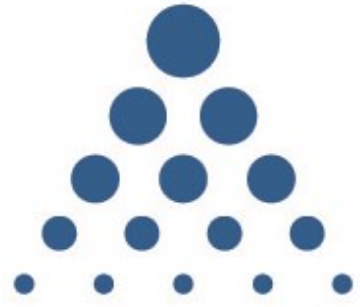
Bear Valley Electric Service

Wildfire Mitigation Plan

2021 Annual Filing



Bear Valley
Electric Service, Inc.
A Subsidiary of American States Water Company

March 5, 2021

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EXECUTIVE SUMMARY

The state of California (CA) and the California Public Utilities Commission (Commission or CPUC) mandated in Order Instituting Rulemaking (OIR) 18-10-007 that the electric utilities develop Wildfire Mitigation Plans (WMPs) pursuant to Senate Bill (SB) 901 with inaugural filings required in early 2019. Assembly Bill (AB) 1054 further modified requirements setting a framework for the regulatory entities to track and monitor continued improvement and compliance of the WMPs through routine data collection submissions and audit practices. The Wildfire Safety Division (WSD), under the Commission, is the compliance branch ensuring ongoing obligations to enforce inspections, independent evaluations, and field inspections.

The WSD issued Resolution WSD-011 with Attachments 2.2 and 2.3 to form the basis of the WMP package for the 2021 filing, including relevant spatial data updates. This template modification sets the precedence for ongoing compliance reporting through the WMP and scheduled quarterly data reports (QDRs), quarterly initiative updates (QUIs), and quarterly advice letters (QALs), and the annual report on compliance (ARC).[1] Through the issuance of Resolution WSD-012 on November 23, 2020, the CPUC adopted this compliance process.

Bear Valley Electric Service, Inc. (BVES)[2] WMP aims to reduce the risk of utility-posed ignitions or threats as well as to mitigate the need for public safety power shutoff (PSPS) events in the future. This WMP represents BVES's plan to meet its obligations for 2021.

During 2020, BVES did not experience any ignition events or the need to activate PSPS to mitigate potential wildfire threats. BVES maintains its service territory under a foundational understanding of natural resource management as the area is surrounded by mountainous terrain and high alpine trees. The utility has an ongoing history working collaboratively with public safety partners, and state and federally managed lands agencies in an effort to ensure its region is well-maintained to face the ever-evolving threat of catastrophic wildfires. Despite an absence of ignition or PSPS events, BVES embraces wildfire safety as a core competency in executed work, adopting fire operational standards and monitoring live conditions. These activities, along with a hardened system, prevent the increase of at-risk events and assist the utility in accounting for near-miss risk drivers that could result in a potential spark or arc. Over time, the WMP data will establish a baseline for understanding the unique threats associated with BVES's service area, which will help inform future iterations of the WMP.

This WMP demonstrates the continued effort and investment underway at BVES and progress realized to reduce the probability of a utility-caused ignition and reduce the potential impact of wildfires to the reliable operation of the BVES system. The 2021 WMP includes more data and objective content than its previous submissions and incorporates longer-term thinking by focusing more systematically on increasing BVES's wildfire mitigation maturity over time.

This endeavor focuses on incremental measures that collectively will reduce the fire risk to BVES and its customers on risk-based approach that seeks to direct resources to the most cost-effective projects to bring down the risk as efficiently as possible while maintaining affordability and reliability. Specifically, BVES aims to 1) improve its understanding of the wildfire risk posed by and to its systems, 2) focus on reducing the highest risks aggressively and efficiently, and 3) maximize scarce financial and human resources in its efforts to mitigate wildfire risks.

The 2021 BVES WMP represents a comprehensive, technically feasible, effective, efficient, and forward-looking plan to address the critical goal of reducing wildfire risk to BVES, its customers, and the community.

[1] The 2021 WMP annual filing includes data tables submitted in the 2020 Q4 electrical corporation WMP QDR.

[2] BVES is a subsidiary of American States Water Company.

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0. GLOSSARY OF DEFINED TERMS

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.
Circuit mile	The total length in miles of separate circuits regardless of the number of conductors used per circuit
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.

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Term	Definition

Critical facilities and infrastructure	For brevity in the 2021 WMP, "critical facilitates and infrastructure" may be shortened to "critical infrastructure" and/or "critical facilities" throughout the WMP. Critical facilities and infrastructure is defined in accordance with the definition adopted in D.19-05-042 and modified in D.20-05-051: 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 Station
	  ○ Emergency Operations Centers
	  ○ Public safety answering points
	• Government Facilities Sector
	  ○ Schools
	  ○ Jails and 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 (excluding doctor offices and other non-essential medical 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
	• Chemical Sector
	  ○ Facilities associated with the provision of manufacturing, maintaining, or distributing hazardous materials and chemicals (including Category N-Customers as defined in D.01-06-085)
	• Transportation Sector
	  ○ Facilities associated with automobile, rail, aviation, major public transportation, and maritime transportation for civilian and military purposes

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Term	Definition
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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Term	Definition
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. For the purposes of the WMP, "area" shall be defined as census tracts.
High Wind Warning (HWW)	Level of wind risk from weather conditions, as declared by the National Weather Service. For historical NWS data, refer to the Iowa State University Iowa archive of NWS watch / warnings.[3]
HWW overhead (OH) Circuit Mile Day	Sum of overhead circuit miles of utility grid subject to High Wind Warnings (HWW, as defined by the National Weather Service) each day within a given time period, calculated as the number of overhead circuit miles that were under an HWW multiplied by the number of days those miles were under said HWW. For example, if 100 overhead circuit miles were under an HWW for 1 day, and 10 of those miles were under HWW for an additional day, then the total HWW OH circuit mile days would be 110.
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.
Line miles	The number of miles of transmission and/or distribution line. Differs from circuit miles because individual circuits, such as the two circuits of a double-circuit line, are not counted separately in circuit miles but are counted as separate total miles of line.

[3] https://mesonet.agron.iastate.edu/request/gis/watchwarn.phtml

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Term	Definition
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 value function	Risk calculation methodology introduced during CPUC's S-MAP and RAMP proceedings.
Near miss	Previously used to define an event with probability of ignition. Redefined under "Risk event."
Need for PSPS	When utilities' criteria for utilizing PSPS are met.
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. For example, "Top 95 percentile wind speeds in the last 5 years" would refer to the 5% of avg daily wind speeds recorded by each weather station. If 1,000 weather stations recorded average daily wind speeds over 10 days, then the 95th percentile wind speed would be the top 5% of weather station-days. In this example, there will be 10 days each with 1,000 weather station reports and a total of 10,000 weather station-days, so 50 observations will be in the top 5%. The lowest wind speed in this top 5% would be the "95^{th} percentile wind speed".
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.

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Term	Definition
Priority essential services	Critical first responders, public safety partners, critical facilities and infrastructure, operators of telecommunications infrastructure, and water utilities/agencies.
Program targets	Quantifiable measurements of activity identified in WMPs and subsequent updates used to show progress towards reaching the objectives, such as number of 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 event	Defined as the time period from the first public safety partner notified of a planned public safety de-energization to the final customer re-energized.
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 conditions, as declared by the National Weather Service. For historical NWS data, refer to the Iowa State University Iowa archive of NWS watch / warnings.[4]
RFW OH Circuit Mile Day	Sum of overhead circuit miles of utility grid subject to Red Flag Warning each day within a given time period, calculated as the number of overhead circuit miles that were under an RFW multiplied by the number of days those miles were under said RFW. For example, if 100 overhead circuit miles were under an RFW for 1 day, and 10 of those miles were under RFW for an additional day, then the total RFW OH circuit mile days would be 110.
Risk event	An event with probability of ignition, including wires down, contacts with objects, line slap, events with evidence of heat generation, and other events that cause sparking or have the potential to cause ignition. The following risk events all qualify as risk event: • Ignitions • Outages not caused by vegetation • Vegetation-caused outages • Wire-down events • Faults • Other risk events with potential to cause ignitions
Risk event simulation	Simulation of what the consequence would have been of an ignition had it occurred.

[4] https://mesonet.agron.iastate.edu/request/gis/watchwarn.phtml

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Term	Definition
Risk-spend efficiency (RSE)	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. For ongoing initiatives, the RSE can be calculated by determining the "marginal benefit" of additional spending in the ongoing initiative. For example, the RSE of an ongoing initiative could be calculated by dividing the mitigation risk reduction benefit from a 5% increase in spend by the cost associated with a 5% increase in spend.
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. For the purposes of the WMP, "area" shall be defined as census tracts.
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 lines 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. For the purposes of the WMP, "area" shall be defined as census tracts.

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Term	Definition
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 factors or indices
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 ignition probability, wildfire impact/consequence.
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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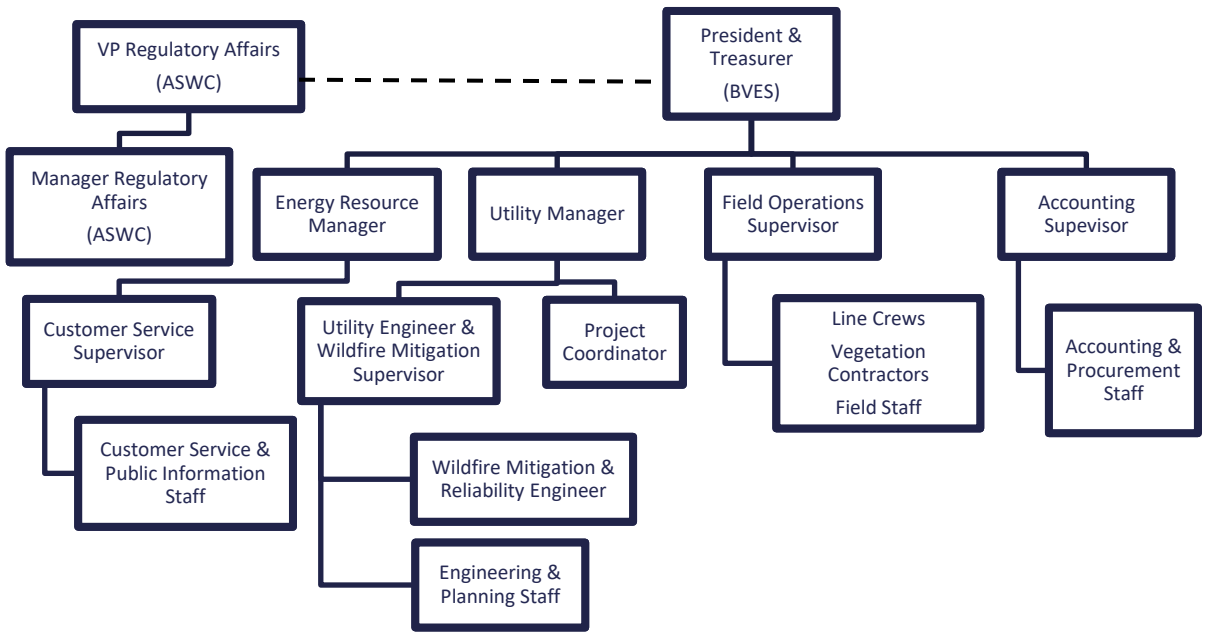
1. PERSONS RESPONSIBLE FOR EXECUTING THE WMP

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 Title, credentials and components of responsible must be released publicly, but other contact information may be provided in a redacted file attached to the WMP submission.[5]

This 2021 WMP filing notes several title changes and new positions targeting wildfire mitigation initiative implementation as a result of the corporate change effective July 1, 2020.[6] The President, Treasurer, & Secretary oversees project implementation, ensuring staff follow established procedures and protocols. The Utility Manager manages the execution of the performance monitoring including providing guidance to staff and leading the development of reports. The staff responsible for each WMP component will aggregate relevant metrics and performance targets at the direction of the Utility Manager, who manages the expenditure tracking and planning arrangements of initiatives. The Customer Service Supervisor holds responsibility for tracking customer-related metrics and PSPS program implementation, and customer engagement related to WMP and PSPS activities.

Figure 1.1-1 below outlines the BVES WMP organization. Further descriptions of the roles and responsibilities are provided below.

Figure 1.1-1: BVES Wildfire Mitigation Plan Organization



[5] Following the November 2020 issued Resolution WSD-011, the blue text presents the template prompts that shape the WMP response requirements. The required text is outlined in Attachment 2.2 of the Resolution, entitled, "2021 Wildfire Mitigation Plan Guidelines Template" (Guidelines). The WSD revised the Guidelines on January 5, 2021, January 22, 2021, and modified last on January 25, 2021.

[6] Pursuant to (Decision) D. 19-12-039, BVES (U 913-E) filed notice of its change of name to Bear Valley Electric Service, Inc. on January 6, 2021 under Rulemaking (R.) 18-10-007. https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M359/K001/359001306.PDF.

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Executive-Level Owner with Overall Responsibility

The following Executive Level contact is responsible for overall monitoring and execution of the BVES WMP:

- **Paul Marconi, President, Treasurer, & Secretary BVES** is responsible for the overall management of BVES and is directly responsible for ensuring all of the WMP elements are executed as intended. The President, Treasurer, & Secretary shall provide the Board of Directors' Safety Committee periodic updates on safety issues, plan execution; identify any problems, delays in schedule, and resource shortfalls; and propose solutions to issues and problems. The President, Treasurer & Secretary shall also keep the Vice President, Regulatory Affairs of American States Water Company (ASWC) informed of all compliance and regulatory affairs issues regarding the plan. The President, Treasurer, & Secretary shall communicate the WMP to BVES staff and hold staff accountable for executing their portions of the WMP including PSPS activation decisions. The President, Treasurer, & Secretary shall ensure the applicable portions of the WMP is communicated to local government and agencies, key stakeholders, customers, and the general public. The President, Treasurer, & Secretary is responsible for ensuring lessons learned and metrics from the current WMP are incorporated into future WMPs as appropriate.
    - **Email: paul.marconi@bvesinc.com**
    - **Phone: (909)-202-9539**

Program Owners Specific to Each Section of the Plan

Execution is 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.

Securing and retaining experienced, qualified personnel and third-party affiliates has been identified as a principal need at BVES. While new staff roles and responsibilities adjust to formal arrangement of duties to execute WMP initiatives, BVES will rely on existing staff, contractors and subcontractors, where needed, with respect to vegetation management activities, electrical and engineering practices, general management, and planning of the WMP updates and compliance submissions. Supporting Table 1.1-1 outlines leadership roles regarding implementation and monitoring of the WMP and their relevant responsibilities.

Supporting Table 1.1-1. Program Owners Specific to Each Section of the Plan

Name	Title	Email	Phone Number	Component
Section 1: Persons Responsible for Executing the Plan				
Paul Marconi	President, Treasurer, & Secretary	Paul.Marconi@bvesinc.com	909.866.4678 x100 909-202-9539	All
Section 2: Adherence to Statutory Requirements				
Keith Switzer	Vice President, Regulatory Affairs	KSwitzer@gswater.com	909.394.3600 x759866.4678 x100	All
Nguyen Quan	Manager, Regulatory Affairs	Nguyen.Quan@gswater.com	909.394.3600 x664	All
Section 3: Actuals and Planned Spending				
Paul Marconi	President, Treasurer, & Secretary	Paul.Marconi@bvesinc.com	909.866.4678 x100 909-202-9539	All
Section 4: Lessons Learned and Risk Trends				

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Name	Title	Email	Phone Number	Component
Paul Marconi	President, Treasurer, & Secretary	Paul.Marconi@bvesinc.com	909.866.4678 x100 909-202-9539	All
Section 5: Inputs to the Plan and Directional Vision				
Paul Marconi	President, Treasurer, & Secretary	Paul.Marconi@bvesinc.com	909.866.4678 x100 909-202-9539	All
Section 6: Metrics and Underlying Data				
Sedrick James	Utility Engineer & Wildfire Mitigation Supervisor	Sedrick.James@bvesinc.com	909.866.4678 x140	All
Section 7: Mitigation Initiatives				
Paul Marconi	President, Treasurer, & Secretary	Paul.Marconi@bvesinc.com	909.866.4678 x100 909-202-9539	All
Sedrick James	Utility Engineer & Wildfire Mitigation Supervisor	Sedrick.James@bvesinc.com	909.866.4678 x140	Section 7.2
Section 8: Public Safety Power Shutoff				
Paul Marconi	President, Treasurer, & Secretary	Paul.Marconi@bvesinc.com	909.866.4678 x100 909-202-9539	All
Section 9: Appendix				
Paul Marconi	President, Treasurer, & Secretary	Paul.Marconi@bvesinc.com	909.866.4678 x100 909-202-9539	All

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1.1 Verification

Complete the following verification for the WMP submission:

(See Rule 1.11)

(Where Applicant is a Corporation)

I am an officer of the applicant corporation herein and am authorized to make this verification on its behalf. The statements in the foregoing document are true of my own knowledge, except as to matters which are therein stated on information or belief, and as to those matters, I believe them to be true. I have reviewed this WMP and attest to its completeness and accuracy.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 3/5/2021 (Date) at Big Bear Lake (Name of city), California.

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

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2. ADHERENCE TO STATUTORY REQUIREMENTS

Section 2 comprises a "checklist" of the CPUC Code Sec. 8386 (c) requirements and subparts. Each utility shall both affirm that the WMP addresses each requirement AND cite the Section or Page Number where it is more fully described (whether in Executive Summary or other section of the WMP).

Requirement	Description	WMP Section
1	An accounting of the responsibilities of persons responsible for executing the plan	Section 1
2	The objectives of the plan	Section 5.2
3	A description of the preventive strategies and programs to be adopted by the electrical corporation to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of dynamic climate change risks	Sections 7.1, 7.3
4	A description of the metrics the electrical corporation plans to use to evaluate the plan's performance and the assumptions that underlie the use of those metrics	Section 6 and QDR
5	A discussion of how the application of previously identified metrics to previous plan performances has informed the plan	Section 4.1
6	Protocols for disabling reclosers and deenergizing portions of the electrical distribution system that consider the associated impacts on public safety. As part of these protocols, each electrical corporation shall include protocols related to mitigating the public safety impacts of disabling reclosers and deenergizing portions of the electrical distribution system that consider the impacts on all of the aspects listed in PU Code 8386c	Section 8.2, Appendix A. See also Supporting Table 4-3
7	Appropriate and feasible procedures for notifying a customer who may be impacted by the deenergizing of electrical lines, including procedures for those customers receiving a medical baseline allowance as described in paragraph (6). The procedures shall direct notification to all public safety offices, critical first responders, health care facilities, and operators of telecommunications infrastructure with premises within the footprint of potential deenergization for a given event	Sections 8.2, 8.4. Appendix A
8	Plans for vegetation management	Sections 5.3, 5.4.1, 7.3.2.5
9	Plans for inspections of the electrical corporation's electrical infrastructure	Sections 5.3, 5.4.3, 7.3.2.5
10	Protocols for the deenergization of the electrical corporation's transmission infrastructure, for instances when the deenergization may impact customers who, or entities that, are dependent upon the infrastructure	Sections 8, Appendix A
11	A list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks, throughout the electrical corporation's service territory, including all relevant wildfire risk and risk mitigation information that is part of the Safety Model Assessment Proceeding and the Risk Assessment Mitigation Phase filings	Sections 4.2, 4.2.1, 4.3, 4.6

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Requirement	Description	WMP Section
12	A description of how the plan accounts for the wildfire risk identified in the electrical corporation's Risk Assessment Mitigation Phase filing	Section 4.2, 4.2.1
13	A description of the actions the electrical corporation will take to ensure its system will achieve the highest level of safety, reliability, and resiliency, and to ensure that its system is prepared for a major event, including hardening and modernizing its infrastructure with improved engineering, system design, standards, equipment, and facilities, such as undergrounding, insulation of distribution wires, and pole replacement	Sections 5.3, 7.1, 7.3.2
14	A description of where and how the electrical corporation considered undergrounding electrical distribution lines within those areas of its service territory identified to have the highest wildfire risk in a commission fire threat map	Sections 5.3, 6.8.2, 7.3.2.3
15	A showing that the electrical corporation 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 electrical corporation	Section 5.4
16	Identification of any geographic area in the electrical corporation's service territory that is a higher wildfire threat than is currently identified in a commission fire threat map, and where the commission should consider expanding the high fire threat district based on new information or changes in the environment	Sections 4.2, 4.2.1, 4.3
17	A methodology for identifying and presenting enterprise wide safety risk and wildfire-related risk that is consistent with the methodology used by other electrical corporations unless the commission determines otherwise	Section 4.2
18	A description of how the plan is consistent with the electrical corporation's disaster and emergency preparedness plan prepared pursuant to Section 768.6, including plans to restore service and community outreach	Section 7.3.2.9 and Appendices A & B
19	A statement of how the electrical corporation will restore service after a wildfire	Section 8.2 Appendices A, B
20	Protocols for compliance with requirements adopted by the commission regarding activities to support customers during and after a wildfire, outage reporting, support for low-income customers, billing adjustments, deposit waivers, extended payment plans, suspension of disconnection and nonpayment fees, repair processing and timing, access to electrical corporation representatives, and emergency communications	Sections 8.4, 7.3.2.9, and Appendices A & B

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Requirement	Description	WMP Section
21	A description of the processes and procedures the electrical corporation will use to do the following: (A) Monitor and audit the implementation of the plan. (B) Identify any deficiencies in the plan or the plan's implementation and correct those deficiencies. (C) Monitor and audit the effectiveness of electrical line and equipment inspections, including inspections performed by contractors, carried out under the plan and other applicable statutes and commission rules.	Section 7.2

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3. ACTUALS AND PLANNED SPENDING FOR MITIGATION PLAN

In the Table 3.1-1, summarize the projected costs (in thousands) per year over the three-year WMP cycle, including actual expenditures for years passed. In Table 3.1-2 break out projected costs per category of mitigations, over the three-year WMP cycle. The financials represented in the summary tables below equal the aggregate spending listed in the mitigations financial tables reported quarterly. Nothing in this document shall be construed as a statement that costs listed are approved or deemed reasonable if the WMP is approved, denied, or otherwise acted upon.

3.1 Summary of WMP Initiative Expenditures

Table 3.1.1-1: Summary of WMP Expenditures - Total

	Spend in Thousands $
2020 WMP Planned	$14,379
2020 Actual	$15,319
Difference	$940
2021 Planned	$19,853
2022 Planned	$12,165
2020 Actual-2022 Planned	$47,337

Table 3.1.1-2: Summary of WMP Expenditures by Category

WMP Category	**2020 WMP Planned**	**2020 Actual**	**Difference**	**2021 Planned**	**2022 Planned**	**2020-22 Planned (w/2020 Actual)**
Risk & Mapping	$0	$0	$0	$50,000	$50,000	$100,000
Situational Awareness	$337,000	$66,218	-$270,782	$157,840	$88,697	$312,755
Grid Design & System Hardening	$10,764,151	$12,601,842	$1,837,691	$15,815,221	$8,386,930	$36,803,993
Asset Management and Inspections	$435,567	$519,804	$84,237	$557,678	$564,832	$1,642,314

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Vegetation Management	$2,600,000	$2,080,062	-$519,938	$2,612,000	$2,612,000	$7,304,062
Grid Operations	$42,000	$0	-$42,000	$42,000	$42,000	$84,000
Data Governance	$0	$0	$0	$150,000	$0	$150,000
Resource Allocation	$0	$0	$0	$0	$0	$0
Emergency Planning	$200,000	$50,676	-$149,324	$460,000	$413,000	$923,676
Stakeholder Cooperation & Community Engagement	$0	$0	$0	$8,000	$8,000	$16,000
Total	$14,378,718	$15,318,602	$939,884	$19,852,739	$12,165,459	$47,336,800

3.2 Summary of Ratepayer Impact

Report the projected cost increase to ratepayers due to utility-ignited wildfires and wildfire mitigation activities engaged in each of the years below. Account for all expenditure incurred in that year due to utility-ignited wildfires / mitigation activities and provide methodology behind calculation below Table 3.2-1.

Table 3.2.2-1: WMP Electricity cost increase to ratepayers

Outcome Metric Name	2016	2017	2018	2019	2020	Unit(s)
Increase in electric costs to ratepayer due to utility-ignited wildfires (total)	$0	$0	$0	$0	$0	Dollar value of average monthly rate increase attributable to utility-ignited wildfires per year (e.g., $3/month on average across customers for utility-ignited wildfires occurring in 20XX)
Increase in electric costs to ratepayer due to wildfire mitigation activities (total)	N/A	N/A	N/A	$0.01184/kWh	$0.01184/kWh	Dollar value of average monthly rate increase attributable to WMPs per year

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4. LESSONS LEARNED AND RISK TRENDS

4.1 Lessons Learned: How Tracking Metrics on the 2020 Plan has Informed the 2021 Plan

Describe how the utility's plan has evolved since the 2020 WMP submission. Outline any major themes and lessons learned from the 2020 plan and subsequent implementation of the initiatives. In particular, focus on how utility performance against the metrics used has informed the utility's 2021 WMP.

The 2020 WMP development and revision process included several iterations and the final version included actions in response to two quarters of data from 2020 as well as data from 2019. As a consequence, BVES found limited bases for major theme changes for the 2021 WMP update due to lessons learned from the 2020 plan and subsequent implementation of those initiatives. In preparation for this filing, BVES reviewed the complete metrics from 2020, as well as its projects initiated to mitigate against wildfire ignitions and damage to BVES equipment and facilities, to determine whether current scheduling and planned execution is sufficient in this 2021 WMP annual update. BVES also followed initiatives and lessons learned from utilities around the state, as well as reports and data released by the WSD.

The 2021 WMP is informed by the progress made in system hardening execution (e.g., covered conductor pilot, conventional fuse replacements), emergency response and PSPS outreach efforts, collaboration with partners in providing wildfire safety awareness, and electrical and vegetation management of its rights-of-way (ROWs). Challenges such as permitting and siting issues with the United States Forest Service (USFS) are also applied to this year's WMP.

For the 2021 WMP filing and future filings, BVES is focused on enhancing its processes for managing and mapping its WMP-related data to produce more useful metric values calibrated across multiple internal reporting templates and platforms. BVES plans to continue to enhance its data collection and modeling capabilities over 2021, further strengthening the WMP initiative categories for Risk Assessment & Mapping and Data Governance, along with execution of initiatives and enhanced operations and maintenance programs.

Significant lessons learned include:

1) resource/personnel planning and sufficiency,
2) external constraints related to materials available for procurement,
3) siting and permitting constraints on private and federally managed lands,
4) weather impacts shortening work execution windows,
5) determining quantitatively driven baselines to measure effectiveness of new and enhanced initiatives, and
6) ensuring adequate collaboration is made with community members and public safety partners ahead of each fire season.

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), highlighting changes since the 2020 WMP report. Include description of how the utility distinguishes between these risks and the risks to safety and reliability. List and describe each "known

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local condition" that the utility monitors per GO 95, Rule 31.1, including how the condition is monitored and evaluated. In addition:

BVES is not required by the CPUC to develop either a MAVF or MARS framework for RAMP filings; however, BVES maintains a risk assessment toolkit to identify risk drivers and potential consequences of wildfire threat while gauging the success of mitigation initiatives. BVES evaluates enterprise risk using a Fire Safety Circuit Matrix to prioritize wildfire risk. BVES also uses a Risk-Based Decision-Making Framework in accordance with the safety model approach for Small and Multi-Jurisdictional Utilities (SMJU) provided in CPUC Decision 19-04-020 of April 25, 2019. On May 14, 2020, BVES filed an Advice Letter (AL) 388-E, transmitting a Risk Spending Accountability Report (RSAR) pursuant to Decision 19-08-027 and D.19-04-020, which was approved by the CPUC on October 12, 2020.[7] BVES, however, plans in 2021 through 2022, with expected completion within the next comprehensive filing period, to enhance its ignition risk mapping methodology incorporating modeling tools to better predict and measure risk values across all initiatives and when monitoring weather conditions on a routine basis.

BVES's risk assessment toolkit helps to effectively target the highest-risk circuits and assets to assure initiatives are properly prioritized and provide the greatest mitigation benefits. BVES will engage a consultant in 2021 to begin developing a model to quantify ignition risk drivers and associated probabilities to assist in systematically determining which initiative mitigations to targeted circuits and assets will provide the greatest benefit to wildfire risk reduction. This effort is anticipated to conclude in 2022 with the results included in the 2023 WMP.

Details of the Fire Safety Circuit Matrix are described within Section 4.2.

Enterprise Risk Mitigation Strategy

BVES developed a risk mitigation strategy, to prioritize the most cost and operationally effective strategies. The methodology identifies inherent risk, existing controls, residual risk, and future mitigation efforts after determining the likelihood and impact of wildfire risk in the service territory. BVES's Risk-Based Decision-Making Framework is consistent with peer investor-owned utilities. **Figure 4.2-1** provides an overview of the steps.

Figure 4.2-1. BVES Risk-Based Decision-Making Framework

The BVES Risk Register Model evaluates the enterprise risk reduction relative to the cost of the mitigation using a Risk Spend Efficiency (RSE) analysis. This analysis focuses on a review of ongoing and potential new projects to mitigate the three primary wildfire risk events:

1. Wildfire Public Safety
2. Wildfire – Significant Loss of Property
3. Loss of Energy Supplies

The enterprise risk evaluation considers a reasonable worst-case scenario for the three primary wildfire risk events. For each primary risk event, BVES determined the frequency of occurrence and impact scores for each of the weighted risk scoring inputs listed below:

[7] On October 12, 2020, the Energy Division under the CPUC reviewed BVES's report and found that the utility complied with D. 19-08-27 and D.19-04-020.

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- System reliability impacts
- Regulatory compliance and legal implications
- Quality of service to customers
- Personal and public safety
- Environmental impacts

The Risk Register Model review quantifies mitigation projects and programs by the risk benefit and RSE. This allows BVES to better evaluate projects in terms of risk reduction and select the most cost effective and efficient project among alternatives. BVES utilizes a 7x7 log score model matrix to determine an impact risk score for each weighted scoring input in the Risk Register. The weighted impact scores are accumulated to arrive at a total risk score. The risk scoring inputs, and total risk score form the basis of evaluation for each identified wildfire mitigation activity or initiative. Mitigation activities can be applied to a single or multiple risk events. BVES then calculates the risk reduction or risk benefit for each scoring input to arrive at weighted mitigated risk score. The risk benefit for each combination of mitigation activity and risk event is determined by subtracting the mitigated risk score from the total risk score. BVES also defines an equivalent annual cost for each mitigation activity. Finally, the risk register determines the RSE by dividing the risk benefit by the equivalent annual cost.

