions. The utility's Subject Matter Expert evaluates the frequency of potential ignition events versus a set of impact categories (reliability, compliance, quality of service, safety and environmental) to develop total risk impact and scores. There are no specifically designated expenses, risk reductions, or any of the other column headings above associated with this initiative. Bear Valley Electric Service is very small, compared to the other IOUs (only 31 square miles in the entire service area) and its initiatives, which are described in detail in this plan, apply generally throughout its mostly homogeneous area.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
4. Initiative mapping and estimation of wildfire and PSPS risk-reduction impact	2019 plan	Bear Valley Electric Service has implemented the CPUC Fire-Threat Map Adopted January 2018 throughout its service territory. This map shows the CPUC-designated fire hazard zone tiers within BVES' service territory, which quantify specific geography that could be subject to elevated fire risk under historically viable fire weather conditions. The utility has also identified seven sections of "at-risk" areas within its service territory based on the type of distribution facilities (overhead bare conductors, high voltage, etc.), tree and vegetation density, available dry fuel, and other factors that make certain locations vulnerable to wildfire risk. The "at-risk" line sections are shown and further outlined in the utility's WMP submission. BVES' wildfire mapping efforts are foundational to determining and executing on priorities amongst the utility's risk mitigation efforts as well as its day-to-day operations. BVES employs tier designations to inform inspection, vegetation management, correction timeframes, and														
	2019 actual															
	2020															
	2021															
	2022															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
	2020-2022 plan total	prioritized hardening efforts. Wildfire risk mapping is foundational to prioritizing efforts for a variety of activities undertaken throughout the business. Bear Valley Electric Service does not have a proprietary model or methodology for evaluating the potential impact of ignitions. The utility's Subject Matter Expert evaluates the frequency of potential ignition events versus a set of impact categories (reliability, compliance, quality of service, safety and environmental) to develop total risk impact and scores. There are no specifically designated expenses, risk reductions, or any of the other column headings above associated with this initiative. Bear Valley Electric Service is very small, compared to the other IOUs (only 31 square miles in the entire service area) and its initiatives, which are described in detail in this plan, apply generally throughout its mostly homogeneous area.														
5. Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment	2019 plan	Bear Valley Electric Service does not, at this time, have a specific wildfire mitigation risk assessment and mapping initiative focused on conducting match drop simulations showing the potential wildfire consequence of ignitions that occur along the utility's electric lines and equipment. The utility's Subject Matter Expert evaluates the frequency of potential ignition events versus a set of impact categories (reliability, compliance, quality of service, safety and environmental) to develop total risk impact and scores. There are not specifically designated expenses, risk reductions, or any of the other column headings above associated with this initiative. Bear Valley Electric Service is very small, compared to the other IOUs (only 31 square miles in the entire service area) and its initiatives, which are described in detail in this plan, apply generally throughout its mostly homogeneous area.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
6. Weather-driven risk map and modelling based on various relevant weather scenarios	2019 plan	Bear Valley Electric Service has implemented the CPUC Fire-Threat Map Adopted January 2018 throughout its service territory. This map shows the CPUC-designated fire hazard zone tiers within BVES' service territory, which quantify specific geography that could be subject to elevated fire risk under historically viable fire weather conditions. The utility has also identified seven sections of "at-risk" areas within its service territory based on the type of distribution facilities (overhead bare conductors, high voltage, etc.), tree and vegetation density, available dry fuel, and other factors that make certain locations vulnerable to wildfire risk. The “at-risk” line sections are shown and further outlined in the utility's WMP submission. BVES' wildfire mapping efforts are foundational to determining and executing on priorities amongst the utility's risk mitigation efforts as well as its day-to-day operations. BVES employs tier designations to inform inspection, vegetation management, correction timeframes, and prioritized hardening efforts. Wildfire risk mapping is foundational to prioritizing efforts for a variety of activities undertaken throughout the business. Bear Valley Electric Service does not have a proprietary model or methodology for evaluating the potential impact of ignitions. The utility's Subject Matter Expert evaluates the frequency of potential ignition events versus a set of impact categories (reliability, compliance, quality of service, safety and environmental) to develop total risk impact and scores. There are no specifically designated expenses, risk reductions, or any of the other column headings above associated with this initiative. Bear Valley Electric Service is very small, compared to the other IOUs (only 31 square miles in the entire service area) and its initiatives, which are described in detail in this plan, apply generally throughout its mostly homogeneous area.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
7. Other / not listed	2019 plan	Bear Valley Electric Services does not have any risk assessment and mapping initiatives other than those provided above at this time.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

5.3.2 Situational Awareness and Forecasting

The fourth category, Situational and Conditional awareness, consists of practices that enhance system and environmental visibility and monitoring.

Plan: The overall goal of situational awareness is to facilitate collaborative planning, assist in achieving shared situational awareness, and improve decision-making, particularly for wildfire mitigation. As discussed earlier, BVES is a small electric utility with limited staff resources. During normal operations, BVES staff is optimized to work during normal working hours and it has limited resources dedicated to afterhours. Therefore, BVES outlined several critical operations, listed below.

- **Information Requirements & Methods**: Critical information to BVES' wildfire mitigation decision making is weather (forecasted and actual), system line-up, and available resources. This information is best gathered from devices and sensors in the field and on equipment. Additionally, online feeds and websites, such as the NFDRS rating system information and weather feeds, provide another highly useful information resource to BVES' situational awareness enhancements.

- **Roles & Responsibilities**: Key Field Operations staff must have real time access to this information. These staff include the Operations & Planning Manager, Field Operations Supervisor, Engineering Planning Supervisor, and Service Crew/Dutyman. Additionally, the Customer Care and Operations Support Superintendent must also be included to ensure customers and key stakeholders are informed as applicable.

- **Methods of Sharing Information**: The information is optimally shared through network connected devices such as operations displays at BVES, desktop computers, laptops, and other mobile devices out in the field.

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- **Implementation of Technologies to Communicate and Manage Information**: Technologies that will aid in communicating situational awareness information include SCADA, internet, intranet, social media, and other networked solutions.

To further enhance its situational monitoring, BVES has outlined a number of resources that contribute to its information base and facilitate sharing. These resources include web-based weather resources, BVES-owned weather stations, weather forecasting, distribution system SCADA, and GIS-based applications, such as its Outage Management System (OMS). BVES is also considering remote monitoring via cameras.

- **Supervisory Control and Data Acquisition (SCADA):** BVES has a very basic SCADA system with few controls for the distribution system and very limited monitoring capability. Through its Grid Automation Project, BVES intends to establish a service area network, build out its SCADA software and historian capabilities, connect substations and field switches, and install circuit metering and monitoring devices.
- **GIS Based Applications:** BVES has implemented an ESRI-based GIS system and runs several applications to improve situational awareness. Recently, BVES installed an OMS and an Interactive Voice Response (IVR) system. BVES intends to continue to build upon this capability by implementing mobile workforce and dispatching applications.
- **Web Based Weather Resources**: BVES monitors several web-based weather resources to evaluate forecasted weather and monitor for potential extreme fire conditions. The weather resources monitored by BVES are products produced by the National Weather Service, local weather forecasts from local media, and the NFDRS 7-day significant fire potential product. The NFDRS is monitored at least daily by Field Operations. Figure 5-2 provides an example of real-time NFDRS rating system information monitored. The utility also monitors the likelihood of dry lightning occurrence as it is the type most likely to cause wildfires. This section details how BVES monitors conditions and how it will enhance this monitoring.

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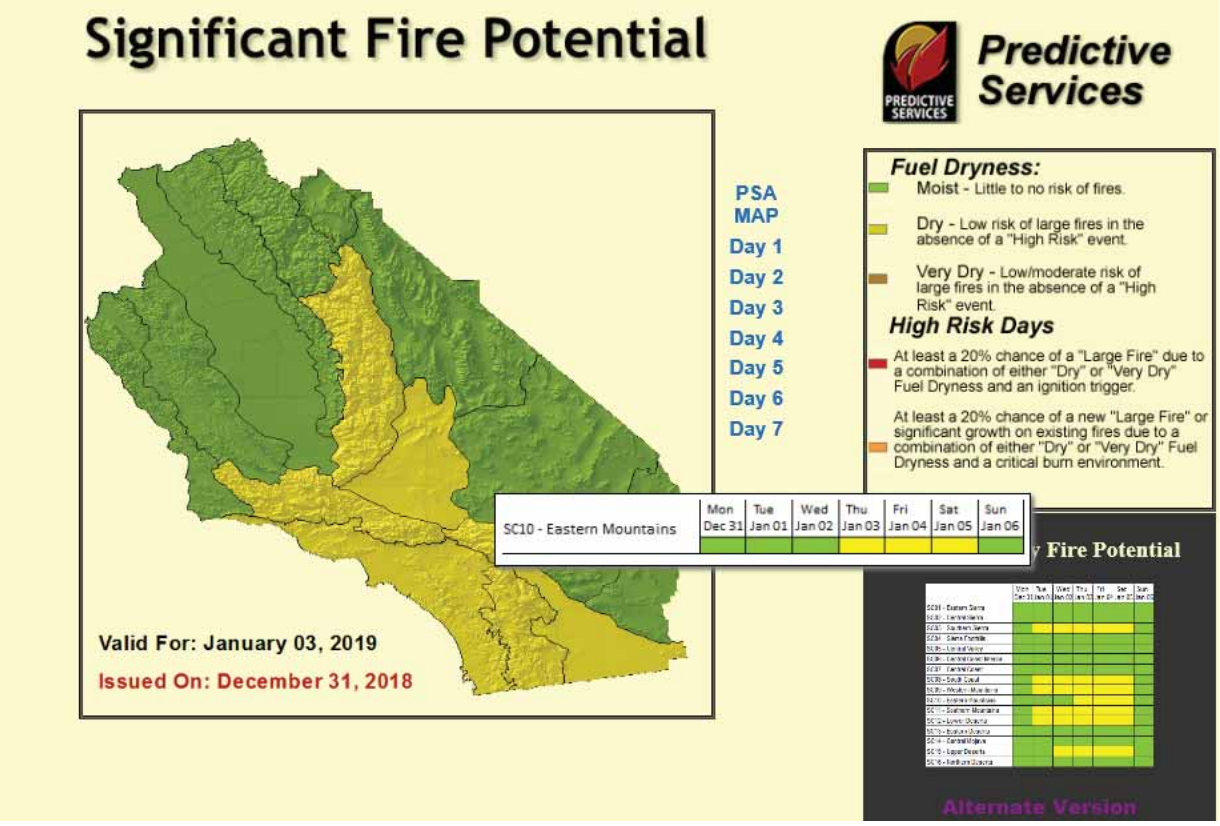
Figure 5-2. NFDRS California South Observed Fire Danger Class Example



Currently, BVES monitors weather conditions using local weather services and ten recently installed weather stations. It also conducts regular patrols of its system to monitor conditions in real-time. More specific information about actions taken during certain conditions are expressed in this Plan.

- **BVES-Owned Weather Stations**: Since weather stations have been identified as wildfire risk-mitigation strategies, BVES installed 11 Orion Weather Stations and plans on installing an additional 9 stations by June 2020 to further enhance actual weather monitoring at its facilities. These stations include temperature sensors, relative humidity sensors, digital barometers, ultrasonic wind direction and speed sensors, and impact rain sensors. These sensors communicate with the BVES system over wireless cell communications to help BVES obtain service territory-specific data and information at one-minute interval recordings. In addition to adding 10 weather stations to the system, BVES intends to integrate the output of these weather stations to SCADA to concentrate critical information in one primary display and to provide alarm and notification capability. The integration with SCADA will likely occur in 2021.
- **Weather Forecasting**: BVES does not have a dedicated meteorolgist on staff. Therefore, BVES relies on its Field Operations staff to interpret web-based weather feeds along with the raw data from its weather stations. Given BVES' small size, the utility does not consider it practical to hire fulltime meteorology staff. Instead BVES chose to contract out to a consulting meteorologist for weekly part-time forecasting services tailored to BVES' service area and to have the ability to obtain analysis of weather data during, before, and after certain extreme weather events. This arrangement has proven to be very effective and has become an essential part of BVES's operational planning routine.

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- **Remote Monitoring (via Camera):** BVES plans to install ALERT Wildfire HD Camera System to monitor its system in remote areas that are difficult to patrol on foot, such as the Radford Area. Four HD Cameras were already installed at the Snow Summit and Bear Mountain peaks. Additional, HD Camera locations have been identified by BVES and its partners in this effort, which are University of California San Diego, Big Bear Fire Department, CalFire, San Bernardino Sheriff's Department and San Bernardino Fire Department. The HD Cameras will be installed over a two-year period.
- **Grid Automation:** In the coming years, BVES plans to continue to implement grid automation into its system. Grid automation would enhance operational efficiency, safety, and wildfire prevention tactics by allowing remote monitoring and fault detection in real-time.
- **Situation Awareness Enhancement:** BVES plans to install a complete Distribution Management Control Center with the following equipment and applications that provide full infromation capabilities available to Distribution decision makers relevant to the following functional areas: (1) Energy Resources (2) T&D Assets (3) SCADA, Outage Management System, GIS & Other Applications (4) Weather Information (5) HD Cameras (6) Media Access (Internet, BVES Website & Social Media, Local Radio, TV, etc.) (7) Communications Equipment and (8) Dispatch Services. The conceptual planning for such a facility will start in 2020. A detailed design plan will be developed in 2021 with the actual facility being constructed in 2022 to coincide with the SCADA and Grid Automation efforts being completed as the Distribution Management Control Center facility comes on line.
- **Implement iRestore APP:** BVES plans to implement the iRestore APP, which will provide First Responders (Big Bear Fire Department and San Bernardino Sheriff's Department – Big Bear Lake Detachment) and BVES's internal Damage Assessment Teams with a tool to quickly document and report problems along its distribution system and facilities to Dispatch.

Execution: BVES has already established some of these techniques, including implementing web-based weather monitoring and BVES-owned weather stations. It currently monitors these systems on both a weekly and daily basis to determine how best to optimize its systems. Execution of weather forecasting, remote monitoring, and grid automation are longer duration plans that began in 2019 and will continue continuing through 2022.

Expenses: BVES has already implemented several of these situational awareness techniques, so costs have already been approved through previous rate cases. Other projects, such as Grid Automation are covered as part of BVES' normal operations and therefore, are covered through the GRC. No additional funding is required. The cost integrating the weather stations (total of 20 weather stations) into SCADA is estimated at $27,000 (capital) and weather consulting services is estimated at $45,000/year (O&M). Additionally, the utility estimates the iRestore will cost $67,860. The utility also estimates the HD Cameras total expense of $500,000 (capital) over the project's 2-year execution period, or $250,000 per year. These costs are not currently included in BVES's General Rate Case Commission Decision 19-08-027 of August 15, 2019. Therefore, BVES requests by approval of this Wildfire Mitigation Plan, that the Commission authorize BVES to establish a memorandum account to track and recover the expenses related to the above proposed projects not included in BRRR.

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Table 22 below presents program details related situational awareness and forecasting activities. This information is also included in the supplemental *Attachment 1* workbook.

Table 22. Situational Awareness and Forecasting

Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
1. Advanced weather monitoring and weather stations	2019 plan	$ 122,000.00	$ 122,000.00	$ -	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	Dry conditions, high wind speeds, inclement weather that could increase ignition risk (e.g. lightning)	1,024,621.77	8.40	Wildfire-Significant Loss of Property	Existing	GRC	Memorandum Account and GRC	In compliance	GO95	Installs additional 10 weather stations throughout the BVES service area bringing the total to 20 weather stations. Allows BVES to prepare response ahead of time and take precautionary and/or advanced action. Also, allows BVES to validate actual conditions in the field such as before and after PSPS events.
	2019 actual	$ 93,847.00	$ 93,847.00	$ -												
	2020	$ -	$ -	$ -												
	2021	$ -	$ -	$ -												
	2022	$ -	$ -	$ -												
	2020-2022 plan total	$ -	$ -	$ -												

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
2. Continuous monitoring sensors	2019 plan	$ -	$ -	$ -	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	Contact from object, all types of equipment /facility failure, wire-to-wire contact/ contamination	994,609.51	3.98	Wildfire-Significant Loss of Property	New	N/A - this is a new initiative	WMP Memorandum Account	Exceeding compliance	GO95	Installs ALERT Wildfire HD Cameras throughout the service area allowing rapid detection and direction of first responders to any fires.
	2019 actual	$ -	$ -													
	2020	$ 250,000.00	$ 250,000.00	$ -												
	2021	$ 250,000.00	$ 250,000.00	$ -												
	2022	$ -	$ -	$ -												
	2020-2022 plan total	$ 500,000.00	$ 500,000.00	$ -												
3. Fault indicators for detecting faults on electric lines and equipment	BVES is monitoring Down wire Detection Technology and once the technology is ready for field use, BVES will develop a Down Wire Detection Installment Program in future WMPs.															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
4. Forecast of a fire risk index, fire potential index, or similar	2019 plan	Bear Valley Electric Service has not established a plan to develop a forecast of a fire risk index, fire potential index, or similar beyond that which it is communicated in its 2019 and 2020 WMPs at this time. The utility's Subject Matter Expert evaluates the frequency of potential ignition events versus a set of impact categories (reliability, compliance, quality of service, safety and environmental) to develop total risk impact and scores. In addition, no specific incremental spend has been identified for this initiative. Bear Valley Electric Service does not have a proprietary model or methodology for evaluating the potential impact of ignitions.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
5. Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions	2019 plan	Bear Valley Electric Service does not have a specific wildfire mitigation situational awareness and forecasting initiative focused on personnel monitoring areas of electric lines and equipment in elevated fire risk conditions in addition to the situational awareness and forecasting initiatives described in Table 22 as well as the asset management and inspection initiatives described in Table 24. During high fire threat weather that could lead to PSPS events, BVES does deploy crews to monitor conditions in the field, in the high threat areas.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
6. Weather forecasting and estimating impacts on electric lines and equipment	2019 plan	$ 45,000.00		$ 45,000.00	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	Contact from object, all types of equipment/facility failure, wire-to-wire contact/contamination	1,022,629.33	14.52	Contact from object, all types of equipment/facility failure, wire-to-wire contact/contamination	New	N/A - this is a new initiative	WMP Memorandum Account	Exceeding compliance	ESRB-8	Weather Consulting Services. Provides BVES staff service area specific forecasts to better understand possible fire threat weather as well as storm conditions that may affect service. Allows BVES to prepare response ahead of time and take precautionary and/or avoidance action. Est. $45,000 O&M annually.
	2019 actual	$ 19,000.00	$ -	$ 19,000.00												
	2020	$ 45,000.00	$ -	$ 45,000.00												
	2021	$ 45,000.00	$ -	$ 45,000.00												
	2022	$ 45,000.00	$ -	$ 45,000.00												
	2020-2022 plan total	$ 135,000.00	$ -	$ 135,000.00												
7. Other / not listed	2019 plan	$ -	$ -	$ -	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	Dry conditions, high wind speeds, inclement weather that could increase ignition risk (e.g. lightning)	1,143,068.47	3.34	Wildfire-Significant Loss of Property.	New	N/A - this is a new initiative	WMP Memorandum Account	Exceeding compliance	ESRB-8	Situational Awareness Enhancement Project. Installs complete Distribution Management Control Center with the following equipment and applications that provide full information capabilities available to Distribution decision

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
	2019 actual	$ -	$ -	$ -												makers relevant to the following functional areas: (1) Energy Resources (2) T&D Assets (3) SCADA, Outage Management System & GIS Other Applications (4) Weather Information (5) HD Cameras (6) Media access (Internet, BVES Website & Social Media, Local Radio, TV, etc. (7) Communications Equipment and (8) Dispatch services.
	2020	$ -	$ -	$ -												
	2021	$ -	$ -	$ -												
	2022	$ 342,000.00	$ 342,000.00	$ -												
	2020-2022 plan total	$ 342,000.00	$ 342,000.00	$ -												
8. Other / not listed	2019 plan	$ -	$ -	$ -	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	Contact from object, all types of equipment/facility failure, wire-to-wire contact/contamination	148,458.96	3.2	Wildfire-Significant Loss of Property. Loss of Energy Supplies.	Existing	D 19-08-027	GRC	Exceeding compliance	ESRB-8	GIS-based applications (e.g. Outage Management System). Implementation of GIS-based systems, such as outage management systems and interactive voice response systems, which allow BVES to locate outages and respond to customers
	2019 actual	$ -	$ -	$ -												
	2020	$54,799.92	$ -	$54,799.92												

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
	2021	$55,895.92	$ -	$55,895.92												more promptly in the case of a wildfire or related emergency
	2022	$57,013.84	$ -	$57,013.84												
	2020-2022 plan total	$167,709.68	$ -	$167,709.68												
9. Other/ not listed	2019 plan	$ $70,000	$ $70,000	$ -	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	Contact from Object. All types of equipment/facility failure, wire-wire contact/contamination	148,458.96	2.19	Wildfire-Significant Loss of Property	New	N/A - this is a new initiative	GRC	Exceeding compliance	ESRB-8	Implement iRestore APP Provides First Responders and internal Damage Assessment Teams tool to quickly document and report T&D facility problems to Dispatch.
	2019 actual	$67,860.00	$ 67,860.00	$ -												
	2020	$ -	$ -	$ -												
	2021	$ -	$ -	$ -												
	2022	$ -	$ -	$ -												
	2020-2022 plan total	$ -	$ -	$ -												

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5.3.3 Grid Design and System Hardening

5.3.3.1 System Design

Safety and Technical Upgrades of Pineknot Substation

Plan: As identified in its previous WMP, BVES planned to convert the existing Pineknot Substation from an overhead-type to an underground and pad-mounted design. This will improve the safety, reliability, and efficiency of the substation by eliminating a wiring configuration that poses a safety and fire risk due to its exposure to the elements, such as vegetation contact. Additionally, the utility would replace all substation equipment with enclosed pad mount transformers, voltage regulators, re-closers, and bus work, further enhancing wildfire mitigation and reliability.

Execution: This project was completed on January 24, 2020.

Expense: The cost of the changes to the Pineknot Substation were addressed in the BVES' General Rate Case Commission Decision 19-08-027 of August 15, 2019. No additional expense is anticipated.

Safety and Technical Upgrades of Palomino Substation

Plan: BVES will convert the existing Palomino Substation from an overhead-type to an underground and pad-mounted design with dead front SCADA-enabled. This will improve the safety, reliability, and efficiency of the substation by eliminating a wiring configuration that poses a safety and fire risk due to its exposure to the elements, such as vegetation contact. Additionally, the utility would replace all substation equipment with enclosed pad mount transformers, voltage regulators, re-closers, and bus work, further enhancing wildfire mitigation and reliability.

Execution: The project is slated for completion in 2020 (1-year project).

Expense: The cost of the changes to the Palomino Substation were addressed in the BVES' General Rate Case Commission Decision 19-08-027 of August 15, 2019. No additional expense is anticipated.

Undergrounding the Ute Lines

Plan: The undergrounding of the Ute Lines is a proposed project which would involve Southern California Edison (SCE) transferring its Ute Lines (34.5 kV) assets to BVES. This asset consists of approximately 1.5 miles of overhead sub-transmission bare lines (34.5 kV) that connect the BVES system at two points with the SCE Goldhill Switch Station. These lines provide approximately 72% of supply capacity and under normal conditions 100% of BVES' supply loads. If the transfer is approved, BVES would convert the assets from an overhead system located in the forestry area to underground facilities alongside a county road.

BVES proposes taking control of these lines due to complications with the June 2016 Holcomb Fire. The fire severely damaged the assets and resulted in a single point of failure of supplies to the BVES service area. By taking control of these lines and converting them to underground facilities along the side of the existing road, BVES will remove overhead facilities from forested areas. This removal will result in enhanced system safety, wildfire risk mitigation, and reliability.

Execution: Per Commission Decision 19-05-040 of May 30, 2019, BVES will file an application with the Commission to transfer the Ute Lines to BVES from SCE. Once approved, BVES expects the project to take 2 years to complete (timeline includes planning, permitting, civil construction, and electrical installation). BVES anticipates filing an application with the Commission by October 2020.

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Expense: The cost of undergrounding the Ute Lines is not addressed in BVES' General Rate Case Commission Decision 19-08-027 of August 15, 2019. The initial estimated for the cost of this underground project is $3.5 million. Cost will be refined through a competitive bidding process and included in the BVES application to the Commission.

Construct an Energy Storage Facility within BVES' Service Territory

Plan: BVES proposes to construct an energy storage project of approximately 5 MW/15 MWh (3-hour) Lithium-Ion NMC BESS utility-grade battery connected to the Bear Valley Solar Energy Project within the utility's service territory. This project would complement the Bear Valley Solar Energy Project (BVSEP), 8-megawatt (MW) alternating current single-axis tracker solar generation facility, to be constructed in the BVES service area. The BVSEP is proceeding under BVES Application 19-03-008. The purpose of the storage project would be to minimize the impact of the loss of all Southern California Edison (SCE) energy imports to the BVES service area due to SCE directed PSPS of the SCE supply lines. SCE lines are subject to PSPS under certain fire threat conditions and while these lines may be required to be de-energized by SCE, the BVES service area may not require PSPS. This project would allow BVES to internally supply its customers by utilizing its peaking power plant (8.4 MW), the BVSEP and the battery.

Execution: BVES is in the planning stages for this project and expects to file an application with the Commission for the project should it be determined that the project is in the best interest of BVES's customers.

Expense: BVES has not determined the full cost of the project since the optimal size and capacity are still being evaluated. Costs for the project will be addressed in the project application to the Commission.

Critical Infrastructure PSPS Renewable Avoidance Package

Plan: BVES proposes to install utility owned (or partially owned) solar and battery sets at critical infrastructure within its service territory to maintain electric service in case of a PSPS, wildfire, or other outage event. The project would be to minimize the impact of the loss of all SCE energy imports to the BVES service area due to SCE directed PSPS of the SCE supply lines. SCE lines are subject to PSPS under certain fire threat conditions and while these lines may be required to be de-energized by SCE, the BVES service area may not require PSPS.

Execution: During the period this plan, BVES would identify specific critical infrastructure and capacity requirements to develop a prioritized list of solar and storage projects. The utility would then develop specific projects, costs and any cost sharing for candidate facilities. These projects would be included in the next WMP update and BVES would take appropriate regulatory process action to implement the projects.

Expense: BVES has not determined the full cost of the project. Once costs are determined, BVES will include these in the appropriate regulatory process for this program.

5.3.3.2 Equipment Design / Application Focus Areas

Fusing

Plan: Fuses refer to devices that protect the distribution system from faulted or damaged lines and equipment. BVES, in addition to other CA and nationwide utilities, has historically used conventional fuses to protect lines; however, many utilities are beginning to replace their conventional fuses with current limiting fuses (non-expulsion, ELF) on branch line fusing opportunities system wide.[21] BVES

[21] The ELF fuse is made by Eaton Cooper Power. It is designed to help protect electric infrastructure.

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proposes to follow this trend as well as install electronic programmable fused trip savers (vacuum style) system-wide such as the S&C TripSaver II. Conventional fuses expel hot particles and gases when operated, which can start fires. In contrast, current limiting fuses and electronic fuses expel no materials, limit the available fault current, and may even reduce the duration of faults. BVES plans on replacing approximately 628 conventional fuses with electronic fuses and approximately 2,576 conventional fuses with ELF.

Execution: As identified in its previous WMP, BVES planned to continue this rollout over time, beginning in June 2019, until all conventional fuses have been replaced with either current limiting fuses or electronic fuses. BVES proposed to complete this project in 24 months performing the fuse replacements in the higher risk areas first. Supporting Table 5-5 shows the approximate number of fuses that will be replaced by year.

Supporting Table 5-5. Planned Fuse Replacements

Year	Electronic Fuses	Current Limiting ELF
June 2019 to May 2020	314	1,288
June 2020 to May 2021	314	1,288

Source: BVES

As of January 31, 2020, BVES has replaced a total of 612 conventional fuses with 29 electronic fuses and 583 current limiting fuses.

Expense: The cost of implementing this fusing plan was not addressed in BVES' General Rate Case Commission Decision 19-08-027 of August 15, 2019. BVES estimated the total cost of this fusing project to be $5.2 million (or $2.6 million for the period of this plan). Therefore, BVES requests by approval of this Wildfire Mitigation Plan, that the Commission authorize BVES to establish a memorandum account to track and recover the expenses related to this project not included in Base Rate Revenue Requirement (BRRR).

5.3.3.3 Structure Design

Tree Attachment Removal

Plan: Tree attachments are pieces of electrical infrastructure fastened to trees for infrastructural support. Due to its original system design, BVES had over 1,200 existing tree attachments on 16 distribution circuits. Given that tree attachments introduce significant risk of heat and fuel source contact, BVES has been removing them.

Execution: As noted above, BVES has begun removing its tree attachments and plans to continue removals at a rate of approximately 240 attachments each year. As of January 31, 2020, BVES has removed 273 tree attachments and installed 149 new poles. The utility estimates that all attachments will be removed by 2022.

Expense: The cost of the Tree Attachment Removal project is addressed in the BVES' General Rate Case Commission Decision 19-08-027 of August 15, 2019. No additional expense is anticipated.

Evacuation Route Hardening

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Plan: BVES's service area has predetermined routes to evacuate the public in the event of a wildfire due to any cause. Maintenance and fortification of BVES facilities along these routes is critical to ensure they do not fail and limit mobility along the evacuation routes.

Execution: BVES proposes a pilot program to test various solutions such as fire-resistant overhead facilities and protecting existing wood poles with fire resistant and strengthening materials in its 2020-2021 WMP submission. The goal of this program will be to harden overhead facilities along evacuation routes to prevent such facilities from falling into evacuation routes during a wildfire.

Expense: The utility estimates a total expense of approximately $200,000 in capital expenses (CAPEX) for this pilot project. This cost is not addressed in BVES's General Rate Case Commission Decision 19-08-027 of August 15, 2019. Therefore, BVES requests by approval of this Wildfire Mitigation Plan, that the Commission authorize BVES to establish a memorandum account to track and recover the expenses related to this project not included in BRRR.

Pole Loading Assessment and Remediation Program

Plan: BVES currently has a program to assess and remediate noncompliant distribution poles that pose a fire risk in compliance with GO 95. The utility is executing a plan to significantly accelerate this program by increasing its annual pole evaluation to 2,000 poles per year. Since the entire BVES service area is in the High Fire-Threat District (Tier 2 and 3), any pole failure is considered a high fire risk. By assessing poles and remedying failures at a faster rate, BVES can significantly reduce its fire risk.

Execution: BVES is evaluating approximately 8,000 wood poles in the BVES service area over a five-year period (2018 to 2022) as described in BVES' General Rate Case Application A.17-05-004 submitted on May 1, 2017 and approved in Commission Decision 19-08-027 of August 15, 2019. Poles that fail the inspection criteria shall be replaced or remediated as applicable.

As of January 31, 2020, has evaluated 2512 poles; 1039 failed the inspection criteria; 425 poles were replaced and 101 remediated. Maintenance action for the remaining failed poles is being planned. As noted above, this is an ongoing project.

Expense: The cost of Pole Loading Assessment and Remediation Program is addressed in the BVES' General Rate Case Commission Decision 19-08-027 of August 15, 2019. No additional expense is anticipated.

Covered Conductor

Plan: Covered conductors are any conductors (wires) protected or "covered" by layers of insulation. Vendors have designed these wires, so they can withstand contact with vegetation and/or other debris. Bare wires have been used because they provide a reliable, cost-effective solution for delivering energy to customers. Additionally, many California utilities have historically used bare wires as a best practice for reliability purposes. However, BVES has recently reevaluated its structure design in the context of wildfire risk and decided to replace bare conductors with covered conductors first on high-risk wires to mitigate risks as much as possible.

In its previous WMP, BVES conducted pilot projects to determine the optimal covered conductor systems. The following list below provides a summary of the pilot projects and results:

- **Covered Conductor Replacement Pilot Program:** The utility replaced approximately 3 circuit miles of bare wire utilizing covered tree wire (Priority Wire 394.5 AAAC). The pilot project evaluated three principal areas: (1) material sourcing, (2) engineering specifications and characteristics, and (3) installation in the field. The Priority Wire 394.5 AAAC performed well and met all of BVES's expectations. The utility has also received covered tree wire from another

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vendor, Southwire 336.4 ACSR, and intends to replace approximately 3 circuits this wire before May 1, 2020. If successful, this will provide BVES an additional vendor for covered tree wire.

- **Covered Conductor Wrap Pilot Program**: The utility conducted a pilot program to determine the effectiveness of using a "wire wrap" to cover existing wire in other high threat areas. The wire wraps will snap onto existing wire, so BVES does not have to replace the entire wire. The pilot project indicated that the wire wrap product does not meet BVES's specifications for several reasons but primarily due to ampacity limitations on existing wire not being available and sufficiently research and tested. Because of this issue, it was determined that the product was not ready to be deployed in the field. BVES will continue to monitor developments with wire wrap and will reconsider once the ampacity issue is satisfactorily resolved.

Radford Line Covered Conductor Replacement Project: In its previous WMP, BVES planned to replace bare wire with a high-performance covered conductor on the Radford 34.5 kV line. BVES chose to cover this line specifically, which is located in the HFTD Tier 3 area, since it has the highest risk of wildfires out of all of BVES' overhead facilities. The line is located in a densely vegetated area that is difficult to patrol, so BVES believes that replacing the line completely will provide the greatest protection.

As noted in BVES Advice Letter No. 374-E of November 20, 2019, when BVES bid out the design and construction project, the costs were significantly higher than the utility had originally planned ($2,500,000). BVES determined that it would be prudent and reasonable to take the following action:

- Implement operational measures to mitigate the risk of wildfire from the Radford Line.
- Bid out the design of the Radford Line Covered Conductor Replacement Project.
- Once, the design was firmed up, bid out the construction project.

Separating the design and construction project was intended to remove construction uncertainties so that construction bidders could remove some project risk contingencies and offer a more favorable price.

Execution: The utility intends to pursue replacing bare conductor with covered tree wire based on the results of the covered conductor pilot programs. These projects are discussed further on in this section. In its previous WMP, BVES noted that there was risk that the Radford Line Covered Conductor Replacement Project may have to be deferred until 2021. The design of the project was completed in December 2019 and the construction work was bid out in a competitive Request for Proposal (RFP). BVES expects to award the project in June 2020 and complete construction by October 2020.

Expense: No further expense is expected on the covered conductor pilot projects as these are completed. The Radford Line Covered Conductor Replacement Project is expected to cost a total of $5,600,000. This cost is not addressed in BVES's General Rate Case Commission Decision 19-08-027 of August 15, 2019. Therefore, BVES requests by approval of this Wildfire Mitigation Plan, that the Commission authorize BVES to establish a memorandum account to track and recover the expenses related to this project not included in BRRR.

Covered Wire Installation Program – 35.5 kV System: BVES plans to cover all sub-transmission lines (34.5 kV) in the HFTD Tiers 2 and 3. This action will result in the entire 34.5 kV system in the HFTD being underground or covered; thereby, reducing the risk of sub-transmission lines contacting vegetation or other debris and causing an ignition to near zero.

Execution: BVES plans to replace all overhead sub-transmission bare wire with covered wire over a 6-year period of execution from 2020 to 2025 covering approximately 5 miles per year.

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Expense: The utility estimates a total expense of $10,931,962 in CAPEX over the project's 6-year period of execution from 2020 to 2025, or $1,832,933 per year. This cost is not addressed in BVES's General Rate Case Commission Decision 19-08-027 of August 15, 2019. Therefore, BVES requests by approval of this Wildfire Mitigation Plan, that the Commission authorize BVES to establish a memorandum account to track and recover the expenses related to this project not included in BRRR.

Covered Wire Installation Program – 4 kV System: BVES plans to replace all bare 4 kV distribution wire in High Risk Areas within the HFTD with covered wire. This action will result in approximately 86 miles of the 4 kV distribution lines in the system in the HFTD being covered; thereby, significantly reducing the risk of distribution lines contacting vegetation or other debris and causing an ignition. The high-risk areas selected have high vegetation density.

Execution: BVES plans to replace distribution bare wire with covered wire over a 10-year period of execution from 2021 to 2030 covering approximately 8.6 miles per year.

Expense: The utility estimates a total expense of $35,130,371 in CAPEX over the project's 10-year execution period, or $3,513,037 per year. This cost is not addressed in BVES's General Rate Case Commission Decision 19-08-027 of August 15, 2019. Therefore, BVES requests by approval of this Wildfire Mitigation Plan, that the Commission authorize BVES to establish a memorandum account to track and recover the expenses related to this project not included in BRRR.