The analysis performed for the 2021 WMP produced the two figures below. **Figure 4.2-2 Risk Reduction and Efficiencies of Mitigation Initiatives** provides a representation of Risk Reduction and RSE of Mitigation Initiatives for the primary drivers of ignition risk. As seen **in Figure 4.2-3. Risk Spend Ratio / Risk Reduction for PSPS Mitigations**, several of these critical hardening programs are capital intensive and generally yield lower RSE values. However, these programs are prudent, and are critical to hardening BVES's system, and represent proactive measures to mitigate wildfire risks that have been widely adopted across California and elsewhere.

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Figure 4.2-2. Risk Reduction and Efficiencies of Mitigation Initiatives

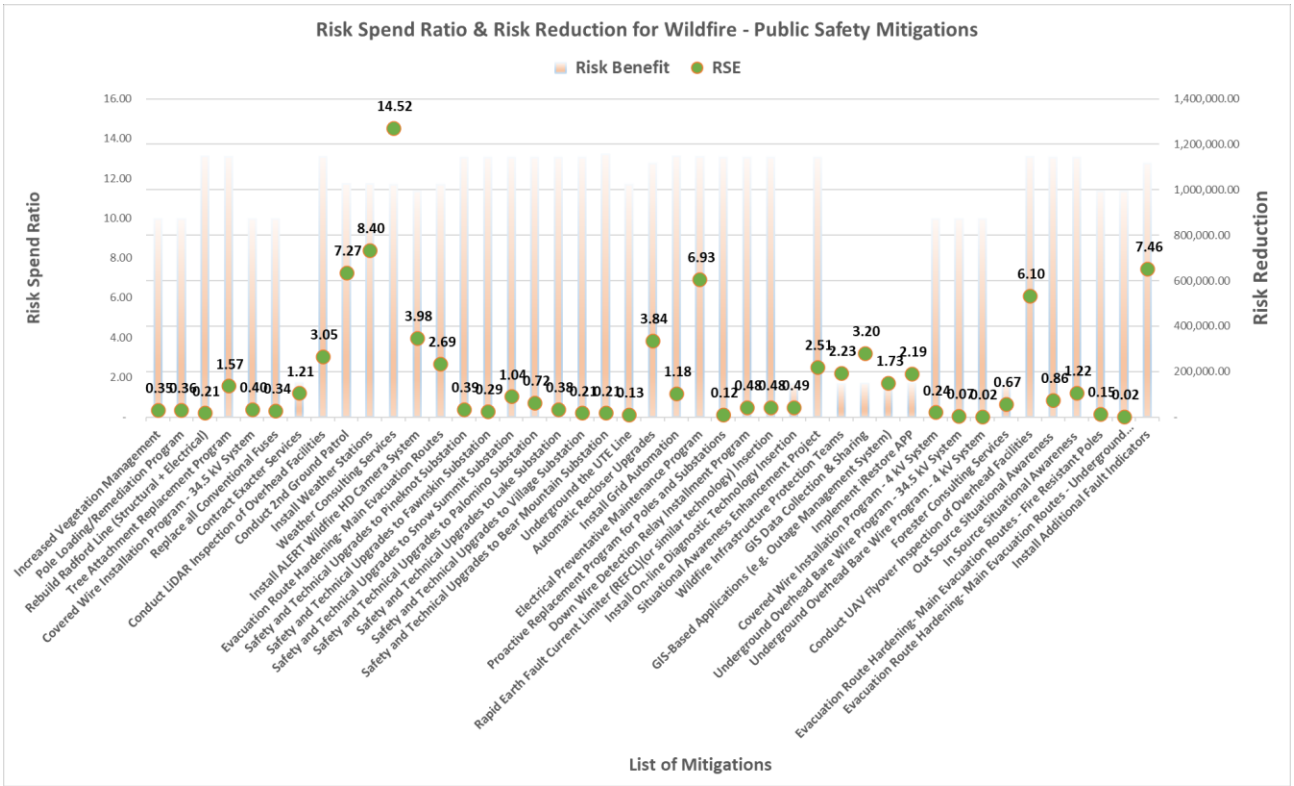
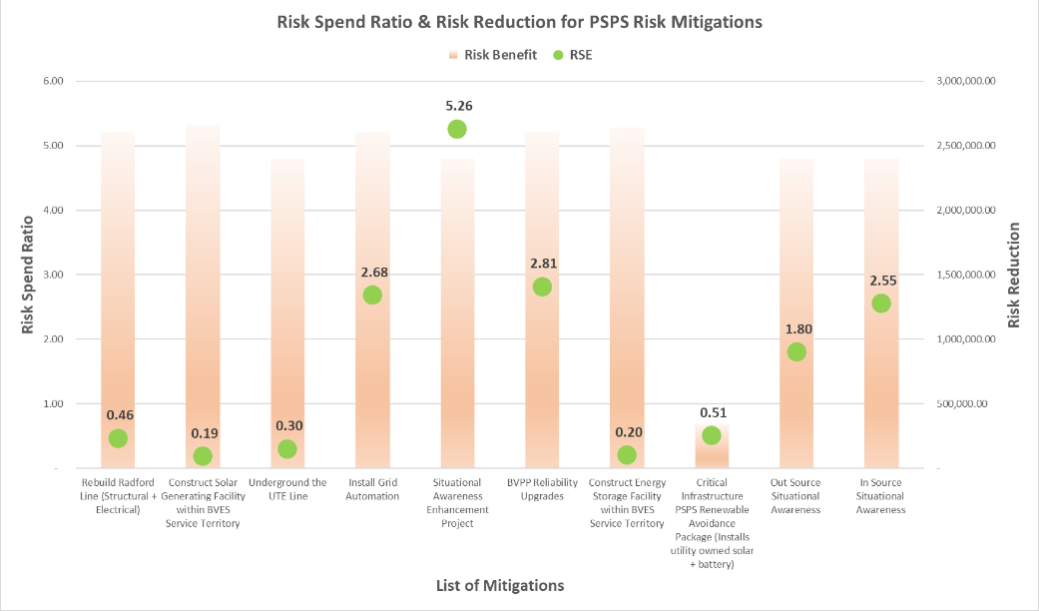


Figure 4.2-3. Risk Spend Ratio / Risk Reduction for PSPS Mitigations



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Fire Safety Circuit Matrix

The Fire Safety Circuit Matrix aims to characterize all BVES distribution circuits in groups of High, Moderate, and Low wildfire risk and the prioritize the circuits within each wildfire risk group. To meet this objective, BVES developed a balanced scorecard approach with the use of a Fire Safety Circuit Matrix (a screenshot is demonstrated below in Supporting Table 4.2-1). The matrix data inputs include, *inter alia*, the number of customers, wood poles, bare wire overhead circuit miles, tree attachments, and remaining expulsion fuses which are compiled and weighted to calculate the wildfire risk mitigation score. Currently, 11 circuits are rated High Risk, eight circuits are rated Moderate Risk, and seven circuits are rated Low Risk.

In addition to evaluating the risk reduction and RSE, BVES must account for the timing and proper sequencing of the various wildfire mitigation initiatives. For example, while the Situational Awareness Enhancement Project offers a relatively high RSE, it cannot be fully completed until the Grid Automation project is near completion in 2025.

BVES intends to use the Fire Safety Circuit Matrix as a "living document" as mitigations are implemented. BVES re-evaluates the mitigations, Wildfire Risk Group, Priority and Mitigation Weight at least annually. Additionally, the Fire Safety Circuit Matrix is used to gauge progress and set 3- and 10-year targets for the reduction of the wildfire mitigation score and associated wildfire ignition risk reduction.

Supporting Table 4.2-1. Evaluation of Higher Fire-Threat Areas

Circuit	Wildfire Risk Group	Overall Risk Weighting	Risk Ranking	Voltage (kV)	High Fire Threat District Tier	Vegetation Density	Wind Intensity	# of Customers	# of Wood Poles	# of Fire Resistant Composite Poles	# of LWS Poles	# of Ductile Iron Poles	Bar OH M
Radford	30521	0.2886	1	34.5	3	High	High	3403	89	0	0	0	
Shay	11585	0.1095	2	34.5	2	High	High	9627	610	0	0	0	1
Baldwin	8409	0.0795	3	34.5	2	High	High	11305	256	0	0	0	
Boulder	2951	0.0279	12	4.16	2	High	High	2046	1007	0	0	0	1
North Shore (Fawnskin)	7238	0.0684	4	4.16	2	High	High	1523	923	0	0	0	1
Erwin Lake	5053	0.0478	6	4.16	2	High	High	2533	1058	0	0	0	2
Pioneer (Palomino)	2859	0.0270	13	4.16	2	Low	Mediun	537	602	0	0	0	1
Clubview	3860	0.0365	8	4.16	2	High	Mediun	1984	508	0	0	0	1
Goldmine	5669	0.0536	5	4.16	2	High	Mediun	1698	567	0	0	0	
Paradise	2754	0.0260	14	4.16	2	Mediun	Mediun	1895	549	0	0	0	
Sunset	3583	0.0339	9	4.16	2	High	Mediun	1918	505	0	0	0	1
Sunrise (Maple)	3350	0.0317	10	4.16	2	High	Mediun	1506	348	0	0	0	
Holcomb (Bear City)	4516	0.0427	7	4.16	2	High	Mediun	1587	615	0	0	0	1
Georgia	1594	0.0151	18	4.16	2	Mediun	Mediun	1023	348	0	0	0	
Eagle	2072	0.0196	15	4.16	2	Mediun	Mediun	959	323	0	0	0	
Harnish (Village)	585	0.0055	21	4.16	2	Low	Mediun	254	83	0	0	0	
Garstin	1470	0.0139	19	4.16	2	Mediun	Mediun	1055	277	0	0	0	
Lagonita	3032	0.0287	11	4.16	2	Mediun	High	1103	453	0	0	0	
Interlaken	1891	0.0179	16	4.16	2	Mediun	Mediun	880	280	0	0	0	
Castle Glen (Division)	1733	0.0164	17	4.16	2	Mediun	Mediun	1188	343	9	0	0	
Country Club	845	0.0080	20	4.16	2	Mediun	Mediun	605	180	0	0	0	
Fox Farm	-8	-0.0001	26	4.16	2	Low	Mediun	35	4	0	0	0	
Pump House (Lake)	178	0.0017	22	4.16	2	Low	Mediun	4	22	0	0	0	
Lift (Summit TOU)	30	0.0003	23	4.16	2	Low	Mediun	1	1	0	0	0	
Skyline (Summit Res)	0	0.0000	24	4.16	2	Low	Mediun	0	0	0	0	0	
Geronimo (Bear Mtn.)	0	0.0000	24	4.16	2	Low	Mediun	1	0	0	0	0	

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According to the analysis, BVES identified the higher fire-threat areas outlined above, and prioritized for this current WMP cycle, to include the following circuits: (1) Radford, (2) Shay, (3) Baldwin, (4) Northshore, (5) Erwin Lake, (6) Clubview, (7) Goldmine, (8) Sunset, (9) Sunrise, (10) Holcomb, (11) Logonita. BVES has paid special attention to and prioritized mitigation strategies in these areas.

Supporting Table 4.2-2. Prioritization of Higher Fire-Threat Areas

Wildfire Risk Groups
High
Moderate
Low

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.

Monitoring Weather and Fuel Conditions and Associated Operational Decision Making

BVES's forecasting framework for fire prevention measures relies on the National Fire Danger Rating System (NFDRS) and contracted meteorologist evaluation of the local forecast and conditions. These predictive services provide a wildfire risk forecast based on weather, fuel build up, and fuel dryness among other factors, and results in the designation of high-risk days.

The NFDRS is generally updated three to five times per day. The contracted meteorologist integrates the NFDRS with the detailed local forecast specific to BVES's service area and develops a risk rating as indicated below in Supporting Table 4.2-3.

The Field Operations Supervisor monitors the fire risk designated by the consultant meteorologist, the NFDRS fire danger forecast, and indications from installed weather stations, which are equipped with alarms based on wind speed. This data is then used to direct the proper operational pre-planned response. As indicated in Supporting Table 4.2-3 below, "Brown," "Orange," and "Red" are considered elevated fire threat conditions that require the BVES system to be configured for fire prevention taking precedence over reliability concerns.

Supporting Table 4.2-3. Pre-Planned Operational Direction Based on Wildfire Risk Forecast

Operations Pre-Planned Action	Green	Yellow	Brown	Orange	Red
Auto-Reclosers and Protective Switches with Reclosing Capability[8]	Automatic	Automatic	Manual (Non-Automatic)		
Patrol following circuit or feeder outage[9]	No	No	Yes		
Fuse TripSavers	Automatic	Automatic	Manual (Non-Automatic)		
Radford Line Use[10]	May be energized	May be energized	De-energize[11]	De-energize	De-energize
Deploy Wildfire Risk Team(s) to "high risk" areas	No	No	Yes, if forecasted sustained wind or 3-second wind gusts expected to exceed 55 mph or actual sustained wind or 3-second wind gusts exceed 45 mph and expected to increase.		
Forward to Field Operations updated list of medical baseline customers and impacts access and functional needs population	No	No	Yes, if forecasted sustained wind or 3-second wind gusts expected to exceed 55 mph or actual sustained wind or 3-second wind gusts exceed 45 mph and expected to increase.		
Activate EOC	No	No	Yes, if forecasted sustained wind or 3-second wind gusts expected to exceed 55 mph or actual sustained wind or 3-second wind gusts exceed 45 mph and expected to increase.		
Prepare Bear Valley Power Plant for sustained operations.	No	No	Yes, if forecasted sustained wind or 3-second wind gusts expected to exceed 55 mph or actual sustained wind or 3-second wind gusts exceed 45 mph and expected to increase.		
Conduct switching operations to minimize impact of potential PSPS activity	No	No	Yes, if forecasted sustained wind or 3-second wind gusts expected to exceed 55 mph or actual sustained wind or 3-second wind gusts exceed 45 mph and expected to increase.		
Activate first responder, local government and agency, customer and community, and stakeholders PSPS plan	No	No	Yes, if forecasted sustained wind or 3-second wind gusts expected to exceed 55 mph or actual sustained wind or 3-second wind gusts exceed 45 mph and expected to increase.		
Activate Community Resource Centers	No	No	Yes, if forecasted sustained wind or 3-second wind gusts expected to exceed 55 mph or actual sustained wind or 3-second wind gusts exceed 45 mph and expected to increase.		
Public Safety Power Shutoff	No	No	Yes, if actual sustained wind or 3-second wind gusts exceed 55 mph.[12]		

[8] During the non-winter months, certain devices identified by the Field Operations Supervisor and approved by the Utility Manager will remain in Manual (Non-Automatic) for the entire period regardless of the wildfire risk.

[9] During the non-winter months, when an Auto-Recloser, Switch, or Fuse TripSaver placed in "Manual" due to the above policy trips open, the affected portions of the de-energized circuit or feeder will be patrolled prior to re-energizing them. If the cause is likely known and the fire risk is "Green" or "Yellow," the Field Operations Supervisor may authorize the Line Crew to test the device once. If the device trips open again, the circuit or feeder must be thoroughly patrolled to determine the fault and ensure there is no risk to causing fire.

[10] Normally only energized during winter period. If the Radford Line must be de-energized during winter period due to high-risk conditions, and load is beyond the capability of the Lucerne supply lines plus the BVPP capacity, then BVES will reduce interruptible customer load as needed.

[11] May be energized if forecasted and actual sustained wind and wind gust conditions are less than 40 mph and the Radford Line is required to meet load demand or the support load due to loss of other power sources or due to planned maintenance when the benefits of the maintenance will reduce the ongoing risk of wildfire. In all of these cases, approval of the Utility Manger is required to energize the Radford Line and will inform the President.

[12] The Utility Manager may initiate PSPS, if in his or her expert judgement, the actual conditions in the field pose a significant safety risk to the public.

Significant Fire Potential Risk is one of many factors BVES monitors to determine on-going maintenance and inspection wildfire mitigation initiatives and to make longer-term decisions regarding capital investments. Evident changes in Fire Potential Risk and other factors are considered for adjustments to wildfire mitigation initiatives and long-term capital investment decisions.

Because BVES identifies its risk mitigation strategies based on its list of potential risk events, the WMP aligns closely with its risk-based decision-making framework. Supporting Table 4.2-4 below details how the WMP accounts for identified risks. Each mitigation measure may span several different categories and help mitigate multiple risks.

Supporting Table 4.2-4. Risk & Risk Mitigation Mapping

Risk Event	*Mitigation Measures*
Design & Construction	
Line Attached to Fallen Tree	• Tree Attachment Replacement Program • Vegetation Management Program
Ignition Caused by Equipment/Infrastructure Settings	• Fusing Upgrades (install current limiting fuses & electronic fuses) • Continue covering bare lines, prioritizing high-risk areas to prevent ignition • Underground high-risk overhead lines, where appropriate • Enclose substations and related infrastructure
Inspection & Maintenance	
Pole Failures	• Pole Loading Assessment & Remediation
Downed Wire	• Grid automation equipment • Vegetation Management Program • Tree Attachment Replacement Program • Implement Down Wire Detection Relay Installment Program • Increased on-ground inspections
Aging Infrastructure	• Pole Loading Assessment & Remediation Program • Electrical Preventative Maintenance Program • Upgrade Program for Substations • Increased on-ground inspections • LIDAR inspections
Vegetation in Proximity to Infrastructure	• Increased on-ground inspections • LIDAR inspections • Vegetation Management Program • Covered wire program • Implement Forester Program
Quickly Changing Environmental Conditions Due to Climate Change	• Increased on-ground inspections • Weather consultant services • Weather station installation and integration with SCADA • Expanded use of HD cameras to monitor remote areas with stakeholder engagement • Implement UAV inspection program
Operational Practices	
Unclear Protocols & Procedures During High-Risk Conditions	• Continue to implement and update protocols and procedures on an as-needed basis
Situational & Conditional Awareness	

Inability to Visualize Equipment in Hard-to-Patrol Areas	• Increased on-ground inspections • Expanded use of HD cameras to monitor remote areas • LIDAR inspections • Implement UAV inspection program • Grid automation equipment
Imprecise Weather Forecasting	• Consultant meteorologist to analyze weather data • Monitor publicly available weather data in the area • Monitor BVES-owned weather stations (all remaining for target to be installed by June 2021)
Response & Recovery	
Fatality caused by wildfire / emergency	• Vegetation management program • Pole Loading Assessment & Remediation • Fusing replacement program • Covered wire program • Tree Attachment Replacement Program • Rebuild Radford Line (Structural + Electrical)
Sustained outages affecting health	• Vegetation Management Program • Pole Loading Assessment & remediation • Electrical Preventative Maintenance Program • Grid automation equipment • Covered wire program

4.2.1 Service Territory Fire-Threat Evaluation and Ignition Risk Trends

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). Include a discussion of any fire threat assessment of its service territory performed by the electrical corporation, highlighting any changes since the prior WMP report. 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. List and describe any macro trends impacting ignition probability and estimated wildfire consequence within utility service territory, highlighting any changes since the 2020 WMP report:

Evaluation of the HFTD and BVES's Tier 2 Higher Fire-Threat Areas

BVES identified areas of increased concern of fire potential for additional monitoring and assessment. Because the entire service territory is within HFTD Tier 2 and a small portion of the Radford line in Tier 3, BVES has granularly determined "higher" risk areas within the Tier 2 designation. These areas exhibit more fire risk than others in the same HFTD due to increased vegetation, bark beetle mortality, or exposed lines, or areas where a wildfire would be particularly destructive such as those with high customer densities. BVES believes high risk areas have high vegetation density and high winds. Vegetation density is based on subject matter expert (SME) evaluation of the vegetation around the circuit. Low Density is less than 10 trees in the right of way on average per span. BVES has engaged a

contractor to improve BVES GIS capabilities including digitizing a record of vegetation management work and more precise accounting of vegetation density and at-risk species. This work is underway and is expected to be completed in 2021.

BVES operates with the inherent risk factors present in the service area's dry, mountainous terrain. Consequently, BVES took an active role in the CPUC fire threat map creation and approval process. BVES considers the current HFTD designations in the BVES service territory to be appropriate due to the following factors: (1) the entirety of BVES service territory is located within Tier 2 and Tier 3, (2) the lengths to which BVES is undertaking to prevent wildfire ignition and spread, and (3) there are no significantly different risk factors between the time of creation of the CPUC map and now. Future WMPs will consider developed macro trends, should they materialize and are understood over time.

Macro Trends

BVES does not have any additional macro trends to report related to ignition probability at this time. BVES serves a mountainous resort community with a part-time and permanent resident mix with minimal population changes forecasted over the planning horizon. BVES has experienced a slight increase in customer count over the last year in line with forecasts, but anticipates an additional impact from the COVID-19 pandemic.[13] Controllable strategies (e.g., system hardening, enhanced inspection measures, and proactive vegetation management) have been mapped to the circuits directly impacted as demonstrated in the Fire Safety Circuit Matrix. BVES's Risk-Based Decision-Making Framework is in accordance with the safety model approach for Small and Multi-Jurisdictional Utilities (SMJU) provided in CPUC Decision 19-04-020 of April 25, 2019.

1. Change in ignition probability and estimated wildfire consequence due to climate change

There has been no material change in ignition probability and estimated wildfire consequence since the 2020 WMP as a consequence of climate change. BVES has not historically had reportable or non-reportable utility-involved ignitions, or catastrophic wildfires. Presumably, climate change would, over time, increase the risk of both ignition and wildfire consequence if all else were equal. BVES believes its wildfire mitigation efforts and grid hardening should reduce any upticks in ignition probability. Wildfire consequence will also likely increase due to climate change but BVES grid hardening efforts, enhanced situational awareness, and emergency response plan will help to limit these risks to BVES and its customers. BVES will continue to monitor changes in local climate due to climate change in the near term horizon by monitoring temperature and drought; in the medium term by monitoring and analyzing for changing weather patterns increases in tree mortality and stress; and in the long-term by following scientific understanding of the evolving issue including local impacts. BVES will make risk-informed decisions based on these inputs to maintain the level of safety, reliability, and wildfire preparedness expected by its customers and community stakeholders.

2. Change in ignition probability and estimated wildfire consequence due to relevant invasive species, such as bark beetles

Change in ignition probability due to invasive and at-risk species is not anticipated. However, through BVES's effort to better predict fire ignition risk through developing modeling techniques, BVES will

[13] Los Angeles Times. "Californians Flee Citites as Coronavirus Pandemic Spreads," March 22, 2022. https://www.latimes.com/california/story/2020-03-22/californians-flee-cities-as-coronavirus-pandemic-spreads.

develop a more comprehensive understanding of the historical and forecasted risks. Should that occur, BVES will provide such improved understanding in a future WMP update or quarterly filing.

BVES does acknowledge that the pervasiveness of bark beetles across California forests, including those in BVES's service territory is a continued cause for concern. There is an observed increase in tree mortality and distressed trees because of bark beetle infestations. The increased prevalence of distressed and dead trees affects wildfire behavior by increasing severity, intensity, and the rate of spread. Invasive species, such as eucalyptus trees, that may be less drought tolerant and less fire resistant, or demonstrate different growth characteristics than native species, can also be problematic and increase fire risk along rights-of-way and near BVES equipment and facilities. BVES vegetation management operations, performed by tree specialist contractors, take the presence of invasive species and their growth rates into account when performing vegetation management actions. Invasive species are tracked by the vegetation management contractors along with other tree tracking information. Extra clearance or tree removal is required of flammable or high-growth rate invasive species. BVES is engaging a contract forester in 2021, in addition to its ongoing contract vegetation management work, to address these and other vegetation management issues. BVES is also expanding its GIS capabilities to include more vegetation management and tree tracking information.

3. Change in ignition probability and estimated wildfire consequence due to other drivers of change in fuel density and moisture

Change in ignition probability due to estimated wildfire consequence due to other drivers in fuel density and moisture is not anticipated. As stated in the above response, BVES plans to move toward enhancing its risk framework and methodology overtime and enhancing its capabilities to assess internally derived quantitative analysis on fire risk. Currently, the utility monitors fuel conditions through public weather and fire risk data monitoring systems as well as through its weather stations and wildland cameras.

Climate change will likely cause an increase in ignition probability and wildfire consequences. High temperatures, persistent drought, and high winds, which may all increase due to climate change, decrease embedded moisture across all fuel classes (1, 10, 100, and 1000-hour fuels) and escalate wildfire risk. This may also raise bark beetle mortality and the relative prevalence of problematic invasive species. Additionally, a lack of fire due to fire suppression efforts has led to increases in fuel density and mixed aged stands with smaller diameter trees that serve as ladder fuels that can enable crown fires that spread rapidly and are difficult to contain. BVES, by and through its contract forester, vegetation management specialist, and contract meteorologist will closely monitor these conditions. This may cause BVES to re-evaluate its operations during high fire threat days and even seasons.

4. Population changes (including Access and Functional Needs population) that could be impacted by utility ignition

BVES does not typically face significant population fluctuations. While some changes to the seasonality may be underway due to the ongoing populations shift from the COVID-19 pandemic, which drove populations from densely populated metropolitan areas and a likely persistence of more remote work, those figures have not yet shown up in a dramatic way in BVES's service numbers. BVES will continue to monitor its fluctuations in population growth as part of routine energy resource planning strategy as well as with WMP-influenced changes, to better inform the outcome of the pandemic on population increases within BVES's service territory. The likely change will be more year-round residents which may, in relative terms, shift usage patterns from seasonal, leisure driven peaks, to a load curve more in line with traditional year-round communities. Similarly, BVES is continuing to assess self-identified customers that

fall within the Access and Functional Needs (AFN) population by direct outreach and accounting for medical baseline or low-income customers.

5. Population changes in HFTD that could be impacted by utility ignition

BVES does not anticipate any population changes in the HFTD that could be impacted by utility ignition at this time. BVES has not encountered any ignitions as reported in the QDR. BVES will continue to monitor any fluctuations and report any deviations in anticipated growth into these areas in a future update.

6. Population changes in WUI that could be impacted by utility ignition

The entirety of BVES's service territory is in the WUI. Therefore, any population changes described above in response to prompt 4 above would represent a change in the WUI. Because BVES does not expect any population changes in the WUI, no changes to the number that could be impacted by utility ignition exist at this time. As has been observed across California and elsewhere, an increase of population coincides with an increase in ignition probability. Additionally, BVES does not expect a significant change in population in the WUI but will continue to monitor developments in the WUI as BVES is aware that some of the most significant wildfire challenges exist and persist in the WUI and utility operations in such areas must be evaluated for ignition probability and risk reduction measures.

7. Utility infrastructure location in HFTD vs non-HFTD

BVES does not anticipate any changes with utility infrastructure location between HFTD and non-HFTD areas due to nearly all of the utility's service area being located in Tier 2 and a small portion in Tier 3 overlapping with the Radford line. BVES is in the process of installing a weather station in this small portion of the Tier 3 area, which has been presented in prior WMP submissions.

BVES does not own or operate any infrastructure in non-HFTD areas. The entirety of BVES's electric system is located in Tier-2 and Tier-3 areas.

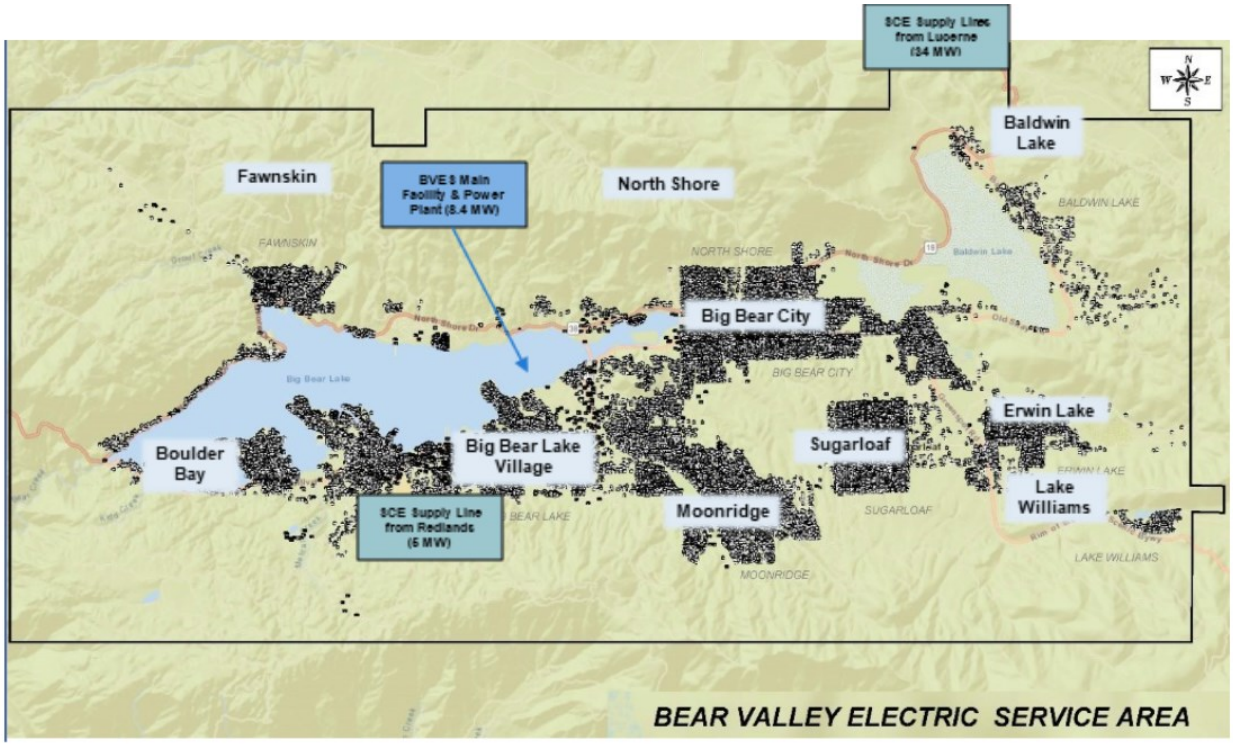
8. Utility infrastructure location in urban vs rural vs highly rural areas

BVES does not anticipate a change in infrastructure locations in urban versus highly rural areas. The utility is a mix of urban and rural areas. These designations represent an update from BVES's previous understanding of the demarcation between urban, rural, and highly rural as it has made progress on its GIS mapping.