5.3.3.4 Alternative Technologies

BVES will consider the feasibility of implementing alternative technologies, such as wire-break sensing technology, as they become available and cost-effective. The utility is following closely the pilot programs and research and development efforts of other utilities in this area and as the technologies mature, become effective and reliable, and ready for commercial deployment, BVES will pursue them. BVES is currently following closely the following technologies:

- **Down Wire Detection Relay Installment Program:** Installs fast acting smart switches and detection relays to detect and de-energize down wires.
- **Rapid Earth Fault Current Limiter (REFCL)(or similar technology) Insertion:** "Rapid Earth Fault Current Limiter (REFCL) technology that rapidly reduces the power in powerlines when it detects phase-to-earth faults on the electricity network. Works like a large safety switch and reduces the likelihood of a fire starting if a powerline comes in contact with the ground or a tree limb."
- **Install On-line Diagnostic Technology Insertion:** Installs technology that monitors for power line developing faults and vegetation contact.

The utility's Grid Automation project approved in BVES's General Rate Case Commission Decision 19-08-027 of August 15, 2019 will install a service area network and communication links over the next three years, which will among other things offer the capability to support deployment of the above technologies as they become ready for field installation.

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Table 23 below presents program details related to grid design and system hardening activities. This information is also included in the supplemental *Attachment 1* workbook.

Table 23. Grid Design and System Hardening

Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
1. Capacitor maintenance and replacement program	2019 plan	Bear Valley Electric Service does not have a specific wildfire mitigation grid design and system hardening initiative focused on capacitor maintenance and replacement at this time. Capacitor maintenance and replacement is included in the company's standard inspection, maintenance, and replacement protocols. Any enhanced inspections or accelerated correction timeframe/replacements are captured in Table 24 Asset management and inspections.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
2. Circuit breaker maintenance and installation to de-energize lines upon detecting a fault	2019 plan	Bear Valley Electric Service does not have a specific wildfire mitigation grid design and system hardening initiative focused on circuit breaker maintenance and replacement at this time. Circuit breakers are generally installed for all distribution circuits to detect fault current and protect equipment in the event that a fault is detected. Circuit breaker replacement and maintenance is included in the company's standard inspection, maintenance, and replacement protocols. Any enhanced inspections or accelerated correction timeframe/replacements are captured in Table 24 Asset management and inspections. Replacements of specific, targeted circuit breakers as a part of BVES' WMP to support overall advanced coordination and detection efforts are better captured in Table 23 Initiative 9. Installation of system automation equipment.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
3. Covered conductor installation	2019 plan	$ 458,000.00	$ 458,000.00	$ -	6.00	$ 76,333.33	Contact from object.	872,292.38	0.48	Wildfire-Significant Loss of Property	New	N/A - request by approval of 2020 WMP	WMP Memorandum Account	N/A - this initiative is not associated with specific regulations. The program exceeds standard design.	N/A - this initiative is not associated with a specific rule	2019 includes $458,000 for the Covered Conductor Replacement Pilot Program and $292,000 for the Covered Conductor Wrap Pilot Program. Program replaces all 205.2 line miles of 34.5 kV overhead sub-transmission lines (beginning in 2020) and 4 kV distribution lines (beginning in 2021) with covered wire over a 6-year period, 2020-2025.
	2019 actual	$ 350,191.00	$ 350,191.00	$ -	6.00	$ 58,365.17										
	2020	$ 1,832,933.00	$ 1,832,933.00	$ -	15.00	$ 122,195.53										
	2021	$ 5,345,970.00	$ 5,345,970.00	$ -	40.80	$ 131,028.68										
	2022	$ 5,345,970.00	$ 5,345,970.00	$ -	40.80	$ 131,028.68										
	2020-2022 plan total	$12,524,873.00	$ 12,524,873.00	$ -	96.60	$ 129,657.07										
4. Covered conductor maintenance	2019 plan	Bear Valley Electric Service does not have specific wildfire mitigation grid design and system hardening initiatives focused on covered conductor maintenance. As BVES progresses with its implementation of its wildfire mitigation initiatives, the utility will continue to evaluate covered conductor maintenance initiatives specific to wildfire mitigation.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
	plan total															
5. Crossarm maintenance, repair, and replacement	2019 plan	Bear Valley Electric Service does not have a specific wildfire mitigation grid design and system hardening initiative focused on crossarm maintenance, repair, and replacement at this time. Routine crossarm maintenance, repair, and replacement are included in the company's standard inspection and correction programs, with an accelerated timeline for correction under the company's Inspection program improvement, as included in Table 24 Asset management and inspections.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
6. Distribution pole replacement and reinforcement, including with composite poles	2019 plan	$ 2,444,130.00	$ 2,444,130.00	$ -	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	All types of equipment/facility failure, wire-wire contact/contamination	872,292.38	0.36	Wildfire-Significant Loss of Property	Existing	D. 19-08-027	GRC	In compliance with Regulation	GO-95	Test all poles to loading standards, GO95 requirements, intrusive inspection criteria and age and then, replaces or remediates non-compliant poles.
	2019 actual	$ 5,096,681.00	$ 5,096,681.00	$ -												
	2020	$ 2,444,130.00	$ 2,444,130.00	$ -												
	2021	$ 2,444,130.00	$ 2,444,130.00	$ -												
	2022	$ 2,444,130.00	$ 2,444,130.00	$ -												
	2020-2022 plan total	$ 7,332,390.00	$ 7,332,390.00	$ -												

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
7. Expulsion fuse replacement	2019 plan	$ 2,600,000.00	$ 2,600,000.00	$ -	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	Fuse failure-all.	872,292.38	0.34	Wildfire-Significant Loss of Property	New	N/A - this is an existing initiative	WMP Memorandum Account	Exceeds	GO 95	Replaces all conventional (expulsion) fuses with current limiting (ELF) and electronic fuses (Fuse TripSavers).
	2019 actual	$ 1,303,306.00	$ 1,303,306.00	$ -												
	2020	$ 2,600,000.00	$ 2,600,000.00	$ -												
	2021	$ -	$ -	$ -												
	2022	$ -	$ -	$ -												
	2020-2022 plan total	$ 2,600,000.00	$ 2,600,000.00	$ -												
8. Grid topology improvements to mitigate or reduce PSPS events	2019 plan	Bear Valley Electric Service does not have a specific wildfire mitigation grid design and system hardening initiative focused on grid topology improvements to mitigate or reduce PSPS events in addition to those described elsewhere in Table 23 such as Initiatives 16(a)-16(f).														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
9. Installation of system automation equipment	2019 plan	$ 1,073,541.00	$ 1,073,541.00	$ -	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	Contact from object, all types of equipment/facility failure, wire-to-wire contact/contamination	1,148,135.45	0.59	Wildfire-Significant Loss of Property. Loss of Energy Supplies	Existing	D. 19-08-027	GRC	N/A - this initiative is not associated with a specific regulation	N/A - this initiative is not associated with a specific rule	Install grid automation. Fully instruments and automates BVES grid. Consists of installing a service area wide network operating on a SCADA system, substation automation, remote fault indicators, remote metering and power sensors and remote switching equipment to enable BVES to significantly improve its capability to detect and isolate faults rapidly before ever rolling out a crew. 8% complete as of January 2020.
	2019 actual	$ 612,829.00	$ 612,829.00	$ -												
	2020	$ 953,159.00	$ 953,159.00	$ -												
	2021	$ 939,156.00	$ 939,156.00	$ -												
	2022	$ 915,833.00	$ 915,833.00	$ -												
	2020-2022 plan total	$ 2,808,148.00	$ 2,808,148.00	$ -												

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
10. Maintenance, repair, and replacement of connectors, including hotline clamps	2019 plan	Bear Valley Electric Service does not have a specific wildfire mitigation grid design and system hardening initiative focused on maintenance, repair, and replacement of connectors, including hotline clamps at this time. Replacement of connectors, where applicable, is included in other programs such as installation of covered conductor.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
11. Mitigation of impact on customers and other residents affected during PSPS event	2019 plan	Bear Valley Electric Service does not have specific wildfire mitigation grid design and system hardening initiatives focused on mitigation of impact on customers and other residents affected during PSPS event in addition to the initiatives in Table 23. Both of these programs are combined as relevant grid topology improvements pertaining to grid design and system hardening that reduce PSPS events inherently also mitigate the impact on customers. Furthermore, the utility's additional programs or efforts to mitigate the impact on customers and other residents affected during a PSPS event are captured in Table 28 Item 5.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
12. Other corrective action	2019 plan	$ -	$ -	$ -	0.00	$ -	Contact from object. Conductor failure-all.	1,148,135.45	0.22	Wildfire-Significant Loss of Property. Wildfire-Public Safety.	New	N/A - this is a new initiative	WMP Memorandum Account	Exceeds	GO 95	Replaces the 34.5 kV Radford Line (2.82 overhead circuit miles/8.46 line miles) with covered power lines and poles that are resistant to fire.
	2019 actual	$ -	$ -	$ -	0.00	$ -										
	2020	$ 5,600,000.00	$ 5,600,000.00	$ -	8.46	$ 661,938.53										
	2021	$ -	$ -	$ -	0.00	$ -										
	2022	$ -	$ -	$ -	0.00	$ -										
	2020-2022 plan total	$ 5,600,000.00	$ 5,600,000.00	$ -	8.46	$ 661,938.53										
13. Pole loading infrastructure hardening and replacement program based on pole loading assessment program	2019 plan	Bear Valley Electric Service's pole loading infrastructure hardening and replacement program based on pole loading assessment program is encompassed by and addressed in Table 24 Initiative 6. Intrusive pole inspections. Under this initiative, BVES tests all poles to loading standards, GO95 requirements, intrusive inspection criteria and age, and then replaces or remediates non-compliant poles.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
14. Transformers maintenance and replacement	2019 plan	Bear Valley Electric Service does not have a specific wildfire mitigation grid design and system hardening initiative focused on transformer maintenance and replacement. Transformer replacement and maintenance is included in the company's standard inspection, maintenance, and replacement protocols. .														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
15. Transmission tower maintenance and replacement	2019 plan	Bear Valley Electric Service does not have a specific wildfire mitigation grid design and system hardening initiative focused on transmission tower maintenance and replacement outside of standard inspection and correction programs described in Table 24.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
16. Undergrounding of electric lines and/or equipment	2019 plan	The SCE Ute Lines (1 & 2), which only serve BVES, consists of approximately 1.5 miles of overhead sub-transmission bare lines (34.5 kV) that connect the BVES system at two points with the SCE Goldhill Switch Station. The Ute Lines (1 & 2) run on the same poles for a large section of the circuit. These SCE assets are located in the U.S. Forest Service area and in an environmentally sensitive area known as the "pebble plane". These lines provide approximately 72% of rated supply capacity and, under normal conditions, 100% of BVES' supply loads. These lines allow BVES to adopt a defensive operational scheme during the fire season by allowing the de-energization of the Radford Line (from the Redlands), which mostly traverses a High Fire Threat District ("HFTD") Tier 3 area. The Ute Lines (1 & 2) are completely in a HFTD Tier 2 area. Therefore, these lines are critical to BVES' energy supply and reliability and permit BVES to significantly mitigate risk of wildfire in its HFTD Tier 3 area. This project will be proposed separately from specific WMP efforts to the CPUC, but is listed here due to the significant positive impact it will have on wildfire mitigation, in addition to the improvement of reliability of service, in the BVES service area.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
17. Updates to grid topology to minimize risk of ignition in HFTDs	2019 plan	Bear Valley Electric Service does not have any specific grid design and system hardening wildfire mitigation initiatives focused on updates to grid topology to minimize risk of ignition in HFTDs at this time. The utility recognizes that it should continue to evaluate updates to grid topology as weather patterns change and overall modeling and assessments evolve. Other grid design and system hardening programs include, as a component, grid topology improvements to minimize the risk of ignition in the HFTD. BVES recognizes that it is challenging to mitigate wildfire risk through grid topology changes alone and therefore focuses more on augmentation of existing circuitry through system hardening efforts included throughout Table 23.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
18. Other / not listed	2019 plan	$ -	$ -	$ -	N/A - this initiative does not have a specific line mileage associated with its implementation	N/A - this initiative does not have a specific line mileage associated with its implementation	Contact from object. All types of equipment/facility failure.	1,143,070.47	0.72	Wildfire-Significant Loss of Property.	Existing	D. 19-08-027	GRC	N/A - this initiative is not associated with a specific regulation	N/A - this initiative is not associated with a specific rule	Safety and Technical Upgrades to Palomino Substation. Converts substation from overhead-type to underground and pad-mounted design with deadfront SCADA enabled equipment.
	2019 actual	$ -	$ -	$ -												
	2020	$ 1,587,675.00	$ 1,587,675.00	$ -												
	2021	$ -	$ -	$ -												
	2022	$ -	$ -	$ -												
	2020-2022 plan total	$ 1,587,675.00	$ 1,587,675.00	$ -												
19. Other / not listed	2019 plan	$ 2,936,929.00	$ 2,936,929.00		N/A - this initiative does not have a specific line mileage associated with its implementation	N/A - this initiative does not have a specific line mileage associated with its implementation	Contact from object. All types of equipment/facility failure.	1,143,068.47	0.39	Wildfire-Significant Loss of Property.	Existing	D. 19-08-027	GRC	N/A - this initiative is not associated with a specific regulation	N/A - this initiative is not associated with a specific rule	Safety and Technical Upgrades to Pineknot substation. Converts substation from overhead-type to underground and pad-mounted design with deadfront SCADA enabled equipment. Estimated $2,936,929.00 CAPEX over 1 year 2019-2020. 90% complete as of
	2019 actual	$ 3,524,748.00	$ 3,524,748.00	$ -												
	2020	$ -	$ -	$ -												
	2021	$ -	$ -	$ -												
	2022	$ -	$ -	$ -												
	2020-2022 plan total	$ -	$ -	$ -												

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
																January 2020. Covered in BVES' General Rate Case A.17-05-004.
20. Other / not listed	2019 plan	$ 732,018.00	$ 732,018.00	$ -	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	Contact from object. All types of equipment/facility failure. Wire-to-wire contact/contamination.	1,146,143.02	1.57	Wildfire-Significant Loss of Property. Wildfire-Public Safety.	Existing	D. 19-08-027	GRC	Exceeding	GO 95	Replaces all tree attachments in the BVES service area with overhead on poles. Covered in BVES' General Rate Case A. 17-05-004.
	2019 actual	$ 701,348.00	$ 701,348.00	$ -												
	2020	$ 732,018.00	$ 732,018.00	$ -												
	2021	$ 732,018.00	$ 732,018.00	$ -												
	2022	$ 732,018.00	$ 732,018.00	$ -												
	2020-2022 plan total	$ 2,196,054.00	$ 2,196,054.00	$ -												
21. Other / not listed	2019 plan	$ -	$ -	$ -	N/A	N/A	Wildfire-Public Safety.	1,022,629.33	0.6	Wildfire-Significant Loss of Property	New	N/A - this is a new initiative	WMP Memorandum Account	N/A - this initiative is not associated with a specific	N/A - this initiative is not associated with	Hardening of overhead facilities along evacuation routes to prevent facilities from falling into evacuation routes during a wildfire. Pilot program to be perform in
	2019 actual	$ -	$ -	$ -												
	2020	$ 200,000.00	$ 200,000.00	$ -												
	2021	$ 1,710,000.00	$ 1,710,000.00	$ -												
	2022	$ 1,710,000.00	$ 1,710,000.00	$ -												

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
	2020-2022 plan total	$ 3,620,000.00	$ 3,620,000.00	$ -										regulation	a specific rule	2020 plan at a cost of $200,000.
22. Other / not listed	2019 plan				N/A	N/A	Loss of Energy Supplies.	2,602,297.79	2.81	N/A - this initiative does not address any other risk drivers	New	D. 19-08-027	GRC	N/A - this initiative is not associated with a specific regulation	N/A - this initiative is not associated with a specific rule	BVPP Reliability Upgrades. Upgrades power plant electronic controls, emissions monitoring systems, catalyst reliability, and engine performance.
	2019 actual															
	2020	$ 925,484.50	$ 925,484.50	$ -												
	2021	$ 925,484.50	$ 925,484.50	$ -												
	2022	$ -	$ -	$ -												
	2020-2022 plan total	$ 1,850,969.00	$ 1,850,969.00	$ -												

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5.3.4 Asset Management and Inspections

The second wildfire prevention category, Inspection & Maintenance, consists of monitoring and maintaining the system. This includes conducting system patrols, leveraging technological inspections tools, and managing maintenance.

System Inspection and Maintenance Plan

Plan: Inspection plays an important role in wildfire prevention. BVES currently patrols its system regularly and has increased the inspection programs. The BVES inspection plan includes several components: ground inspections, electrical preventative maintenance, LIDAR inspection, and GIS data collection and sharing. The list below outlines the plans for each of these inspections.

- **On-Ground Inspection**: In compliance with GO 165, BVES has established an Inspection Program that requires overhead facilities to undergo an on-ground patrol inspection each year. BVES conducts an additional, independent patrol of the entire overhead system, so that two visual patrols of the entire overhead system are conducted annually. BVES believes this additional patrol is warranted due to the local climate; likelihood of icing conditions; tree limbs and branches being subject to weakening due to repeated high winds, snow, and ice weight (which may cause fatigue failure); high elevation; other local conditions; difficultly accessing vegetation for trimming near bare conductors; species growth rates and characteristics; and the fact that the service area is designated “very dry” or “dry” approximately 80 percent of the time in the NFDRS. This environment coupled with the fact that the fire season is now all year round creates a high-risk condition that can be mitigated by increasing patrols. In addition to patrolling, BVES conducts a detailed on-ground inspection at least every five years. The list below defines the difference between these two types of inspections.

    - A "patrol inspection" is a simple visual inspection designed to identify obvious structural problems and hazards. These patrols are designed to identify gross defects. Gross defects may include, but are not limited to: damaged poles, broken cross-arms, damaged insulators, sagging wires, leaking transformers, vegetation encroachment inside of minimum clearance standards, etc.

    - A “detailed inspection” is a careful visual and routine diagnostic exam of individual pieces of equipment. The inspector will record the results of the diagnostic and visual examinations and rate the condition of each piece of equipment. These inspections are designed to identify any existing defects, including minor ones. These may include, but are not limited to: open wire secondary clearance, corona effect on cross-arms, warning signage issues, visibility strips and pole-tag issues, rotten poles, vegetation encroachment inside of minimum clearance standards or encroachment that will lead to violation of minimum clearance standards before the next scheduled vegetation clearance crew visit, etc.

BVES conducts these inspections in compliance with GO 165 and GO 95 (Rule 18). If any defects outlined by that rule are identified, BVES prioritizes the defect based on risk and resolves the issues in compliance with GO 95 Rule 18 timeframes.[22]

[22] BVES uses the examples of defects and issues that are safety hazards, risks of at least moderate potential impact to safety or reliability, and/or risks of low potential impact to safety or reliability that are provided in GO-95 Appendices I and J. These appendices also provide examples of repair/resolution priorities and timeframes.

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- **Electrical Preventative Maintenance Program**: This program assesses major equipment assets located in BVES substations and in the field at various locations in the BVES sub-transmission (34.5 kV) and distribution (up to 4.160 kV) system. The results of the program are designed to evaluate the condition of key distribution equipment assets, identify equipment at-risk of failure, improve performance, reduce costs, and extend equipment life. Most importantly, the program will mitigate the risk of catastrophic failure of equipment, which could result in fire, public and worker safety hazards, environmental damage, prolonged unplanned outages, and costly emergent repairs and/or replacement of equipment.

- **LIDAR Inspection**: BVES conducted LIDAR (Light Detection and Ranging) inspections and analysis, which use a system of lasers and software to develop surveys of the overhead sub-transmission and distribution systems, to accurately determine vegetation clearances to conductors. While most often acquired via helicopter or fixed wing flights, LIDAR can also be captured via a truck-mounted mobile system. Given the proximity of the majority of BVES's electrical system to the road network, truck-mounted mobile LIDAR will most likely be utilized. This relatively quick and accurate inspection will allow BVES to resolve vegetation issues before making contact with bare conductors. BVES's plan is to conduct two LIDAR sweeps per year to evaluate effectiveness of clearance efforts and identify any potential wildfire hazards.

- **GIS Data Collection & Sharing**: BVES currently creates and collects Geographic Information System (GIS) data about its infrastructure. The data includes system infrastructure locations and related information for mapping and cataloging purposes. The Engineering & Planning Supervisor regularly oversees updates to the database to ensure accuracy. While it currently does not share data, BVES understands the importance of collaborating with key stakeholder agencies, such as the CPUC and CAL FIRE, and plans to provide its data in accordance with CPUC proceeding I17-06-027, Pole OII Phase I, which relates to sharing pole databases. Additionally, the utility will provide information to stakeholder agencies on a case-by-case basis at the discretion of the Engineering & Planning Supervisor, Operations & Planning Manager, and Director.

Execution: BVES currently conducts on-ground patrols and detailed maintenance inspections and GIS data collection. The utility proposes to implement an additional on-ground patrol, LIDAR aerial inspection, electrical preventative maintenance program, and data sharing with relevant agencies by request, upon approval by the CPUC.

Expense: The cost of several of the system inspection and maintenance programs is partially included in BVES' General Rate Case A.17-05-004, approved in August 15, 2019. Specifically, the GRC includes:

- The annual inspection patrol in compliance with GO 165
- The 5-year detailed inspections in compliance with GO 165
- Electrical Preventative Maintenance Program
- GIS Data Collection and Sharing

BVES requests for the following practices not currently included in the most recent GRC (Decision 19-08-027 of August 15, 2019) that by approval of this Wildfire Mitigation Plan, that the Commission authorize BVES to establish a memorandum account to track and recover the expenses related to the above proposed inspection programs not included in BRRR:

- The second annual patrol to be performed by a third party, which is estimated to cost $90,000 per year.
- LIDAR Inspection, which is estimated to cost $120,000 per sweep. Therefore, the LIDAR inspection program costs would be $220,000 per year.

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Table 24 below presents program details related to asset management and inspection activities. This information is also included in the supplemental *Attachment 1* workbook.

Table 24. Asset Management and Inspections

Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
1. Detailed inspections of distribution electric lines and equipment	2019 plan	Bear Valley Electric Service has not specified a wildfire mitigation asset management and inspections initiative for detailed inspections of distribution lines and equipment. The utility's distribution inspection initiatives are best captured in Table 24 Item 11. Patrol inspections of distribution lines and equipment														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
2. Detailed inspections of transmission electric lines and equipment	2019 plan	Bear Valley Electric Service does not have any transmission lines or equipment as all the utility's lines are below 65kV.														
	2019 actual															
	2020															
	2021															
	2022															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
	2020-2022 plan total															
3. Improvement of inspections	2019 plan	N/A - Elements already captured in other relevant programs	N/A - Elements already captured in other relevant programs	N/A - Elements already captured in other relevant programs	N/A - Elements already captured in other relevant programs	N/A - Elements already captured in other relevant programs	All types of equipment failure; Contact from object	N/A - Elements already captured in other relevant programs	N/A - Elements already captured in other relevant programs	N/A - Elements already captured in other relevant programs	New in 2019	CA GO 95 & 165	N/A - Elements already captured in other relevant programs	In compliance with Regulation	GO 95 & 165	Improvements of Bear Valley Electric Service's inspections have already been captured in other initiatives
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
4. Infrared inspections of distribution electric lines and equipment	2019 plan	$96,073	$ -	$96,073	70.27	$ 1,367.20	Contact from object, all types of equipment/facility failure, wire-to-wire contact/contamination	151,260.94	1.21	Wildfire-Significant Loss of Property	Existing	GRC	N/A - this is an existing initiative	Exceeding	GO-95	Contract Exacter Services. Conduct survey of BVES overhead system on 3-year cycle using infrared, ultrasonic and EMI sensors. Approximatel
	2019 actual	$60,104	$ -	$60,104	70.27	$ 855.33										
	2020	$ -	$ -	$ -	70.27	$ -										
	2021	$ -	$ -	$ -	70.27	$ -										
	2022	$ -	$ -	$ -	70.27	$ -										
	2020-2022	$ -	$ -	$ -	210.81	$ -										

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
	plan total															y 1/3 of OH system surveyed each year." to read: "Contract Exacter Services. Conducted survey of BVES overhead system using infrared, ultrasonic and EMI sensors."
5. Infrared inspections of transmission electric lines and equipment	2019 plan	Bear Valley Electric Service does not have any transmission lines or equipment as all the utility's lines are below 65kV.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
6. Intrusive pole inspections	2019 plan	Test all poles to loading standards, GO95 requirements, intrusive inspection criteria and age and then, replaces or remediates non-compliant poles. Covered under table 23 section 6.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
7. LiDAR inspections of distribution electric lines and equipment	2019 plan	$ 220,000.00	$ -	$ 220,000.00	632.43	$ 347.86	Contact from object, all types of equipment/facility failure, wire-to-wire contact/contamination	1,145,870.45	3.05	Wildfire-Significant Loss of Property	New	N/A - this is a new initiative	WMP Memorandum Account	Exceeding	GO-165	Conduct LiDAR surveys of BVES overhead system on a semi-annual basis.
	2019 actual	$ -	$ -	$ -	-	-										
	2020	$ 240,000.00	$ -	$ 240,000.00	632.43	$ 379.49										
	2021	$ 240,000.00	$ -	$ 240,000.00	632.43	$ 379.49										
	2022	$ 240,000.00	$ -	$ 240,000.00	632.43	$ 379.49										
	2020-2022 plan total	$ 720,000.00	$ -	$ 720,000.00	1897.29	$ 379.49										

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
8. LiDAR inspections of transmission electric lines and equipment	2019 plan	Bear Valley Electric Service does not have any transmission lines or equipment as all the utility's lines are below 65kV.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
9. Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations	2019 plan	Bear Valley Electric Service does not have any wildfire mitigation asset management and inspection initiatives focused on other discretionary inspections of distribution electric lines and equipment beyond inspections mandated by rules and regulations at this time that have not been captured in other initiatives.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
10. Other discretionary inspection of transmission electric lines and equipment, beyond inspections mandated by rules and regulations	2019 plan	Bear Valley Electric Service does not have any transmission lines or equipment as all the utility's lines are below 65kV.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
11. Patrol inspections of distribution electric lines and equipment	2019 plan	$ 90,000.00	-	$ 90,000.00	632.43	$ -	Contact from object, all types of equipment/facility failure, wire-to-wire contact/contamination	1,024,621.77	7.27	N/A - all risk drivers have been captured in the	New	N/A - this is a new initiative	WMP Memorandum Account.	Exceeding	GO-165	Conduct annual 2nd Ground Patrol of overhead facilities by 3rd party. This is in addition to BVES GO-165
	2019 actual	$ -	$ -	$ -	-	$ -										
	2020	$ 90,000.00	$ -	$ 90,000.00	632.43	$ 142.31										
	2021	$ 90,000.00	$ -	$ 90,000.00	632.43	$ 142.31										
	2022	$ 90,000.00	$ -	$ 90,000.00	632.43	$ 142.31										

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
	2020-2022 plan total	$ 270,000.00	$ -	$ 270,000.00	$ 1,897.29	$ 142.31										annual ground patrol.
12. Patrol inspections of transmission electric lines and equipment	2019 plan	Bear Valley Electric Service does not have any transmission lines or equipment as all the utility's lines are below 65kV.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
13. Pole loading assessment program to determine safety factor	2019 plan	Bear Valley Electric Service's wildfire mitigation asset management and inspections pole loading assessment program to determine safety factor is fully captured in Table 24 Initiative 6. Intrusive pole inspections.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
14. Quality assurance / quality control of inspections	2019 plan	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	All	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	Existing	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant	General initiative and best practices applied to and accounted for in other relevant initiatives
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
15. Substation inspections	2019 plan	Bear Valley Electric Service's substation inspections are fully captured in Table 24 Item 11. Patrol inspections of distribution electric lines and equipment														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
16. Other / not listed	2019 plan	$ 105,566.00	$ -	$ 105,566.00	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	Contact from object, all types of equipment/facility failure, wire-to-wire contact/contamination	1,145,870.45	6.93	N/A - all risk drivers have been captured in the Ignition probability drivers targeted	Existing	D. 19-08-027	GRC	N/A - this initiative is not associated with specific regulations	N/A - this initiative is not associated with	Electrical Preventative Maintenance Program. Program to conduct preventive maintenance and safety checks on major substation and field equipment. RSE is an estimate based on latest available risk assessment.
	2019 actual	$ 32,395.00	$ -	$ 32,395.00												
	2020	$ 105,566.67	$ -	$ 105,566.67												
	2021	$ 107,678.00	$ -	$ 107,678.00												
	2022	$ 109,831.56	$ -	$ 109,831.56												
	2020-2022 plan total	$ 323,076.23	$ -	$ 323,076.23												

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5.3.5 Vegetation Management and Inspections

Plan: BVES has a vegetation management plan in place. Mowbray's Tree Service Inc., a third-party contractor, executes the vegetation clearing efforts under the direction of BVES. The contractor's work is subject to frequent BVES Quality Control checks. The goal of this plan is to proactively maintain vegetation, so it does not come into contact with electrical infrastructure, thereby preventing wildfires. The utility created the vegetation management plan with wildfire prevention in mind, collaborating with the City of Big Bear Lake, local Fire Departments, and the US Forest Service on an as-needed basis.[23] The plan will be reviewed and updated on an as-needed basis or every three-years, depending on changing conditions. The program includes three components: preventative vegetation management, corrective vegetation clearance, and emergency vegetation clearance. Each of these components need to adhere to particular specifications, detailed below.

- **Preventative Vegetation Management:** This scope of work encompasses ensuring vegetation on BVES overhead sub-transmission and distribution lines adheres to clearance specifications identified.
- **Corrective Vegetation Clearance:** This scope of work consists of completing corrective and emergent vegetation orders to fix clearance discrepancies that the contractor or BVES discovers. If an order is designated as High Priority, the contractor must prioritize that work and make the correction immediately.
- **Emergency Vegetation Clearance:** This scope of work includes completing maintenance on an as-needed basis for any major disaster or emergency events. For example, if a storm results in fallen trees and branches, the contractor must mobilize as soon as possible to clear the vegetation.

As mentioned above, all vegetation management work must adhere to certain specifications, as outlined by BVES. The utility-defined specifications comply with and exceed those outlined in Public Utilities Code, GO 95, Rules for Overhead Electric Line Construction, Rule 35 Vegetation management, and Appendix E Guidelines to Rule 35 and Commission decisions, such as D.17-12-024. As previously described BVES has unique local conditions that require it to go beyond the regulated vegetation clearance standards. These specifications include:

- A minimum radial clearance of 72 inches between bare conductors and vegetation. (BVES' bare conductors operate between 2,400 or more volts, but less than 72,000 volts, which means it must have a minimum radial clearance of 48 inches.)
- No vertical coverage above BVES sub-transmission lines (34,500 V).
- All vegetation within the drip line of primary conductors that has the potential of growing into the secondary system or within 12 feet of the energized primary conductors within the 3-year vegetation management program cycle will be removed.
- Dead, rotten or diseased trees or portions of otherwise healthy trees – also known as "hazard trees" – that overhang or lean toward and may fall into a span of power lines will be removed. Note that this may apply to trees outside the clearance zone.
- Exceptions for tree trunks or major limbs that meet the following criteria: at the primary conductor level, mature tree trunks that are greater than 18 inches in diameter and major limbs that are greater than 10 inches in diameter with sufficient strength and rigidity may encroach within the minimum safe distance (72-inches) but not within 18 inches of the bare line conductors. The

[23] BVES has met with these stakeholders in the previous year to gather feedback and input on its vegetation maintenance program, emergency planning, and wildfire mitigation strategy.

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rigidity of the tree trunk or major limb must be such that it would be impossible for it to encroach within 12 inches of the bare conductor at any time during high wind, heavy icing and snow, or other conditions.

BVES will also consider the removal of any fast-growing trees, such as Poplars, Aspens, or Cottonwood, rotten or diseased trees, and healthy trees hanging over or leaning towards bare lines. All such trees will be trimmed to 12 feet minimum and evaluated for removal in each case.

Execution: BVES' contractor currently conducts vegetation maintenance on the system. To ensure quality, BVES conducts frequent Quality Control (QC) checks of the contractor's work through detailed, routine inspections and patrols of its overhead circuits. Any discrepancies discovered are categorized by priority level (e.g. emergency, urgent, or routine) and subsequently corrected by the contractor. The contractor also provides weekly updates, which include the status of work completed and upcoming work such as tree removals, special support requests, corrective and emergent vegetation order status, and other items pertinent to progress of the work.

When executing tree removals, BVES and its contractor comply with permitting requirements mandated by the US Forest Service. BVES currently does not remove trees on hillsides or on a large-scale, addressing any risks, such as erosion, wind shear, and flooding, that may arise from trimming and removing trees. It will consider these risks moving forward should tree removal plans change.

Forester Consulting Services: BVES additionally plans to hire a full-time contract utility forest in its service territory as part of the BVES team. The contract forester's job duties would include inspections, auditing, customer contact and issue resolution, work plan development, specialized projects, contractor safety observations, and vegetation management program documentation and data analysis.

Expense: The cost of the Vegetation Management program is included in BVES' General Rate Case A.17-05-004 and through BVES' FHPMA per Commission Decision D.17-12-024, Decision Adopting Regulations to Enhance Fire Safety in the High Fire-Threat District. No additional expense is anticipated.

The utility estimates this O&M program will cost a total of $145,000 per year beginning in 2020. The cost of implementing the Forester program was not addressed in BVES' General Rate Case Commission Decision 19-08-027 of August 15, 2019. Therefore, BVES requests by approval of this Wildfire Mitigation Plan, that the Commission authorize BVES to establish a memorandum account to track and recover the expenses related to the above proposed program not included in BRRR.

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Table 25 below presents program details related to vegetation management and inspection activities. This information is also included in the supplemental *Attachment 1* workbook.