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's service territory is in the mountain resort community of Big Bear Lake, California, with approximately 24,500 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 remote and mountainous.

Figure 4.2.1-1. Map of BVES Service Territory and Key Areas



Given its unique service territory, BVES considers, among other factors, 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.

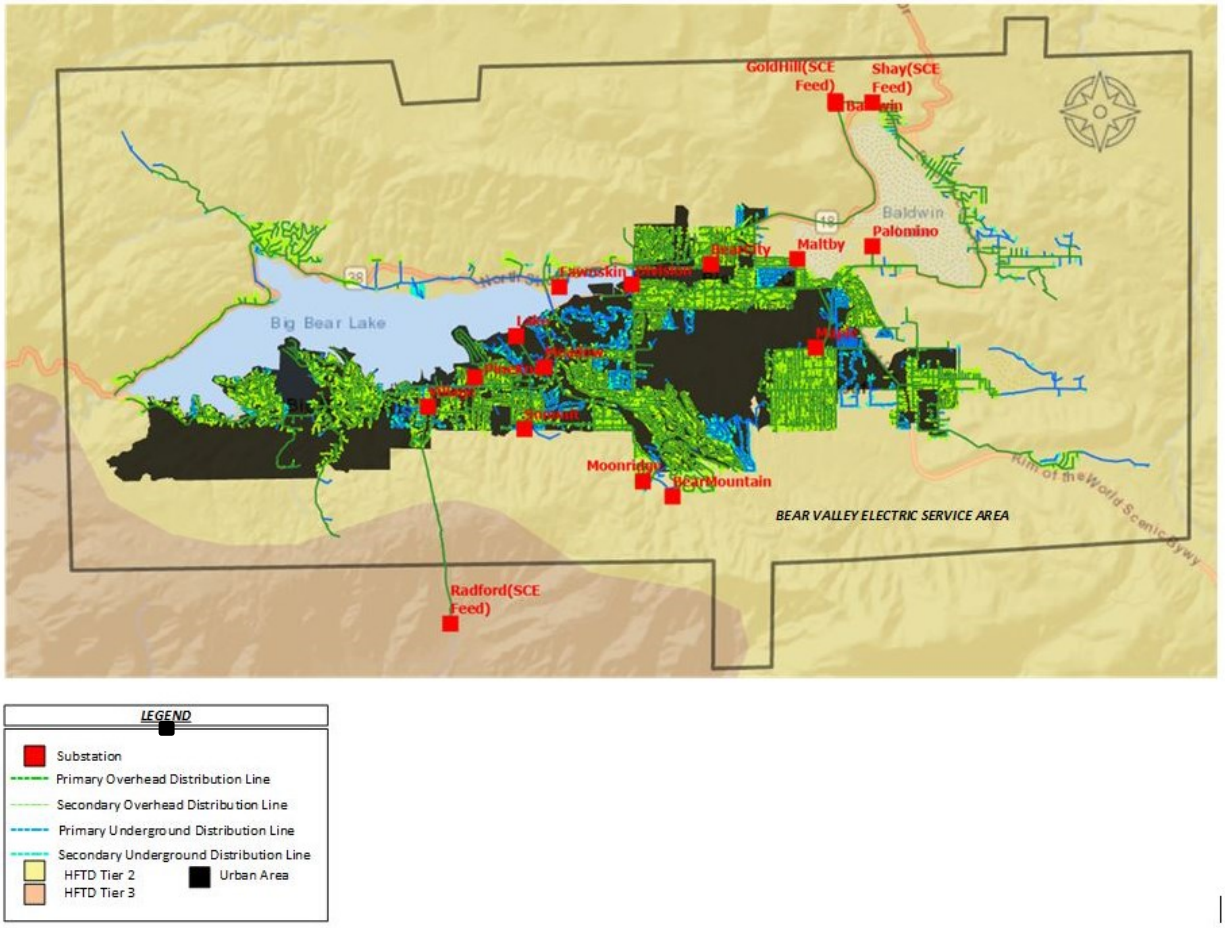
1. **Electrical System Design & Assets:** BVES owns and operates 87.8 line miles of overhead (OH) 34.5 kV sub-transmission lines, 2.7 line miles of 34.5 kV underground (U/G) sub-transmission lines, 488.6 line miles of overhead distribution circuit lines, 89.1 line miles of underground distribution circuit 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.
2. **Jurisdictional Structure:** BVES's 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 and sometimes overlapping jurisdictional structure is a key consideration when developing or implementing any strategic plan, including one related to wildfires.
3. **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 is a key element of implementing a successful WMP.

4. **Geographic Location:** BVES's 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. Wind intensity during dry periods is generally not significant (winds are typically no more than 25 mph during dry periods).

Identified Wildfire Risk Areas

There are several wildfire risk assessment designations from various organizations, including the CPUC, CAL FIRE, and the US Department of Agriculture (USDA). Each designation provides a different perspective of potential fire danger. For example, the USDA's 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 4.2.1-2 shows the CPUC designated fire hazard zone tiers within BVES's service territory.

Figure 4.2.1-2. BVES CPUC Designated Tier 2 and Tier 3 HFTD



BVES monitors these risk assessments regularly and has created procedures and protocols accordingly. Supporting Table 4.2.1-1 below outlines the various rating systems and BVES's rating in that system.

Supporting Table 4.2.1-1. Wildfire Risk Assessments in BVES Service Territory

Agency and Rating Name	Scope of Rating	BVES Rating
CPUC, Fire-Threat Map Adopted January 19, 2018[14]	Areas or zones where enhanced fire safety regulations in Decision 17-12-024 will apply[15]	High Fire-Threat District; Mostly Tier 2 (elevated risk) with some Tier 3 (extreme risk) areas.
USDA Forest Service, NFDRS[16]	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[17]	City and County-level assessments of fire "hazard" zones	Very High Fire Hazard Severity Zone

In addition to gaining a deeper understanding of its wildfire risks, BVES analyzed its reliability data to prioritize its risks. Tables 7.1 and 7.2 in the QDR provides the analysis focused on recent incident data (2015-2020) and examined three types of events: (1) bare-line contacts from objects, (2) all types of equipment or facility failures, and (3) wire-to-wire contact, since these events may result in wildfires. Vegetation and bare-line contact events are the most frequently occurring events and are mainly caused by weather and third parties. This is due to the dense tree coverage of the mountainous terrain and the susceptibility to heavy winter snowstorms. The risk of fire during these storms is diminished due to the moisture level in surrounding vegetation and on the ground is typically high, reducing the risk of wildfire.

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, highlighting any changes since the 2020 WMP report. 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 an ignition or not) 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 risk events, and description of events (including vegetation and equipment condition).

Based on the implementation of its wildfire mitigation initiatives, BVES believes its ignition probability drivers will continue to decline over the three-year term of the WMP. To date, BVES has focused much of its efforts on reducing ignition sources, such as reducing the amount of bare wire present in its service territory. BVES is also implementing measures to reduce the wildfire consequence by increasing situational awareness, hardening overhead facilities along evacuation routes, and increasing coordination with public safety agencies. As these initiatives are executed, the WMP will continue to evolve in an

[14] CPUC, CPUC Fire Safety Rulemaking Background, 2018, http://www.cpuc.ca.gov/firethreatmaps/.
[15] CPUC, CPUC Adopts New Fire-Safety Regulations, December 14, 2017, http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M201/K352/201352402.PDF.
[16] USDA Forest Service, National Fire Danger Rating System, https://www.fs.usda.gov/detail/inyo/home/?cid=stelprdb5173311.; BVES Analysis
[17] 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.

ongoing effort to reduce wildfire and PSPS risk and BVES anticipates a decline in incidents and ignition probability.

Supporting Table 4.3-1 below. organizes all the strategies included in the WMP.

Supporting Table 4.3-1. List of Wildfire Risks and Risk Score (Priority)

Risk Event	*Total Risk Score*
Design & Construction	
Line Attached to Fallen Tree (includes Tree Attachments)	88,191
Inspection & Maintenance	
Pole Failures	49,702
Downed Wire	114,944
Aging Infrastructure	4,966
Operational Practices	
Violations of Safe Work Practice	35,053
Loss of imported energy supplies due to PSPS event	383,444
Situational & Conditional Awareness	
Inability to Visualize Equipment in Hard-to-Patrol Areas	3,641
Response & Recovery	
Fatality(ies) caused by wildfire / emergency	1,275,706
Significant loss of property caused by wildfire	281,097
Sustained outages affecting health	124,339

BVES also conducted a detailed analysis based on the NFDRS evaluation to determine the one-, three-, and ten-year risk outlook. This analysis used available weather data to determine the percentage of days for each rating. Supporting Table 4.3-2 below shows the analysis.

Supporting Table 4.3-2. 10 Year Fire Risk Reduction Outlook

		Current Circuit Status			3-Year Projected Outlook			10-Year Projected Outlook		
Circuit	HFTD Tier	Wildfire Risk Group	Overall Risk Weighting	Risk Ranking	Wildfire Risk Group	Overall Risk Weighting	Risk Ranking	Wildfire Risk Group	Overall Risk Weighting	Risk Ranking
Radford	3	30521	0.2886	1	-623	-0.0174	23	-623	0.020629	11
Shay	2	11585	0.1095	2	-2844	-0.0794	25	-3570	0.118213	25
Baldwin	2	8409	0.0795	3	8309	0.2319	1	-992	0.032848	16
Boulder	2	2951	0.0279	12	2043	0.0570	10	-1689	0.055928	18
North Shore (Fawnskin)	2	7238	0.0684	4	2968	0.0828	6	-5089	0.168512	26
Erwin Lake	2	5053	0.0478	6	-5256	-0.1467	26	-702	0.023245	13
Pioneer (Palomino)	2	2859	0.0270	13	-1022	-0.0285	24	-2226.36	0.073721	23
Clubview	2	3860	0.0365	8	2685	0.0750	9	-1812	0.060001	20
Goldmine	2	5669	0.0536	5	4482	0.1251	2	-1014	0.033577	17
Paradise	2	2754	0.0260	14	2688	0.0750	8	-2013.4	0.06667	22
Sunset	2	3583	0.0339	9	3483	0.0972	4	-1715.63	0.05681	19
Sunrise (Maple)	2	3350	0.0317	10	3250	0.0907	5	-689.31	0.022825	12
Holcomb (Bear City)	2	4516	0.0427	7	4248	0.1186	3	-2658.25	0.088023	24
Georgia	2	1594	0.0151	18	1442	0.0402	14	-886.24	0.029346	14
Eagle	2	2072	0.0196	15	1798	0.0502	11	-553.32	0.018322	9
Harnish (Village)	2	585	0.0055	21	309	0.0086	17	-157.56	0.005217	6
Garstin	2	1470	0.0139	19	1047	0.0292	15	-328.76	0.010886	8
Lagonita	2	3032	0.0287	11	2700	0.0754	7	-1859.94	0.061588	21
Interlaken	2	1891	0.0179	16	1615	0.0451	12	-564.8	0.018702	10
Castle Glen (Division)	2	1733	0.0164	17	1573	0.0439	13	-908.36	0.030079	15
Country Club	2	845	0.0080	20	748	0.0209	16	-191.52	0.006342	7
Fox Farm	2	-8	-0.0001	26	-8	-0.0002	22	-28	0.000927	5
Pump House (Lake)	2	178	0.0017	22	158	0.0044	18	48.24	-0.0016	1
Lift (Summit TOU)	2	30	0.0003	23	30	0.0008	19	24.6	-0.00081	2
Skyline (Summit Res)	2	0	0.0000	24	0	0.0000	20	0	0	3
Geronimo (Bear Mtn.)	2	0	0.0000	24	0	0.0000	20	0	0	3

4.4 Research Proposals and Findings

Report all utility-sponsored research proposals, findings from ongoing studies and findings from studies completed in 2020 relevant to wildfire and PSPS mitigation.

Report proposals for future utility-sponsored studies relevant to wildfire and PSPS mitigation. Organize proposals under the following structure:

1. ***Purpose of research*** *– brief summary of context and goals of research*
2. ***Relevant terms*** *- Definitions of relevant terms (e.g., defining "enhanced vegetation management" for research on enhanced vegetation management)*
3. ***Data elements*** *- Details of data elements used for analysis, including scope and granularity of data in time and location (i.e., date range, reporting frequency and spatial granularity for each data element, see example table below)*
4. ***Methodology*** *- Methodology for analysis, including list of analyses to perform; section shall include statistical models, equations, etc. behind analyses*

*5. **Timeline** - Project timeline and reporting frequency to WSD*

BVES has not conducted and is not proposing to conduct any research proposals to identify novel methods of reducing wildfire risk. Due to its small size and limited customer base, BVES will track new and proven techniques, technologies, and methods researched and implemented at other utilities, the national laboratories, in academia, and elsewhere and identify opportunities to conduct pilot programs and implement changes that have proven successful in cost-effectively reducing wildfire risk. Details of on-going pilot programs are presented in Section 7.3.2

BVES is open to collaborating on research projects in the area of wildfire mitigation and would support outside organizations such as universities performing research in this area. For example BVES provided a letter of support for Department of Civil and Environmental Engineering, University of California – Davis research proposal to the California Energy Commission (CEC) on wildfire risk assessment and mitigation under changing climate conditions (CEC GFO-18-301) in March 2019 and was willing to support the research effort in its service area, as applicable. The proposal did not gain approval.

4.4.1 Research Proposals

Not applicable.

4.4.2 Research Findings

Report findings from ongoing and completed studies relevant to wildfire and PSPS mitigation. Organize findings reports under the following structure:

*1. **Purpose of research** – Brief summary of context and goals of research*

*2. **Relevant terms** - Definitions of relevant terms (e.g., defining "enhanced vegetation management" for research on enhanced vegetation management)*

*3. **Data elements** - Details of data elements used for analysis, including scope and granularity of data in time and location (i.e., date range, reporting frequency and spatial granularity for each data element, see example table above)*

*4. **Methodology** - Methodology for analysis, including list of analyses to perform; section shall include statistical models, equations, etc. behind analyses*

*5. **Timeline** - Project timeline and reporting frequency to WSD. Include any changes to timeline since last update*

*6. **Results and discussion** – Findings and discussion based on findings, highlighting new results and changes to conclusions since last update*

*7. **Follow-up planned** – Follow up research or action planned as a result of the research*

Not applicable.

4.5 Model and Metric Calculation Methodologies

4.5.1 Additional Models for Ignition Probability, Wildfire and PSPS Risk

Report details on methodology used to calculate or model ignition probability, potential impact of ignitions and / or PSPS, including list of all input used in impact simulation; data selection and treatment

methodologies; assumptions, including Subject Matter Expert (SME) input; equation(s), functions, or other algorithms used to obtain output; output type(s), e.g., wind speed model; and comments. For each model, organize details under the following headings:

*1. **Purpose of model** – Brief summary of context and goals of model*

*2. **Relevant terms** - Definitions of relevant terms (e.g., defining "enhanced vegetation management" for a model on vegetation-related ignitions)*

*3. **Data elements** - Details of data elements used for analysis, including scope and granularity of data in time and location (i.e., date range, reporting frequency and spatial granularity for each data element, see example table above)*

*4. **Methodology** - Methodology and assumptions for analysis, including Subject Matter Expert (SME) input; equation(s), functions, statistical models, or other algorithms used to obtain output*

*5. **Timeline** – Model initiation and development progress over time. If updated in last WMP, provide update to changes since prior report.*

*6. **Application and results** – Explain where the model has been applied, how it has informed decisions, and any metrics or information on model accuracy and effectiveness collected in the prior year.*

The risk models used are also described in sections 4.2.1 and 4.3 above. These models detailed in this section include the Risk-based Decision-Making Framework – Risk Register and the Fire Safety Circuity Matrix.

In 2021, BVES will engage a consultant to develop more sophisticated ignition probability risk and wildfire risk models for BVES. These models will guide BVES to continue to reduce ignition and wildfire risk to its electric system in a prioritized fashion. This work is intended to be completed in 2022 and included in the 2023 WMP. The schedule includes the following milestones 1) BVES will define the scope of work by June 2021, 2) the contractor kickoff for this work is planned for July 2021, including data requests 3) key criteria will be identified and outputs will be identified by the end of 2021 with an expected 50% completion at that time. Initial model runs will take place in Q1 2022 and full delivery is expected by the end of Q2 2022.

Supporting Table 4.5.1-1: Summarized View of Risk Models

Model	Purpose of Model	Relevant Terms	Data Elements	Methodology	Timeline	Application and Results
Risk-Based Decision Making Framework	Deliver an understanding of wildfire risks to identify best approaches to reduce risk	Frequency Impact (consequence) Risk Value Risk Spend Ratio	Frequency Impacts (Reliability, Compliance, Quality of Service, Safety, Environmental) Cost of Project/Program Period of Project/Program	7x7 Logarithmic Risk Matrix (Frequency vs. Impacts) D19-04-020 April 25, 2019 (Safety Model for SMJUs)	In place	See Section 4.2 for extensive discussion
Fire Safety Circuit Matrix	Identify and prioritize individual circuits by wildfire risk	Circuit Wildfire Risk Group Circuit Risk Ranking	Circuit: Voltage (kV), HTFD Tier, Vegetation Density, Wind Intensity, # of Wood Poles, Bare Wire OH Circuit Miles, # of Tree Attachments, # of Expulsion Fuses, # of Level 1 Deficiencies to	Uses algorithm to assess the risk of circuits based on risk factors and status of	In place	See Section 4.2 for extensive discussion

			be Corrected, # of Level 2 Deficiencies to be Corrected, Top Ten Worst Performing Circuits, Pole Loading Program (Percent Complete), Fault Indicators, Inspection Status	mitigation measures		
Risk Register Model	Evaluate wildfire mitigation measures by risk reduction and RSE	Risk, Mitigations, RSE			In place	See Section 4.2 for extensive discussion
Ignition Probability Risk Model	To identify and reduce ignition risks	Ignition sources, ignition trends, ignition risk			Will build in 2021	

Risk-based decision-making model (Risk Methodology & Risk Register)

Purpose of model: The risk-based decision-making model sought to incorporate a risk-based decision-making framework into utility investments and programs to inform the General Rate Case (GRC) cycles. Accenture (formerly Davies Consulting) was contracted to assist BVES in developing this risk-based decision-making framework, which provides a process for identifying asset-related risks, consequence(s) of occurrence, frequency or likelihood of occurrence, driver(s) of the risk, and mitigation measures. This framework was intended to take into account BVES' distribution assets and its Bear Valley Power Plant (BVPP). Once the risk-based decision-making framework was adopted, the consultant was to assist BVES in identifying the top asset-related risks to BVES and assist in developing additional mitigation strategies beyond those already in place to allow BVES to evaluate them for inclusion in its GRC application.

Relevant Terms: See the table below for this response.

Supporting Table 4.5.1-2: Risk Based Decision Relevant Terms

Term	Definition
Risk	The potential for the occurrence of an event that would be desirable to avoid, often expressed in terms of a combination of various outcomes of an adverse event and their associated probabilities. Different stakeholders may have varied perspectives on risk.
Inherent Risk	The level of risk that exists without risk controls or mitigations.
Event	An occurrence or change of a particular set of circumstances that may have potentially adverse consequences and may require action to address.
Frequency	Number of events generally defined per unit of time. (Frequency is often incorrectly treated as synonymous with probability or likelihood).
Probability	The relative possibility that an event 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 certain we are that the event will occur. (Often informally referred to as likelihood or chance).
Impact (or Consequence)	The effect or outcome of an event affecting objectives, which may be expressed, by terms including, although not limited to health, safety, reliability, economic and/or environmental damage.
Mitigation	Measure or activity proposed or in process designed to reduce the impact/consequences and/or likelihood/probability of an event.
Outcome	The final resolution or end result.

Risk Driver	Factor(s) that could cause one or more risks to occur (Risk driver may also be commonly referred to as "threat").
Risk Response Plan	Collection of mitigations.
Control	Currently established measure that is modifying risk.
Alternative Analysis	Evaluation of different alternatives available to mitigate risk.
Residual Risk	Risk remaining after current controls.
Planned or Forecasted Residual Risk	Risk remaining after implementation of proposed mitigations.
Risk Score	Numerical representation of qualitative and/or quantitative risk assessment that is typically used to relatively rank risks and may change over time.
Risk Tolerance	Maximum amount of residual risk that an entity or its stakeholders are willing to accept after application of risk control or mitigation. Risk tolerance can be influenced by legal or regulatory requirements.

Data Elements:

- Initial Analysis - The Initial analysis requires the risk team to begin examining the priority risks selected during risk identification. In this step, SMEs collect basic information about a risk. This analysis will be entered into the risk register by the System Safety and Reliability Engineer. This information includes the following:
    - Title of Risk
    - Worst Reasonable Case
    - Risk Owner
    - Asset Class
    - Quick Evaluation of the risk event (High, Medium, or Low)
- Developing Worst Reasonable Case - The worst reasonable case evaluation is ideally based on plotting a range of outcomes along a distribution line and, for purposes of the risk discussion, choosing a scenario that identifies a reasonably probable worst-case outcome.
    - Once the risk team agrees on a Worst Reasonable Case, the impacts are defined on the most likely outcome of that Worst Reasonable Case. Given the worst reasonable case scenario, what is the most likely outcome in the six impact categories?
    - If sufficient data does not exist to produce a distribution to define the worst reasonable case, then the risk team will develop the worst reasonable case scenarios based on expert judgement.
- Selecting the Top Tier Events (risk driver and consequential outcome)
    - Tier 1 Consequence
        - Has the potential to impact many processes;
        - Could affect more than four risk categories;
        - Risk velocity (speed on onset; the speed with which a risk manifests itself) is high; or
        - Could affect corporate level policies or goals and/or have effects across multiple parts of the company
    - Tier 2 Consequence
        - The risk event affects several processes;

        - The risk velocity is moderate; or
        - Could affect policies or goals and/or have effects across multiple facilities or operating regions within the company.
    - Tier 3 Consequence
        - Impacts one process;
        - The risk velocity is slow; or
        - Could affect a single department level policies or goals and/or be unique to a facility or operating region.

- Evaluate Risk Impact Categories
    - BVES has established Risk Impact Categories to assess the impact of an event. Table 1 defines these risk categories. BVES has also established descriptions in each category that describe increasing levels of severity from level 1 (negligible) to level 7 (catastrophic). These Risk Impact Category Descriptions provide the risk team with guidance for analyzing and scoring risk events. The descriptions provide a consistent framework to assign an impact value (level 1 to 7) to risk events across all five impact categories. See the two tables below.

Supporting Table 4.5.1-3: Risk Impact Categories and Descriptions

Impact Category	Definition	Negligible (1)	Minor (2)	Moderate (3)	Major (4)	Extensive (5)	Severe (6)	Extreme (7)
Reliability	Ability of a process, asset, or system to perform its normal functions. reliability is measured by end customer impact.	**Customer Impact:** Less than 20 customers affected (e.g., 1 transformer out)	**Customer Impact:** 20-500 customers affected (e.g., loss of 1 section of a 4KV circuit.)	**Customer Impact:** 500-1500 customers affected (e.g., loss of partial circuit or entire circuit.)	**Customer Impact:** 1500-5000 customers out (Loss of a section of a transmission line.	**Customer Impact:** 5000-10,000 customers affected (e.g., loss of a section of a transmission line.) Shutdown of a major business customer.	**Customer Impact:** 100% of customers out for less than 24 hours.	**Customer Impact:** 100% of customers out for more than 24 hours.
Compliance	Ability to meet regulatory/legal requirements. Impact seen in increased regulatory oversight, adverse regulatory actions, or penalties.	Informal complaint without fine or penalty	**Regulatory:** Formal complaint from arbitrator (JPA) Notice to correct deficiency **Legal:** Civil lawsuit filed	**Regulatory:** Regulatory prescription on Company 3rd party complaint **Legal:** Civil lawsuit is filed but is settled out of court	**Regulatory:** Adverse regulatory mandates and fines **Legal:** A civil lawsuit with verdict or enforcement actions against the company or a lawsuit with criminal charges.	**Regulatory:** Imposed direct regulatory oversight Fines $$ **Legal:** Criminal charges filed but settled out of court.	**Regulatory:** Sarbanes-Oxley compliance violation Fines $$$ **Legal:** Lawsuit with verdict against the company and/or findings of criminal activity.	Company goes out of business Fines $$$$ **Legal:** Criminal charge(s) with conviction

Supporting Table 4.5.1-3: Risk Impact Categories and Descriptions (Cont.)

Impact Category	Definition	Negligible (1)	Minor (2)	Moderate (3)	Major (4)	Extensive (5)	Severe (6)	Extreme (7)
Quality of Service (Cost, Quality, Complaints)	Measure of impact of a risk event on trust in company and company brand. Typically measured by cost, power quality, and customer complaints.	Little to no effects on cost, power quality or customer complaints	**Cost:** Meter failure at a small business **Power Quality:** Customers exposed to power factor or RFI issues **Complaints / Customer Service:** Release of inaccurate information to public	**Cost:** Moderate planning and/or construction cost overruns **Power Quality:** Customers experiencing excessive flicker **Complaints / Customer Service:** Increase in informal customer complaints	**Cost:** Shutdown of a major commercial customer **Power Quality:** Customers affected by BVES noise **Complaints / Customer Service:** Increase in customer complaints to SR management	**Cost:** Poor project decision-making that creates a stranded asset **Power Quality:** Customers experiencing excessive numbers of momentary **Complaints / Customer Service:** Increase in formal customer complaints to regulators	**Cost:** Unhedged for a one-year period **Power Quality:** Disruptive harmonics issues **Complaints / Customer Service:** Damage to trust/reputation requiring some outreach to state/local political officials.	**Cost:** Unhedged during a major price spike **Power Quality:** Voltage outside of national code (e.g., voltage excursion outside IEEE, STD) **Complaints / Customer Service:** Loss of trust/reputation requiring sustained outreach to state and/or local political officials
Safety	Degree to which a risk event leads to injury to a person (employee, contractor, or public). Typically measured by event severity (workforce or public). Common measure is OSHA recordable.	Unplanned event that did not result in injury, illness, or damage but had the potential to do so (aka Near Miss)	OSHA recordable Public injury requiring first aid/medical care	Lost time accident Public injury requiring hospitalization	Long term disability	Life Altering Injury (A life-altering injury is one that results in permanent or long-term impairment of an internal organ, body function, or body part. Examples include, but are not limited to significant head injuries, spinal cord injuries, paralysis, amputations, or broken or fractured bones.)	Single fatality (public, employees, or contractors)	Multiple fatalities (public, employees, or contractors)
Environmental	Degree to which a risk event negatively affects people, natural resources, or species. Can be measured by duration, hazard level, location, and size of event.	Event resulting in negligible but no long-term damage to the environment (e.g., small oil leak contacting ground but no containment required.)	Event that can be contained in a small area (e.g., oil leak in substation requiring active containment).	Event that is quickly correctable (e.g., small confined fire that can be extinguished by BVES. Improper hazardous waste disposal that is not reportable (e.g., minor event like putting a paint can in wrong bin).	Excessive power plant emissions that is reportable OR improper hazardous waste disposal that is reportable	Events with potential for medium-term impact and/or require outside resources for support (e.g., large leak or emissions release with long-term impact requiring support services.)	Events with potential for long-term impact requiring outside resources for support (e.g., wildfire caused by BVES in a large area requiring public response.) Event could also have an impact on wildlife.	Events with potential long-term impact requiring outside support and resulting in substantial damage to a protected area or species (e.g., large oil spill into navigable waters).

- Assess Frequency of Worst Reasonable Case - Frequency is defined as "number of events per unit of time." It is a measure of how often a risk event has occurred or could occur. The frequency being measured is the frequency of the worst reasonable case of a specific risk event. Ensuring that users are measuring the frequency of the worst reasonable case and not the frequency of a risk event itself will help ensure consistency in analysis.

Supporting Table 4.5.1-4: Frequency Table

Level	Value	Occurrence
	7	>10 times per year
	6	1-10 times per year
	5	Once every 1-3 years
	4	Once every 3-10 years
	3	Once every 10-30 years
	2	Once every 30-100 years
	1	Once every 100+ years

- Identify Hazards/Threats (Triggers)
  - Many risk events result from several different intermediate events. These "triggers" are essentially the causes of a risk. What factors acting together caused the risk to occur? Risk triggers can include human error (employee or contractor), mechanical failure of an asset, or a natural uncontrollable event (e.g., storm). For example, the causes or triggers of an aircraft accident could include pilot error, sensor failure, crew fatigue, and inclement weather. Any of these alone might not have caused an accident. Deconstructing the risk event this way may allow the risk team to get a more complete evaluation of the risk event and take a broader view of controls and mitigation actions in place.

- Catalog Existing Controls
  - During Full Analysis, the risk team will also want to catalog the controls that are already in place to address the risk. This information can be added to the Controls and Mitigations portion of the risk register. Controls may apply to multiple risks, so there is a many-to-many relationship between controls and risks events.
- Total Risk Score
  - The risk register calculates a total risk score from the data collected in risk analysis. The risk scores establish a relative ranking of risk events for discussion purposes. The score is a calculation based on an SME discussion of the impact and frequency associated with the worst reasonable case. The potential impacts of the worst reasonable case across the six impact categories are then scored between 1 and 7 (7 being the greatest severity). Once the impact is articulated, a frequency based on data and subject matter expertise is assigned to each worst reasonable case scenario. The risk register then applies a formula to create a score between 0 and 1,000,000,000.
- Heat Map

- The scores of risk events can be plotted on a heat map matrix (Figure 2). BVES has chosen to use a 7 x 7 heat map matrix. The 7 x 7 matrix is consistent with leading practice in the utility industry. It provides a better differentiation of risk events than a 3 x 3 matrix or a 5 x 5 matrix. Those maps produce a less distinct differentiation of risks. That is, many risks are high impact, low frequency and occupy the same space on the heat map, thereby limiting its usefulness in identifying areas of focus.

Methodology:

- Risk Identification
  - Gather an initial list of risk events in a brainstorming session;
  - Review and categorize brainstormed risk events (e.g., link risk events to asset classes);
  - Select priority risk events for initial analysis; and
  - Document work involved in Risk Identification.
- Risk Analysis
  - Perform initial analysis on selected risk events (e.g., is impact high, medium, or low?);
  - Select risk events for full analysis;
  - Perform full analysis on selected risk events (e.g., assess frequency and impact);
  - Assign an impact rating in six impact categories;
  - Develop Basis Document to capture assumptions and rationale behind scoring;
  - Communicate analysis results to affected parties;
  - Document work in Risk Register Risk Evaluation and Scoring;
  - Conduct calibration session to review total score for each fully analyzed risk;
  - Examine outliers and prepare for mitigation;
  - Communicate results to affected parties;
  - Document work in Risk Register Risk Mitigation;
  - Review existing controls for adequacy;
  - Develop new mitigations (if necessary); and
  - Document work in Risk Mitigations and Controls portion of Risk Register.