Table 25. Vegetation Management and Inspections

Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
1. Additional efforts to manage community and environmental impacts	2019 plan	Bear Valley Electric Service does not have a specific wildfire mitigation vegetation management and inspection initiative dedicated to this effort at this time. The utility recognizes that additional efforts to manage community and environmental impacts are critical to reducing wildfire risk and conducts such efforts on an as-needed basis, as well as incorporating additional efforts within other programs such as those in Table 29 and Table 30.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
2. Detailed inspections of vegetation around distribution electric lines and equipment	2019 plan	$ 1,000,000.00	$ -	$ 1,000,000.00	N/A - this is a System Wide initiative	N/A - this is a System Wide initiative	Contact from object, all types of equipment/facility failure, wire-to-wire contact/contamination	872,292.38	0.27	Wildfire-Significant Loss of Property	Existing	D. 19-08-027	FHPMA (not new)	Exceeding	GO -95	Increases vegetation clearances, criterial for tree removals, and eliminates overhang on sub-transmission. These are above the 2017 baseline vegetation
	2019 actual	$ 902,447.00	$ -	$ 902,447.00												
	2020	$ 2,600,000.00	$ -	$ 2,600,000.00												
	2021	$ 2,600,000.00	$ -	$ 2,600,000.00												

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
	2022	$ 2,600,000.00	$ -	$ 2,600,000.00												clearances that were in effect before CPUC Decision 17-12-024 December 14, 2017 was adopted.
	2020-2022 plan total	$ 7,800,000.00	$ -	$ 7,800,000.00												
3. Detailed inspections of vegetation around transmission electric lines and equipment	2019 plan	Bear Valley Electric Service does not have any transmission lines or equipment as all the utility's lines are below 65kV.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
4. Emergency response vegetation management due to red flag warning or other urgent conditions	2019 plan	Bear Valley Electric Service does not have a specific wildfire mitigation vegetation management and inspection initiative dedicated to this effort at this time. The utility recognizes that emergency response vegetation management due to red flag warnings or other urgent conditions are critical to reducing wildfire risk and has already incorporated these efforts into the utility's existing Emergency Response and Preparedness Plan as well as the initiatives described in Table 26 Grid Operations and Protocols.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
5. Fuel management and reduction of " slash" from vegetation management activities	2019 plan	Bear Valley Electric Service does not have a specific wildfire mitigation vegetation management and inspection initiative dedicated to this effort at this time. Fuel management and reduction of "slash" from vegetation management activities have been incorporated into the utility's ongoing and newly proposed vegetation management initiatives as described in Table 25.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
6. Improvement of inspections	2019 plan	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	Contact from object	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	Reduces escalation should an ignition event occur through removal of fuel	Existing	2017 GRC & 2019 WMP	N/A - Elements already captured in other relevant initiatives	In compliance with Regulation	GO 95	Program incorporated new requirements in 2019
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
7. LiDAR inspections of vegetation around distribution electric lines and equipment	2019 plan	Bear Valley Electric Service's LiDAR inspections of vegetation around distribution electric lines and equipment are captured in Table 24 Initiative 7. LiDAR inspections of distribution electric lines and equipment.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
8. LiDAR inspections of vegetation around transmission electric lines and equipment	2019 plan	Bear Valley Electric Service does not have any transmission lines or equipment as all the utility's lines are below 65kV.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
9. Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations	2019 plan	Bear Valley Electric Service does not have any other discretionary inspections of vegetation around distribution electric lines and equipment beyond inspections mandated by rules and regulations and other described initiatives at this time.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
10. Other discretionary inspection of vegetation around transmission electric lines and equipment, beyond inspections mandated by rules and regulations	2019 plan	Bear Valley Electric Service does not have any transmission lines or equipment as all the utility's lines are below 65kV.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
11. Patrol inspections of vegetation around distribution electric lines and equipment	2019 plan	Bear Valley Electric Service's patrol inspections of vegetation around distribution electric lines and equipment are fully captured in Table 25 Initiative 2. Detailed inspection of vegetation around distribution electric lines and equipment and Table 24 Initiative 11. Patrol inspections of distribution electric lines and equipment.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
12. Patrol inspections of vegetation around transmission electric lines and equipment	2019 plan	Bear Valley Electric Service does not have any transmission lines or equipment as all the utility's lines are below 65kV.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
13. Quality assurance / quality control of inspections	2019 plan	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	All	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	Existing	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	N/A - Elements already captured in other relevant initiatives	General initiative and best practices applied to and accounted for in other relevant initiatives
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
14. Recruiting and training of vegetation management personnel	2019 plan	$ -	$ -	$ -	N/A - this is a System Wide initiative	N/A - this is a System Wide initiative	Contact from object, all types of equipment/facility failure, wire-to-wire contact/contamination	151,260.94	0.67	Wildfire-Significant Loss of Property	New	N/A - this is a new initiative	WMP Memorandum Account	Exceeding	GO 95	Places a full time contract utility forester as part of the BVES team. The job duties of the contract forester would include: Inspections: Inspect and evaluate circuits for hot spot locations, hazard tree identification and outage investigations. Auditing: Perform site-specific work audits to ensure contractors are performing within the specifications set forth by BVES.
	2019 actual	$ -	$ -	$ -												
	2020	$ 145,000.00	$ -	$ 145,000.00												
	2021	$ 147,900.00	$ -	$ 147,900.00												
	2022	$ 150,858.00	$ -	$ 150,858.00												

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
	2020-2022 plan total	$ 443,758.00	$ -	$ 443,758.00												Customer Contacts/Issue Resolution: initiate or follow up in a timely and professional manner on all customer issues that may arise in a manner that will support the policies and procedures of BVES. This includes customer notifications, permit negotiations, conflict resolution, outage support/investigations and providing shared resources to construction, substation, lines and/or various work groups related to BVES's Vegetation Management group. Administrative: Perform data entry, spreadsheet work, monitor crew activity sheets, track completed work, capture photo documentation of

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
																specific conditions and other administrative tasks as needed. Developing Work Plans: Develop work plans that specify the pruning and removal requirements to maintain the utility ROWs. These plans will be developed in an efficient and straightforward manner for a seamless transition to the tree contractors. Specialized Projects: Develop and manage specialized projects with an emphasis on reliability and risk management. Perform enhanced outage investigations, integrated storm hardening projects, performed risk assessment and prioritization studies, developed storm response protocols and implemented hazard tree

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
																programs that are focused on improving system safety. Contractor Safety Observations: Observe contractors as they work and provide safety behavior modification to help ensure a program that is best in class not only in vegetation management, but safety as well. RSE is an estimate based on latest available risk assessment.
15. Remediation of at-risk species	2019 plan	Remediation of at-risk species is a subset to the company's vegetation management practices to achieve clearances around electric lines and equipment as described in Table 25, particularly Table 24 Item 14. As such, Bear Valley Electric Service does not have a specific wildfire mitigation initiative for remediation of at-risk species at this time.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
16. Removal and remediation of trees with strike potential to electric lines and equipment	2019 plan	Removal and remediation of trees with strike potential to electric lines and equipment is a subset to the company's vegetation management practices to achieve clearances around electric lines and equipment as described in Table 25, particularly Table 24 Item 14. As such, Bear Valley Electric Service does not have a specific wildfire mitigation initiative for removal and remediation of trees with strike potential at this time.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
17. Substation inspections	2019 plan	Substation vegetation management is a subset to the company's overall vegetation management initiatives as described in Table 25.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
18. Substation vegetation management	2019 plan	Substation inspections are a subset to the company's overall vegetation management inspections as described in Table 25 Initiatives 2. and 14.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
19. Vegetation inventory system	2019 plan	Bear Valley Electric Service does not have a specific wildfire mitigation initiative dedicated to the creation and management of a vegetation inventory system at this time. The company's utility forester, as described in Table 25 Item 14., maintains such a system.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
20. Vegetation management to achieve clearances around electric lines and equipment	2019 plan	Vegetation management to achieve clearances around electric lines and equipment is captured in Table 25 Items 2. and 14.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
21. Other / not listed	2019 plan	N/A - the utility does not have any other or unlisted vegetation management initiatives	N/A - the utility does not have any other or unlisted vegetation management initiatives	N/A - the utility does not have any other or unlisted vegetation management initiatives	N/A - the utility does not have any other or unlisted vegetation management initiatives	N/A - the utility does not have any other or unlisted vegetation management initiatives	N/A - the utility does not have any other or unlisted vegetation management initiatives	N/A - the utility does not have any other or unlisted vegetation management initiatives	N/A - the utility does not have any other or unlisted vegetation management initiatives	N/A - the utility does not have any other or unlisted vegetation management initiatives	N/A - the utility does not have any other or unlisted vegetation management initiatives	N/A - the utility does not have any other or unlisted vegetation management initiatives	N/A - the utility does not have any other or unlisted vegetation management initiatives	N/A - the utility does not have any other or unlisted vegetation management initiatives	N/A - the utility does not have any other or unlisted vegetation management initiatives	N/A - the utility does not have any other or unlisted vegetation management initiatives
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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5.3.6 Grid Operations and Protocols

The third wildfire prevention category, Operational Practices, encompasses standard company procedures that relate to wildfires, special work procedures, and wildfire infrastructure protection team definitions. These practices help the utility manage risk on a day-to-day basis through its operations.

5.3.6.1 Operational Considerations and Special Work Procedures

Plan: Understanding system demand allows BVES to create a hybrid operating system that can be optimized for two types of operations: (1) safety and reliability and (2) wildfire prevention during high risk periods, depending on the weather and system demand. However, it should be noted that wildfire prevention measures during high fire risk weather conditions always override reliability optimization regardless of season or system demand. Generally, since the winter months bring the heaviest demand on the BVES distribution system, BVES optimizes the system for safety and reliability. These months are often wet and do not pose significant wildfire risks. Following the winter season, the operational focus becomes more defensive and optimized for wildfire prevention, given the hot, dry climate. Specifically, the system uses the following protocols:

- From approximately November 1 through March 31, the system is focused on safety and reliability with higher load settings to accommodate higher demand due to colder temperatures and reclosers set to automatic.
- From approximately April 1 through October 31, BVES adopts a more defensive operational scheme during the non-winter months. To accomplish this, the utility enacts certain operational settings:
    - All Fuse TripSavers set to not reclose.
    - Auto-Recloser field trip settings adjusted for summer load.
    - Radford 34kV line de-energized.

Although BVES generally follows a strict schedule, the utility monitors conditions, using the NFDRS, to determine if additional precautions should be taken.[24] The predictive service provides a forecast on fuel dryness and high-risk days as indicated in Supporting Table 5-6 below.

Supporting Table 5-6. Operational Direction Based on NFDRS Forecast

Fuel Dryness & High Risk Days	Rating	Description
Green	**Moist**	Little to no risk of fires.
Yellow	**Dry**	Low risk of large fires in the absence of a “High Risk” event.
Brown	**Very Dry**	Low/moderate risk of large fires in the absence of a “High Risk” event.

[24] The National Fire Danger Rating System (NFDRS) can be found at https://gacc.nifc.gov/oscc/predictive/weather/index.htm#. The entire BVES system is in Predictive Service Area SC10.

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Orange	**High-Risk Day**	At least a 20% chance of a "Large Fire" due to a combination of either "Dry" or "Very Dry" fuel dryness and a critical burn environment (e.g., Santa Ana winds).
Red	**High-Risk Day**	At least a 20% chance of a "Large Fire" due to a combination of either "Dry" or "Very Dry" fuel dryness and an ignition trigger (lightening).

Furthermore, BVES staff and BVES's weather consultant review the NFDRS on a weekly basis or more frequently during high fire threat periods to make advanced preparations and on a daily basis to determine if additional steps should be taken. An example of the seven-day forecast is provided in Supporting Table 5-7 below.

Supporting Table 5-7. Example NFDRS Weekly Forecast

System	*Sun*	*Mon*	*Tues*	*Wed*	*Thurs*	*Fri*	*Sat*
SC09-Western Mountains							
SC10-Eastern Mountains							
SC11-Southern Mountains							

Source: BVES, based on actual weekly forecasts

In short, overall system configuration is optimized for fire prevention from approximately April 1 to October 31, using the seasonal characteristics of BVES' climate and load profile. The system is then further optimized based on the seven-day NFDRS forecast as well as other operational and weather information available to BVES.

Execution: As stated previously, BVES monitors the NFDRS fire danger forecast each day and then determines the proper operational focus from reliability to fire prevention. Exact steps depend on the level of fire-threat. As indicated in Supporting Table 5-8 below, "Brown", "Red", and "Orange" are considered elevated fire-threat conditions that require the BVES system to be configured for fire prevention over reliability concerns.

Supporting Table 5-8. Operational Direction Based on NFDRS Forecast

Operational Action	Green	Yellow	Brown	Orange	Red
Circuit Recloser Settings	Automatic Reclosing	Automatic Reclosing	Non-Automatic Reclosing	Non-Automatic Reclosing	Non-Automatic Reclosing
Patrol following circuit outage	No[1]	No[1]	Yes	Yes	Yes
TripSavers	Automatic	Automatic	Non-Automatic	Non-Automatic	Non-Automatic
Proactive De-energization (PDE)	No	No	No	Yes – "at risk" lines when wind gusts greater than 55 mph	

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[1]No patrol is required. Re-test allowed following check of fault indicators, SCADA, other system indicators, and reports from the field. If the re-test fails, a patrol is mandatory.

When a "Red Flag" condition is declared, Field Operations will closely monitor the NFDRS Forecast and other local forecasts to determine the appropriate operational conditions to be implemented. Additionally, BVES's weather consultant provides more detailed and frequent forecast updates. It should be noted that generally "Red Flag" conditions are assigned to areas much larger than the BVES service area, such as the County of San Bernardino. Therefore, BVES factors in the localized conditions for its service area.

Expense: The cost of System Operations is included in BVES' current GRC. No additional expense is anticipated.

5.3.6.2 High-Speed Clearing (Automatic Reclosers (AR) and Fast-Curve Sensitive Relay Settings)

Plan: High speed clearing refers to the ability to clear faults using automatic reclosers and fast-curve sensitive relay settings. Traditionally electrical circuits were designed to automatically open and close to detect and isolate faults. In many cases the relays make three attempts to isolate a fault condition and each potential attempt could cause an electrical spark, which could be a source of ignition. Today many utilities are implementing modern controls that allow them to designate a normal setting and a wildfire setting. The latter allows utilities to reduce the number of correction attempts to prevent ignition. This can be coupled with Supervisory Control and Data Acquisition (SCADA) technology for remote control of the equipment. The list below details BVES' plans in regard to these technologies.

- **Supervisory Control and Data Acquisition (SCADA) Installations**: BVES plans to install SCADA system-wide, which will allow for remote monitoring, operation, and control of its system. Currently, BVES has SCADA installed on a small part of its system but will expand its rollout. Once implemented, SCADA can help control the automatic reclosers, fast-curve settings, and IntelliRupters remotely.

- **Automatic Recloser Upgrades**: BVES plans to install S&C's Pulse Closer Fault Interrupter across its system. This technology provides the settings necessary to reduce electrical ignition, while also helping mitigate power outages and equipment damage by using low energy pulses to test for faults.

Execution: BVES is developing plans to install SCADA system-wide and plans to begin the rollout in 2020 and finish by 2022. As for the automatic reclosers, BVES installed one in 2019 and plans to complete the installations by 2020.

Expense: The cost of the changes to the Grid Automation project were addressed in the BVES' General Rate Case Commission Decision 19-08-027 of August 15, 2019. No additional expense is anticipated.

5.3.6.3 Emergency Reports from Third-Parties

Plan: The Operations & Planning Manager has issued operational guidelines in the event BVES receives a report of potential fire such as "arcing, sparks, smoldering, smoke, and/or fire" or other emergency reports involving the overhead distribution system. Examples of reports include customer or 3rd party reported arcing, sparking, smoke, or fire sightings.

Execution: These procedures will be at the discretion of the Operations & Planning Manager and, given the event, will require prompt and decisive action to place the system in a safe condition.

Expense: These costs are recovered as part of BVES' normal operations and therefore, are covered through the GRC. No additional funding is needed at this time.

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5.3.6.4 Wildfire Infrastructure Protection Teams

Plan: BVES has a dedicated Wildfire Infrastructure Protection Team (WIPT). Given the need for similar capabilities during wildfire incidences and other emergencies, the WIPT aligns with BVES' Emergency Response Team (ERT). Both teams consist of the Operations & Planning Manager, Field Operations Supervisor, Service Crew, and Customer Service staff.

Execution: The roles of each of the team members will also align with ERT roles and responsibilities. Specifically, the Operations and Planning Manager will oversee the WIPT. The Field Operations Supervisor will direct field activities and operations. The Service Crew (or Dutyman outside normal working hours) will provide initial field response. Additional linemen will be called out as needed. Furthermore, Customer Service staff and/or additional staff may be called out to assist with notification procedures as needed. Other staff may be called out at the direction of the Operations and Planning Manager to assist, as needed. For example, Engineering staff may be called out to assist linemen in monitoring local wind speeds.

Expense: These costs are covered as part of BVES' normal operations and therefore, are covered through the GRC. No additional funding is required.

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Table 26 below presents program details related to grid operations and protocols. This information is also included in the supplemental *Attachment 1* workbook.

Table 26. Grid Operations and Protocols

Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
1. Automatic recloser operations	2019 plan	$ 300,000.00	$ 300,000.00	$ -	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	Contact from object, all types of equipment/facility failure, wire-to-wire contact/contamination	1,115,048.65	3.72	Wildfire-Significant Loss of Property	Existing	D. 19-08-027	GRC	N/A - this initiative is a non-standard operating practice unassociated with any specific regulation	N/A - this initiative is a non-standard operating practice unassociated with any specific regulation	Automatic Recloser Upgrades. Recloser replacement to reduce electrical sparking, while also helping mitigate power outages and equipment damage. Estimated 33% completion in 2019.
	2019 actual	$ 290,458.75	$ 290,458.75	$ -												
	2020	-	-	$ -												
	2021	-	$ -	$ -												
	2022	-	$ -	$ -												
	2020-2022 plan total	$ -	$ -	$ -												

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
2. Crew-accompanying ignition prevention and suppression resources and services	2019 plan	Bear Valley Electric Service does not currently deploy crew-accompanying ignition prevention and suppression resources and services as part of its routine operational practices. When an emergency occurs, the utility communicates and collaborates with local emergency response teams as described in Section 5.3.9, which can include crew-accompanying ignition prevention and suppression resources and services. Additionally, during elevated risk conditions or during fire season, BVES leverages specific work practices and protocols and makes available specific resources and tools for use by operations personnel as included in Table 26. However, the utility does not currently have a specific grid operations and protocols wildfire mitigation initiative focused on crew-accompanying ignition prevention and suppression resources and services. The use of these services will be re-evaluated and considered for future incorporation as part of the annual WMP review process.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
3. Personnel work procedures and training in conditions of elevated fire risk	2019 plan	$ 42,000.00	$ -	$ 42,000.00	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	Contact from object, all types of equipment/facility failure, wire-to-wire contact/contamination	146,466.53	2.23	Wildfire-Significant Loss of Property	Existing	D. 19-08-027	GRC	N/A - this initiative is a non-standard operating practice unassociated with any specific regulation	N/A - this initiative is a non-standard operating practice unassociated with any specific regulation	Wildfire Infrastructure Protection Teams. Roles and responsibilities for staff to respond to protect system infrastructure in case of emergencies.
	2019 actual	$ -	$ -	$ -												
	2020	$ 42,000.00	$ -	$ 42,000.00												
	2021	$ 42,840.00	$ -	$ 42,840.00												
	2022	$ 43,696.80	$ -	$ 43,696.80												
	2020-2022 plan total	$ 128,536.80	$ -	$ 128,536.80												

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
4. Protocols for PSPS re-energization	2019 plan	Bear Valley Electric Service considers re-energization after a PSPS event to be a subset of outage restoration and re-energization protocols generally included in Table 26. Therefore, the utility does not have a separate protocol for PSPS.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
5. PSPS events and mitigation of PSPS impacts	2019 plan	$ 42,000.00	$ -	$ 42,000.00	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	All	777,385.29	18.51	Wildfire-Significant Loss of Property	Existing/New	D. 19-08-027	GRC and WMP Memorandum Account	In compliance	R. 18-12-005	PSPS Protocols. Protocols and procedures to respond to and recover from de-energization events, which proactively prevent wildfires. Costs partially recovered. RSE is an estimate based on latest risk assessment.
	2019 actual	$ -	$ -	$ -												
	2020	$ 42,000.00	$ -	$ 42,000.00												
	2021	$ 42,000.00	$ -	$ 42,000.00												
	2022	$ 42,000.00	$ -	$ 42,000.00												
	2020-2022 plan total	$ 126,000.00	$ -	$ 126,000.00												

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
6. Stationed and on-call ignition prevention and suppression resources and services	2019 plan	Bear Valley Electric Service does not currently have stationed and on-call ignition prevention and suppression resources and services not captured in existing initiatives.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
7. Other / not listed	2019 plan	N/A - costs recovered in BVES' General Rate Case a. 17-05-004.	N/A - costs recovered in BVES' General Rate Case a. 17-05-004.	N/A - costs recovered in BVES' General Rate Case a. 17-05-004.	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	Contact from object, all types of equipment/facility failure, wire-to-wire contact/contamination	1,022,629.33	N/A - this initiative is not associated with a specific Risk-Spend Efficiency	Wildfire-Significant Loss of Property	Existing	D. 19-08-027	GRC	N/A - this initiative is a non-standard operating practice unassociated with any	N/A - this initiative is not associated with any specific regulation	Operational Considerations/Special Work Procedures. Operational procedures that are conditions-based to optimize the distribution system for wildfire mitigation. Costs recovered in BVES' General Rate Case A.17-05-004.
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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5.3.7 Data Governance

Table 27 below presents program details related to data governance activities. This information is also included in the supplemental *Attachment 1* workbook.