Timeline:

- There have been no significant modeling changes since the filing of the 2020 WMP in September 2020.
- Once risk events are fully analyzed and scored, the risk team conducts an internal calibration session with a broad set of SMEs. The session focuses on those risks that are outliers or for which an SME may question the accuracy of the overall score. The SME or Risk Manager for each risk in question presents the material contained in the Basis Document and offers attendees the opportunity to discuss the risk scoring. Organizers should follow the guidance provided for brainstorming sessions, although the calibration sessions may be longer, depending on the number of risk evaluations that are discussed.

- During annual calibration sessions, participants question assumptions and other inputs to risk scores to ensure alignment in how risks were evaluated. Once the calibration is complete, organizations are allowed to re-score any risk that has been successfully challenged.

Application and results: See Figure 4-2 and 4-3 for updated outputs on risk spend ratios.

Fire Safety Circuit Matrix

Purpose of Model: The purpose of the model is to assist in determining a circuit-level risk that accounts for the current and planned mitigation activities that intend to reduce ignition potential. The model informs the planning period of the WMP considering changes to the risk profile as mitigations are executed over time.

Relevant Terms: See the table below.

Supporting Table 4.5.1-4: Fire Safety Circuit Matrix Terms

Fire Safety Circuit Matrix – Data Terms	
Circuit	List of circuits located in High Fire-Threat Districts, which determines the scope of data collection and presentation within the matrix
Voltage	Kilovolt (kV) 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 cataloged with the identified circuit segments
Bare Wire OH Circuit Miles	The length of bare wire overhead in circuit miles respective to the listed circuit
Covered Conductor OH Circuit Miles	The length of covered conductor overhead in circuit miles respective to the listed circuit
UG Circuit Miles	The length of undergrounded circuit in 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 (EMI & Infrared)	Determined if exacter survey process has started, is in progress, or is completed, by circuit
Pole Loading Program	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 enhance fire safety
Branch Line Fusing Options	The status of investigation, by circuit, of additional related fusing opportunities that 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

Data Elements:

The Wildfire Risk Group (WRG) Score is calculated using the following equation:

WRG = Bare Wire OH Circuit Miles on an identified circuit within a specified Tier area as a worst performing circuit rating + # of fuses + # of tree attachments + # of level 2 deficiencies to be corrected + rank of work performing circuit rating – the pole loading program percent complete multiplied by the number of wood poles – the fault indicator percentage – (whether the circuit is subject to enhanced vegetation management , whether a GO 165 ground patrol is performed, subject to GO 165 five year inspections, GO 195 intrusive inspections, whether the circuit is subject to a bi-annual LiDAR survey, third party annual ground control, or GO 174 Substation inspections).

Supporting Table 4.5.1-5: Risk Scoring Criteria Amounts

Risk Scoring Amount (Adds to Risk Score)
34.4 kV = 500 & 4 kV = 50
HFTD Tier 3 = 10000 x Bare Wire Circuit Miles and HFTD Tier 2 = 50 x Bare Wire Circuit Miles
Bare Wire Circuit Mile x 200
High Density = 100 x Bare Wire Circuit Miles; Med Density = 25 x Bare Wire Circuit Miles; and Low Density = 5 x Bare Wire Circuit Miles
High Wind Area = 100 x Bare Wire Circuit Miles; Med Wind Area = 25 x Bare Wire Circuit Miles; and Low Wind Area = 5 x Bare Wire Circuit Miles
# of Conventional Fuses x 2
# of Tree Attachments x 4
# of Level 1 Deficiencies x 1000
# of Level 2 Deficiencies x 100
Circuit Ranking: #1 = 1000, #2 = 900, #3 = 800, #4 = 700, #5 = 600, #6 = 500, #7 = 400, #8 = 300, #9 = 200, #10 = 100, & Not Ranked = 0

Supporting Table 4.5.1-6: Risk Mitigation Factors & Scoring Criteria

Risk Mitigation Factors	Risk Scoring Amount (Subtracts from Risk Score)
Pole Loading Program (Percent Complete)	(Number of Wood Poles x Percent Complete) x 5; NA = 0
FI Program (Percent Complete)	(Percent Complete * 100) x 2; NA = 0
Enhanced Vegetation Management	On Schedule (Green) = Bare Wire Circuit Miles x 2; Behind Schedule (Red) = 0
GO 165 Ground Patrol	In Periodicity (Green) = Bare Wire Circuit Miles x 2; Out Periodicity (Red) = 0
GO 165 5-Year Inspections	In Periodicity (Green) = Bare Wire Circuit Miles x 2; Out Periodicity (Red) = 0
GO 165 Intrusive Inspections	In Periodicity (Green) = Number of x 2; Out Periodicity (Red) = 0
Bi-Annual LiDAR Survey	In Periodicity (Green) = Number of Wood Poles x 2; Out Periodicity (Red) = 0
3rd Party Annual Ground Patrol	In Periodicity (Green) = Bare Wire Circuit Miles x 2; Out Periodicity (Red) = 0
GO 174 Substation Inspections	In Periodicity (Green) = Bare Wire Circuit Miles x 2; Out Periodicity (Red) = 0

Methodology:

The following risk factors have an impact on making a circuit "high risk" with respect to wildfire:

- Length of overhead bare wire (longer length is higher risk);
- Available energy (higher voltage is higher risk);
- Availability of fuel (higher vegetation density is higher risk);
- Susceptibility to high winds (higher wind area is higher risk);
- Susceptibility to pole failure (higher number of wood poles is higher risk);
- Number of conventional (expulsion) fuses (higher is higher risk);
- Number of Tree attachments (higher number is higher risk);
- Number of Uncorrected Level 1 deficiencies (higher number of uncorrected Level 1 wind area is higher risk);
- Number of Uncorrected Level 2 deficiencies (higher number of uncorrected Level 1 wind area is higher risk); and
- Rank in Top Ten worst performing circuits (#1 is highest risk, then #2, etc.).

Timeline: BVES has not made any modifications to the Fire Safety Circuit Matrix since the last WMP filing. As part of the planned work to revise ignition and risk modeling, BVES may consider subsequent revisions to the calculations or modeling approach.

Application and results:
The following programs directly mitigate the above risk factors that make a circuit "high risk" with respect to wildfire by removing or significantly reducing the frequency (or likelihood) of certain risk factors occurring (while the programs are in progress, they partially reduce the risk):

- Covered wire program (removes bare wire)
- Undergrounding facilities (removes bare wire)
- Replace conventional fuses (removes expulsion fuses)
- Tree Attachment Removal Program (removes tree attachments from system)

The following programs mitigate the above risk factors that make a circuit "high risk" with respect to wildfire by reducing the frequency (or likelihood) of the certain risk factors occurring:

- Pole Strengthening (Pole Loading and Assessment Program) (reduces susceptibility of wood poles to failure)
- Installing Fault Indicators (reduces time to locate faults)
- Replace AR with Pulse Conditioned Intellirupter (reduces energy on a line being tested after a fault)
- Install Remotely Monitored Circuit Meters on All Phases (immediately provides indication of outage or abnormal circuit parameters reducing detection time of faults)
- Install Fault Localization Isolation Service Restoration (FLISR) (automatically isolates and de-energizes faults)
- Enhanced Vegetation Management (reduces fuel in immediate vicinity of lines from making contact with bare wire)
- GO-165 Ground Patrol (detects Level 1 and 2 vegetation and facilities discrepancies and other discrepancies that may lead to safety issues; also detects if previously noted discrepancies are being properly cleared)
- GO-165 5-Year Inspections (detects Level 1 and 2 vegetation and facilities discrepancies and other discrepancies that may lead to safety issues; also detects if previously noted discrepancies are being properly cleared)

- GO-165 Intrusive Inspections (detects pole strength integrity issues)
- Bi-Annual LiDAR Survey (detects Level 1 and 2 vegetation and facilities discrepancies and other discrepancies that may lead to safety issues; also detects if previously noted discrepancies are being properly cleared)
- 3rd Party Annual Ground Patrol (detects Level 1 and 2 vegetation and facilities discrepancies and other discrepancies that may lead to safety issues; also detects if previously noted discrepancies are being properly cleared)
- UAV Fly-over Inspections (detects Level 1 and 2 vegetation and facilities discrepancies and other discrepancies that may lead to safety issues; also detects if previously noted discrepancies are being properly cleared)
- GO-174 Substation Inspections (detects substation equipment issues that may fault or failure to open on a fault down circuit)
- Substation Electrical Equipment Preventative Maintenance (detects substation equipment issues that may fault or failure to open on a fault down circuit)

The following programs reduce the severity of wildfire or Public Safety Power Shuts

- Evacuation Route Hardening (reduce likelihood of overhead facilities failing into an evacuation route or causing other damage)
- Circuit Sectionalized to Reduce PSPS Impact (reduce number of customers impacted by PSPS events)

4.5.2 Calculation of Key Metrics

Report details on the calculation of the metrics below. For each metric, a standard definition is provided with statute cited where relevant. The utility must follow the definition provided and detail the procedure they used to calculate the metric values aligned with these definitions. Utilities must cite all data sources used in calculating the metrics below.

1. ***Red Flag Warning overhead circuit mile days** – Detail the steps to calculate the annual number of red flag warning (RFW) overhead (OH) circuit mile days. Calculated as the number of circuit miles that were under an RFW multiplied by the number of days those miles were under said RFW. Refer to Red Flag Warnings as issued by the National Weather Service (NWS). For historical NWS data, refer to the Iowa State University Iowa archive of NWS watch / warnings.4 Detail the steps used to determine if an overhead circuit mile was under a Red Flag Warning, providing an example of how the RFW OH circuit mile days were calculated for a Red Flag Warning that occurred within utility territory over the last five years.*

BVES tracks the RFW issuances through the NWS to maintain safe operational practices for field crew as well as in support of the WMP's situational awareness procedures. BVES has a single zone attributed to San Bernardino County that accounts for these RFW days. For metrics tracking, the external weather consultant provides BVES with the accounting of days at a decimal level, to which BVES extends the calculation over its entire service territory OH circuit miles to determine the number of RFW days by circuit over the period.

2. ***High Wind Warning overhead circuit mile days** – Detail the steps used to calculate the annual number of High Wind Warning (HWW) overhead circuit mile days. Calculated as the number of overhead circuit miles that were under an HWW multiplied by the number of days those miles were under said HWW. Refer to High Wind Warnings as issued by the National Weather Service (NWS). For historical NWS data, refer to the Iowa State University Iowa archive of NWS watch / warnings.5 Detail the steps used to determine if an overhead circuit mile was under a High Wind Warning, providing an example of how the OH HWW circuit mile days were calculated for a High Wind Warning that occurred within utility territory over the last five years.*

The process for tracking HWW days is a similar process to the previous response for RFW days, incorporating the same warning zones from the NWS. BVES provides its metrics analysis over the total OH system to account for the entire service territory.

When the National Weather Service issues a Red Flag Warning, they do so by limit it by zones, typically by county. Given its compact service territory any Red Flag Warning or High Wind Warning for BVES impacts all of its circuit miles. In theory, BVES can run a spatial query on these zones to identify the total circuit mileage impacted by a Red Flag Warning but that is not necessary because it is known that all of its circuit miles are impacted. BVES does, however, measure the day by subtracting the Red Flag or High Wind Warning end date and time from the Red Flag or High Wind Warning start date and time to determine Red Flag Warning circuit mile days. While BVES collects these statistics as directed, they are not particularly useful or insightful into BVES' system operations or performance beyond simply the NFDRS ratings and the Red Flag Warning and High Wind Warning counts already tracked and supplied to the WSD.

3. ***Access and Functional Needs population*** *– Detail the steps to calculate the annual number of customers that are considered part of the Access and Functional Needs (AFN) population. Defined in Government Code § 8593.3 and D.19-05-042 as 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.*

BVES has determined its AFN customers to align with the following categories:

- Customers enrolled in medical baseline and subsidy programs for low-income status;
- Customers that have a preferred or native language other than English
- Targeted customer accounts with self-identified statuses arranging from, but not limited to, physical, developmental or intellectual disabilities, chronic conditions with medical dependency, transportation-limited customers, senior adults and children, and pregnant women

BVES has reached out to mobile home parks located in its service area to ensure that mobile home park residents are being served correctly with regard to any medical baseline conditions. Most mobile home parks have master metered accounts and residents of these mobile home parks share a master electric bill which is included in the lease. This billing structure does not provide BVES any direct or relevant information about the resident medical conditions or situation. As a result, BVES has increased its efforts to gather information about residents who are served behind-the-meter to assess whether they are medical baseline or AFN customers.

BVES also distributed an AFN flyer that was mailed to all residential customers on file to help determine whether any AFN person(s) is part of that household. This outreach effort will help establish a census of the AFN population, which can be combined with data from medical baseline customers to allow emergency medical services teams, firefighters, and the sheriff's deputies to respond quickly during PSPS events and emergency situations. In addition, BVES has coordinated with the fire department, city, and county agencies for assistance on obtaining a list of AFN populations. To date, due to privacy issues, BVES has been unable to collect data on AFN populations, but BVES is still pursuing its efforts.

BVES has distributed the following notice requesting its customers to: *"Help us keep your family safe and informed during an emergency by updating your contact information with Bear Valley Electric Service, Inc. It's especially important to keep us informed of any Access and Functional Needs (AFN) members of your*

household, so we can ensure you get timely AFN updates and alerts. Every second matters during an emergency event – please update your information today!"

AFN Population

Any member of your household who are/have:

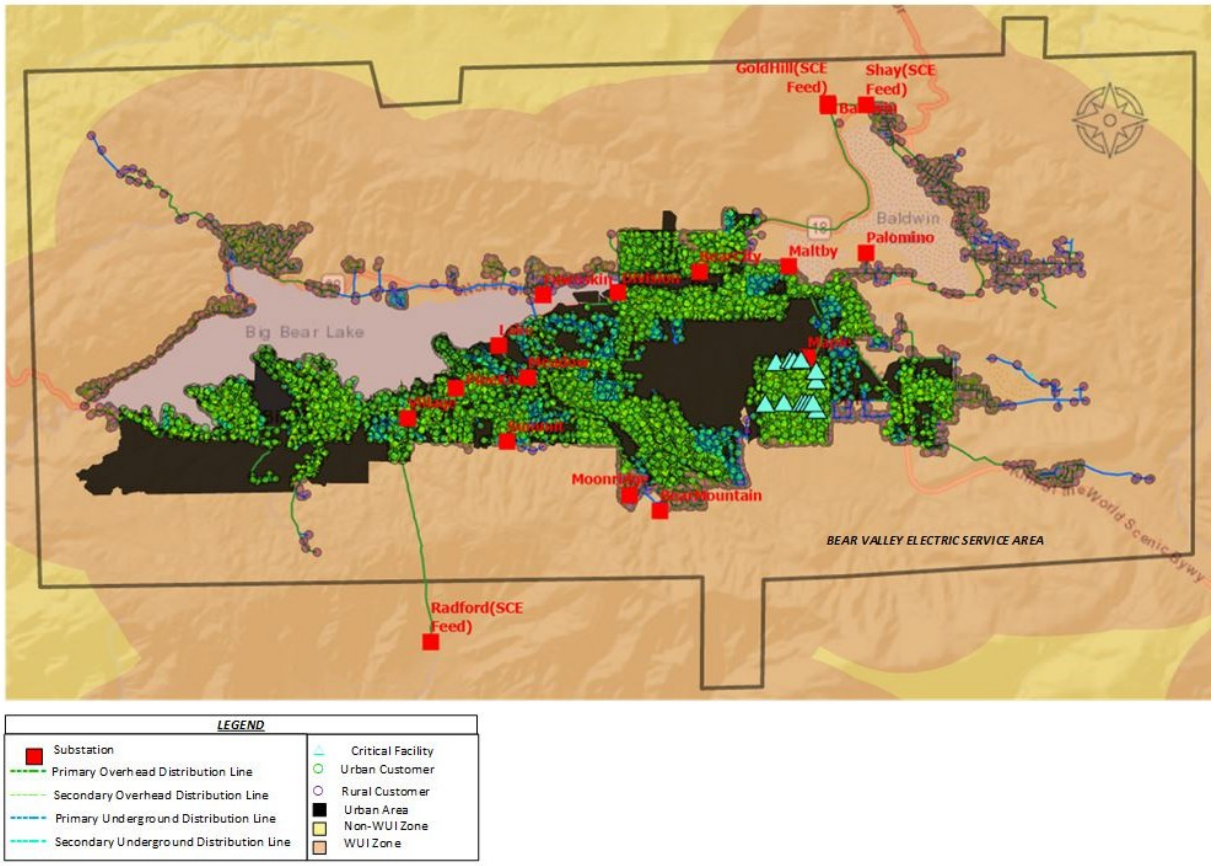
- *Physical, developmental, or intellectual disabilities*
- *Chronic conditions or injuries*
- *Limited English proficiency*
- *Older adults*
- *Children*
- *Low income, homeless and/or transportation disadvantaged (i.e., dependent on public transit)*
- *Pregnant individual*

How to Update Your Information Visit www.bvesinc.com/contact-us if you have an individual with AFN in your household. Please provide the following information in the 'comments' box: name, phone number, service address, mailing address, email address and note that this comment is for AFN. You can also call a Customer Service Representative at 800-808-2837 to update your contact information."

4. ***Wildlife Urban Interface*** *– Detail the steps to calculate the annual number of circuit miles and customers in Wildlife Urban Interface (WUI) territory. WUI is defined as the area where houses exist at more than 1 housing unit per 40 acres and (1) wildland vegetation covers more than 50% of the land area (intermix WUI) or (2) wildland vegetation covers less than 50% of the land area, but a large area (over 1,235 acres) covered with more than 75% wildland vegetation is within 1.5 mi (interface WUI) (Radeloff et al, 2005). 7*
5. ***Urban, rural and highly rural*** *– Detail the steps for calculating the number of customers and circuit miles in utility territory that are in highly rural, rural, and urban regions for each year. Use the following definitions for classifying an area highly rural/rural/urban (also referenced in glossary):*

BVES recently updated its GIS mapping of its urban, rural, and WUI layers and identified that the service area and assets fall under a mix of urban and rural designations according to the U.S. Census Data. BVES is continuing to enhance its risk and asset maps and will provide updates in the next WMP QDR. A small extension of the Radford line, serving no customers, is currently assumed to be highly rural based on the mapping overlays, but may be revised due to calibration of coordinates at a future date.

Figure 4.5.2-1 WUI, Rural, & Urban Designations



a. ***Highly rural*** *– 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 as determined by the United States Bureau of the Census. For the purposes of the WMP, "area" shall be defined as census tracts.*

Overlaying the WUI shapefile maps, the only area believed to be highly rural is along the Radford line that services no residential areas. BVES will have increased granularity regarding this designation by the next QDR.

b. ***Rural*** *– 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. For the purposes of the WMP, "area" shall be defined as census tracts.*

Overlaying the WUI shapefile maps, BVES identified a portion of its service territory in the rural WUI land designation accounting for the total customer account base. BVES will have increased granularity regarding this designation by the next QDR.

c. ***Urban*** *– 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. For the purposes of the WMP, "area" shall be defined as census tracts.*

Overlaying the WUI shapefile maps, BVES identified a portion of its residential customers are located in "urban" areas subject to the urban designation. BVES will have increased granularity regarding this designation by the next QDR.

Population density numbers are calculated using the American Community Survey (ACS) 1-year estimates on population density by census tract for each corresponding year (2016 ACS 1-year estimate for 2016 metrics, 2017 ACS 1-year estimate for 2017 metrics, etc.). For years with no ACS 1-year estimate available, use the 1-year estimate immediately before the missing year (use 2019 estimate if 2020 estimate is not yet published, etc.)

4.6 Progress Reporting on Past Deficiencies

Report progress on all deficiencies provided in the 2020 WMP relevant to the utility. This includes deficiencies in Resolution WSD-002.

***Response:** Summarize how the utility has responded and addressed the conditions in the table below. Reference documents that serve as part of the utility's response (e.g. submitted in the utility's Remedial Compliance Plan, location in 2021 WMP update, etc.). Note action taken by the WSD for Class A and B deficiencies (e.g. response found sufficient, response found insufficient and further action required, etc.).*

Table 4.6-1: List of utility deficiencies and summary of response, 2020 and 2021

Deficiency Number	Deficiency Title	Utility Response (Brief Summary)	Referenced Documents	WSD Action
BVES-1	Focus on grid hardening	Please reference BVES-R2.for response.	Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A 2021 WMP Filing	Insufficient
BVES-2	Wildfire cameras do not provide good coverage of service territory		Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Sufficient
BVES-3	High spend per circuit mile		Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Sufficient
BVES-4	LiDAR patrol targets not met		Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Sufficient
BVES-5	Compliance focus rather than proactive wildfire risk mitigation	BVES demonstrates it exceeds compliance for vegetation management and inspection 2021 WMP Section 7.3.2.5. and across other initiatives.	2021 WMP Filing Section 7.3.2.5	None to Date – 2020 Class C to be addressed in 2021 WMP Filing
BVES-6	Community Outreach	Please reference BVES-R7 for response.	2021 WMP	None to Date – 2020 Class C to be addressed in 2021 WMP Filing

BVES-7	Fuels Management	Please reference BVES-R8 for response	Resolution WSD-013 (January 14, 2021)	None to Date – 2020 Class C to be addressed in 2021 WMP Filing
BVES-8	Patrols for asset and vegetation inspections combined		Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Sufficient
BVES-9	Tracking of tree status	Please reference BVES-R9 for response	2021 WMP	None to Date – 2020 Class C to be addressed in 2021 WMP Filing
BVES-10	PSPS	Please reference BVES-R10 for response	Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Insufficient
BVES-11	BVES did not report an ability to identify and support customers with access and functional needs (AFN)	Please reference BVES-R10 and also in 2021 WMP Section 8.4.	Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Insufficient
BVES-12	Undergrounding (related to BVES-1)		Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Sufficient
BVES-13	Overall lack of an emergency preparedness plan	Appendix C provides details on the BVES Emergency Response Plan	2021 WMP Emergency Response Plan Appendix B	None to Date – 2020 Class C to be addressed in 2021 WMP Filing
BVES-14	"As needed" community engagement insufficient	Please reference BVES-R14 for response	2021 WMP	None to Date – 2020 Class C to be addressed in 2021 WMP Filing
BVES-15	Collaboration	Please reference BVES-R13 for response.	Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Insufficient
Guidance-1	Lack of risk spend efficiency (RSE) information	Please reference BVES-R2 for response.	Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Insufficient
Guidance-2	Lack of alternatives analysis for chosen initiatives	BVES details alternatives for each wildfire prevention initiative in Section 7.3.2.	Resolution WSD-013 (January 14, 2021) 2021 WMP Section 7.3.2.	Insufficient

Guidance-3	Lack of risk modeling to inform decision-making		Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Sufficient
Guidance-4	Lack of discussion on PSPS impacts		Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Sufficient
Guidance-5	Aggregation of initiatives into programs		Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Sufficient
Guidance-6	Failure to disaggregate WMP initiatives from standard operations		Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Sufficient
Guidance-7	Lack of detail on effectiveness of "enhanced" inspection programs		Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Sufficient
Guidance-8	Prevalence of equivocating language – failure of commitment	More direct language is included throughout the 2021 WMP	2021 WMP	None to Date – 2020 Class C to be addressed in 2021 WMP Filing
Guidance-9	Insufficient discussion of pilot programs		Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Sufficient
Guidance-10	Data issues – general	Please reference BVES-R11 for response.	Resolution WSD-013 (January 14, 2021) 2021 WMP	Deferred
Guidance-11	Lack of detail on plans to address personnel shortages		Resolution WSD-013 (January 14, 2021) 2020 WMP Filing, Appendix A	Sufficient
Guidance-12	Lack of detail on long term planning	Please reference BVES-R3 for response.	Resolution WSD-013 (January 14, 2021) 2021 WMP	Insufficient

Deficiency Number	Deficiency Title	Utility Response (Brief Summary)	Referenced Documents	WSD Action
BVES-R1	Defining the Year	Corrected throughout the WMP	Resolution WSD-013 (January 14, 2021) 2021 WMP	None to Date
BVES-R2	Details on Risk Spend Efficiency and Future Modeling Plans	i) BVES includes updated tables in Section 4.2.1 included an explanation of these tables. The model calculations are explained in section 4.5.1 ii) BVES includes updated tables in Section 4.2.1 included an explanation of these tables. The model calculations are explained in section 4.5.1 iii) The plan for additional risk mapping is addressed in 7.3.2.1	Resolution WSD-013 (January 14, 2021) 2021 WMP Sections 4.5.1, 4.2.1, 7.3.2.1.	None to Date
BVES-R3	Long-term Planning	Table 5.3-2 provides annual projected percent complete for each of the mitigations for the time period 2020-2030.	Resolution WSD-013 (January 14, 2021) 2021 WMP Section 5.3 Tables 5.3-2	None to Date
BVES-R4	Pilot Program Impacts on Strategy	BVES discusses its pilot projects impacts on strategies in Section 7.3.2.2 specifically and section 7.3.2 more generally.	Resolution WSD-013 (January 14, 2021) 2021 WMP Filing	None to Date
BVES-R5	Emerging Innovation Installment Programs	BVES will concentrate its efforts on advanced technologies enabled by its the fiber optic network. The specific projects are listed in section 7.3.2.2	Resolution WSD-013 (January 14, 2021) 2021 WMP Section 7.3.2.2.	None to Date
BVES-R6	Controls to Ensure Targets and Goals are Met	Currently, the monitoring and auditing ensures targets and goals are met but BVES plans to develop an internal controls program described Section 7.2 D.	2021 WMP Filing, Section 7.2 D	None to Date
BVES-R7	Vegetation Management Community Outreach	This is addressed in Section 7.3.2.9 Emergency Planning and 7.3.2.5.	2021 WMP Filing Section 7.3.2.9 B and 7.3.2.5.	None to Date

BVES-R8	Fuels Management	The Bear Valley community has been a proactive community partner in developing and participating in fuels management programs. BVES is not contemplating developing a specific fuels management program or joint roadmap with the US Forest Service.	2021 WMP Filing Section 7.3.2.5.	None to Date
BVES-R9	Tracking of Tree Status	This is addressed in Sections 7.3.2.5 and will also be addressed in the ongoing GIS update project.	2021 WMP Section 7.3.2.5.	None to Date
BVES-R10	PSPS	BVES updated its PSPS Plan on Feb. 24, 2021. This is described in detail in Section 8, AND Appendix A.	2021 WMP Section 8 and Appendix A	None to Date
BVES-R11	Data Capabilities and Planning for Data Governance, Sharing, and Repository	BVES has hired a consultant to address this issue in 2021. Additionally, BVES recently hired a new GIS specialist beginning March 2021. These capabilities will be deployed to complete the Initiative and Risk Event GIS layers described in Sections 7.2 D and 7.3.2.7.	2021 WMP Section 7.2 D. Utility Data Architecture and Flow and 7.3.2.7 Data Governance	None to Date
BVES-R12	Lack of Wildfire Issues Addressed in Emergency Preparedness Plan	BVES approved a new Emergency Response Plan (ERP). This is detailed in section 7.3.9 and Appendix C. The ERP is attached to this document as Appendix E.7.3.2.9 and Appendix B	WMP Section 7.3.2.9 and Appendix B Emergency Response Plan	None to Date
BVES-R13	Collaboration	BVES's collaboration with stakeholders and community partners is described in Sections 7.3.2.10, 7.3.2.9, and Appendices A7 B	2021 WMP Section 7.3.2.10, 7.3.2.9, and Appendices A & B	None to Date
BVES-R14	"As Needed" Community Engagement Insufficient	BVES discusses enhanced collaboration and community engagement in Sections 7.3.2.10, 7.3.2.9, and Appendices A7 B.	2021 WMP Section 7.3.2.10, 7.3.2.9, and Appendices A & B	None to Date

5. INPUTS TO THE PLAN AND DIRECTIONAL VISION FOR WMP

5.1 Goal of Wildfire Mitigation Plan

The goal of the Wildfire Mitigation Plan is shared across WSD and all utilities: Documented reductions in the number of ignitions caused by utility actions or equipment and minimization of the societal consequences (with specific consideration to the impact on Access and Functional Needs populations and marginalized communities) of both wildfires and the mitigations employed to reduce them, including PSPS.

In the following sub-sections report utility-specific objectives and program targets towards the WMP goal. No utility response required for section 5.1.

5.2 The Objectives of the Plan

Objectives are unique to each utility and reflect the 1, 3, and 10-Year projections of progress towards the WMP goal. Objectives are determined by the portfolio of mitigation strategies proposed in the WMP. The objectives of the plan shall, at a minimum, be consistent with the requirements of California Public Utilities Code §8386(a) –

Each electrical corporation shall construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of catastrophic wildfire posed by those electrical lines and equipment.

Describe utility WMP objectives, categorized by each of the following timeframes, highlighting changes since the prior WMP report:

1. *Before the next Annual WMP Update*
2. *Within the next 3 years*
3. *Within the next 10 years – long-term planning beyond the 3-year cycle*

The objective of the wildfire mitigation plan is to ensure that BVES constructs, maintains, and operates its electric lines and equipment in a manner that minimizes the risk of catastrophic wildfire posed by its lines and equipment. Additionally, the WMP helps to ensure BVES is compliant with all applicable wildfire rules and statutes. Finally, an objective of the WMP is to assist BVES in its goal to continue to provide BVES customers with reliable service at competitive rates and maintain its role as a valued partner in the community it serves by promoting public safety.

BVES's WMP aims to reduce or eliminate threats of utility-caused wildfires by eliminating sources of ignition and, in the event of a wildfire affecting the BVES service area, to provide emergency response and restoration actions regardless of cause. Another objective of BVES's WMP is to minimize the need to activate PSPS events. Through its WMP, BVES aims to fulfill the requirements detailed in PUC Section 8386. The high-level requirements include an outline of wildfire risks within the BVES service territory; an overview of strategies, protocols, plans, and programs to mitigate wildfires; metrics to monitor performance of the WMP's initiatives; and protocols for communicating with customers and public-safety partners throughout wildfire mitigation and emergency events.

Below, BVES objectives are identified and categorized by timeframe: Objectives to accomplish before the next annual WMP update, within the next three years, and within the next ten years.

1. Objectives before the next Annual WMP Update

Over the course of the 2021, the objective of BVES is to continue to reduce wildfire risks through carrying on its grid hardening initiatives. This includes completion of fuse replacement project, improving situational awareness, improving coordination and communication with stakeholders, and continuing aggressive vegetation management and inspection. BVES also plans to improve its data collection and handling including GIS usage and capabilities. BVES will also continue to improve its workforce readiness through recruitment, training, and the strategic use of consultants to supplement BVES staff.

2. Objectives within the next 3 years

The three-year objectives include the annual WMP update objectives with the additional grid hardening efforts (including removal of remaining tree attachments and pole loading and remediation program), increased situational awareness and control improvements expected from completion of the grid automation project, and increased resiliency to serve load via local generation through a planned solar plus storage project.

3. Objectives within the next 10 years

The ten-year objectives include significant reduction of wildfire ignition probability and improved system resilience. Much of this will stem from BVES's grid hardening efforts. BVES should also fully realize the benefits from its grid automation project and its solar/storage project. Details regarding project status and projected completions is contained in Supporting Table 5.3-2 - Prevention Strategy Program Completion Schedule. BVES's long term grid hardening will be aimed at replacing bare wire with covered wire on its sub-transmission and distribution systems. This project will continue over the next ten years prioritizing the highest risk circuits first. Additionally, in the next ten years BVES will look to leverage the grid automation fiber network being installed its service area with new technologies in monitoring equipment, systems, and external conditions and bringing this data to databases to be utilized in risk determination (perhaps real-time) and to improve situational awareness of operational staff. Specific technologies and sensors will be determined over the next few years and be included in future WMPs. BVES will also work to continue automating switches and equipment where feasible and beneficial to mitigating wildfire risk.

5.3 Plan Program Targets

Program targets are quantifiable measurements of activity identified in WMPs and subsequent updates used to show progress towards reaching the objectives, such as number of trees trimmed or miles of power lines hardened.

List and describe all program targets the electrical corporation uses to track utility WMP implementation and utility performance over the last five years. For all program targets, list the 2019 and 2020 performance, a numeric target value that is the projected target for end of year 2021 and 2022, units on the metrics reported, the assumptions that underlie the use of those metrics, update frequency, and how the performance reported could be validated by third parties outside the utility, such as analysts or academic researchers. Identified metrics must be of enough detail and scope to effectively inform the performance (i.e., reduction in ignition probability or wildfire consequence) of each targeted preventive strategy and program.

Table 5.3-1: List and Description of Program Targets, Last 5 Years

Program Target	2019 Perf.	2020 Perf.	Projected Target by End of 2021	Projected Target by End of 2022	Units	Underlying Assumptions	Update Frequency	Third-Party Validation
A summarized risk map that shows the overall ignition probability and estimated wildfire consequence along the electric lines and equipment	NA	NA	50%	100%	Percent Project Milestones Completed	Project Starts June 2021	Quarterly	Analyst/IE
Climate-driven risk map and modelling based on various relevant weather scenarios	NA	NA	50%	100%	Percent Project Milestones Completed	Project Starts June 2021	Quarterly	Analyst/IE
Ignition probability mapping showing the probability of ignition along the electric lines and equipment	NA	NA	50%	100%	Percent Project Milestones Completed	Project Starts June 2021	Quarterly	Analyst/IE
Initiative mapping and estimation of wildfire and PSPS risk-reduction impact	NA	NA	50%	100%	Percent Project Milestones Completed	Project Starts June 2021	Quarterly	Analyst/IE
Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment	NA	NA	50%	100%	Percent Project Milestones Completed	Project Starts June 2021	Quarterly	Analyst/IE
Advanced weather monitoring and weather stations	10	8	2	NA	# of Weather Stations Installed	Total of 20 Weather Stations to be Installed	Quarterly	Analyst/IE
Continuous monitoring sensors	NA	NA	Not planned yet. BVES still has not found a commercially reliable technology.					
Fault indicators for detecting faults on electric lines and equipment	100%	100%	100%	217	# of FIs Installed	117 additional FIs to be installed at 39 locations	Quarterly	Analyst/IE
Forecast of a fire risk index, fire potential index, or similar	100%	100%	100%	100%	Index in use	Index in use	NA	Analyst/IE

Program Target	2019 Perf.	2020 Perf.	Projected Target by End of 2021	Projected Target by End of 2022	Units	Underlying Assumptions	Update Frequency	Third-Party Validation
Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions	100%	100%	100%	100%	Program in Place and Operating	NA	NA	Analyst/IE
Weather forecasting and estimating impacts on electric lines and equipment	100%	100%	100%	100%	Program in Place and Operating	NA	NA	Analyst/IE
Capacitor maintenance and replacement program	Program covered in BVES ongoing maintenance of sub-transmission and distribution facilities.							
Circuit breaker maintenance and installation to de-energize lines upon detecting a fault	Program covered in BVES ongoing maintenance of sub-transmission and distribution facilities.							
Covered conductor installation	0.5	7.8	12.9	12.9	Circuit Miles	4.3 circuit miles per year of sub-transmission & 8.6 circuit miles per year of distribution	Quarterly	Analyst/IE
Covered conductor maintenance	Program covered in BVES ongoing maintenance of sub-transmission and distribution facilities.							
Crossarm maintenance, repair, and replacement	Program covered in BVES ongoing maintenance of sub-transmission and distribution facilities.							
Distribution pole replacement and reinforcement, including with composite poles	Program covered in pole loading infrastructure hardening and replacement program based on pole loading assessment program.							
Expulsion fuse replacement	302	2001	901	NA	# of Expulsion Fuses Replaced	Project complete when all 3,204 expulsion fuses replaced	Quarterly	Analyst/IE
Grid topology improvements to mitigate or reduce PSPS events	100%	NA	NA	NA	# of section devices installed divided by # of section devices needed	NA	NA	Analyst/IE

Program Target	2019 Perf.	2020 Perf.	Projected Target by End of 2021	Projected Target by End of 2022	Units	Underlying Assumptions	Update Frequency	Third-Party Validation
Installation of system automation equipment	25%	35%	50%	65%	Percent Project Milestones Completed	Based on project milestones	Quarterly	Analyst/IE
Maintenance, repair, and replacement of connectors, including hotline clamps	Program covered in BVES ongoing maintenance of sub-transmission and distribution facilities.							
Mitigation of impact on customers and other residents affected during PSPS event	25%	25%	30%	35%	Percent Project Milestones Completed	Sectional Devices Installed (25%) Energy Storage Project (75%)	NA	Analyst/IE
Other corrective action	BVES currently does not have other corrective action.							
Pole loading infrastructure hardening, and replacement program based on pole loading assessment program	1,588	191	500	500	# of Poles assessed for loading criteria	NA	Quarterly	Analyst/IE
Transformers maintenance and replacement	Program covered in BVES ongoing maintenance of sub-transmission and distribution facilities.							
Transmission tower maintenance and replacement	BVES does not have any transmission facilities.							
Undergrounding of electric lines and/or equipment	NA	NA	BVES currently does not have any programmed projects for undergrounding of electric lines and/or equipment.					
Updates to grid topology to minimize risk of ignition in HFTDs	BVES's entire service area is in the HFTD 2 & 3. Sectionalizing between HFTD 2 and 3 already in place. Further sectionalizing within the HFTD to isolate "higher risk areas" already in place.							

Program Target	2019 Perf.	2020 Perf.	Projected Target by End of 2021	Projected Target by End of 2022	Units	Underlying Assumptions	Update Frequency	Third-Party Validation
Detailed inspections of distribution electric lines and equipment	100%	100%	100%	100%	Percent of Scheduled Circuits Completed	Complete inspection on circuits scheduled for each specific year. Each circuit is on a 5-year schedule. Detailed inspections of circuits are staggered spread the entire system of over 5 years.	Quarterly	Analyst/IE
Detailed inspections of transmission electric lines and equipment	BVES does not have any transmission facilities.							
Improvement of inspections	100%	100%	100%	100%	Continuous Improvement Program in place and ongoing	NA	NA	Analyst/IE
Infrared inspections of distribution electric lines and equipment	211	BVES paused use of this inspection methodology. Intends to conduct every 5 years. Next inspection is programmed for 2024.			Circuit Miles	Complete at least 211 circuit miles of Infrared Inspections on Overhead Facilities	Analyst/IE	
Infrared inspections of transmission electric lines and equipment	BVES does not have any transmission facilities.							
Intrusive pole inspections	100%	100%	100%	100%	Percent of Scheduled Circuits Completed	# of Poles Inspected divided by # of Poles Due for Inspection	Quarterly	Analyst/IE

Program Target	2019 Perf.	2020 Perf.	Projected Target by End of 2021	Projected Target by End of 2022	Units	Underlying Assumptions	Update Frequency	Third-Party Validation
Light Detection and Ranging (LiDAR) inspections of distribution electric lines and equipment	211	211	211	211	Circuit Miles	Complete at least 211 circuit miles of LiDAR on Overhead Facilities	Quarterly	Analyst/IE
LiDAR inspections of transmission electric lines and equipment	BVES does not have any transmission facilities.							
Third Party Ground Patrol Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations	211	211	211	211	Circuit Miles	Complete at least 211 circuit miles of Third-Party Ground Patrol on Overhead Facilities	Quarterly	Analyst/IE
Unmanned Aerial Vehicle (UAV) Inspection Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations	NA	NA	211	211	Circuit Miles	Complete at least 211 circuit miles of Fly-over UAV Inspection on Overhead Facilities	Quarterly	Analyst/IE
Other discretionary inspection of transmission electric lines and	BVES does not have any transmission facilities.							
Patrol inspections of distribution electric lines and equipment	211	211	211	211	Circuit Miles	Complete at least 211 circuit miles of Patrol on Overhead Facilities	Quarterly	Analyst/IE
Patrol inspections of transmission electric lines and equipment	BVES does not have any transmission facilities.							
Pole loading assessment program to determine safety factor	Program covered in pole loading infrastructure hardening and replacement program based on pole loading assessment program.							

Program Target	2019 Perf.	2020 Perf.	Projected Target by End of 2021	Projected Target by End of 2022	Units	Underlying Assumptions	Update Frequency	Third-Party Validation
Quality assurance / quality control of inspections	NA	NA	NA	100%	Percent Completed Base on Milestones	BVES is able to implement Inspection QC program in 2022.	NA	Analyst/IE
Substation inspections	144	144	144	156	GO-174 monthly substation inspection	Inspect each in-service substation monthly (GO 174)	Quarterly	Analyst/IE
Additional efforts to manage community and environmental impacts	BVES currently has not encountered the need for additional efforts to manage community and environmental impacts							
Detailed inspections of vegetation around distribution electric lines and equipment	This inspection is combined with Detailed inspections of distribution electric lines and equipment.							
Detailed inspections of vegetation around transmission electric lines and equipment	BVES does not have any transmission facilities.							
Emergency response vegetation management due to red flag warning or other urgent conditions	100%	100%	100%	100%	Program in place and ready for use	NA	NA	Analyst/IE
Fuel management and reduction of “slash” from vegetation management activities Improvement of inspections	BVES VM contractor removes vegetation wastes as part of contract.							
LiDAR inspections of vegetation around distribution electric lines and equipment	This inspection is combined with LiDAR inspections of distribution electric lines and equipment.							
LiDAR inspections of vegetation around transmission electric lines and equipment	BVES does not have any transmission facilities.							
Other discretionary inspections of vegetation around distribution electric lines and equipment	These inspections are combined with other discretionary inspections of vegetation around distribution electric lines and equipment. See Third Party Ground Patrol and Fly-over UAV inspections.							

Program Target	2019 Perf.	2020 Perf.	Projected Target by End of 2021	Projected Target by End of 2022	Units	Underlying Assumptions	Update Frequency	Third-Party Validation
Other discretionary inspections of vegetation around transmission electric lines and equipment	BVES does not have any transmission facilities.							
Patrol inspections of vegetation around distribution electric lines and equipment	This inspection is combined with Patrol inspections of distribution electric lines and equipment.							
Patrol inspections of vegetation around transmission electric lines and equipment	BVES does not have any transmission facilities.							
Quality assurance / quality control of vegetation inspections	100%	100%	100%	100%	QC program in place and in periodicity	QC schedule determines periodicity	NA	Analyst/IE
Recruiting and training of vegetation management personnel	100%	100%	100%	100%	No gaps in VM personnel (contractor)	Gaps in VM Crews	NA	Analyst/IE
Remediation of at-risk species	Currently BVES has not had this issue. BVES has discussed this with its VM contractor should this be a future problem. Additionally, BVES will be bringing on a Forester in April 2021 to review this more closely.							
Removal and remediation of trees with strike potential to electric lines and equipment	100%	100%	100%	100%	Percent of trees designated for removal actually removed	# of trees designated for removal changes each year	Quarterly	Analyst/IE
Substation inspection	This inspection is combined with substation equipment inspections (GO 174).							
Substation vegetation management	100%	100%	100%	100%	Program in place and being executed ongoing basis	Each substation evaluated and remediated annually. BVES has 13 substations	Annual	Analyst/IE
Vegetation inventory system	50%	100%	100%	100%	Milestone Completion	VM Contractor entered all trees in right of way in VM cycle.	NA	Analyst/IE

Program Target	2019 Perf.	2020 Perf.	Projected Target by End of 2021	Projected Target by End of 2022	Units	Underlying Assumptions	Update Frequency	Third-Party Validation
Vegetation management to achieve clearances around electric lines and equipment	50%	100%	100%	100%	Milestone Completion	VM Contractor implemented enhanced clearance standards and completed VM cycle	NA	Analyst/IE
Automatic recloser operations	100%	100%	100%	100%	Auto Recloser policy and procedures established and in place (ongoing)	NA	NA	Analyst/IE
Crew-accompanying ignition prevention and suppression resources and services	100%	100%	100%	100%	Plan in place and ongoing	NA	NA	Analyst/IE
Personnel work procedures and training in conditions of elevated fire risk	100%	100%	100%	100%	Program in place and ongoing	NA	NA	Analyst/IE
Protocols for PSPS re-energization	100%	100%	100%	100%	Protocols in place and ready for use	NA	NA	Analyst/IE
PSPS events and mitigation of PSPS impacts	100%	100%	100%	100%	BVES has not had any PSPS events. Protocols in place and ready for use	NA	NA	Analyst/IE
Stationed and on-call ignition prevention and suppression resources and services	BVES does not have fire suppression resources. BVES works with Big Bear Fire Department, San Bernardino County Fire Department and CALFIRE closely to provide crews on-call for ignition prevention and suppression.							
Centralized repository for data	50%	75%	100%	100%	Percent Complete Based on Milestones	GIS Data Update Needed to Complete Project	Quarterly	Analyst/IE

Program Target	2019 Perf.	2020 Perf.	Projected Target by End of 2021	Projected Target by End of 2022	Units	Underlying Assumptions	Update Frequency	Third-Party Validation
Collaborative research on utility ignition and/or wildfire	While BVES is open to collaborative research on utility ignition and/or wildfire, it has not had any opportunities to date.							
Documentation and disclosure of wildfire-related data and algorithms	100%	100%	100%	100%	This is an ongoing process.	NA	NA	Analyst/IE
Tracking and analysis of near miss data	100%	100%	100%	100%	Program in place and ongoing	NA	NA	Analyst/IE
Allocation methodology development and application	100%	100%	100%	100%	Program in place and ongoing	NA	NA	Analyst/IE
Risk reduction scenario development and analysis	100%	100%	100%	100%	Program in place and ongoing	NA	NA	Analyst/IE
Risk spend efficiency analysis	100%	100%	100%	100%	Program in place and ongoing	NA	NA	Analyst/IE
Adequate and trained workforce for service restoration	100%	100%	100%	100%	# of Staff for Service Restoration/ # of Required Staff for Service Restoration	Recruitment Program in place and ongoing	NA	Analyst/IE
Community outreach, public awareness, and communications efforts	100%	100%	100%	100%	Community outreach program in place and ongoing	NA	NA	Analyst/IE
Customer support in emergencies	100%	100%	100%	100%	Customer support procedures and policy in place and ready for use	NA	NA	Analyst/IE

Program Target	2019 Perf.	2020 Perf.	Projected Target by End of 2021	Projected Target by End of 2022	Units	Underlying Assumptions	Update Frequency	Third-Party Validation
Disaster and emergency preparedness plan	100%	100%	100%	100%	Disaster and emergency preparedness plan in place and ready for use	NA	NA	Analyst/IE
Preparedness and planning for service restoration	100%	100%	100%	100%	Preparedness and planning for service restoration plan in place and ready for use	NA	NA	Analyst/IE
Protocols in place to learn from wildfire events	100%	100%	100%	100%	Protocols in place to learn from wildfire events and ongoing	NA	NA	Analyst/IE
Community engagement	100%	100%	100%	100%	Community engagement program in place and ongoing	NA	NA	Analyst/IE
Cooperation and best practice sharing with agencies outside CA	BVES does not have a formal program for this but is actively engaged in reviewing and learning from T&D industry best practices and new techniques and technologies.							
Cooperation with suppression agencies	100%	100%	100%	100%	Cooperation with suppression agencies program in place and ongoing	NA	NA	Analyst/IE

Program Target	2019 Perf.	2020 Perf.	Projected Target by End of 2021	Projected Target by End of 2022	Units	Underlying Assumptions	Update Frequency	Third-Party Validation
Forest service and fuel reduction cooperation and joint roadmap	NA	NA	50%	100%	Progress measured by achieving milestones	Develop cooperation and joint roadmap with Forest Service (2021 – 50%) Implement cooperation and joint roadmap with Forest Service (2022 – 50%)		

Supporting Table 5.3-2. Prevention Strategy Program Completion Schedule

Mitigation Measure	Percent Complete by Year										
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Pineknot Substation Upgrade	100%										
Palomino Substation Upgrade	80%	100%									
Energy Storage Project	5%	10%	15%	100%							
Fuse Upgrades	70%	100%									
Tree Attachment Removal Project	40%	50%	60%	70%	80%	90%	100%				
Pole Loading Assessment & Remediation Program	30%	45%	60%	75%	80%	90%	100%				

Mitigation Measure	Percent Complete by Year										
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Covered Conductor Replacement Pilot Program	100%										
Covered Conductor Program (34.5 kV sub-trans.)	14%	30%	46%	62%	78%	94%	100%				
Covered Wire Program (4kV distribution)	1%	6%	11%	15%	20%	25%	30%	35%	40%	45%	50%
Radford Line Covered Conductor Replacement Project	5%	100%									
Evacuation Route Hardening (Pilot Project)	75%	100%									
Evacuation Route Hardening Project		50%	100%								
GIS Based Applications (Outage Management)	100%										
SCADA Installations (Fiber Network & SCADA Software)	40%	75%	100%								
Web Based Weather Resources	100%										
Situational Awareness Enhancement Center			10%	20%	100%						
BVES Owned Weather Stations	90%	100%									
iRestore Implementation	100%										

Mitigation Measure	Percent Complete by Year										
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Weather Forecasting	100%										
Remote Monitoring	25%	50%	100%								
Grid Automation	25%	35%	50%	65%	75%	85%	95%	100%			
First Annual On-Ground Inspection (GO 165)	100%										
Second Annual Ground Inspection	100%										
Electrical Preventative Maintenance Program	100%										
LIDAR Inspections	100%										
Vegetation Management Plan	100%										
Forester Consulting Services		100%									
Fly-Over Inspection Program (UAV)		100%									

5.4 Planning for Workforce and Other Limited Resources

Report on worker qualifications and training practices regarding wildfire and PSPS mitigation for workers in the following target roles:

1. Vegetation inspections

2. Vegetation management projects

3. Asset inspections

4. Grid hardening

5. Risk event inspection

For each of the target roles listed above:

1. List all worker titles relevant to target role (target roles listed above)

2. For each worker title, list and explain minimum qualifications with an emphasis on qualifications relevant to wildfire and PSPS mitigation. Note if the job requirements include the following:

a. Going beyond a basic knowledge of General Order 95 requirements to perform relevant types of inspections or activities in the target role

b. Being a "Qualified Electrical Worker" (QEW) and define what certifications, qualifications, experience, etc. is required to be a QEW for the target role for the utility.

c. Include special certification requirements such as being an International Society of Arboriculture (ISA) Certified Arborist with specialty certification as a Utility Specialist

3. Report percentage of Full Time Employees (FTEs) in target role with specific job title

4. Provide a summarized report detailing the overall percentage of FTEs with qualifications listed in (2) for each of the target roles.

5. Report plans to improve qualifications of workers relevant to wildfire and PSPS mitigation. Utilities will explain how they are developing more robust outreach and onboarding training programs for new electric workers to identify hazards that could ignite wildfires.

Minimum Qualifications & Plans for Resource Sufficiency

Successful implementation of the Plan requires adequate staffing. BVES uses a combination of in-house and contract resources. Program owners are described in Section 1. BVES recently hired internal resources to fill identified roles for the WMP's implementation. The utility also plans to continue contracting with foresters and inspectors to provide additional resources to carry out projects and programs identified in this WMP. The following passages describe the additional resources needed for WMP implementation. BVES also relies upon existing mutual aid agreements with public safety partners for emergency events BVES plans to retain the following staffing resources within the next WMP term:

- **Wildfire Mitigation and Reliability Engineer** – Oversees wildfire mitigation initiatives by collecting and analyzing a comprehensive set of data and metrics and serves as the company liaison for first responders and public safety partners. *(Recently secured in 2020).*

- **Project Coordinator** – Manages schedule, logistics, labor resources, and budget to achieve WMP project implementation and provides periodic project progress updates. *(Recently secured in 2020).*

- **Inspectors** – Inspects overhead lines and equipment to comply with General Orders (GOs). 165 and 174 inspection requirements GO 95 and 128 construction standards, the National Electrical Safety Code (NESC) and other related industry standards and codes. (Recently contracted in 2020)

- **Forester** – Provides field support and oversight of high-risk vegetation management work. The contractor will be knowledgeable of and comply with applicable rules and regulations (e.g., GO 95 and Public Resources Code 4293) with formal training in forest management as well as a relevant degree. (Recently contracted in 2020)

- **GIS & Risk Impact Modeling** – Develops the basis for a data repository and managed architecture that will help drive BVES alignment to the data schema framework. The contractor will apply the GIS gap and data analysis results to inform the development of an updated risk model that looks at wildfire, public safety, and PSPS impact risk factors. The GIS contractor will also train an incoming in-house GIS professional to assist BVES to build more GIS capabilities. (Contract in progress).

During emergency response, BVES has emergency contracts in place for needed services and maintains active membership in the California Utilities Emergency Association, which facilitates emergency response communication and cooperation among member utilities. BVES is also an active member of the Mountain Mutual Aid Association which has significant community-based resources to assist during emergencies.

Recruiting and Training Personnel

BVES uses a combination of permanent and contract personnel. Over the last year, BVES updated responsibilities of existing positions and identified the need for additional positions for ongoing WMP support.

i. BVES outsources all vegetation management and the contractor BVES uses has no projected shortfalls in staffing. Under this arrangement, all of BVES's vegetation management personnel are qualified and extensively trained.

   BVES has re-instituted its lineman apprenticeship program that had been dormant.

   BVES recently established a relocation policy to relocate new hires from out of state to increase the talent sourcing pool. Because of BVES's remote location, employees must live in the service territory. BVES screens candidates initially through remote interviews using online collaboration tools. Candidates that are favorably screened are brought to Big Bear Lake for in-person assessment and service territory orientation.

   BVES uses a local temp agency to source local talent for certain positions, for example project coordinators and skilled accountants for work order documentation and processing.

ii. As a general rule, BVES prefers to hire experienced personnel but has improved its capabilities and willingness to train new staff that demonstrate strong potential for success to the specifics of utility skillsets. BVES keeps a monthly headcount and is developing the requested metrics as our recruiting and apprenticeship programs mature, including from out of state and other California utilities.

5.4.1 Target Role: Vegetation Inspections

1. Worker titles in target role

2. Minimum qualifications

3. FTE percentages by title in target role

4. Percent of FTEs by high-interest qualification

5. Plans to improve worker qualifications

Supporting Table 5.4.1-1. Vegetation Inspections

Target Role: Vegetation Inspections				
Worker Titles	**Minimum Qualification**	**Percent FTE**	**Special Certification Requirements**	**Plans to Improve Qualifications**
Utility Engineer & Wildfire Mitigation Supervisor (BVES Employee)	• Bachelor's Degree in an engineering field or a technical discipline required. • Eight years of planning, construction, or engineering experience including four years of administrative and supervisory experience. Utility experience preferred. • Work experience in an area with strong compliance regimes. Experience interacting with utility regulators and knowledge of regulatory processes preferred. • Knowledge of overhead and underground line construction, substations, transformation, cabling, voltage drop, circuit protection and protection coordination, rules, rates and schedules, Company policies and procedures, service requirements, material management, electrical codes, budgeting and electrical theory and application.	100%	Professional Engineer license in California required. If not held, must obtain within 2 years of employment.	None required
Wildfire Mitigation and Reliability Engineer (BVES Employee)	• Bachelor of Science degree in Engineering, Mathematics, Physics, or other related technical discipline. • Prior electric utility experience preferred. • Understanding of statistical analysis and probabilistic methods preferred. • Prior experience working with Enterprise Resource Planning (ERP) software or asset management software, Oracle based accounting systems, Outage Management Systems, Geographic Information Systems (GIS) and SCADA systems preferred.	100%		None required
Field Inspector (BVES Employee)	• Three years of Journeyman Lineman or above experience. • IBEW Journeyman Lineman status in good standing • Demonstrated knowledge and proficiency in GO 95 and GO 128. • Experience inspecting overhead and underground facilities. • Class C California Driver's License	100%	Journeyman Lineman	None required
Utility Systems Specialist Inspector/Lead Inspector (Contractor)	• Overhead Distribution and/or Transmission distribution inspection experience (2-year min) • Identification of all overhead equipment • NESC and ANSI Inspection experience (1-year min)	100%	Red Cross FA/CPR Certified Wildfire Training	None required

	• Current Driver License • Computer and GIS mapping experience			
Geospatial Project Manager (Contractor)	• 8 years of GIS and Remote Sensing Experience • 5 years or more in a Supervisory Role Advanced Knowledge of LiDAR Sensors and Data • Advanced GIS Skills and Problem Solving	100%	Geospatial Information Systems Professional (GISP)	ASPRS Certified Mapping Scientist, LiDAR
Geospatial Lead Analyst (Contractor)	• 8 years of GIS and Remote Sensing Experience • Strong Quality Control and Detail • Advanced Knowledge of LiDAR Sensors and Data • Advanced GIS Skills and Problem Solving	100%		ASPRS Certified Remote Sensing Technologist
Geospatial Technician (Contractor)	Solid Understand of GIS and Remote Sensing Science Strong Attention to Detail Strong Computer Skills • Work Independently	100%		None required

5.4.2 Target Role: Vegetation Management Projects

1. Worker titles in target role

2. Minimum qualifications

3. FTE percentages by title in target role

4. Percent of FTEs by high-interest qualification

5. Plans to improve worker qualifications

Supporting Table 5.4.2-1. Vegetation Management Projects

Target Role: Vegetation Management Projects				
Worker Titles	**Minimum Qualification**	**Percent FTE**	**Special Certification Requirements**	**Plans to Improve Qualifications**
Tree Trim General Foreman/Supervisor (Contractor)	• 5 years of line clearance tree pruning experience in a Foreman role • Line clearance Certification • Certified ISA • Current California Driver License • General Computer knowledge	100%	ISA Certification Line-clearance qualified tree-trimmer	None required
Tree Trimmer (Contractor)	• Strong work ethic • Current California Driver License (Class B permit) • General computer skills	100%	ISA Certification Line-clearance qualified tree-trimmer	None required

5.4.3 Target Role: Asset Inspections

1. Worker titles in target role

2. Minimum qualifications

3. FTE percentages by title in target role

4. Percent of FTEs by high-interest qualification

5. Plans to improve worker qualifications

Supporting Table 5.4.3-1. Asset Inspections

Target Role: Asset Inspections				
Worker Titles	**Minimum Qualification**	**Percent FTE**	**Special Certification Requirements**	**Plans to Improve Qualifications**
Field Inspector (BVES Employee)	• Three years of Journeyman Lineman or above experience. • IBEW Journeyman Lineman status in good standing • Demonstrated knowledge and proficiency in GO 95 and GO 128. • Experience inspecting overhead and underground facilities. • Class C California Driver's License	100%	Journeyman Lineman	None required

Light Crew Foreman (BVES Employee)	• Three years of experience as a Journeyman Lineman or Service Crew Foreman.
	• IBEW Journeyman Lineman status in good standing.
	• Knowledge of:
	  • Methods, materials, and tools used in electrical overhead and underground construction, maintenance, and repair work.
	  • Principles of electrical theory as applied to electrical circuits and wiring systems, GO 95 and 128, service requirements and all applicable codes, accident prevention rules and ordinances.
	  • Occupational hazards and standard safety precautions necessary in work.
	• Class A California Driver's License.
		100%	Journeyman Lineman	None required

Service Crew Foreman (BVES Employee)	Three years of experience at the journey level in construction, maintenance, and repair of both overhead and underground electrical systems. IBEW Journeyman Lineman status in good standing. Knowledge of: • Methods, materials, and tools used in electrical overhead and underground construction, maintenance, and repair work. • Principles of electrical theory as applied to electrical circuits and wiring systems, GO 95 and 128, service requirements and all applicable codes, accident prevention rules and ordinances. • Inspection program requirements of GO 165 and GO 174. • Occupational hazards and standard safety precautions necessary in work. Class A California Driver's License.	100%	Journeyman Lineman	None required

Substation Technician (BVES Employee)	• Minimum five (5) years' experience observing and operating substation equipment. • Journeyman Lineman certification a plus. • Demonstrated ability to read and understand electrical system drawings and substation equipment technical manuals. • Sound knowledge of: IEEE-SA - National Electrical Safety Codes (NESC) as they pertain to electrical distribution substations and grid equipment. Methods, materials, and tools used in electrical distribution system substation construction, operations, maintenance, diagnostic, and repair work. Principles of electrical theory as applied to distribution system substations and grid equipment (34.5 kV and 4.160 kV). Inspection program requirements of GO 174. SCADA and electric utility GIS systems. Class C California Driver License.	100%		None required
Utility Systems Specialist Inspector/Lead Inspector (Contractor)	• Overhead Distribution and/or Transmission distribution inspection experience (2-year min) • Identification of all overhead equipment • NESC and ANSI Inspection experience (1-year min) • Current Driver License • Computer and GIS mapping experience	100%	Red Cross FA/CPR Certified Wildfire Training	None required
Geospatial Project Manager (Contractor)	• 8 years of GIS and Remote Sensing Experience • 5 years or more in a Supervisory Role Advanced Knowledge of LiDAR Sensors and Data • Advanced GIS Skills and Problem Solving	100%	Geospatial Information Systems Professional (GISP)	ASPRS Certified Mapping Scientist, LiDAR
Geospatial Lead Analyst (Contractor)	• 8 years of GIS and Remote Sensing Experience • Strong Quality Control and Detail • Advanced Knowledge of LiDAR Sensors and Data • Advanced GIS Skills and Problem Solving	100%		ASPRS Certified Remote Sensing Technologist
Geospatial Technician (Contractor)	Solid Understand of GIS and Remote Sensing Science Strong Attention to Detail Strong Computer Skills • Work Independently	100%		None required

5.4.4 Target Role: Grid Hardening

1. Worker titles in target role

2. Minimum qualifications

3. FTE percentages by title in target role

4. Percent of FTEs by high-interest qualification

5. Plans to improve worker qualifications

Supporting Table 5.4.4-1. Grid Hardening

Target Role: Grid Hardening				
Worker Titles	**Minimum Qualification**	**Percent FTE**	**Special Certification Requirements**	**Plans to Improve Qualifications**
Utility Engineer & Wildfire Mitigation Supervisor (BVES Employee)	• Bachelor's Degree in an engineering field or a technical discipline required. • Eight years of planning, construction, or engineering experience including four years of administrative and supervisory experience. Utility experience preferred. • Work experience in an area with strong compliance regimes. Experience interacting with utility regulators and knowledge of regulatory processes preferred. • Knowledge of overhead and underground line construction, substations, transformation, cabling, voltage drop, circuit protection and protection coordination, rules, rates and schedules, Company policies and procedures, service requirements, material management, electrical codes, budgeting and electrical theory and application.	100%	Professional Engineer license in California required. If not held, must obtain within 2 years of employment.	
Field Operations Supervisor (BVES Employee)	• Associate degree (Bachelor's preferred) in electrical engineering and construction management or related field or fifteen (15) years of experience in supervising line operations. • Seven years of experience in line operations working under a collective bargaining agreement or equivalent combination of experience and education required • Thorough knowledge of GO 95/165 and Construction Methods	100%		
Regulatory Compliance Project Engineer (BVES Employee)	• Bachelor's Degree in Electrical Engineering, or related field. • Strong experience with overhead and underground distribution and substation design. Knowledge of SCADA and automated grid systems are highly desirable. • Excellent knowledge and strong experience in working in a highly regulated environment and working with a large number of agencies such as: US Forest Service, US Bureau of Land Management, US Fish and Wildlife Service, California Department of Fish and Game, California Division of Occupational Safety and Health (DOSH, also known as Cal/OSHA), California Department of Transportation (Caltrans), Department of Transportation (DOT), State Water Resource Control Board, California Environmental Protection Agency (EPA), and South Coast Air Quality Management District (SCAQMD).	100%	Professional Engineer's (PE) license in the California is strongly desired. Note, that if the applicant does not have a PE in California, the applicant will be required to obtain a California PE license within 12 months of employment at BVES, Inc. in this position.	