Table 27. Data Governance

Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
1. Centralized repository for data	2019 plan	$ 46,382.29	$ -	$ 46,382.29	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	All	148,458.96	3.20	Wildfire-Significant Loss of Property.	Existing	D. 19-08-027	GRC	N/A - this initiative is unassociated with any specific regulation	N/A - this initiative is unassociated with any specific regulation	GIS Data Collection & Sharing. Maintain and share Geographic Information System (GIS) database on system infrastructure for asset management and planning with key stakeholders.
	2019 actual	$ 46,382.29	$ -	$ 46,382.29												
	2020	$ 46,382.29	$ -	$ 46,382.29												
	2021	$ 46,382.29	$ -	$ 46,382.29												
	2022	$ 46,382.29	$ -	$ 46,382.29												
	2020-2022 plan total	$ 139,146.87	$ -	$ 139,146.87												

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
2. Collaborative research on utility ignition and/or wildfire	2019 plan	Bear Valley Electric Service does not have a specific wildfire mitigation data governance plan focused on collaborative research on utility ignition and/or wildfire at this time. The company generally collaborates with Mutual Aid Partners and first responders to develop protocols, procedures, and communication plans to prevent, manage, and respond to utility ignition and/or wildfire.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
3. Documentation and disclosure of wildfire-related data and algorithms	2019 plan	Bear Valley Electric Service does not have a specific data governance wildfire mitigation program focused on documentation and disclosure of wildfire-related data and algorithms that maps to the tracking and level of detail requested in this table at this time.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
4. Tracking and analysis of near miss data	2019 plan	Bear Valley Electric Service does not have a specific wildfire mitigation data governance initiative focused on tracking and analysis of near-miss data that maps to the tracking and level of detail requested in this table at this time.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
5. Other / not listed	2019 plan	Bear Valley Electric Service does not have any other wildfire mitigation data governance initiatives at this time.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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5.3.8 Resource Allocation Methodology

Table 28 below presents program details related to resource allocation methodology activities. This information is also included in the supplemental *Attachment 1* workbook.

Table 28. Resource Allocation Methodology

Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
1. Allocation methodology development and application	2019 plan	N/A - While the utility is committed to the continued development and improvement of the company's risk-based decision-making framework, many of the elements requested in this 2020 CA WMP filing may not be applicable to Bear Valley Electric Service, specifically many of the components requested in this section. Bear Valley Electric Service cannot provide information regarding the utility's wildfire mitigation resource allocation methodology focused on allocation methodology development and application to the level of tracking and detail requested in this table at this time. At the guidance of the Wildfire Safety Division of the California Public Utilities Commission, these elements are marked "N/A" to indicate "does not apply" or "not applicable," with supplementary explanations where applicable throughout the company's filing.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
2. Risk reduction scenario development and analysis	2019 plan	N/A - While the utility is committed to the continued development and improvement of the company's risk-based decision-making framework, many of the elements requested in this 2020 CA WMP filing may not be applicable to Bear Valley Electric Service, specifically many of the components requested in this section. Bear Valley Electric Service cannot provide information regarding the utility's wildfire mitigation resource allocation methodology focused on risk reduction scenario development and analysis to the level of tracking and detail requested in this table at this time. At the guidance of the Wildfire Safety Division of the California Public Utilities Commission, these elements are marked "N/A" to indicate "does not apply" or "not applicable," with supplementary explanations where applicable throughout the company's filing.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
3. Risk spend efficiency analysis	2019 plan	N/A - While the utility is committed to the continued development and improvement of the company's risk-based decision-making framework, many of the elements requested in this 2020 CA WMP filing may not be applicable to Bear Valley Electric Service, specifically many of the components requested in this section. Bear Valley Electric Service cannot provide information regarding the utility's wildfire mitigation resource allocation methodology focused on risk spend efficiency analysis to the level of tracking and detail requested in this table at this time. At the guidance of the Wildfire Safety Division of the California Public Utilities Commission, these elements are marked "N/A" to indicate "does not apply" or "not applicable," with supplementary explanations where applicable throughout the company's filing.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
4. Other / not listed	2019 plan	N/A - While the utility is committed to the continued development and improvement of the company's risk-based decision-making framework, many of the elements requested in this 2020 CA WMP filing may not be applicable to Bear Valley Electric Service, specifically many of the components requested in this section. Bear Valley Electric Service cannot provide information regarding the utility's wildfire mitigation resource allocation methodology focused on any other unlisted initiative(s) to the level of tracking and detail requested in this table at this time. At the guidance of the Wildfire Safety Division of the California Public Utilities Commission, these elements are marked "N/A" to indicate "does not apply" or "not applicable," with supplementary explanations where applicable throughout the company's filing.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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5.3.9 Emergency Planning and Preparedness

Attachment 1 Subsection 5.3.9 Emergency Planning and Preparedness

Include a general description of the overall emergency preparedness and response plan, and detail:

1. **A description of how plan is consistent with disaster and emergency preparedness plan prepared pursuant to Public Utilities Code Section 768.6, including:**
   a. Plans to prepare for and restore service, including workforce mobilization (including mutual aid and contractors) and prepositioning equipment and employees
   b. Emergency communications, including community outreach, public awareness, and communications efforts before, during, and after a wildfire in English, Spanish, and the top three primary languages used in California other than English or Spanish, as determined by United States Census data
   c. Showing that the utility has an adequate and trained workforce to promptly restore service after a major event, taking into account mutual aid and contractors
2. **Customer support in emergencies, including protocols for compliance with requirements adopted by the CPUC regarding activities to support customers during and after a wildfire, including:**
   a. Outage reporting
   b. Support for low income customers
   c. Billing adjustments
   d. Deposit waivers
   e. Extended payment plans
   f. Suspension of disconnection and nonpayment fees
   g. Repair processing and timing
   h. Access to utility representatives
3. **Coordination with Public Safety Partners, such as stationing utility personnel in county Emergency Operations Centers**

Describe utility efforts to identify which additional languages are in use within the utility's service territory, including plan to identify and mitigate language access challenges.

BVES responds to emergencies in accordance with its Emergency Preparedness and Response Plan, which is compliant with General Order 166 (GO-166), Standards for Operation, Reliability, and Safety During Emergencies and Disasters. A copy of the Emergency Preparedness and Response Plan is forwarded to the Commission annually per GO-166. In responding to emergencies, the Company's staff shall be organized largely based on the Standardized Emergency Management System (SEMS) as interpreted by the Company and outlined in the Emergency Preparedness and Response Plan. Figure 5-3 illustrates how the BVES staff aligns with the SEMS organizational structure during an emergency.

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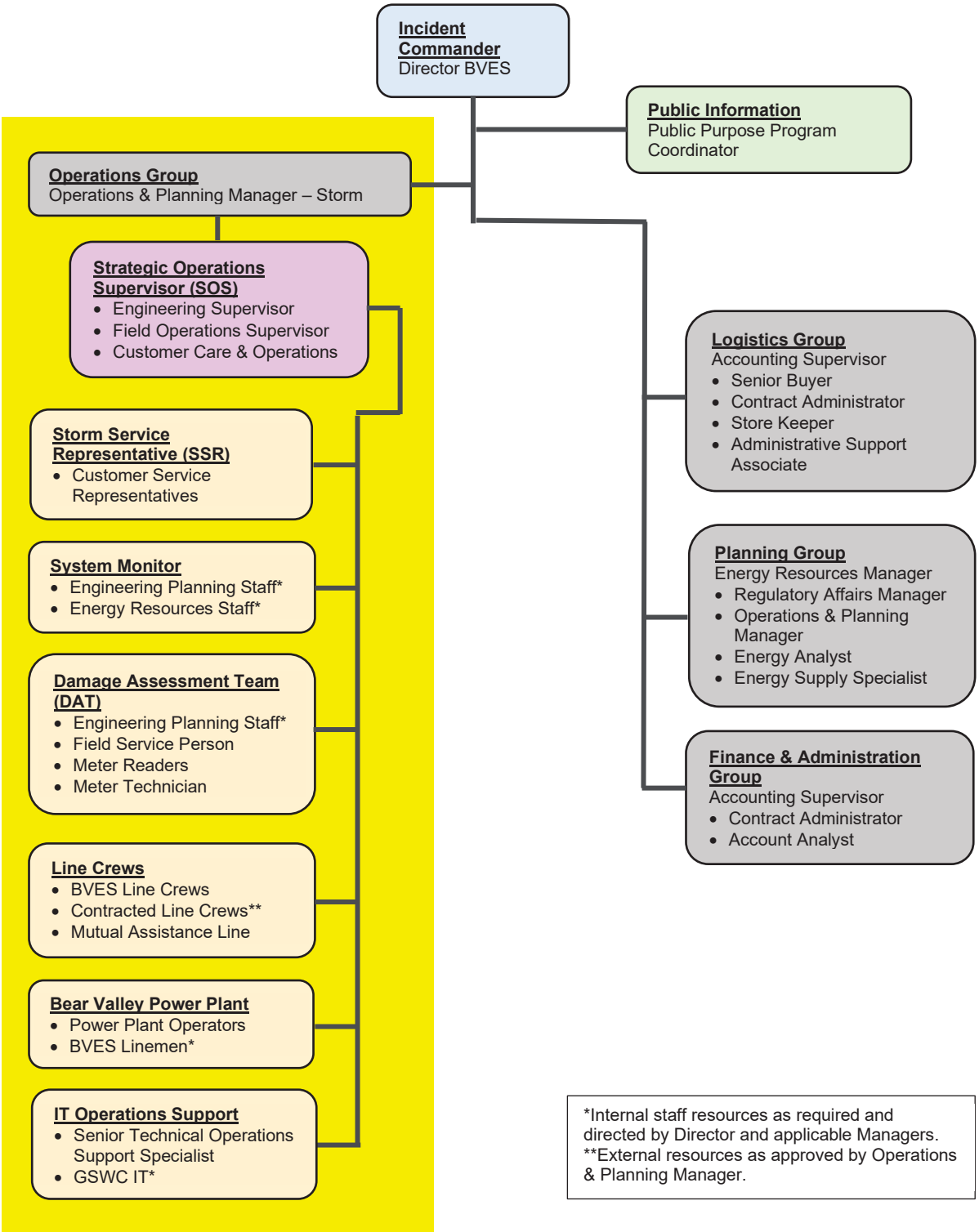
Figure 5-3. BVES Emergency Organization



Source: BVES

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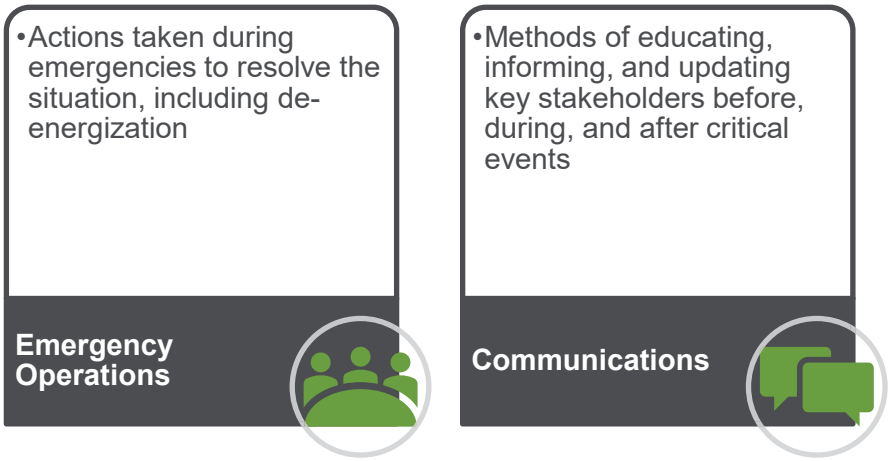
Additional guidance is provided in this section. These procedures apply to both situations that may affect the electrical system (e.g. proactive de-energization) and/or the area at-large (e.g. wildfire event). This section details these plans, including compliance, and roles and responsibilities for executing the plan.

5.3.9.1 Plan Overview

BVES believes it is vitally important to have proactive planning and close coordination with local governments, agencies, other stakeholders, and customers. The Emergency Preparedness and Response Plan reflects this philosophy. Specifically, the Emergency Preparedness and Response Plan includes two main components: (1) an emergency protocol plan and (2) a communications plan, similar to the PSPS steps. Figure 5-4 below describes these two complementary components.

Figure 5-4. Emergency Preparedness and Response Components



Due to BVES' unique service territory, there are several key stakeholders that will be involved in emergency preparedness and response. These stakeholders include local governments and agencies as well as location-specific organizations, including resorts and business groups. With this understanding, BVES has outlined all key stakeholders. Supporting Table 5-9 provides the stakeholder list. BVES will review the list annually and update it, as needed.

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Supporting Table 5-9. BVES Emergency Preparedness and Response Stakeholder List

Stakeholder Group	Description
Customers	• Any person or organization who receives electricity from BVES
Local Government / Agencies	• Big Bear Area Regional Wastewater Agency (BBARWA) • Bear Valley Community Hospital • Bear Valley Unified School District • Big Bear Chamber of Commerce • Big Bear Airport District • Big Bear City Community Services District (CSD) • Big Bear Fire Department • Big Bear Lake Water Department (DWP) • Big Bear Mountain Resort • Big Bear Municipal Water District (MWD) • San Bernardino County Sheriff's Department • CAL FIRE • California Highway Patrol Arrowhead Area • California Department of Transportation • City of Big Bear Lake • San Bernardino Fire Department and Office of Emergency Services • Southwest Gas Corporation • US Forest Service
Mountain Mutual Aid Association	• Organization with 31 members, including utilities, business groups, and non-government organizations committed to the community
State	• Warning center at the Office of Emergency Services San Bernardino • Director of Safety Enforcement Division • Others, as requested

Source: BVES

5.3.9.2 Emergency Operations

The first part of emergency preparedness is the operational protocols. This portion of the plan focuses on the specific steps BVES will take to deescalate emergency situations. These steps will include:

- Conducting and coordinating emergency response drills and exercises with emergency responders, regulatory agencies, and stakeholders.
- Operating according to the PSPS guidelines, including de-energization and re-energization strategies.
- Following procedures for operating distribution lines in affected areas.

BVES will continue to refine these operations in future iterations of the plan.

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5.3.9.3 Emergency Communications

As stated above, the second part of the emergency preparedness and response protocols focuses on educating, informing, and updating key stakeholders. Reporting varies based on outage type, as outlined in the list below.

- **Major Outage:** Consistent with Public Utilities Code Section 364, a major outage occurs when 10 percent or more of the electric utility's serviceable customers experience a simultaneous, non-momentary interruption of service. For utilities with fewer than 150,000 customers within California, a major outage occurs when 50 or more percent of the electric utility's serviceable customers experience a simultaneous, non-momentary interruption of service.
- **Standard 6:** BVES will provide an initial notification within one hour of the identification of a major outage (or another newsworthy event). The utility shall also notify the Commission and Warning Center at the Office of Emergency Services of the location, possible cause and expected duration of the outage. The Warning Center at the OES is expected to notify other state and local agencies of the outage. Subsequent contacts between state and local agencies and the utility shall be conducted between personnel identified in advance, as set forth in Standard 4.B. From time to time the Commission staff may issue instructions or guidelines regarding reporting.

Major Outages are to be reported using the CPUC Online Reporting System at http://www.cpuc.ca.gov/emrep/. Reports of major outages may also be made to the CPUC by calling 1-800-235-1076.

5.3.9.4 Communications Plans by Stakeholder

The Customer Care & Operations Support Superintendent shall make (or cause to be made) all outage reports to local government, key stakeholders and customers per the BVES communications plan based on information provided by the Operations Group. The communications protocols vary slightly by stakeholder. For this reason, BVES has divided its communication plan into key stakeholder groups. Communications will involve two types of communications: (1) proactive preparation before emergencies occur and (2) reactive notifications during and after emergency events. The list below describes the exact goals and methods of informing each of these groups.

- **Customer Outreach and Notifications:** The goal of customer outreach is to educate and prepare customers for fire prevention and emergency management activities. All communications will be in English, Spanish, and the top three languages in CA according to the US Census Bureau (Tagalog, Vietnamese, & Chinese).[25] Indigenous communities surrounding the service area are also being investigated to account for the unique languages representing English as a Second Language (ESL) speakers.
    - **Before Emergencies:** Proactive outreach will include regular messages related to fire prevention, such as vegetation management, distribution inspection de-energization policies, and operational initiatives. This engagement will occur through public workshops, BVES newsletters, social media, website posts, and other forms of media.
    - **During / After Emergencies:** Reactive notifications will include pre-planned statements in the case of de-energization activities and emergencies, including information about timing and location of such events. These notifications will occur through news outlets, including print, digital, and radio forums, website updates, social media updates, local government and agency media (e.g. City of Big Bear Lake's email blasts), and interactive

[25] Blatt, Ben, "Tagalog in California, Cherokee in Arkansas," Slate, May 13, 2014, https://slate.com/culture/2014/05/language-map-whats-the-most-popular-language-in-your-state.html.

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voice response (IVR). Additional forms of communication may be leveraged as new technologies and software become available.

In addition to providing communications, BVES will also provide billing and repair support for affected customers. Billing support may include billing adjustments, deposit waivers, suspension of disconnection, and extended payment plans for standard and low-income customers. Repair support may include regular communications about repair processing and timing and individualized support from a utility representative.