	• Experience with California Environmental Quality Act (CEQA) process. • Experience and working knowledge of CPUC General Orders 95, 128, 165 and 174.			
Utility Planner I (BVES Employee)	• Bachelor's degree in Engineering or successful completion of a Utility Planning Certification required. • Minimum of 2 years utility or comparable construction planning experience performing duties such as estimating, planning, and electrical distribution design work.	100%		None required
Light Crew Foreman (BVES Employee)	Three years of experience as a Journeyman Lineman or Service Crew Foreman. IBEW Journeyman Lineman status in good standing. Knowledge of: • Methods, materials, and tools used in electrical overhead and underground construction, maintenance, and repair work. • Principles of electrical theory as applied to electrical circuits and wiring systems, GO 95 and 128, service requirements and all applicable codes, accident prevention rules and ordinances. • Occupational hazards and standard safety precautions necessary in work. Class A California Driver's License.	100%	Journeyman Lineman	None required
Service Crew Foreman (BVES Employee)	Three years of experience at the journey level in construction, maintenance, and repair of both overhead and underground electrical systems. IBEW Journeyman Lineman status in good standing. Knowledge of: • Methods, materials, and tools used in electrical overhead and underground construction, maintenance, and repair work. • Principles of electrical theory as applied to electrical circuits and wiring systems, GO 95 and 128, service requirements and all applicable codes, accident prevention rules and ordinances. • Inspection program requirements of GO 165 and GO 174. • Occupational hazards and standard safety precautions necessary in work. Class A California Driver's License.	100%	Journeyman Lineman	None required
Lineman (BVES Employee)	• Certified completion of a union or company recognized lineman apprenticeship training program. • IBEW Journeyman Lineman status in good standing. • Past experience in climbing wooden power poles and working on high voltage power lines. • Knowledge of basic principles of electricity, current theory mathematics, GO 95 and 128 and all applicable codes, accident prevention orders and ordinances.	100%	Journeyman Lineman	None required

	• Knowledge of methods, material and tools used in the construction, maintenance and repair of an overhead/underground transmission, distribution, and substation electrical system • Must possess or obtain within 6 months a valid Class A California Driver's License.			
Substation Technician (BVES Employee)	Minimum five (5) years' experience observing and operating substation equipment. Journeyman Lineman certification a plus. Demonstrated ability to read and understand electrical system drawings and substation equipment technical manuals. Sound knowledge of: • IEEE-SA - National Electrical Safety Codes (NESC) as they pertain to electrical distribution substations and grid equipment. • Methods, materials, and tools used in electrical distribution system substation construction, operations, maintenance, diagnostic, and repair work. • Principles of electrical theory as applied to distribution system substations and grid equipment (34.5 kV and 4.160 kV). • Inspection program requirements of GO 174. • SCADA and electric utility GIS systems. Class C California Driver License.	100%		None required

5.4.5 Target Role: Risk Event Inspections

1. Worker titles in target role

2. Minimum qualifications

3. FTE percentages by title in target role

4. Percent of FTEs by high-interest qualification

5. Plans to improve worker qualifications

Supporting Table 5.4.5-1. Risk Event Inspections

Target Role: Risk Event Inspections				
Worker Titles	**Minimum Qualification**	**Percent FTE**	**Special Certification Requirements**	**Plans to Improve Qualifications**
Utility Engineer & Wildfire Mitigation Supervisor (BVES Employee)	• Bachelor's Degree in an engineering field or a technical discipline required. • Eight years of planning, construction, or engineering experience including four years of administrative and supervisory experience. Utility experience preferred. • Work experience in an area with strong compliance regimes. Experience interacting with utility regulators and knowledge of regulatory processes preferred.	100%	Professional Engineer license in California required. If not held, must obtain within 2 years of employment.	

	• Knowledge of overhead and underground line construction, substations, transformation, cabling, voltage drop, circuit protection and protection coordination, rules, rates and schedules, Company policies and procedures, service requirements, material management, electrical codes, budgeting and electrical theory and application.			
Field Operations Supervisor (BVES Employee)	• Associate degree (Bachelor's preferred) in electrical engineering and construction management or related field or fifteen (15) years of experience in supervising line operations. • Seven years of experience in line operations working under a collective bargaining agreement or equivalent combination of experience and education required • Thorough knowledge of GO 95/165 and Construction Methods	100%		
Regulatory Compliance Project Engineer (BVES Employee)	• Bachelor's Degree in Electrical Engineering, or related field. • Strong experience with overhead and underground distribution and substation design. Knowledge of SCADA and automated grid systems are highly desirable. • Excellent knowledge and strong experience in working in a highly regulated environment and working with a large number of agencies such as: US Forest Service, US Bureau of Land Management, US Fish and Wildlife Service, California Department of Fish and Game, California Division of Occupational Safety and Health (DOSH, also known as Cal/OSHA), California Department of Transportation (Caltrans), Department of Transportation (DOT), State Water Resource Control Board, California Environmental Protection Agency (EPA), and South Coast Air Quality Management District (SCAQMD). • Experience with California Environmental Quality Act (CEQA) process. • Experience and working knowledge of CPUC General Orders 95, 128, 165 and 174.	100%	Professional Engineer's (PE) license in the California is strongly desired. Note, that if the applicant does not have a PE in California, the applicant will be required to obtain a California PE license within 12 months of employment at BVES, Inc. in this position.	

6. PERFORMANCE METRICS AND UNDERLYING DATA

Instructions: Section to be populated from Quarterly Reports. Tables to be populated are listed below for reference. NOTE: Report updates to projected metrics that are now actuals (e.g., projected 2020 spend will be replaced with actual unless otherwise noted). If an actual is substantially different from the projected (>10% difference), highlight the corresponding metric in light green.

6.1 Recent Performance on Progress Metrics, Last 5 Years

Instructions for Table 1:

In the attached spreadsheet document, report performance on the following metrics within the utility's service territory over the past five years as needed to correct previously reported data. Where the utility does not collect its own data on a given metric, the utility shall work with the relevant state agencies to collect the relevant information for its service territory, and clearly identify the owner and dataset used to provide the response in the "Comments" column.

Table 1: Recent performance on progress metrics, last 5 years – reference only, fill out attached spreadsheet to correct prior reports

Table 1: Recent Performance on Progress Metrics, last 5 years is provided in Attachment A.

6.2 Recent Performance on Outcome Metrics, Annual and Normalized for Weather, Last 5 Years

Instructions for Table 2:

In the attached spreadsheet document, report performance on the following metrics within the utility's service territory over the past five years as needed to correct previously-reported data. Where the utility does not collect its own data on a given metric, the utility shall work with the relevant state agencies to collect the relevant information for its service territory, and clearly identify the owner and dataset used to provide the response in "Comments" column. Provide a list of all types of findings and number of findings per type, in total and in number of findings per circuit mile.

Table 2: Recent Performance on Outcome Metrics, last 5 years is provided in Attachment A.

6.3 Description of Additional Metrics

Instructions for Table 3:

In addition to the metrics specified above, list and describe all other metrics the utility uses to evaluate wildfire mitigation performance, the utility's performance on those metrics over the last five years, the units reported, the assumptions that underlie the use of those metrics, and how the performance reported could be validated by third parties outside the utility, such as analysts or academic researchers. Identified metrics must be of enough detail and scope to effectively inform the performance (i.e., reduction in ignition probability or wildfire consequence) of each preventive strategy and program.

Table 3: List and description of additional metrics, last 5 years is provided in Attachment A

6.4 Detailed Information Supporting Outcome Metrics

Enclose detailed information as requested for the metrics below.

Instructions for Table 4:

In the attached spreadsheet document, report numbers of fatalities attributed to any utility wildfire mitigation initiatives, as listed in the utility's previous or current WMP filings or otherwise, according to the type of activity in column one, and by the victim's relationship to the utility (i.e., full-time employee, contractor, of member of the general public), for each of the last five years as needed to correct previously-reported data. For fatalities caused by initiatives beyond these categories, add rows to specify accordingly. The relationship to the utility statuses of full-time employee, contractor, and member of public are mutually exclusive, such that no individual can be counted in more than one category, nor can any individual fatality be attributed to more than one initiative.

Table 4: Fatalities due to utility wildfire mitigation initiatives, last 5 years is provided in Attachment A

Instructions for Table 5:

In the attached spreadsheet document, report numbers of OSHA-reportable injuries attributed to any utility wildfire mitigation initiatives, as listed in the utility's previous or current WMP filings or otherwise, according to the type of activity in column one, and by the victim's relationship to the utility (i.e., full-time employee, contractor, of member of the general public), for each of the last five years as needed to correct previously-reported data. For members of the public, all injuries that meet OSHA-reportable standards of severity (i.e., injury or illness resulting in loss of consciousness or requiring medical treatment beyond first aid) shall be included, even if those incidents are not reported to OSHA due to the identity of the victims.

For OSHA-reportable injuries caused by initiatives beyond these categories, add rows to specify accordingly. The victim identities listed are mutually exclusive, such that no individual victim can be counted as more than one identity, nor can any individual OSHA-reportable injury be attributed to more than one activity.

Table 5: OSHA-reportable injuries due to utility wildfire mitigation initiatives, last 5 years is provided in Attachment A

6.5 Mapping Recent, Modelled, and Baseline Conditions

Underlying data for recent conditions (over the last five years) of the utility service territory in a downloadable shapefile GIS format, following the schema provided in the spatial reporting schema attachment. All data is reported quarterly, this is a placeholder for quarterly spatial data.

Please refer to BVES's Quarterly Data Report submitted concurrently with this WMP.

6.6 Recent Weather Patterns, Last 5 Years

Instructions for Table 6:

In the attached spreadsheet document, report weather measurements based upon the duration and scope of NWS Red Flag Warnings, High wind warnings and upon proprietary Fire Potential Index (or other similar fire risk potential measure if used) for each year. Calculate and report 5-year historical average as needed to correct previously-reported data.

Table 6: Weather patterns, last 5 years is provided in Attachment A

6.7 Recent and Projected Drivers of Ignition Probability

Instructions for Table 7:

In the attached spreadsheet document, report recent drivers of ignition probability according to whether or not risk events of that type are tracked, the number of incidents per year (e.g., all instances of animal contact regardless of whether they caused an outage, an ignition, or neither), the rate at which those incidents (e.g., object contact, equipment failure, etc.) cause an ignition in the column, and the number of ignitions that those incidents caused by category, for each of last five years as needed to correct previously-reported data.

Calculate and include 5-year historical averages. This requirement applies to all utilities, not only those required to submit annual ignition data. Any utility that does not have complete 2020 ignition data compiled by the WMP deadline shall indicate in the 2020 columns that said information is incomplete.

Table 7.1: Key recent and projected drivers of ignition probability, last 5 years and projections is provided in Attachment A

Table 7.2: Key recent and projected drivers of ignition probability by HFTD status, last 5 years and projections is provided in Attachment A

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

6.8.1 Current Baseline Status of Service Territory and Utility Equipment

Instructions for Table 8:

In the attached spreadsheet document, provide summary data for the current baseline state of HFTD and non-HFTD service territory in terms of circuit miles; overhead transmission lines, overhead distribution lines, substations, weather stations, and critical facilities located within the territory; and customers by type, located in urban versus rural versus highly rural areas and including the subset within the Wildland-Urban Interface (WUI) as needed to correct previously-reported data. The totals of the cells for each category of information (e.g., "circuit miles (including WUI and non-WUI)") would be equal to the overall service territory total (e.g., total circuit miles). For example, the total of number of customers in urban,

rural, and highly rural areas of HFTD plus those in urban, rural, and highly rural areas of non-HFTD would equal the total number of customers of the entire service territory.

Table 8: State of service territory and utility equipment is provided in Attachment A

6.8.2 Additions, Removal, and Upgrade of Utility Equipment by End of 3-Year Plan Term

Instructions for Table 9:

In the attached spreadsheet document, input summary information of plans and actuals for additions or removals of utility equipment as needed to correct previously-reported data. Report net additions using positive numbers and net removals and undergrounding using negative numbers for circuit miles and numbers of substations. Report changes planned or actualized for that year – for example, if 10 net overhead circuit miles were added in 2020, then report "10" for 2020. If 20 net overhead circuit miles are planned for addition by 2022, with 15 being added by 2021 and 5 more added by 2022, then report "15" for 2022 and "5" for 2021. Do not report cumulative change across years. In this case, do not report "20" for 2022, but instead the number planned to be added for just that year, which is "5".

Table 9: Location of actual and planned utility equipment additions or removal year over year is provided in Attachment A

Transmission lines refer to all lines at or above 65kV, and distribution lines refer to all lines below 65kV.

Instructions for Table 10:

Referring to the program targets discussed above, report plans and actuals for hardening upgrades in detail in the attached spreadsheet document. Report in terms of number of circuit miles or stations to be upgraded for each year, assuming complete implementation of wildfire mitigation activities, for HFTD and nonHFTD service territory for circuit miles of overhead transmission lines, circuit miles of overhead distribution lines, circuit miles of overhead transmission lines located in Wildland-Urban Interface (WUI), circuit miles of overhead distribution lines in WUI, number of substations, number of substations in WUI, number of weather stations and number of weather stations in WUI as needed to correct previously-reported data. If updating previously-reported data, separately include a list of the hardening initiatives included in the calculations for the table.

Table 10: Location of actual and planned utility infrastructure upgrades year over year is provided in Attachment A

7. MITIGATION INITIATIVES

7.1 Wildfire Mitigation Strategy

Describe organization-wide wildfire mitigation strategy and goals for each of the following time periods, highlighting changes since the prior WMP report:

1. By June 1 of current year

2. By Sept 1 of current year

3. Before the next Annual WMP Update

4. Within the next 3 years

5. Within the next 10 years

This section describes the wildfire mitigation strategies and preventive programs established in the WMP. The information provided includes the overarching strategy, projects implemented and proposed, and the timing of proposed implementations. BVES did not split its preventive strategies into transmission and distribution categories, because BVES does not own or operate any transmission infrastructure. Although BVES has sub-transmission lines (34.5 kV), it considers the lines distribution assets, given the voltage.[18]

The following describes the organization-wide wildfire mitigation strategy statements over the same periods:

1. *and* ***2.*** *Before the 2021 wildfire season*[19]*:* Continued development, implementation and monitoring of programs and initiatives which both prepare BVES for the 2021 wildfire season and continues to execute long-term plans to systematically reduce wildfire ignition risk through:

- System hardening and automation initiatives
- Improved preventive maintenance practices and inspection techniques
- Enhanced situational awareness[20]
- Continued coordination with public safety partners and community members for development of protocols, emergency response planning and public communications for wildfires and PSPS events

BVES is scheduled to complete its GO 165 patrols before June 1. BVES is also scheduled to complete LiDAR surveys and Third-Party Ground patrols by September 1. BVES intends to complete its Fly-over UAV surveys by September 1.

All BVES outreach on PSPS policy and procedures are scheduled to be completed by June 1. Additionally, all long-term preparations for PSPS events (such as CRC materials inventory and stocking) are scheduled to be completed by June 1.

BVES staff will continue to conduct in-house training on PSPS procedures, wildfire emergency response and recovery procedures, and operations procedures to mitigate wildfire.

[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

[19] BVES does not distinguish actions planned for before June 1 and September 1 in its planning at this time.

[20] BVES plans to add to new weather stations before the start of fire season at Bertha Peak and the KBHR antenna.

BVES is on track to complete its project to eliminate expulsion fuses from its system before June 1.

3. *Before the next annual update:* Continue to refine and enhance the BVES WMP plan and associated actions and initiatives in preparation for the next annual update through:

- Using established metrics, monitor the effectiveness WMP initiatives and associated wildfire risk reductions
- Improve GIS capabilities, data gathering, and align with data schema
- Gather internal and external (from other CA utilities) lessons learned from wildfire risk modeling, program implementation and effectiveness, pilot projects and new technology

4. *Within the next three years:* Continue mitigation measures to reduce the number of high-risk circuits from 11 to 5 (see Table 4-7 10 Year Fire Risk Reduction Outlook for details) by completion of wildfire risk reduction initiatives and improvements to wildfire risk modeling, situational awareness, internal capabilities and external stakeholder communications and outreach through:

- Details regarding Prevention Strategy Program Completion can be found in Supporting Table 5.3.2
- Develop risk mapping

5. *In the next ten years:* Continue mitigation measures to reduce the number of high-risk circuits from 11 to 0 by completion of wildfire risk reduction initiatives and improvements to wildfire risk modeling, situational awareness, internal capabilities, and external stakeholder communications and outreach through:

- 100% completion of the pole loading and assessment remediation program,
  100% completion of the route hardening program, significant progress on bare wire replacements on high and moderate risk circuits
  100% completion of tree attachment removal program
  100% of sub-transmission bare conductor replaced with covered conductor
- Implementation of additional grid hardening initiatives, ignition risk modeling, and other wildfire risk reduction technologies and plans

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.

A. Wildfire Risk Management Compared to Safety/Reliability

BVES selected the proposed initiatives in this WMP to reduce the probability of ignition by utility equipment and the impact of wildfires on reliable electric service following the assessment of key wildfire risk drivers and quantifying which approaches most cost-effectively reduced risks. Public safety impact is a principal consideration within BVES normal and emergency operating practices.

Using the risk-based decision-making framework, current programmatic targets, and applied lessons learned, BVES continues to enhance its existing wildfire mitigation practices for the 2021 WMP. Each

subsection under Section 7.3 details the planning, execution, and cost components of existing and planned mitigation measures in addition to alternative assessments, where applicable, and how proposed practices will mitigate wildfire ignition and consequences. Mitigation practices in this section are reviewed at least annually to evaluate progress and determine if modification to the WMP is appropriate.

These initiatives largely complement BVES's activities undertaken to manage risks to safety and reliability. Enhanced preventive maintenance, vegetation management, inspection frequency, and pole remediation reduce wildfire, safety, and 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 7.3.

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. Include utility research listed above in Section 4.4.

See the table below for the summarized responses to each of the prompts above. Additional detail on implementation of initiatives is located in Section 5.3 of this WMP.

Supporting Table 7.1-1: Listed Description of the Wildfire Mitigation Strategy

Initiative Categories	Estimates of Proportion of the WMP Categories' Risk Reduction Outcomes Attributed to Reliability/Safety vs. Wildfire Risk *7.1 (A)*		Summary of Implementation & Changed Circumstances *7.1 (B)*	Resource Sufficiency by 2024 *7.1 (C)*	New Technologies & Innovation by 2023 *7.1 (D)*
	Reliability / Safety (%)	Wildfire (%)			
Risk Assessment & Mapping	10	90	- BVES began enhancing its GIS mapping capabilities in 2020 and will continue over 2021. - In moving toward alignment with the WSD's data schema methodology, BVES has contracted SMEs to assist in enhancing existing risk models and expand into fire ignition predictability models to enhance the utility's ability to provide more accurate forecasts of threats. See initiative Section 7.3.2.1 for additional lessons learned, challenges, program status, and outcomes.	BVES has contracted resources to support the initiatives. Training internal utility staff is expected as part of this engagement.	BVES continues to monitor the large utility deployments and considerations of new vendors and engineering firms to consider when expanding probability scenario mapping to risk drivers.
Situational Awareness & Forecasting	20	80	- BVES originally sought to install the remaining two weather stations by 2020, but this has been pushed out into 2021 due to access concerns to the area. - SCADA automation is projected at 40% with a completion year of 2022. - GIS Based applications frames the basis to support the risk mapping and data governance initiatives taking shape in 2021. This was completed in 2020 and has greatly informed the utility's ability to determine data gaps in GIS capabilities. - BVES plans for two additional camera locations in 2021 - Grid Automation will continue with	BVES has contracted resources to support the initiatives along with internal resources to interpret weather station and camera imaging data.	BVES does not anticipate any new technologies or innovation within this WMP category over the next three years.

Initiative Categories	Estimates of Proportion of the WMP Categories' Risk Reduction Outcomes Attributed to Reliability/Safety vs. Wildfire Risk *7.1 (A)*		Summary of Implementation & Changed Circumstances *7.1 (B)*	Resource Sufficiency by 2024 *7.1 (C)*	New Technologies & Innovation by 2023 *7.1 (D)*
	Reliability / Safety (%)	Wildfire (%)			
			35% completion expected in 2021 - Situational Awareness Enhancement Center is scheduled for 2022 - Remote monitoring via camera requires future improvements for a design for remote locations where no low voltage secondary exist. Developing design for solar and battery power. See initiative Section 7.3.2.2 for additional lessons learned, challenges, program status, and outcomes.		
Grid Design & System Hardening	10	90	- BVES completed the Pineknot Substation initiative in 2020. - Upgrades to the Palomino Substation are scheduled for 2021 completion. - BVES Energy Storage Facility has made more strides in determining a plan and site approvals for installation. This initiative has been pushed out to 2022. - Conventional Fuse Replacements are ahead of schedule for completion in 2021. - Tree Attachments have a forecasted schedule of removal by 2026. - New pilot program for Evacuation Route hardening. - Pole Loading Assessment & Remediation is on track given the number of corrective actions throughout 2020. This is poised to be completed by 2027. - Completion of the Covered Conductor pilot program - Radford Line Covered Conductor Replacement Project is on track for completion in 2021. - Covered Wire installations for the 34.5 and 4kV lines will continue given	BVES faces inherent challenges as a small, remotely located utility and continues to explore cost sharing investments and mitigations to reduce resource overload and balance execution of the WMP. Over the next three years, contracted resources and internal personnel are expected to meet the utility's needs.	BVES continues to monitor the large utility deployments and considerations of new vendors and engineering firms, and academic research that identifies successful technologies that are demonstrated to mitigate the risk of wildfires. BVES has a robust hardening plan and does not anticipate adoption of new technologies within the next three years but

Initiative Categories	Estimates of Proportion of the WMP Categories' Risk Reduction Outcomes Attributed to Reliability/Safety vs. Wildfire Risk *7.1 (A)*		Summary of Implementation & Changed Circumstances *7.1 (B)*	Resource Sufficiency by 2024 *7.1 (C)*	New Technologies & Innovation by 2023 *7.1 (D)*
	Reliability / Safety (%)	Wildfire (%)			
			the success of the covered conductor pilot program. See initiative Section 7.3.2.3 for additional lessons learned, challenges, program status, and outcomes.		will continue to evaluate and consider emerging advancements and technologies.
Asset Management & Inspections	60	40	- All inspection programs remain on target with priority corrective actions addressed promptly or withing a defined timeframe between level 1-3 occurrences. BVES does not expect changes over the WMP filing period. - BVES intends to competitively solicit bids from qualified contractors with experience in UAV inspection type to perform an annual fly-over inspection of BVES facilities. Ideally, this inspection will be performed prior to the fire season. In 2021, BVES aims to conduct the inspection prior to the end of June. This has been a successful initiative for the utility. See initiative Section 7.3.2.4 for additional lessons learned, challenges, program status, and outcomes.	BVES faces inherent challenges as a small, remotely located utility and continues to explore cost sharing investments and mitigations to reduce resource overload and balance execution of the WMP. Over the next three years, contracted resources and internal personnel are expected to meet the utility's needs.	BVES does not anticipate any new technologies or innovation within this WMP category over the next three years.

Initiative Categories	Estimates of Proportion of the WMP Categories' Risk Reduction Outcomes Attributed to Reliability/Safety vs. Wildfire Risk *7.1 (A)*		Summary of Implementation & Changed Circumstances *7.1 (B)*	Resource Sufficiency by 2024 *7.1 (C)*	New Technologies & Innovation by 2023 *7.1 (D)*
	Reliability / Safety (%)	Wildfire (%)			
Vegetation Management & Inspections	40	60	- BVES continues to execute its enhanced vegetation management program focusing on developing collaborative measures with the USFS - BVES plans to hire a forester consultant to execute activities along with the utility, giving SME level oversight in elevated weather risk conditions See initiative Section 7.3.2.5 for additional lessons learned, challenges, program status, and outcomes.	BVES faces inherent challenges as a small, remotely located utility and continues to explore cost sharing investments and mitigations to reduce resource overload and balance execution of the WMP. Over the next three years, contracted resources (such as the planned forester support) and internal personnel are expected to meet the utility's needs.	BVES does not anticipate any new technologies or innovation within this WMP category over the next three years.
Grid Operations & Protocols	40	60	-Fault indicators program is completed. - Programs in place for emergency reports from third parties and wildfire infrastructure protection teams continue. - High speed clearing and automatic recloser upgrades did not reveal any need to modify the schedule or scope in 2020. See initiative Section 7.3.2.6 for	BVES faces inherent challenges as a small, remotely located utility and continues to explore cost sharing investments and	BVES does not anticipate any new technologies or innovation within this WMP category over the next three years. In the event that an PSPS

Initiative Categories	Estimates of Proportion of the WMP Categories' Risk Reduction Outcomes Attributed to Reliability/Safety vs. Wildfire Risk *7.1 (A)*		Summary of Implementation & Changed Circumstances *7.1 (B)*	Resource Sufficiency by 2024 *7.1 (C)*	New Technologies & Innovation by 2023 *7.1 (D)*
	Reliability / Safety (%)	Wildfire (%)			
			additional lessons learned, challenges, program status, and outcomes.	mitigations to reduce resource overload and balance execution of the WMP. Over the next three years, contracted resources and internal personnel are expected to meet the utility's needs.	event is necessary, BVES will seek to reduce any scale, scope, and impact of the event through line sectionalization efforts subject to the GIS data architecture being further enhanced over the next year.
Data Governance	10	90	- This initiative category is dependent on the work executed under the GIS gap analysis, which is now being categorized under mapping and modeling work (Risk Assessment & Mapping) and data schema architecture. This will require BVES to revise certain aspects of data management and its existing platforms to provide more integrations in the software available to the utility at this time. See initiative Section 7.3.2.7 for additional lessons learned, challenges, program status, and outcomes.	BVES faces inherent challenges as a small, remotely located utility and continues to explore cost sharing investments and mitigations to reduce resource overload and balance execution of the WMP. Over the next three years, contracted resources and internal personnel are expected to meet the	BVES does not anticipate any new technologies or innovation within this WMP category over the next three years. The utility will continue to modify data management practices and GIS capabilities over the next year, further aligning to the WSD's Data Schema methodology.

Initiative Categories	Estimates of Proportion of the WMP Categories' Risk Reduction Outcomes Attributed to Reliability/Safety vs. Wildfire Risk *7.1 (A)*		Summary of Implementation & Changed Circumstances *7.1 (B)*	Resource Sufficiency by 2024 *7.1 (C)*	New Technologies & Innovation by 2023 *7.1 (D)*
	Reliability / Safety (%)	Wildfire (%)			
				utility's needs.	
Resource Allocation Methodology	NA	NA	- BVES does not have unique programs attributed to this category and categorizes associated contractor costs to the subdivision of work scoped (e.g., inspection contractors would align to Asset Management & Inspections) See initiative Section 7.3.2.8 for additional lessons learned, challenges, program status, and outcomes.	BVES faces inherent challenges as a small, remotely located utility and continues to explore cost sharing investments and mitigations to reduce resource overload and balance execution of the WMP. Over the next three years, contracted resources and internal personnel are expected to meet the utility's needs.	BVES does not anticipate any new technologies or innovation within this WMP category over the next three years.

Initiative Categories	Estimates of Proportion of the WMP Categories' Risk Reduction Outcomes Attributed to Reliability/Safety vs. Wildfire Risk *7.1 (A)*		Summary of Implementation & Changed Circumstances *7.1 (B)*	Resource Sufficiency by 2024 *7.1 (C)*	New Technologies & Innovation by 2023 *7.1 (D)*
	Reliability / Safety (%)	Wildfire (%)			
Emergency Planning & Preparedness	40	60	- BVES did not find significant findings from the 2020 year associated with this initiative category. BVES has not experienced a wildfire or a PSPS event, nor has it had to facilitate an evacuation. - BVES continues to train staff for emergency operational roles and responsibilities and seeks to improve customer support in the event of an emergency, with particular focus to the AFN population. - BVES has deployed iRestore, which is a shared application utilized by the local emergency response district, bridging further collaboration in reducing ignition risk or wildfire spread. See initiative Section 7.3.2.6 for additional lessons learned, challenges, program status, and outcomes.	BVES personnel along with resources available through mutual aid agreements are sufficient over the next three years.	BVES does not anticipate any new technologies or innovation within this WMP category over the next three years.
Stakeholder Cooperation & Community Outreach	10	90	- BVES has conducted a public outreach survey in October 2020 to provide wildfire and PSPS awareness, with the results provided to the Commission R 18-12-005 under its Phase 2 guidelines progress report. - The utility plans to enhance its communications and notification plans, starting in 2021, and will consider designing a stakeholder outreach framework that can be standardized and used going forward to maintain strong community relations within the service area and with public safety partners. See initiative Section 7.3.2.6 for additional lessons learned, challenges, program status, and outcomes.	BVES has contracted resources to support the initiatives. Training internal utility staff is expected to continue as part of this engagement.	BVES does not anticipate any new technologies or innovation within this WMP category over the next three years.

7.2 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.

A. Monitoring and Auditing the Plan

To monitor the implementation of the WMP, the Utility Engineer & Wildfire Mitigation Supervisor provides status updates of all WMP initiatives, including identification of any deficiencies, to the President, Treasurer & Secretary, during regularly scheduled monthly management meetings. Additionally, the WMP and its program targets are included as a discussion item on the agenda at regularly scheduled Manager and Supervisor Meetings. This discussion includes the status and progress of all capital (such as covered wire, fuse replacement) and operations initiatives (review of vegetation management progress, quality, and inspections) instituted under the plan.

In order to audit the implementation of the WMP, the Utility Engineer & Wildfire Mitigation Supervisor collects facts and submits a report of the WMP metrics each quarter to the President, Treasurer & Secretary as well as BVES Managers and Supervisors for quality assurance and control. Based on the results, the Utility Engineer & Wildfire Mitigation Supervisor makes recommendations to the President, Treasurer & Secretary on actions to be implemented. Additionally, work orders, contracts, purchase orders, and other expense mechanisms are subject to BVES internal and external audit procedures.

Additionally, BVES shall engage one of the CPUC-approved independent evaluators to review and assess BVES's compliance with its WMP from the Independent Evaluator Enlistment Announcement issued by the WSD February 22, 2021. It is expected that the evaluator will:

- Consult with, and operate under direction of, the WSD and Safety and Enforcement Division (SED).
- Issue a report of each comprehensive review to the Commission/WSD based upon future decisions in R.18-10-007.
- 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 2021 WMP and presumably past iterations.

B. Identify any deficiencies in the plan or the plan's implementation and correct those deficiencies.

B. Identifying and Correcting Deficiencies in the Plan

All BVES staff, contractors, and qualified external stakeholders are encouraged to offer comments or identify potential deficiencies to the Utility Engineer & Wildfire Mitigation Supervisor as soon as possible when observed. All actions implemented under this WMP including capital, operations, and administrative initiatives are reviewed periodically for quality assurance and control. For example, all vegetation management is regularly inspected in the field. If any deficiency is identified, the Utility Engineer & Wildfire Mitigation Supervisor 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., patrol, internal audit)
- Priority based on deficiency severity
- Assign a corrective action including the date of planned completion
- Assign staff responsible for completing the corrective action
- Date corrective action completed

The Utility Engineer & Wildfire Mitigation Supervisor will review the deficiency log for accuracy and completeness at regularly scheduled Manager and Supervisor Meetings. It should 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 program not in the WMP deficiency log).

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.

C. Monitoring and Auditing the Effectiveness of Equipment and Line Inspections

The Utility Engineer & Wildfire Mitigation Supervisor assigns qualified internal staff members (e.g., line crew or field supervisors) or engages a third party to review and audit the equipment and line inspections, including inspections performed by contractors, as defined in the WMP after the completion of the first six months of the plan. The goal is to conduct the audit between the 6-month and 8-month point of each plan period. The assigned auditor will:

- Perform site visits,
- Review records including but not limited to photographs, maps, work orders, safety records, and GIS records,
- Interview and debrief staff performing inspections to assess their knowledge of the inspection programs,
- Monitor staff performing inspection activities,
- Ensure compliance with all applicable regulatory requirements (e.g. General Orders 95 and 165)
- Review identified deficiencies noted in the programs,
- Identify systemic issues or problems,
- Note the timeliness of corrective actions,
- Randomly sample completed work and corrective actions and verify the effectiveness of the work and corrective actions, and
- Issue a written findings report.

The Utility Engineer & Wildfire Mitigation Supervisor will review the audit findings and assign corrective action as applicable. A copy of the audit report will be provided to the President, Treasurer, & Secretary.

D. Ensure that across audits, initiatives, monitoring, and identifying deficiencies, the utility will report in a format that matches across WMPs, Quarterly Reports, Quarterly Advice Letters, and annual compliance assessment.

D. Utility Data Architecture and Flow

BVES is undertaking a significant effort to improve its data architecture, collection, capabilities, and flow. This effort includes improving its GIS data quality and interface capabilities. BVES plans to continue to improve data collection, analysis, and reporting practices surrounding the evaluation of its WMP. Future plans include incorporating a data collection and tracking spreadsheet Data Product Catalog (Catalog)

within its collection of data sources to aggregate the elements of various mitigation strategy results. This Catalog will 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.

BVES expects to fill a vacant GIS administrator role by mid-March 2021. This role has been vacant since Q3 2020. Given this constraint, efforts to address BV_R11 have focused on improving existing GIS data to attain WSD GIS standards.

The following actions have been recently undertaken by BVES:

- BVES hired a consultant to produce a GIS capabilities gap assessment that was delivered in November of 2020.

In response to that report BVES has undertaken an effort to improve its GIS capabilities and data. Thus far this includes the following improvements:

- Asset Line: created a set of four distribution line layers: Primary and Secondary Overhead, Primary and Secondary Underground
- Asset Point: Created new fuse, switchgear, and transformer layers
- Risk Event: Created new layers for distribution outages and wire down events, and updated vegetation management outages
- For all layers: Corrected circuit and substation references, re-projected to EPSG 3857.

As of submission of this WMP, the following WSD required GIS layers remain as work in progress:

- Asset Point: Support Structure Crossarm Detail, Transformer Detail
- Risk Event: Risk Event Asset Log, Risk Event Photo Log
- Initiative: Vegetation Management Inspections, Vegetation Management Projects, Asset Management Inspections, and Data Related to Multiple Initiatives
- Across all layers, a data refresh from Milsoft and other source systems is required, to capture recent network upgrades. Additionally, GPS field work is planned for the incoming GIS administrator to assure that all assets, both overhead and underground, have coordinates in GIS.

Throughout this effort, we have deepened our understanding of data management practices and the integration capabilities (API, ODBC) of GIS source systems. Following an initial training period, GIS work in Q2 2021 will address the work in progress items listed above.

i. The centralized data repository will be based on the WSD GIS schema. While primary and foreign keys for the WSD schema have been mapped to BVES source system identifiers, mapping the remaining attributes within each WSD table to BVES source system attributes remains a work in progress. This will be high priority for Q2 2021.
ii. Data management and governance policies will focus on assuring data quality at its source, from the start of its lifecycle. Since asset related data is relatively static, this effort will prioritize the management of risk event and initiative data.
iii. Please see the initial paragraphs within this section, above for details.
iv. Staff training in GIS will occur in March following the onboarding of BVES GIS administrator. BVES staff have participated in GIS work sessions, providing context and business rules that have fed SQL queries and python scripts utilized to develop WSD GIS updates.

The details provided in the quarterly reports QDR, QIU, and QAL capture the descriptions of the corresponding data product to which BVES has access and regularly tracked in addition to established

metrics. BVES understands the importance of delivering concise, meaningful data resources to facilitate a thorough review of the WMP and metrics and identifies, consistent with guidelines from the WSD, and provide valuable measurements for determining the success of WMP efforts.

BVES is also beginning to institute an internal controls-based approach to better assure that wildfire management plan targets and initiatives are monitored, achieved, and audited. These internal controls include business practices, policies, and procedures established in order to minimize risk. BVES's controls are designed to prevent, detect, and correct failure points that increase wildfire risk. Accordingly, there are three categories of internal controls: preventive, detective, and corrective. It is through this perspective that BVES conducts its monitoring and implementation of the WMP. BVES's preventive controls include operational practices such as those described in Supporting Table 4.2-3 Pre-Planned Operational Direction Based on Wildfire Risk Forecast. Detective controls include inspections, review of outage logs and incident & corrections logs, and management oversight of budgets, projects, and fault indicators. Corrective controls are the actions taken to resolve a failure. These may be prescribed actions or a framework for taking action as in the Emergency Response Plan. These controls will begin to be implemented in Q3 2021 and will continue into 2022.

7.3 Detailed Wildfire Mitigation Programs

In this section, describe how the utility's specific programs and initiatives plan to execute the strategy set out in Section 7.1. The specific programs and initiatives are divided into 10 categories, with each providing a space for a narrative description of the utility's initiatives and a summary table for numeric input in the subsequent tables in this section. The initiatives are organized by the following categories provided in this section:

1. Risk assessment and mapping
2. Situational awareness and forecasting
3. Grid design and system hardening
4. Asset management and inspections
5. Vegetation management and inspections
6. Grid operations and protocols
7. Data governance
8. Resource allocation methodology
9. Emergency planning and preparedness
10. Stakeholder cooperation and community engagement

7.3.1 Financial Data on Mitigation Initiatives, by Category

In the following sections (7.3.1 – 7.3.10) is a list of potential wildfire and PSPS mitigation activities which fit under the 10 categories listed above. While it is not necessary to have initiatives within all activities, all mitigation initiatives will fit into one or more of the activities listed below. Financial information—including actual / projected spend, spend per line miles treated, and risk-spend-efficiency for activity by HFTD tier (all regions, non-HFTD, HFTD tier 2, HFTD tier 3) for all HFTD tiers which the activity has been or plans to be applied—is reported in the attached file quarterly. Report any updates to the financial data in the spreadsheet attached in Table 12.

Table 12 is provided in Attachment A to this 2021 WMP.

7.3.2 Detailed Information on Mitigation Initiatives by Category and Activity

Report detailed information for each initiative activity in which spending was above $0 over the course of the current WMP cycle (2020-2022). For each activity, organize details under the following headings:

*1. **Risk to be mitigated** / problem to be addressed*

*2. **Initiative selection** ("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives*

*3. **Region prioritization** ("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk")*

*4. **Progress on initiative** (amount spent, regions covered) and plans for next year*

*5. **Future improvements to initiative***

***List of initiative activities by category** - Detailed definitions for each mitigation activity are provided in the appendix*

The initiatives described below include a discussion of the information requested by both 7.3.1 and 7.3.2.

7.3.2.1 Risk Assessment and Mapping

1. *Risk to be mitigated / problem to be addressed*

Bear Valley Electric Service does not have a summarized risk map showing the overall ignition probability and estimated wildfire consequence along electric lines and equipment.

Presently BVES uses the Risk Assessment and Mapping of Bear Valley Electric Service as provided by the CPUC Fire-Threat Map adopted in D. 17-12-024 December 14, 2017 throughout its service territory. This map shows the CPUC-designated fire hazard zones within BVES's service territory, which quantify specific geography that could be subject to elevated fire risk under historically viable fire weather conditions. BVES also identifies "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 more vulnerable to wildfire risk. BVES's wildfire mapping efforts are foundational to determining and executing priorities among the BVES risk mitigation efforts, as well as its day-to-day operations. BVES employs the risk 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.

2. *Initiative selection ("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives*

A. <u>Risk Map Development</u>

"why" engage in activity
The development of risk-based maps enables BVES to improve its wildfire mitigation decision process.

During 2021, BVES will engage a consulting firm to begin the development of a series of risk maps that will show the overall ignition probability and estimated wildfire consequence along electric lines and equipment. It is expected that the project will be 50% completed by year-end 2021.

The Risk Maps to be developed will include:

- A summarized risk map that shows the overall ignition probability and estimated wildfire consequence along the electric lines and equipment
- Climate-driven risk map and modeling based on various relevant weather scenarios
- Ignition probability mapping showing the probability of ignition along the electric lines and equipment
- Initiative mapping and estimation of wildfire and PSPS risk-reduction impact
- Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment

Alternatives

BVES could continue to rely on the CPUC Fire-Threat Map adopted in D. 17-12-024 December 14, 2017 for its service territory. As recommended by the WSD, more detailed risk-based maps will improve the wildfire mitigation process and effectiveness.

3. *Region prioritization* *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk")*

All of BVES's service area is in Tier 2 and Tier 3 high risk wildfire service areas. Therefore, the Risk Based Maps will cover all electric service areas.

4. *Progress on initiative (amount spent, regions covered) and plans for next year*

Supporting Table 7.3.2.1-1 Progress on Data Governance

Id	Initiative	Region	Amount Spend ($)[21]	Plans for next year
A	Risk Map Development	Tier2 and Tier 3	Initiative to kick-off in the middle of 2021	Next year the Risk Base Maps will continue to be developed. This initiative will be completed in 2022.

[21] BVES is currently engaged in an effort to update its costing and spending information for each initiative. Additional information on each initiative will be provided in future filings.

5. *Future Improvements to Initiative*

Supporting Table 7.3.2.1-2 Future Improvements to Data Governance

Id	Initiative	Future Improvements
A	Risk Map Development	BVES will continue to monitor and evaluate improvements in risk-based decision making. Updates to the risk-based maps will be considered as appropriate.

7.3.2.2 Situational Awareness and Forecasting

1. ***Risk to be mitigated*** */ problem to be addressed*

Initiatives to improve situational awareness and forecasting are paramount in having the ability to monitor and react to events across BVES's 32-square mile service area. The NFDRS provides useful information for fuel, moisture, and related fire weather conditions. However, the reports are presented at the county level. San Bernardino County is the largest county in the U.S. Actionable data is not always readily apparent from the reports because BVES is a small part of the County. In addition, there is extreme variability that exists across the county, from lowland conditions at or slightly below sea level to the mountainous terrain that exceed 11,500 feet with numerous unique microclimates.

The goal of situational awareness is to facilitate collaborative planning, assist in achieving shared situational awareness, and improve decision-making, for wildfire mitigation as follows:

- **Information Requirements & Methods**: Critical information to BVES's wildfire mitigation decision making includes weather conditions (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 highly useful information resources to BVES's situational awareness enhancements.

- **Roles & Responsibilities**: Key Field Operations staff must have real time access to situational awareness information. These staff members include the Utility Manager, Field Operations Supervisor, Utility Engineer and Wildfire Mitigation Supervisor, and Service Crew/Dutyman. Additionally, the Customer Service Supervisor must 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 mobile devices out in the field. Access to situational awareness products on mobile devices is particularly helpful to achieving 24/7 situational awareness.

- **Implementation of Technologies to Communicate and Manage Information**: Technologies that aid in communicating situational awareness information include supervisory control and data acquisition (SCADA) (including incorporation of weather station data into SCADA), internet, intranet, social media, and other networked solutions.

2. *Initiative selection ("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives*

To further enhance its situational monitoring, BVES outlined a number of initiatives that contribute to its information base and facilitate sharing. These initiative 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 has also implemented remote monitoring via cameras.

A. SCADA

"why" engage in activity

BVES current SCADA system is inadequate with few controls for the distribution system and limited monitoring capability. Through the Grid Automation Project, BVES will 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 such as weather stations.

Alternatives

For the most part, there are no reasonable alternatives to a SCADA. Nearly all utilities have SCADA systems for advance monitoring and control. Alternatives discussion were considered as part of the planning before this initiative began. This discussion is available in the BVES 2020 WMP. BVES continues to monitor the implementation and alternatives to reduce wildfire risk in the most effective and efficient manner possible.

B. GIS-Based Applications

"why" engage in activity

BVES has an ESRI-based GIS system which runs several applications to improve situational awareness. BVES expanded its existing GIS system by implementing mobile workforce and dispatching applications. This new application has been implemented.

Alternatives

This initiative is complete. Alternatives were considered as part of the planning before the initiative began. This discussion is available in the BVES 2020 WMP. BVES continues to monitor the implementation and alternatives to reduce wildfire risk in the most effective and efficient manner possible.

C. Web-Based Weather Resource

"why" engage in activity

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 NWS, 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. The utility also monitors the likelihood of dry lightning occurrence as it is the type most likely to cause wildfires. This initiative is in place.

Alternatives

This initiative is complete. The alternatives were considered as part of the planning before the initiative began. This discussion is available in the BVES 2020 WMP. BVES continues to monitor the implementation and alternatives to reduce wildfire risk in the most effective and efficient manner possible.

D. Weather Stations

"why" engage in activity

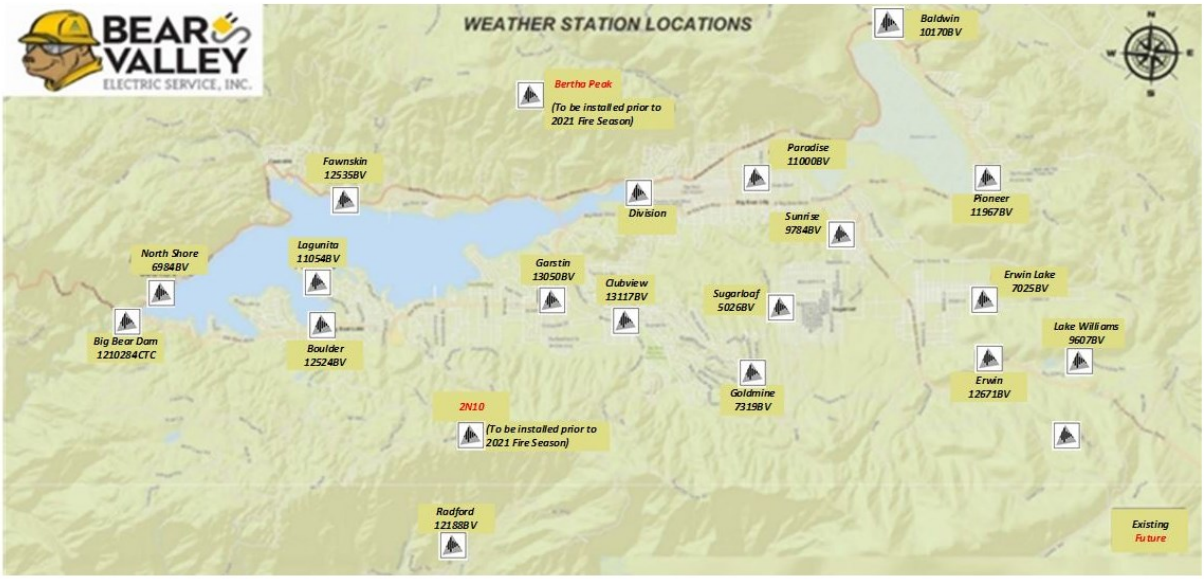
Weather stations are identified as a component in situational awareness and wildfire risk-mitigation strategies. Thus far, BVES installed 18 Weather Stations manufactured by Orion. These stations include temperature sensors, relative humidity sensors, digital barometers, ultrasonic wind direction and speed sensors, and impact rain sensors. These sensors communicate with the BVES system over wireless cellular communications to help BVES obtain service territory-specific data and information at one-minute interval recordings. 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. Two additional weather stations are planned to be installed in 2021 prior to the start of the fire season. These projects had been delayed from 2020 due to access issues.

BVES asserts that a total of 20 weather stations will provide sufficient coverage of its service area. The table below provides a comparison, based on 2020 data, of weather station density of various CA utilities.

Supporting Table 7.3.2.2-1. BVES Weather Station Count Compared to IOUs

	Weather Stations	Service Area (square miles)	Weather Station per Square Mile
BVES	18	32	0.563
SCE	480	50000	0.010
SDG&E	191	4100	0.047
PG&E	600	70000	0.009

Figure 7.3.2.2-1. BVES Installed and Planned Weather Stations



Alternatives

BVES considered alternatives as part of the planning before the initiative began. This discussion is available in the BVES 2020 WMP. BVES continues to monitor the implementation and alternatives to reduce wildfire risk in the most effective and efficient manner possible.

E. Weather Forecasting

"why" engage in activity

BVES contracts with a meteorolgist to provide at least weekly focused weather forecasts tailored to BVES's 32 square mile service area with an evaluation of fire threat. The meteorolgist is able to obtain analysis of weather data before, during, and after certain extreme weather events. During elevated fire threat and storm conditions, the meteorolgist provides forecasts at least daily. During a PSPS event, which BVES has not yet expereinced, BVES's contracted meteorolgist would provide near continuous forecasting. BVES also relies on its Field Operations staff to interpret web-based weather feeds along with the raw data from its weather stations. This arrangement has proven to be very effective and has become an essential part of BVES's operational planning routine.

Alternatives

The alternative to this approach would be to hire a dedicated meteorologist on staff rather than contract out this service. This alternative was considered as part of the planning before the initiative began. This discussion is available in the BVES 2020 WMP. BVES continues to monitor the implementation and alternatives to reduce wildfire risk in the most effective and efficient manner possible.

F. Remote Monitoring (via Camera)

"why" engage in activity

In partnership with the University of California San Diego (UCSD), CAL FIRE, and Big Bear Fire Department, BVES is installing an ALERT Wildfire HD Camera System to monitor the service area and surrounding areas for fire and immediately alert fire fighting assets. HD camera locations were selected at a joint meeting with UCSD, CAL FIRE, Big Bear Fire Department and BVES. Cameras are currently installed at the top of Bear Mountain, Snow Summit, and "Deadman's Ridge" (Lake Williams). BVES is coordinating the installation of cameras at the other two locations (Bertha Peak and KBHR antenna). Because the BVES service territory is very small, roughly 32 square miles, situational awareness over a broader view shed for oncoming threats into the service territory is necessary. BVES was collaborative and purposeful in locating its cameras, which are sufficient and ideally situated to surveille a broader distance to identify oncoming threats from surrounding forest area. During high threat conditions, BVES deploys personnel to supplement camera information with observations by qualified personnel.

Alternatives

There is presently no alternative or cameras owned by others that BVES can use for this function. Alternatives were considered as part of the planning process before the initiative began. This discussion is available in the BVES 2020 WMP.

G. Grid Automation

"why" engage in activity

BVES plans to continue to implement grid automation into its system which includes the installation of a fiber optic network throughout the service area, automating substations, automating key field switches, and adding sensors to provide critical system information. Grid automation will enhance operational efficiency, safety, and wildfire prevention by allowing remote monitoring and real-time fault detection. The fiber optic network is also an enabler for three advanced technologies that reduce wildfire ignition risk: 1.) that is under consideration by BVES: 1.) Down Wire Detection Relay Installment Program, 2.) Rapid Earth Fault Current Limiter (REFCL) (or similar technology) Insertion, 3.) Install On-line Diagnostic Technology Insertion. Rather than sponsor pilot programs that are likely to be initiated by large entities with more resources, BVES will concentrate its efforts on deploying the foundational investment of a fiber optic network.

Wire Down Detection Relay Installment: On utility power distribution systems with voltages ranging from 4 kV to 34.5 kV, high-impedance faults (HIF) that are often caused by downed wires have challenged utilities and researchers for years. HIFs are those faults on distribution feeders with fault currents below traditional overcurrent relay pickups. HIFs enabled with fiber optic communications will allow BVES to better detect downed wires and respond quickly to eliminate a probable source for wildfire ignition.

Rapid Earth Fault Current Limiter (REFCL): When an overhead utility powerline comes into contact with the ground or a tree, the energy released can cause a large spark. The line can continue sparking if it remains live, increasing the potential for a fire. The REFCL acts as a "large safety switch." It detects when one line out of a three-phase powerline has fallen to the ground and almost instantaneously reduces the voltage on the fallen line. At the same time, it boosts the voltage on the two remaining lines in service. After a few moments, the REFCL checks if the fault is still present. If it is temporary, then power is restored to the line. If it is a continuing fault, power to all three lines will be shut off to protect against fire risk and make it safe for BVES repair crews.

On-line Diagnostic Technology Insertion: Successful suppression of wildfires is greatly enhanced by early detection so that suppression activities can begin while the fire is small and manageable. Current situational awareness technologies such cameras and drones are monitoring technologies for observing locational status and changes in an active fire. Detection sensors complete the tasks of both determining if a wildfire exists and detection of the event. In the future, the field deployable air pollutant, smoke and heat sensors could be connected to the BVES fiber optic network to rapidly pinpoint and alert BVES of the presence of a wildfire.

BVES will continue to monitor pilot programs and innovations of the three large investor owned utilities in California as well as other utilities in the electric transmission and distribution sector. As these California utilities and other Utilities progress with wildfire hardening measures and strategies, BVES will evaluate the applicability and efficacy to its service area and specific wildfire risks. As BVES continues to monitor the progress of these technologies, it is expected that pilots and/or installations may be conducted over the next three-year period.

Alternatives

BVES considered alternatives as part of the planning before the initiative began. This discussion is available in the BVES 2020 WMP. BVES continues to monitor the implementation and alternatives to reduce wildfire risk in the most effective and efficient manner possible.

H. Distribution Management Control Center

"why" engage in activity

BVES plans to install a Distribution Management Control Center with the following equipment and applications that would provide substantially greater information capabilities 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 is scheduled to start in 2022. A detailed design plan will be developed in 2023 with the facility anticipated to be constructed in 2024 to coincide with the SCADA and Grid Automation efforts being completed as the DMCC facility comes online.

Alternatives

BVES is evaluating outsourcing the services that will be performed at Situation Awareness Center. Recruiting the skilled technicians and operators that will be required to staff the Center in Big Bear Lake, CA could be a significant challenge and potentially more expensive than outsourcing the Center's function off site.

3. Region prioritization ("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk")

BVES's entire service area is in Tier 2 and Tier 3 high risk wildfire service areas. Therefore, the situational awareness and forecasting initiatives are all located in Tier 2 and 3.

***Progress on initiative** (amount spent, regions covered) and plans for next year*

Supporting Table 7.3.2.2-1 Progress on Situational Awareness and Forecasting

Id	Initiative	Region	Amount Spend ($)[22]	Plans for next year
A	SCADA	All Tier 2 and Tier 3	See Attachment A Table 12	Project is 40 percent completed. Program will continue during 2021 and is scheduled to be completed in 2022
B	GIS Based Applications	All Tier 2 and Tier 3	See Attachment A Table 12	This project has been completed
C	Web-Based Weather Resource	All Tier 2 and Tier 3	See Attachment A Table 12	This project has been completed
D	Weather Stations	All Tier 2 and Tier 3	See Attachment A Table 12	Project scheduled to be completed in 2021.
E	Weather Forecasting	All Tier 2 and Tier 3	See Attachment A Table 12	This project has been completed
F	Remote Monitoring (via Camera)	All Tier 2 and Tier 3	See Attachment A Table 12	Two addition camera locations are scheduled for installation in 2021
G	Grid Automation	All Tier 2 and Tier 3	See Attachment A Table 12	Project continues to be deployed. In 2021 it is expected to be 35% completed
H	Situational Awareness Enhancement Center	All Tier 2 and Tier 3	Project has not been started. Cost estimates to be developed	Work is scheduled to begin in 2022

4. Future Improvements to Initiative

Supporting Table 7.3.2.2-2 Future Improvements to Situational Awareness and Forecasting

Id	Initiative	Future Improvements
A	SCADA	Project is progressing on schedule. No changes expected during 2021
B	GIS Based Applications	This project has been completed
C	Web-Based Weather Resource	This project has been completed

[22] BVES is currently engaged in an effort to update its costing and spending information for each initiative. Additional information on each initiative will be provided in future filings.

D	Weather Stations	Project is progressing well. No changes expected in 2021. Project is scheduled to be completed in 2021.
E	Weather Forecasting	This project has been completed
F	Remote Monitoring (via Camera)	A design is required in remote locations where no low voltage secondary exist. Developing design for solar and battery power.
G	Grid Automation	Project continues to be deployed. By the end of 2021 it is scheduled to be 75% completed
H	Situational Awareness Enhancement Center	Initial planning work is scheduled to begin in 2022

7.3.2.3 Grid Design and System Hardening

1. ***Risk to be mitigated** / problem to be addressed*

The BVES grid design and system hardening investments will reduce the risk of potential ignition sources. Reducing ignition sources is one of the most critical elements for mitigating wildfire. BVES is making a number of systems hardening investments, each one specifically designed to reduce ignition sources, while considering the cost and risk reduction effectiveness.

It is BVES's vision to complete all planned system hardening investments, with the exception of the 4Kv covered wire program, within the 10-year planning period, while a significant portion of the investments are anticipated to be completed in the next 2- to 3-year timeframe.

2. ***Initiative selection** ("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives*

A. <u>Safety and Technical Upgrades of Pineknot Substation</u>

"why" engage in activity
BVES converted the existing Pineknot Substation from an overhead-type to dead front pad-mounted design. This design improves the safety, reliability, and efficiency of the substation by eliminating a wiring configuration that posed a safety and fire risk due to its exposure to the elements and possible vegetation contact. Additionally, BVES replaced all substation equipment with enclosed pad mount transformers, voltage regulators, re-closers, and bus work, further enhancing wildfire mitigation and reliability.