- **Local Government and Agency Engagement and Notification:** This engagement aims to inform and prepare relevant agencies, before, during, and after fire prevention or emergency activities. BVES envisions this engagement being a two-way communication channel to help facilitate communications with customers and manage the potential impacts of events.
    - **Before Emergencies**: The proactive briefings will center on how the plan impacts the distribution system as a whole. These briefings will occur through emails, trainings, and in-person meetings. In addition to briefings, BVES will solicit feedback from local government and agencies on its emergency preparedness communication plans and overall protocols.
    - **During / After Emergencies:** When an emergency occurs, BVES will notify all relevant local government and agencies immediately to ensure proper coordination of response. BVES will also provide its pre-prepared customer statements for staff to disseminate information to customers. Once notified, BVES will continue to provide timely communications until the situation has been resolved. These notifications will happen through phone and email.
- **Mountain Mutual Aid Association (MMAA) Participation:** The outreach and engagement with the MMAA will be similar to that of the local government and agency communications. Specifically, the goal of this engagement will be to inform, prepare, and coordinate closely with the group.
    - **Before Emergencies**: The proactive briefings will center on how the plan impacts the distribution system and members. These briefings will occur through emails, trainings, and in-person meetings. In addition to briefings, BVES will solicit feedback from MMAA on its emergency preparedness communication plans and overall protocols.
    - **During / After Emergencies:** When an emergency occurs, BVES will notify MMAA members immediately to ensure proper coordination of response. BVES will also provide its pre-prepared customer statements for staff to disseminate information to customers. Once notified, BVES will continue to provide timely communications until the situation has been resolved. These notifications will happen through phone and email.
- **CPUC Reporting:** CPUC communications will align with mandated standards.
    - **Before Emergencies**: The utility will notify the Director of Safety Enforcement Division (SED) within 12 hours of the power being shut off per ESRB-8. BVES will also notify the CPUC and Warning Center at the Office of Emergency Services San Bernardino within one hour of shutting off the power if the outage meets the major outage criteria of GO-166.
    - **During / After Emergencies:** BVES will provide a written report to the Director of SED no later than 10 business days after the shut-off event ends per ESRB-8. The utility will also comply with all future analysis and report requests during and after any emergencies.

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Outage data shall also be included in BVES' annual reliability indices report to the CPUC.

5.3.9.5 Plans to Prepare for and Restore Service

In the event of a wildfire or other emergency event, BVES will invoke its Emergency Preparedness and Response Plan and staff up its Emergency Operations Center to coordinate activities to restore service. The BVES restoration strategy and priorities was detailed in its Emergency Preparedness and Response Plan.

5.3.9.6 Restoration Resource Adequacy

BVES WIPT will oversee restoration and response activities. In the event that additional staff is needed, BVES will leverage mutual aid agencies, including the City of Big Bear Lake staff and local aid organizations. The utility will also engage contractors on an as-needed basis.

5.3.9.7 Plan Compliance

The emergency preparedness and response plans described in this section comply with Public Utilities Code Section 768.6 and 8386[26,27]. Specifically, the plan complies with the following mandates:

- Sharing of plan with relevant cities and counties to provide input and feedback.
- Plans to update and improve the WMP annually and comprehensively every three years.
- Accounting of responsibilities of persons responsible for executing the WMP.
- Appropriate and feasible procedures for notifying customers who may be impacted.
- Plans to prepare for and restore service, including workforce mobilization.
- Plans for community outreach and public awareness before, during, and after a wildfire.
- Emergency communications that includes plans to translate messages into English, Spanish and the top three languages in CA based on US Census data.
- Protocols for compliance with CPUC reporting guidelines.

As the CPUC develops new mandates, BVES will update its customer support and communications plans accordingly.

5.3.9.8 Customer Support in Emergencies

In the event the Governor of California declares a state of emergency because a disaster has either resulted in the loss or disruption of the delivery or receipt of utility service and/or resulted in the degradation of the quality of utility service, BVES shall implement certain customer service actions as described below. This section provides an overview of the protocols for compliance with requirements adopted by the CPUC regarding activities to support customers. The protocols span outage reporting, customer billing, support for low income customers, and other forms of customer support.

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[26] FindLaw, California Code, Public Utilities Code – PUC 768.6, https://codes.findlaw.com/ca/public-utilities-code/puc-sect-768-6.html

[27] FindLaw, California Code, Public Utilities Code – PUC 8386, https://codes.findlaw.com/ca/public-utilities-code/puc-sect-8386.html.

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Support for Low Income Customers
The Customer Care team will freeze low income customers' accounts and stop all California Alternative Rates for Energy (CARE) High-Usage tracking. The Superintendent will work with implementation contractors and emergency assistance programs to update affected customers on eligibility requirements and enroll them in assistance programs.

Billing Adjustments
The Customer Care team will freeze accounts and stop billing during the wildfire event to ensure bills are not estimated or generated for affected customers. All customers affected by disaster will be notified that billing will be discontinued and BVES will prorate bills including any monthly minimum charges to the customer during the wildfire event. Billing will resume once the case is closed by the Customer Care & Billing (CC&B) technical team, upon notice from the Superintendent.

Deposit Waivers
The Customer Care team will add a designated customer contact for all affected customers. The contact will reside within CC&B for up to one year from the date the emergency ends. This will allow BVES to easily track the customer's account, so when service is re-established, the utility will know to waive any associated fees and to expedite customer re-connection.

Extended Payment Plans
The Customer Care team will freeze all payments on affected customers' account to avoid affecting their credit. All affected customers will be notified that an extended payment plan option is available for any past due payments.

Suspension of Disconnection and Nonpayment Fees
The Customer Care team will freeze affected customer accounts, so disconnections and nonpayment fees are not generated during the wildfire event. Once the emergency ends, the Superintendent and/or Specialist will contact the CC&B team to "close" all affected customer cases. This will automatically transition the customer's account back to the normal state. BVES will simultaneously begin assisting with service restoration and deposit waivers.

Repair Processing and Time
During emergencies, BVES will set up specialized repair teams to expedite repair processing. If additional support is needed, BVES will leverage mutual aid programs with other emergency response resources and will work with electrical contractors to ensure timely service restoration. Exact timing will be dependent on the nature of the situation.

Access to Utility Representatives
The BVES Engineering Inspector will arrange for connections and facilitate expedited services. Leveraging its IVR system, BVES will be able to handle thousands of phone calls simultaneously and divert customers to the appropriate utility representative.

Activities related to emergency planning and response are part of ongoing efforts and are not bound by a specified execution date. BVES will continue to work with partners to seek input on emergency response planning and whether unique efforts and/or cooperative plans are necessary.

Table 29 below presents program details related to emergency planning and preparedness. This information is also included in the supplemental *Attachment 1* workbook.

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Table 29. Emergency Planning and Preparedness

Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
1. Adequate and trained workforce for service restoration	2019 plan	N/A - this is not a specifically	N/A - this is not a specifically budgeted program	N/A - this is not a specifically budgeted program	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	N/A - response related	N/A - as a System Wide Initiative, this initiative does not have a specified risk reduction	N/A - as a System Wide Initiative, this initiative does not have a specific risk-spend efficiency	Reduces impact to customers and community from an event causing interrupting of service; reduces risk of escalation	Existing	GRC	N/A - this is an Existing initiative	In compliance	GO 166	N/A - no additional comments
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
2. Community outreach, public awareness, and communications efforts	2019 plan	N/A - this is not a specifically	N/A - this is not a specifically budgeted program	N/A - this is not a specifically budgeted program	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	Contact from object	N/A - as a System Wide Initiative, this initiative does not have a specified risk reduction	N/A - as a System Wide Initiative, this initiative does not have a specific risk-spend efficiency	Reduces impact to customers and community from an event causing interrupting of service; reduces risk of escalation	Existing	GRC	N/A - this is an Existing initiative	In compliance	GO 167	N/A - no additional comments
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
3. Customer support in emergencies	2019 plan	N/A - this is not	N/A - this is not a specifically	N/A - this is not a specifically budgeted	N/A - this is a System Wide	N/A - this is a System Wide Initiative	N/A - response related	N/A - as a System Wide Initiative, this initiative	N/A - as a System Wide Initiative, this initiative	Reduces impact to customers and community from an	Existing	GRC	N/A - this is an Existing initiative	In compliance	R. 18-12-005	N/A - no additional comments
	2019 actual															
	2020															
	2021															
	2022															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
	2020-2022 plan total							does not have a specified risk reduction	does not have a specific risk-spend efficiency	event causing interrupting of service; reduces risk of escalation						
4. Disaster and emergency preparedness plan	2019 plan	N/A - this is not a specifically	N/A - this is not a specifically budgeted program	N/A - this is not a specifically budgeted program	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	Contact from object, all types of equipment/facility failure, wire-to-wire contact/contamination	N/A - this initiative does not have a specific Risk reduction	N/A - this initiative does not have a specific Risk-spend efficiency	Wildfire-Significant Loss of Property	Existing	D. 19-08-027	N/A	In compliance	GO 166	Emergency Reporting & Procedures. Protocols and procedures for staff to respond to faults, emergencies, outages, disaster events (such as earthquake, wildfire, etc.), etc.
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
5. Preparedness and planning for service restoration	2019 plan	N/A - this is not a specifically	N/A - this is not a specifically budgeted program	N/A - this is not a specifically budgeted program	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	N/A - response related	N/A - this initiative does not have a specific Risk reduction	N/A - this initiative does not have a specific Risk-spend efficiency	Wildfire-Significant Loss of Property	Existing	D. 19-08-027	CEMA if applicable	In compliance	GO 166	Post-Incident Recovery, Restoration & Remediation. Protocols and procedures to respond to and recover from any wildfire or related emergency events.
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
6. Protocols in place to learn from wildfire events	2019 plan	Bear Valley Electric Service leverages the protocols included in the company's Emergency Preparedness and Response Plan to learn from wildfire events in the same manner the utility learns from any emergency event. Therefore, Bear Valley Electric Service does not have specific protocols in place to learn from wildfire events that are not already covered in a previous program.														
	2019 actual															
	2020															
	2021															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
	2022															
	2020-2022 plan total															
7. Other / not listed	2019 plan	Bear Valley Electric Service does not have emergency planning and preparedness initiatives other than those listed above at this time.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

5.3.10 Stakeholder Cooperation and Community Engagement

Stakeholder cooperation and community engagement are also ongoing activities and are organized as needed throughout the year. BVES otherwise does not have a specific engagement plan for the upcoming years but routine engagements are included as part of the utility's emergency response planning efforts. Table 30 below presents program details related to stakeholder cooperation and community engagement activities. This information is also included in the supplemental *Attachment 1* workbook.

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Table 30. Stakeholder Cooperation and Community Engagement

Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
1. Community engagement	2019 plan	Bear Valley Electric Service does not have a community engagement program specific to wildfire mitigation at this time. The utility values community engagement as a wildfire risk mitigation strategy and has incorporated community engagement as a component of its overall Emergency Preparedness and Response Programs as included in Section 5.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
2. Cooperation and best practice sharing with agencies outside CA	2019 plan	N/A - this is not a specifically budgeted program	N/A - this is not a specifically budgeted program	N/A - this is not a specifically budgeted program	N/A - this is a System Wide Initiative	N/A - this is a System Wide Initiative	This initiative targets all ignition probability drivers	N/A - as a System Wide Initiative, this initiative does not have a specified risk reduction	N/A - as a System Wide Initiative, this initiative does not have a specific risk-spend efficiency	Reduces risk of escalation through support of accelerated restoration	Existing	N/A - none	N/A - this is an Existing initiative	N/A - there is not a clear threshold for compliance for this initiative	N/A - none	N/A - none
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
3. Cooperation with suppression agencies	2019 plan	During emergency situations, Bear Valley Electric Service's [emergency management group] communicates and collaborates with federal and state emergency responders and mutual assistance groups, including fire suppression agencies. The emergency manager has contact information for [state, county and tribal emergency managers, the state's Emergency Operations Center Emergency Support Functions (ESF) personnel, and the Geographic Area Coordination Centers dispatch centers for fire-related emergency response. Bear Valley Electric Service views cooperation with suppression agencies as a component of the company's Emergency Planning and Preparedness Programs outlined in Section X and does not have a separate program for cooperation with suppression agencies specific to this Wildfire Mitigation Plan at this time as such.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022															

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Initiative activity	Year	Total per-initiative spend	Subtotal A: Capital expenditure	Subtotal B: Operating expenses	Line miles to be treated	Spend/ treated line mile	Ignition probability drivers targeted	Risk reduction	Risk-spend efficiency	Other risk drivers addressed	Existing/ new	Existing: What proceeding has reviewed program	If new: Memorandum account	In / exceeding compliance with regulations	Cite associated rule	Comments
	plan total															
4. Forest service and fuel reduction cooperation and joint roadmap	2019 plan	While collaboration such as this is critical to the overall reduction of wildfire risk in the state of CA, Bear Valley Electric Service does not have program dedicated to cooperation with the forest service and fuel reduction and the development of a joint roadmap specific to this Wildfire Mitigation Plan. The utility views these efforts on an as-needed basis and incorporates additional efforts to manage community environments within other programs, such as those included in the company's overall vegetation management and inspections programs described in Section 5.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															
5. Other / not listed	2019 plan	Bear Valley Electric Service does not have stakeholder cooperation and community engagement initiatives other than those listed above.														
	2019 actual															
	2020															
	2021															
	2022															
	2020-2022 plan total															

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5.4 Methodology for Enterprise-Wide Safety Risk and Wildfire-Related Risk Assessment

Attachment 1 Section 5.4 Methodology for enterprise-wide safety risk and wildfire-related risk assessment

Describe methodology for identifying and evaluating enterprise wide safety risk and wildfire related risk, and how that methodology is consistent with the methodology used by other electric utilities or electrical corporations. If the risk identification and evaluation methodology is different, the utility shall explain why in this section.

The CPUC has not required BVES to conduct a Risk Assessment and Mitigation Phase (RAMP), however, through its risk-based decision-making framework, BVES leverages its corporate risk framework to create a list of risks and a prioritized list of mitigation measures. BVES uses a methodology to identify inherent risk, residual risk, existing controls, and future mitigation efforts after determining the likelihood and impact of wildfire risk in our service territory. BVES' Risk-Based Decision-Making Framework is consistent with peer investor-owned utilities', including SCE.[28] For example, SCE's framework consists of six steps: (1) risk identification, (2) risk analysis, (3) risk evaluation, (4) risk mitigation identification, (5) decision-making and planning, and (6) monitoring and reporting. From a fundamental perspective, identifying threats, risk characterization, assigning appropriate measures, implementing remedies, and monitoring the results are components of the described assessment strategies contained within this plan and is similar to the approach used by other utilities.

5.5 Planning for Workforce and other Limited Resources

Attachment 1 Section 5.5 Planning for workforce and other limited resources

Include a showing that the utility has an adequately sized and trained workforce to promptly restore service after a major event, taking into account employees of other utilities pursuant to mutual aid agreements and employees of entities that have entered into contracts with the utility.

Successful implementation of the Plan requires adequate staffing. BVES uses a combination of in-house and contracted resources. Program owners are described in Section 1.2. BVES plans to hire and contract with additional resources to carry out projects and programs identified in this WMP in the near-term. Additional resources needed for Plan implementation are described below in addition to existing mutual aid agreements executed between public safety partners and the utility for emergency events. Additional response effort descriptions are also provided above in Section 5.3.9. For related initiatives, the utility plans to procure the following resources within the next WMP term:

- Inspectors – Inspects overhead lines and equipment to comply with G.O. 165 requirements.

[28] https://www.edison.com/content/dam/eix/documents/investors/wildfires-document-library/201809-gsrp-filing.pdf

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- Fire Prevention Coordinator – Oversees fire prevention initiatives and will serve as company liaison for first responders and public safety partners.

- Project Manager – Manages schedule and progress of WMP project implementation.

Additional outside resources will include those from the California Utilities Emergency Association, which aims to facilitate communication and cooperation among member utilities for emergency response efforts.

5.6 Expected Outcomes of the Three-Year Plan

BVES' risk-based approach intends to direct investment where it will have the most impact. The utility will continue to monitor trends to gauge improvements from our programs and projects. For the upcoming three years, BVES anticipates completing the scheduled initiatives described above as well as bolstering inspection practices through proposed and adopted methods and technologies.

5.6.1 Planned Utility Infrastructure Construction and Upgrades

Attachment 1 Subsection 5.6.1 Planned Utility Infrastructure Construction and Upgrades

Explain how the utility expects the geographic location of transmission and distribution lines to shift over the three-year plan period and discuss its impact on 1) the utility's risk exposure and 2) the utility's wildfire mitigation strategy. Outline portions of grid within HFTD that are highest cost to serve, by highlighting circuits or portions of circuits that exceed $0.5M per customer in capital cost required to harden. Provide justification for the level of hardening required and why the lowest cost path to harden this equipment exceeds $0.5M per customer, including by describing the various alternatives that were considered to reduce ignition probability and estimated wildfire consequence. For each of these sections of the grid, outline any analysis that was conducted around islanding, serving with microgrids, or providing backup generation, all to reduce the impact of PSPS events and reduce ignition probability and estimated wildfire consequence at the lowest possible cost.

Discuss how the utility wildfire mitigation strategy influenced its plan for infrastructure construction (in terms of additions or removal of overhead lines, including undergrounding of overhead lines) as detailed in Section 3.4.2. Discuss how the utility wildfire mitigation strategy influenced its plan for upgrades to overhead lines and substations as detailed in the Section 3.4.2.

The geographic location of transmission and distribution lines are not expected to shift significantly over the next three-year plan period. The utility does not have associated risk exposure due to this assumption. Additionally, the cost implications for system hardening per year does not meet the $0.5 million threshold. BVES does not have plans in the foreseeable future for shifted, new circuit construction for either transmission or distribution. The Ute undergrounding initiative is still under the preliminary planning and discussion phase. The WMP significantly influences future planning of new or hardened infrastructure as climate change impacts continue to encourage and/or exacerbate conditions suitable for wildfires. The utility still prioritizes reliability, capacity, and safety-related initiatives where applicable but has sought to embed wildfire mitigation initiatives as the new normal in California electric utility operations.

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Table 31 below presents anticipated incidents per year based on the insight from historical incidents and WMP implementation to date. This information is also included in the supplemental *Attachment 1* workbook.

Table 31. Change in drivers of ignition probability taking into account planned initiatives, for each year of plan

Incident type by ignition probability driver	Detailed risk driver	Are near misses tracked?	Number of incidents per year			Average percentage likelihood of ignition per incident			Number of ignitions per year		
			2020	2021	2022	2020	2021	2022	2020	2021	2022
Contact from object	All types of object contact	Y	4	4	2	0.00%	0.00%	0.00%	0	0	0
	Animal contact	Y	1	1	0	0.00%	0.00%	0.00%	0	0	0
	Balloon contact	Y	0	0	0	0.00%	0.00%	0.00%	0	0	0
	Vegetation contact	Y	3	3	2	0.00%	0.00%	0.00%	0	0	0
	Vehicle contact	Y	0	0	0	0.00%	0.00%	0.00%	0	0	0
All types of equipment / facility failure	All types	Y	16	14	11	0.00%	0.00%	0.00%	0	0	0
	Capacitor bank failure	Y	0	0	0	0.00%	0.00%	0.00%	0	0	0
	Conductor failure—all	Y	3	3	2	0.00%	0.00%	0.00%	0	0	0
	Conductor failure—wires down	Y	3	3	2	0.00%	0.00%	0.00%	0	0	0
	Fuse failure—all	Y	4	3	3	0.00%	0.00%	0.00%	0	0	0
	Fuse failure—conventional blown fuse	Y	4	3	3	0.00%	0.00%	0.00%	0	0	0
	Lightning arrestor failure	Y	0	0	0	0.00%	0.00%	0.00%	0	0	0
	Switch failure	Y	0	0	0	0.00%	0.00%	0.00%	0	0	0
	Transformer failure	Y	2	2	1	0.00%	0.00%	0.00%	0	0	0
Wire-to-wire contact / contamination		Y	2	1	0	0.00%	0.00%	0.00%	0	0	0
Other		Y	0	0	0	0.00%	0.00%	0.00%	0	0	0

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5.6.2 Protocols on Public Safety Power Shut-Off

Attachment 1 Subsection 5.6.2 Protocols on Public Safety Power Shut Off

Describe protocols on Public Safety Power Shut-off (PSPS or de-energization), to include:

1. **Strategy to minimize public safety risk during high wildfire risk conditions and details of the considerations, including but not limited to list and description of community assistance locations and services provided during a de-energization event.**
2. **Outline of tactical and strategic decision-making protocol for initiating a PSPS/de-energization (e.g., decision tree).**
3. **Strategy to provide for safe and effective re-energization of any area that was de-energized due to PSPS protocol.**
4. **Company standards relative to customer communications, including consideration for the need to notify priority essential services – critical first responders, public safety partners, critical facilities and infrastructure, operators of telecommunications infrastructure, and water utilities/agencies. This section, or an appendix to this section, shall include a complete listing of which entities the electrical corporation considers to be priority essential services. This section shall also include description of strategy and protocols to ensure timely notifications to customers, including access and functional needs populations, in the languages prevalent within the utility's service territory.**
5. **Protocols for mitigating the public safety impacts of these protocols, including impacts on first responders, health care facilities, operators of telecommunications infrastructure, and water utilities/agencies.**

The fifth category, Response & Recovery, consists of reactive practices for high-risk conditions, including de-energization events and restoration activities.

5.6.2.1 Public Safety Power Shut-Off (PSPS) or De-Energization

Plan: PSPS refers to the proactive de-energization of the grid in high fire danger conditions. This is a preventative measure to help keep customers, employees, and the public safe. As explained in Section 3, a combination of ignition (heat) from electrical infrastructure and fuel from nearby materials, such as vegetation, can result in a wildfire. While BVES will attempt to control the latter through its vegetation management program, it will control the former by implementing PSPS in certain high-risk fire danger conditions, as described in this section.

It should be noted, however, that BVES is not able to determine the strength or health of vegetation surrounding bare conductors outside of the required vegetation clearance zones as well as other

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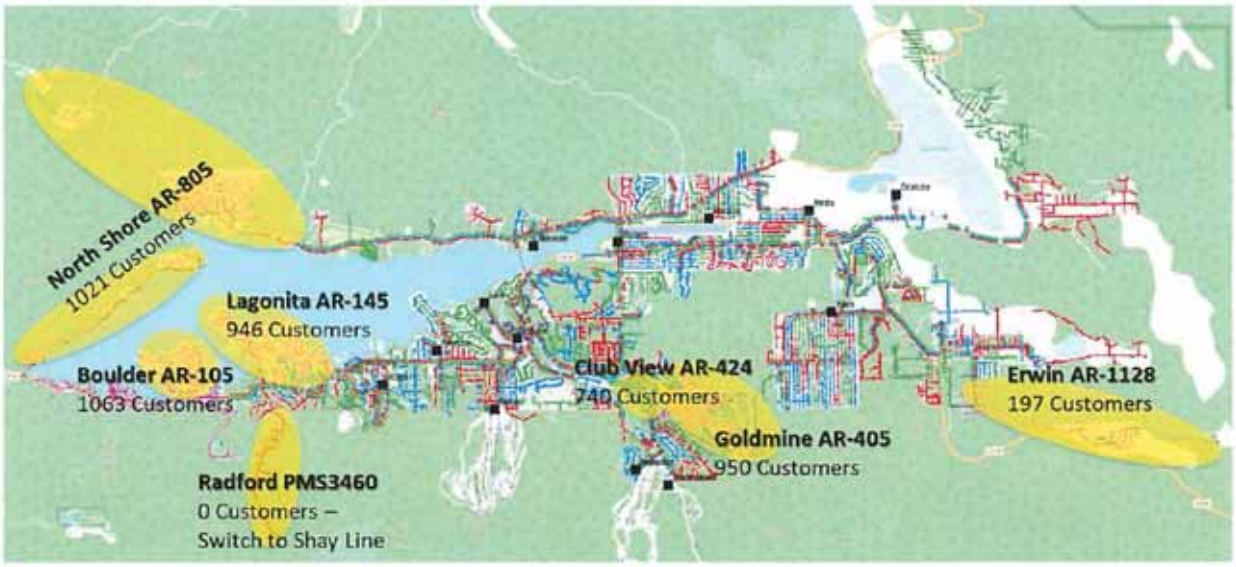
structures that may come loose and impact BVES distribution facilities.[29] Therefore, BVES proactively de-energizes facilities during any high fire-threat and high wind conditions in close consult and coordination with government(s) and agencies.

As described in Section 4, BVES faces substantial wildfire risk due to its climatic, weather, and topographical conditions, and therefore monitors the NFDRS and wind speeds regularly. These two variables contribute to extreme fire danger conditions. If the NFDRS is "red" or "orange," signals for high fire danger, BVES will actively monitor forecasted wind speeds, using weather monitoring equipment and local forecasts.

As of the time of issuance of this plan, BVES has never experienced the criteria to invoke PSPS and, therefore, has not initiated PSPS procedures. A review of weather data from the National Weather Service over the past five years, indicates that there were only three brief occasions (each less than an hour) in which PSPS may have been considered. By far, the more likely scenario that would impact BVES's customers is when SCE directs PSPS actions on its lines leading a partial or complete loss of the three SCE supply lines into the BVES service area. It is very possible that the extreme fire threat weather and conditions causing SCE to de-energize its supply lines to BVES may not exist in the BVES service area. In this case, BVES would seek to supply power to its customers using all available power resources such as the Bear Valley Power Plant (BVPP). During the fire season, the capacity of the BVPP (8.4 MW) is insufficient to supply all loads which are typically 12 MWs to 18 MWs. Therefore, rolling blackouts and curtailment requests would be necessary.

BVES has identified seven sections of "at-risk" areas based on type of distribution facilities (overhead bare conductors, high voltage, etc.), tree and vegetation density, available dry fuel, and other factors that make certain locations vulnerable to wildfire risk. The "at-risk" line sections are identified shown in the map in Figure 5-5 and further outlined in Supporting Table 5-10 below. These line sections may be de-energized by "opening" the auto-reclosers; each circuit affects a varying number of customers, as outlined in the table below.

Figure 5-5 "At-Risk" Line Sections



Source: BVES

[29] Note that health impacts the moisture content of plants. More dry or "less healthy" vegetation is more prone to cause fires.

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Supporting Table 5-10. Circuits Identified for De-Energization & Customers Affected

Circuit (AR To Be Opened)	Number of Customers
Radford 34kV	0[30]
North Shore 4kV (Open AR)	1,021
Erwin 4 kV (Open AR 1128)	197
Boulder 4kV (Open AR 105)	1,063
Lagonita 4kV (Open AR 145)	946
Club View 4kV (Open AR 424)	740
Goldmine 4kV (Open AR 405)	950

Source: BVES

Execution: BVES' procedures include two aspects: (1) field operations and (2) communications. The first includes the planned actions of service crews and BVES staff and the second, notifications to stakeholders. Supporting Table 5-11 below outlines these procedures.

Supporting Table 5-11. PSPS Procedures

Fire Conditions	Planned Actions	Planned Notifications
Forecasted Extreme Fire Weather Conditions	• Monitor existing wind speed in "at risk" locations • Determine if conditions warrant specific actions • Communicate with Customer Service to ensure accurate communications with stakeholders	• Notify local government and agencies • Post notification of potential power outages on website and social media • Issue press release to local media
Imminent Extreme Fire Weather Conditions (Wind Speeds measured at 50 mph for > 3 seconds)	• Dispatch crews to monitor field conditions for dangerous conditions throughout service area and "at risk" locations • De-energize any power line that may pose a hazard	• Continue to coordinate with local government and agencies • Update notifications on website and social media to warn of potential for power shutoff • Issue updated press release to local media
Validated Extreme Fire Weather Conditions (Wind Speeds measured at 55 mph or greater for > 3 seconds)	• Monitor local wind gusts and de-energize circuits in "at risk" areas as gusts reach 55mph for 3 or more seconds • Patrol service area and "at risk" areas to monitor actual conditions • De-energize additional power lines as needed	• Continue to coordinate with local government and agencies • Update notifications on website and social media • Send notification via Interactive Voice Response (IVR) • Issue updated press release to local media • Notify CPUC and Warning Center at the Office of Emergency Services per protocols

[30] When this line is de-energized, the load is shifted to the Shay 34kV line.

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Weather Subsides to Safe Levels	• Validate that extreme fire weather conditions have subsided to safe levels[31] • Conduct field inspections and patrols of de-energized facilities • Restore power once field inspections and patrols are completed	• Continue to coordinate with local government and agencies • Update notifications on website, social media and IVR • Issue updated press release to local media

Source: BVES

For the purpose of the procedures, the Operations and Planning Manager will be in charge of the execution. The Field Operations Supervisor will direct field activities and operations. The Service Crew (or Dutyman outside normal working hours) will provide initial field response. Additional linemen will be called out as needed. Furthermore, Customer Service staff and/or additional staff may be called out to assist with notification procedures as needed. Other staff may be called out at the direction of the Operations and Planning Manager to assist, as needed. For example, Engineering staff may be called out to assist linemen in monitoring local wind speeds. Collectively, these staff described above are referred to as the ERT.

When de-energization is deemed necessary, BVES crews will manually shut off at risk circuits, lines, and other infrastructure. In the future, as it implements SCADA and other technologies, BVES will consider remote shut-off implementation, where cost-effective. The utility has worked closely and will continue to work closely with local stakeholders that own or operate critical facilities, including hospitals and police and fire departments, to ensure their facilities remain operational and/or have back-up plans in PSPS situations. Additionally, BVES will plan to update these plans in accordance with changes to the CPUC proceeding 18-12-005, Order Instituting Rulemaking to Examine Electric Utility De-Energization of Power Lines in Dangerous Conditions.

Expense: The cost of PSPS Protocols is partially included in the base rate revenue requirement in BVES' General Rate Case A.17-05-004 approved in 2019. Based on past weather (2014-2018), BVES anticipates the ERT could be called out approximately 9 times per year for an average of 12 hours. Expense for regular (straight time) work hours are covered in the GRC as O&M; however, the overtime (double time) is not. Given that only 23.8% of time is regular work hours, BVES anticipates approximately $42,000 per year in overtime expense not covered. Therefore, BVES requests by approval of this Wildfire Mitigation Plan, that the Commission authorize BVES to establish a memorandum account to track and recover the expenses related to the above proposed programs not included in BRRR.

5.6.2.2 Post Incident Recovery, Restoration and Remediation Activities

Plan: Outage events and emergencies are rarely similar in all respects; therefore, this general restoration strategy is constructed to provide BVES' Emergency Operations Center (EOC) management with a restoration strategy that can be employed as required to deal with the unique aspects of each major outage and emergency event.
The restoration strategies and guidance assume that the BVES system is in its normal winter line-up as follows:

- BVPP is available for normal full power operations (8.4 MW).

[31]Safe levels are defined as wind speeds in the affected area calming below 50 mph for a minimum period of 20 minutes. Crews may extend the calm period beyond 20 minutes, if they assess that further wind gusts greater than 50 mph are likely.

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- Goldhill SCE sub-transmission power lines and facilities from Cottonwood (Doble, Cushenberry, Goldhill Switch Station, and Ute 1 & 2) are fully operational and connected to the BVES system at the Shay and Baldwin auto-reclosers (34 MW).
- Radford SCE sub-transmission power lines and facilities from Zanja (Radford) are fully operational and connected to the BVES system at the Radford Auto-Re-closer (5 MW).
- BVES T&D systems are in the normal line-up.

Therefore, staff must ensure that when implementing guidance provided in the Emergency Response Plan (ERP) they fully understand the current line-up of the BVES system and, if there are deviations to the normal winter line-up, that they properly account for these deviations in their restoration actions. It should be noted that under normal conditions the Field Operations Supervisor controls the system line-up and during EOC activation the system line-up is controlled by the Storm Operations Supervisor (SOS).

Execution: The Operations & Planning Manager will direct the specific restoration priorities keeping safety (public and worker) as the top priority. In most cases, based on best available information regarding the situation and available restoration resources, resources will be dispatched to restore systems to achieve the following restoration priorities:

- **Public safety** in the affected areas;
- **Worker safety** in performing the restoration work;
- **Critical infrastructure** (Sheriff's Department, hospital, Fire Department, key City & County facilities, other utility facilities (e.g., water, sewage, gas, communications), Airport, Traffic Control, Incident Commander Site, Incident Base Camp, Incident Evacuation Centers, Radio Stations, etc.);
- Major commercial activities critical to **continuity of community services** (e.g., gas stations, food stores, supply stores, repair shops, eateries and lodging facilities to support outside first responders (e.g., CAL FIRE), financial institutions, etc.;
- **Life-support customers**;
- Reduce the **Number of customers** affected; and
- Reduce the **Length of time** customers have been without power;

In directing restoration efforts to achieve the above priorities, the Operations Group will generally find it most efficient to dedicate restoration resources to restoring the following types of facilities in the following order of priority to optimally restore electric service:

- Energy supply sources (SCE supply lines, BVPP, etc.)
- Sub-transmission circuits (34.5 kV)
- Substations
- Distribution circuits (4 kV)
- Feeders
- Distribution transformers
- Service Lines

Supporting Table 5-12 below provides guidance on the restoration priorities for sub-transmission circuits, substations, and distribution circuits. This guidance must be tempered by many factors including the actual cause of the outage(s), available resources, time to conduct repairs, access to repair sites, etc. Therefore, the Operations & Planning Manager must have wide discretion when developing the specific restoration priorities and may choose to deviate from the general guidance.

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Supporting Table 5-12. Restoration Priorities for Sub-Transmission Circuits, Substations, and Distribution Circuits

Priority	Sub-Transmission Circuit	Substation	Distribution Circuit		Comments
1	Baldwin	Meadow	Garstin		• Key critical infrastructure. Connects BVPP.
2	Shay	Pineknot Village Malby Division	Interlaken Boulder Harnish Country Club	Georgia Paradise Erwin Lake Castle Glen	• Additional critical infrastructure. • Major commercial activities & airport. • Large number of residential customers.
3	Radford	Moonridge Maple Bear City Fawnskin Palomino	Eagle Lagonita Fox Farm Clubview Sunset	Goldmine Holcomb Pioneer Sunrise	• Mostly residential customers.
4	NA	Bear Mountain Summit Lake	Geronimo Skyline	Lift Pump House	• Mostly interruptible customers.

Source: BVES

Expense: These expenses are included as part of BVES' normal operations and therefore, are covered by its GRC. If applicable, BVES would also recover expenses through a Catastrophic Event Memorandum Account (CEMA) pursuant to Public Utilities Code Section 454.9. No further expense is needed at this time.

In accordance with CPUC regulations, BVES has a Public Safety Power Shutoff plan.[32] BVES continually evaluates the factors that determine high risk areas. We annually conduct public outreach sessions with the community and our emergency response partners. Our team proactively monitors conditions conducive to wildfires, with the following steps: Forecasted Event: Should the threat present, we notify local governments and agencies first, followed by social media and local media. Imminent Event: If there is a strong potential for imminent power shutoffs, we will update this information. Validated Weather Conditions: Customers will be proactively notified by BVES Interactive Voice Response (IVR) automated outreach, when extreme danger and fire weather are confirmed. This is supplemented with web site and social media postings and a press release to local media and press conferences. Local government and agencies will be notified. The same method is employed when BVES has validated that the weather has returned to safe conditions. Additional outreach includes door hangers, outreach by customer-facing staff, advertising, community workshops and presentations, mail (e.g., flyers, newsletters), bill inserts, and communication systems. BVES will communicate notifications and communication updates in the top three languages in addition to English and Spanish per the U.S. Census (includes Tagalog, Vietnamese, and Chinese). BVES has also not identified any dense population pockets of indigenous and/or second-language speakers outside of those listed above. The utility will bolster communication protocols if additional languages are deemed appropriate in the future.

[32] https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Safety/BVES%20SED%20Res%20ESRB-8%20Report%20Outreach%20Notification%20Mitigation%20080818.pdf

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6. UTILITY GIS ATTACHMENTS

6.1 Recent weather patterns

The utility is unable to provide this data in GIS format at this time.

6.2 Recent drivers of ignition probability

The utility is unable to provide this data in GIS format at this time.

6.3 Recent use of PSPS

The utility has not had recent PSPS events initiated within the 2015 – 2019 timeframe.

6.4 Current baseline state of service territory and utility equipment

See the supporting GIS file package with the corresponding map products.[33]

6.5 Location of planned utility equipment additions or removal

The utility is unable to provide this data in GIS format at this time.

6.6 Planned 2020 WMP initiative activity by end-2022

The utility is unable to provide this data in GIS format at this time.

[33] BVES WMP Additional Map Products for Section 6.4 – have been included with this filing.

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