Alternatives
The Pineknot Substation initiative was completed in 2020. BVES considered alternatives as part of the planning before the initiative began. This discussion is available in the BVES 2020 WMP. BVES continues to monitor the implementation and alternatives to reduce wildfire risk in the most effective and efficient manner possible.

B. <u>Safety and Technical Upgrades of Palomino Substation</u>

"why" engage in activity

BVES is in the process of converting the existing Palomino Substation from an overhead-type to a 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, BVES is replacing all substation equipment with enclosed pad mounted transformers, voltage regulators, re-closers, and bus work, further enhancing wildfire mitigation and reliability.

The existing substation uses an overhead, open bus type design. Vegetation (leaves, branches, trees, etc.) could contact the energized bus and could cause an ignition potentially leading to a wildfire or extensive power outage. The new substation design uses a pad-mount dead-front design with no exposed energized conductors or equipment., The new “no-possible-contact” design reduces the ignition risk to near zero, essentially the maximum reduction possible when compared to an open bus design combined with vegetation management.

Alternatives

The BVES GRC included two alternatives substation designs. (1) Replace the substation using the existing open bus design or (2) replace the substation using a pad-mount dead front design. Open bus design alternative allows potential ignition sources should equipment fail in service or if an object (e.g. tree limbs) contact the energized bare conductors. The alternative of a pad-mount dead front design essentially eliminates this potential risk. If equipment should fail, it is enclosed in a pad-mount, essentially eliminating ignition sources. It is designed so that no objects or vegetation can touch the equipment because it is enclosed in the pad-mount. Due to the reduced risk of ignition, the pad-mount dead front design was selected. The Palomino Substation initiative is scheduled for a 2021 completion.

C. Construct an Energy Storage Facility within BVES’s Service Territory

"why" engage in activity

BVES proposes to construct an energy storage project of approximately 4 MW/16 MWh (four-hour) Lithium-Ion NMC BESS utility-grade battery in the BVES service area. This project will complement the Bear Valley Solar Energy Project (BVSEP), 5-megawatt (MW) alternating current single-axis tracker solar generation facility, to be constructed on the same location as the BESS project and directly feeding the distribution system benefiting all customers. One of the purposes of the storage project is to minimize the impact of the loss of all SCE energy imports to the BVES service area due to a SCE-directed PSPS of the SCE supply lines to BVES. BVES imports from SCE are subject to PSPS and while these lines may be required to be de-energized by SCE, the BVES service area may not require PSPS. If these proposed projects are approved, they will allow BVES to internally supply energy to most of its customers by utilizing its existing peaking power plant (8.4 MW), along with the BVSEP and the energy storage battery to minimize the effects of any PSPS event.

This program is aimed at reducing the impacts of power outages from proactive de-energization and preserving essential services.

Alternatives

BVES considered multiple battery technologies and applications through a cost-benefit analysis study followed with a storage reliability study in recent years. Due to market saturation, industry demonstration, and forecasted reduction in storage device costs, BVES anticipates deploying lithium-ion technology. One possible alternative to the energy storage project is an expansion of a contemplated solar power project. Although an expansion would increase the amount of renewable energy available during daylight hours,

the expanded solar project would not provide energy during non-daylight hours, requiring additional power resources to cover load during such periods. The energy storage concept, with its ability to provide energy during non-daylight hours, coupled with the solar power project, provided the best power-resource alternative.

D. Conventional Fuse Replacement

"why" engage in activity

Fuses are devices that protect the distribution system from faulted or damaged lines and equipment. BVES has historically used conventional fuses to protect lines. Conventional fuses expel hot particles and gases when operated, which can start wildfires. In the wake of SB901 and the increased availability of alternative fusing, many utilities are beginning to replace conventional fuses with current limiting fuses (non-expulsion, ELF) on branch line fusing opportunities system-wide.[23] BVES is following this trend by installing electronic programmable fused (vacuum style) system-wide such as the S&C TripSaver II. In contrast, current limiting fuses and electronic fuses expel no materials, limit the available fault current, and may even reduce the duration of faults. By replacing fuses with the potential to spark and impact dry vegetation, the replacement with non-expulsion fuses reduces the risk of a fusing operation to near zero, a significant improvement.

From 2015 through 2019, BVES had 84 conventional fuses operate. In 2020, there were a total of 23 fuse events. However, due to the effectiveness of this project only 4 were conventional fuse events (the others were 16 ELF and 3 TripSavers fuse events). Until recently, BVES had approximately 3,204 conventional fuses, all in high-risk wildfire areas. BVES's project plan is to replace approximately 628 conventional fuses with electronic fuses and approximately 2,576 conventional fuses with ELFs. As of December 31, 2020, BVES had replaced a total of 2,303 conventional fuses with 318 electronic fuses and 1,985 current limiting fuses.

As identified in its previous WMP, BVES plans to continue this rollout, that began in June 2019, until all conventional fuses are replaced with either current limiting fuses or electronic fuses. Supporting Table 7.3.2.2-1 shows the approximate number of remaining fuses that are scheduled to be replaced in 2021.

Supporting Table 7.3.2.3-1. Planned Fuse Replacements

Year	Electronic Fuses	Current Limiting ELF
2021	310	591

Alternatives

Three options (described below) were originally considered and evaluated. Option 3 was recommended and moved forward due to the overall cost effectiveness and the ability to mitigate ignitions.

Option 1- Leave existing conventional fuses in place. Fuses operate due to a fault on the system. Reducing faults that occur due to lightning strikes, vegetation contacts, equipment failures, and vehicles hitting poles, will reduce the number of conventional fuse operations. Unfortunately, many faults are

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

beyond BVES's ability to reduce. Leaving conventional fuses permanently in place was determined to constitute an unacceptable ignition risk.

Option 2- Develop a stand-alone program. An independent conventional fuse replacement program that did not consider other work being performed on the pole. This could execute the fuse replacements program faster, but at a significantly higher cost since BVES may be visiting the same pole more than one time to perform work.

Option 3- Combined fuse replacements with other work. When other work, such as a pole replacement, is scheduled to be performed on a pole that has a conventional fuse, the fuse is replaced at the same time as the other work. This results in significant labor savings by reducing truck rolls by combining the other work with the fuse replacement program.

E. Tree Attachment Removal

"why" engage in activity

Tree attachments are pieces of electrical infrastructure fastened to trees instead of poles for infrastructure support. Although this infrastructure approach initially reduces costs, it inherently introduces ignition risk by holding energized wires in direct proximity to vegetation. For some time now, the practice of installing distribution and service lines using tree attachments has been prohibited for new installations. Given that BVES's service area is entirely located in HFTD Tiers 2 and 3, tree attachments have been recognized as high risk circumstances, BVES has planned to remove all tree attachments by the end of 2022. Elimination of tree attachments will enhance the safety and reliability of the distribution system and reduce the risk of wildfires.

BVES had approximately 1,207 legacy tree attachment service connections in its service area (2019 count), mostly located in Forest Service controlled areas. As of December 31, 2020, BVES has removed 493 tree attachments and installed 286 new poles. BVES estimates that the remaining 714 tree attachments will be removed by the end of 2026.

Alternatives

There are no alternatives to eliminating the wildfire risk of electrical equipment attached to trees. BVES proposed an increased rate of removal of such equipment but intervenors objected. Intervenors and BVES agreed to the current removal rate, which was approved by the Commission in D.19-08-027. BVES believes the agreed to rate of removal strikes an appropriate balance of cost and use of available resources in light of the competing need to implement other important wildfire mitigation programs.

F. Evacuation Route Hardening (Pilot Project)

"why" engage in activity

BVES's service area has three predetermined evacuation routes, developed by the local sheriff department and other government officials, to evacuate the public in the event of an emergency, including a wildfire. The hardening of BVES electrical assets (poles, wires, equipment) along the evacuation routes is important to ensure they do not fail during a wildfire which would limit mobility along the evacuation routes required to safely perform the evacuation.

The pilot project was designed to determine availability, cost effectiveness, and ability to install technology such as fire-resistant pole wrap, steel poles, concrete poles, ductile iron poles, and fire-resistant fiberglass poles. These proposed measures are intended to increase resiliency to demonstrate the ability to keep evaluation routes safe from failed BVES electrical assets during a wildfire.

Pilot Results: The pilot program consisted of using BVES's previous experience with other projects, testing new technologies, collaborating with other utilities, and performing industry literature research on the matter. BVES tested two technologies -- fire resistant pole wire mesh wrap and fire-resistant fiberglass poles. For technologies that BVES does not test directly, such as concrete poles, BVES staff will work with other utilities to gain from their experience. Some of the pilot program results to date are:

- BVES successfully installed wire wrap mesh on three poles. This system is being used by other utilities and test information from the manufacturer indicate it is a reliable, cost-effective solution. The all-in cost per pole for the wire wrap mesh is approximately $950 per pole or approximately $36,000 per circuit mile.
- BVES has significant recent experience in undergrounding overhead facilities. While this is very effective for the stated goal, it is also very expensive running at approximately $4,000,000 per circuit mile.
- BVES has recent experience at installing fire resistant composite poles. While this is also effective for the stated goal, it is more expensive than the wire wrap mesh running at approximately $17,320 per pole or $640,000 per circuit mile.

BVES plans on testing light weight steel (LWS) poles in the first half of 2021 as part of its pilot program. While based on other utility experience and industry literature, this is effective for the stated goal, it is more expensive than the wire wrap mesh running at approximately $15,900 per pole or $587,000 per circuit mile. BVES will also assess ductile iron poles for use on evacuation routes as part of its Radford Line Replacement Project. Once again, while based on other utility experience and industry literature, this is effective for the stated goal, it is more expensive than the wire wrap mesh running at approximately $15,720 per pole or $581,000 per circuit mile. BVES expects to complete the pilot program by the end of 2021.

The primary objective of this pilot program is not to reduce the risk of ignition resulting in a wildfire. Rather, the pilot program is to develop tools and approach to add resiliency and safety during an evacuation due to a wildfire.

Alternatives

There is no alternative to hardening evacuation routes, but there are alternatives as to how the evacuation routes may be hardened. This pilot program is designed to explore various options such as fire-resistant pole wrap, steel poles, and concert poles to provide more concrete information for BVES decision-making.

G. Evacuation Route Hardening Program

"why" engage in activity

Hardening of BVES electrical assets (poles, wires, equipment) along the evacuation routes is important to ensure they do not fail during a wildfire which would limit mobility along the evacuation routes required to safely perform the evacuation.

BVES intends to harden the three main evacuation routes (800 poles) over two years with wire wrap program.

In addition, BVES will implement the following policy that requires when wood poles are to be replaced for any reason on main evacuation routes, that they are to be replaced with fire resistant composite or other acceptable pole types (LWS or ductile iron after testing). If undergrounding opportunities arise along evacuation routes, evaluations will be completed.

Following hardening of main evacuation routes, BVES plans to continue to install wire wrap on wood poles in selected high-risk areas. This long-term plan is expected to cost approximately $350,000 per year for 8-10 years.

The primary objective of this evacuation route hardening program is not to reduce the risk of ignition resulting in a wildfire. Rather, the primary objective of the program is to add resiliency and safety to evacuation routes during an evacuation due to a wildfires or other emergencies.

Alternatives

There is no reasonable alternative to hardening evacuation routes. BVES had determined the above-described program is the most cost-effective manner to harden evacuation routes.

H. Pole Loading Assessment and Remediation Program

"why" engage in activity

In compliance with GOs 95 and 165, BVES has an ongoing program to assess and remediate noncompliant distribution poles that pose a fire risk. Since the entire BVES service area is in a HFTD Tier 2 and 3, any pole failure is considered a high fire risk. Bear Valley is above 3000 ft sea level and is subject to heavy loading requirements. Overhead distribution lines are exposed to severe weather including heavy snow, ice, and high winds. GO 95 Rule 43.1 requires BVES to design, build, and maintain their overhead facilities to withstand foreseeable fire-wind conditions in the service territory. Poles that are not compliant with GO 95 safety factors will be identified, and the appropriate remediation will be designed and implemented. Meeting or exceeding the mandates of GO 95 is critical to mitigate wildfires. Depending on the nature and extent of the noncompliance, the remediation will require either repair (e.g., the installation or modification of guy wires) or complete replacement of the pole, including removal and reinstallation of all attachments, all within the time frames required by GO 95. GO 95 is aimed at the safety of personnel, the public, and also at preserving the reliability of the power grid. Risk is significantly reduced when poles are brought into compliance with laws directed at preserving safety and reliability. BVES plans to significantly accelerate this program by increasing its annual pole evaluation to 1,600 poles per year. By assessing poles and remedying failures at a faster rate, BVES can significantly reduce its fire risk.

As of December 31, 2020, and presented in the Q4 QDR, BVES has evaluated 2,703 poles since 2018 (191 in 2020); 1,155 failed the inspection criteria; 751 poles were replaced and 113 remediated. Corrective action for the remaining poles that failed inspection is being undertaken. As noted above, this is an ongoing project that is expected to be completed by 2026. BVES is coordinating this project with its projects to replace bare wire with covered wire (34 kV and 4 kV systems) as there is significant synergy in executing the two together.

Alternatives

There are no reasonable alternative approaches to reducing wildfire risk due to non-compliant poles other than adequately testing all of the poles and taking remedial action, where required. There are alternatives as to the rate in which pole testing is conducted. In order to promote efficiency and minimize duplication of work, and subject to the remediation time frames in GO 95, the rate of testing and resulting remediation designs may be integrated with other potential work proposed in the same area. It is more operationally efficient and cost effective to coordinate pole replacement work with other planned work. For example, it is duplicative to replace a single pole under the pole assessment and remediation program only to have it removed a few years later when the pole line is replaced, or the line is upgraded requiring pole replacements. In addition, the program may require a sufficient number of pole replacements on a line or in a concentrated area that it is prudent to undertake a more comprehensive replacement design, as

opposed to mere replacement of individual poles. The remediation work is performed by BVES and/or contractor resources based on available capacity, cost, and other related factors.

I. Covered Conductor Pilot Program

"why" engage in activity

Covered conductors are any conductors (wires) protected or covered by layers of insulation. Vendors designed these wires to withstand incidental contact with vegetation or other debris. Bare wires were historically used because they provided 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. Based on pilot programs, BVES has reevaluated its structure design in the context of wildfire risk and decided to replace bare conductors with covered conductors on all sub-transmission lines (34.5 kV) and to replace all bare 4 kV distribution wire in high-risk areas within the service area with covered wire. The replacement program will be prioritized based on higher-risk circuits to increase the mitigation of risks in the shortest reasonable time period.

BVES conducted pilot projects to determine the optimal covered conductor equipment. The following list below provides a summary of the pilot projects and results:

- **Covered Conductor Replacement Pilot Program (Completed):** As part of the first pilot, BVES replaced approximately 1 circuit mile of bare wire in the North Shore area 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 covered wire performed well and met all of BVES's needs and expectations. BVES performed a second pilot in the Moonridge area using covered tree wire from Southwire using 336.4 ACSR. The second pilot was completed in June 30, 2020 with the replacement of approximately 1 circuit mile. This successful second pilot also performed well and provided BVES an additional vendor for covered wire. As of July 31, 2020, BVES completed these pilot programs replacing a total of 2.16 circuit miles of bare wire with these covered wire products. The covered conductor replacement program is considered a success and BVES intends to proceed to a broader deployment.

- **Covered Conductor Wrap Pilot Program (Completed)**: BVES 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 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, primarily due to ampacity limitations on existing wire and product information not being readily available for research and testing. 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 this approach once the ampacity issue is satisfactorily resolved.

Based on the results of the covered conductor pilot programs, BVES developed both the 34.5Kv and 4Kv Covered Wire Installation Programs

Alternatives

As a result of the pilot programs, BVES completed analysis to determine the most optimal covered conductor equipment.

J. Radford Line Covered Conductor Replacement Project

"why" engage in activity
BVES is replacing 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 wildfire risk of all of BVES's overhead facilities. The line is located in a densely vegetated area that is difficult to patrol. Replacing the bare wire with covered wire will provide a high level of effectiveness for preventing a potential ignition leading to a wildfire.

Alternatives
The Radford circuit is in Tier 3 and there are no reasonable alternatives to replacement of bare wire in this Tier 3 area. U.S. Forest Service requested BVES consider undergrounding the Radford Line as an alternative. BVES undertook this analysis and concluded that it was not practical to underground this line due to the steep slopes, significant disturbance to the environment during construction, and significant degradation in BVES's ability to perform preventative maintenance, inspections, equipment upgrades, troubleshooting faults, and corrective maintenance.

K. Covered Wire Installation Program – 34.5 kV System

"why" engage in activity
BVES intends to install covered wire on all sub-transmission lines (34.5 kV). This action will result in the entire overhead 34.5 kV system in the HFTD being either underground or covered. This program will reduce the risk of sub-transmission lines contacting vegetation or other debris and causing an ignition to near zero.

BVES plans to replace all overhead sub-transmission bare wire with covered wire over a 6-year period of execution from 2020 to 2026 covering approximately 4.3 miles per year.

Alternatives
Covered wire is an accepted practice to eliminate tree and vegetation and debris contact in order to reduce wildfire ignitions. Undergrounding the 34 kV system would be the only other technically acceptable alternative. However, the cost would be over 10 times that of the covered wire replacement project. Additionally, certain areas would be significantly challenging to underground the overhead system. The covered wire program yields a more attractive RSE.

L. Covered Wire Installation Program – 4 kV System

"why" engage in activity
BVES intends 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 in the next 10 years. The remaining 4 kV bare will take another 10 years. This program will significantly reduce the risk of distribution lines contacting vegetation or other debris and causing an ignition. The high-risk areas are defined by high vegetation density.

BVES plans to replace distribution bare wire in high risk areas within the HFTD with covered wire over a 10-year period of execution from 2021 to 2030 covering approximately 8.6 miles per year. Based upon this schedule, it will result in 50% of the 4Kv wire being replaced by 2026.

BVES used, as a comparison, the Southern California Edison (SCE) estimated full deployment of covered conductor in high risk areas to mitigate approximately 60 percent of fires associated with electrical distribution facilities in defined risk tiers.[24] BVES believes SCE's effectiveness results should be

[24] SCE application for approval of its Grid Safety and Resiliency Program, U 338-E, September 10, 2018

considered a relative measure, with underground conversion providing the baseline (100 percent) for purposes of our comparison.

Alternatives

BVES compared undergrounding versus covered conductors. Undergrounding the 34 kV system would be the only other technically acceptable alternative. However, the cost would be 10 times that of the covered wire replacement project. Additionally, certain areas would be significantly challenging to underground the overhead system. The covered wire program yields a more attractive RSE.

3. ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk")*

BVES service area is all in Tier 2 and Tier 3 high risk wildfire service areas. Therefore, the grid design and system hardening initiatives are all located in Tier 2 and 3.

4. ***Progress on initiative*** *(amount spent, regions covered) and plans for next year*

Supporting Table 7.3.2.3-2 Progress on Grid Design and System Hardening Initiatives

Id	Initiative	Region	Amount Spend ($)[25]	Plans for next year
A	Safety and Technical Upgrades of Pineknot Substation	Tier 2,3	See Attachment A Table 12	This project was completed on January 24, 2020.
B	Safety and Technical Upgrades of Palomino Substation	Tier 2,3	See Attachment A Table 12	Scheduled to complete electrical work, testing, and place in service by June 2021
C	Construct an Energy Storage Facility within BVES's Service Territory	Tier 2,3	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 application to the Commission.	Continue with project planning and make necessary refinements
D	Conventional Fuse Replacement	Tier 2,3	See Attachment A Table 12	BVES is scheduled to complete this project in 2021, performing the fuse replacements in the higher risk areas first
E	Tree Attachment Removal	Tier 2,3	See Attachment A Table 12	Scheduled to achieve 50% completion in 2021, with completion scheduled for end of calendar year 2026

[25] BVES is currently engaged in an effort to update its costing and spending information for each initiative. Additional information on each initiative will be provided in future filings.

F	Evacuation Route Hardening (Pilot Project)	Tier 2,3	See Attachment A Table 12	Pilot program is scheduled to be completed by end of year 2021
G	Evacuation Route Hardening Program	Tier 2,3	See Attachment A Table 12	Based on the analysis of the pilot, it is planned that the evacuation route hardening will be completed by the end of calendar year 2022.
H	Pole Loading Assessment and Remediation Program	Tier 2,3	See Attachment A Table 12	Continue on high risk areas and achieve 40% completion in 2021 towards a program goal of completion by end of calendar year 2026.
I	Covered Conductor Program	Tier 2,3	See Attachment A Table 12	This initiative was completed in 2020
J	Radford Line Covered Conductor Replacement Project	Tier 2,3	See Attachment A Table 12	Schedules to be completed in calendar year 2021
K	Covered Wire Installation Program – 34.5 kV sub-transmission System	Tier 2,3	See Attachment A Table 12	Continue on high risk areas and achieve 30% completion in 2021 towards a program goal of 100% completion by end of calendar year 2026. All bare wire in Tier 3 to be covered by end of calendar year 2022.
L	Covered Wire Installation Program – 4 kV distribution System	Tier 2,3	See Attachment A Table 12	Continue on high risk area and achieve 6% completion in 2021 towards a program goal of 50% completion by end of calendar year 2030. All bare wire in Tier 2 dense vegetation areas to be covered by end of calendar year 2030

5. Future improvements to initiative

Table 7.3.2.3-3 Future Improvements to Grid Design and System Hardening Initiatives

Id	Initiative	Future Improvements
A	Safety and Technical Upgrades of Pineknot Substation	N/A - This project was completed on January 24, 2020.
B	Safety and Technical Upgrades of Palomino Substation	N/A - Project is substantially in progress and scheduled to be completed by June 2021.
C	Construct an Energy Storage Facility within BVES's Service Territory	BVES is in the planning stages for this project and expects to file an application with the Commission for the energy storage project should it be determined that the project is in the best interest of BVES's customers. In accordance with the recently filed 2020-2030 Integrated Resource Plan, BVES anticipates operations to begin in July 2023
D	Conventional Fuse Replacement	Apply lessons learned throughout progression of the program

E	Tree Attachment Removal	Apply lessons learned throughout progression of the program
F	Evacuation Route Hardening (Pilot Project)	Evaluate pilot program and apply lessons learned to Evacuation Route Hardening Program
G	Evacuation Route Hardening Program	Apply lessons learned from pilot program and phase-in in 2021 to phase 2 in 2022
H	Pole Loading Assessment and Remediation Program	Apply lessons learned throughout progression of the program
I	Covered Conductor Program (Pilot program)	N/A - This initiative was completed in 2020
J	Radford Line Covered Conductor Replacement Project	Initiative scheduled for completion in calendar year 2021
K	Covered Wire Installation Program – 34.5 kV sub-transmission System	Apply lessons learned throughout progression of the program
L	Covered Wire Installation Program – 4 kV distribution System	Apply lessons learned throughout progression of the program

7.3.2.4 Asset Management and inspections

1. ***Risk to be mitigated** / problem to be addressed*

Asset Management and inspections consists of monitoring and maintaining the system. This includes conducting system patrols, leveraging technological inspections tools, and managing maintenance. BVES categorizes these activities into two types of initiatives: (1) System Inspection and Maintenance Plan (Inspections) and (2) Electrical Preventative Maintenance Program (PM Program).

Inspections play an important role in wildfire prevention, as degraded equipment or encroaching vegetation may ignite a wildfire. BVES currently patrols its system regularly and has increased the inspection programs. The BVES Inspections include several components: ground inspections, substations equipment inspections, electrical preventative maintenance (PM), and LIDAR inspection.

BVES PM Program is a condition based “preventive maintenance” (PM) program. The equipment is maintained, based on regular scheduled intervals. As a general rule, BVES does not promote “run-to-failure” for its assets. This PM program assesses major equipment assets located at BVES substations and in the field at 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 mitigates the risk of catastrophic failure of equipment, which could result in fire, public and worker safety hazards, environmental damage, prolonged unplanned outages, and costly repairs or replacement of equipment.

2. ***Initiative selection** ("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives*

A. <u>Ground Patrol Inspection</u>

"why" engage in activity
In compliance with GO 95 and 165, BVES's Inspection Program requires overhead facilities to receive an on-ground patrol inspection each year. A "patrol inspection" is a 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. These defects have the potential to spark and possibly ignite a wildfire.

Alternatives
Ground patrol inspections are a compliance activity. Ground patrol inspections provide BVES with additional information on the electric distribution equipment and provides the ability to take corrective actions prior to an event that could cause a potential ignition.

B. Second Ground Patrol (Pilot)

"why" engage in activity
BVES conducts an additional independent (3rd Party) patrol inspection beyond that required by GO 165, 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 year-round creates a high-risk condition that can be mitigated by increasing patrols. Substandard conditions detected on the second ground patrol are addressed in the same manner as the first patrol in compliance with GO 95 and 165.

Alternatives
The second ground patrol evaluation provides additional information to evaluate how local conditions may impact the condition of overhead assets. Ground patrols were performed in 2019 and 2020 and proved to be effective. Second (3rd Party) ground patrols are now a permanent program.

C. Detailed Inspections

"why" engage in activity
A "detailed inspection" is a more careful visual and routine diagnostic exam of individual pieces of equipment. The inspector records the results of the diagnostic and visual examinations and rates the condition of the equipment. These inspections are designed to identify any existing, including minor, defects. 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. BVES conducts these inspections at least once every five years in compliance with GO 165 and GO 95 (Rule 18). If any defects outlined above are identified, BVES prioritizes the defect resolution based on risk and resolves the issues in compliance with GO 95 Rule 18 timeframes.

Alternatives
The detailed five-year inspections are mandated by GO 165. These inspections are completed throughout the BVES service territory. BVES tracks conditions found during the detailed inspections and evaluates the types and quantity of conditions in order to identify trends and remedial actions.

D. LIDAR Inspection Program

"why" engage in activity

BVES conducts one LIDAR sweep per year to evaluate the effectiveness of clearance efforts and identify potential wildfire hazards. This is an enhanced inspection using 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. BVES began using LIDAR through a pilot project initiative using both helicopter and fixed wing flights, as well as 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 be utilized more often because it is more cost-effective. This relatively quick and accurate inspection will allow BVES to verify, document and resolve vegetation issues before making contact with bare conductors.

Alternatives

No comparable alternative exists. The LIDAR pilot was able to detect potential wildfire ignition hazards source such as broken limbs near conductors and improper clearance and is considered a success at mitigating potential ignition sources. Consequently, BVES will continue to perform one LIDAR inspection per year as an on-going program.

E. Infrared *inspections of distribution electric lines and equipment (Exacter Services)*

"why" engage in activity

BVES contracts with Exacter Services to conduct an infrared inspection survey of BVES overhead system on 3-year cycle using infrared, ultrasonic, and EMI sensors. Infrared surveys locate faulty electrical items not generally found during a physical inspection and detects overheating components and other equipment failure signatures. This can help to avoid problems before they lead to an unscheduled outage, equipment damage or equipment fire. BVES completed a full survey of its overhead facilities using these methods in 2019. The number of problem areas identified were few and minor. As a result, BVES determined to pause this program and conduct it every 5 years.

Alternatives

Infrared electrical testing allows for inspection of a large amount of electrical equipment in a short time as opposed to the alternative method of physically inspecting and tightening electrical components.

F. Intrusive pole inspections

"why" engage in activity

BWP performs intrusive pole inspections on a cycle that meets GO 165. An intrusive inspection involves movement of soil, taking samples for analysis, and using more sophisticated diagnostic tools beyond visual inspections of instrument reading. Wood poles over 15 years which have not been subject to intrusive inspection are due for inspection in 10 years. Wood poles which passed intrusive inspection are due every 20 years. When the inspection determines the pole no longer has the required strength, the pole is scheduled for replacement. This program determines the health of existing poles.

Alternatives

No comparable alternative exists. Intrusive pole inspections are mandated by GO165. These inspections are completed throughout the BVES service territory. BVES tracks conditions found during the intrusive pole inspections and replaces defective poles as required.

G. Substation Transformer Inspection

"why" engage in activity

Substation transformer inspections are mandated by the CPUC through GO 174 facilities inspections. Substation inspections provide both reliability and incidental wildfire mitigation benefits. Substation inspections mitigate the risk of equipment failures which have the potential to cause wildfire ignitions. The inspections also provide benefits when a substation is in the HFTD or wildland urban interface. Gas in oil analysis is performed every year. If gas is detected in the oil, a cause analysis is performed to determine if the transformer can be repaired or requires replacement. Other inspections such as oil levels, temperature, and contamination are also performed. These inspections will determine when a transformer is nearing end of life so it can be scheduled for replacement.

Alternatives

No comparable alternative exists. Substation inspections are mandated by GO 174 facilities inspections. These inspections are completed throughout the BVES service territory. BVES tracks conditions found during the detailed inspections and evaluates the types and quantity of conditions in order to identify trends and remedial actions.

H. Protective Substation Relays

"why" engage in activity

Substation protective relay inspections are mandated by the CPUC through GO 174 facilities inspections. Protective relays are used extensively across the power system to remove any element from service that suffers a short circuit, starts to operate abnormally, or poses a risk to the operation of the system. It is essential to inspect and test substation protective relays at chosen intervals. The frequency of maintenance inspections and tests depends on the quality of the equipment, importance of the supply, and upon the conditions at the site where the relays are installed. Protective substation relays are inspected, tested, and calibrated on a periodic basis to assure proper operation. Presently, the periodic inspection for relays is every four years. If proper operation cannot be assured, for instance due to obsolescence, the relay is scheduled for replacement.

Alternatives

No comparable alternative exists. Protective Substation Relay Inspections are mandated by GO 174 facilities inspections. These inspections are completed in Tier 2 and 3 throughout the BVES service territory. BVES tracks conditions found during the detailed inspections and evaluates the types and quantity of conditions in order to identify trends and remedial actions.

I. Circuit Breakers

"why" engage in activity

Circuit Breaker Inspections are mandated by the CPUC through GO 174 facilities inspections. Circuit breakers are used to for high voltage switching and to isolate faults in a timely manner on the electric system before they can cascade into a complete system outage. Circuit breakers in a substation protect the power grid from events such as a surge in voltage due to a lightning strike. Circuit breakers are inspected and maintained periodically every four years. Depending on the type of breaker, these inspection and maintenance tests could include oil analysis, vacuum/gas checks, speed analysis, or other industry analysis standards.

Alternatives
No comparable alternative exists. Circuit Breaker Inspections are mandated by GO 174 facilities inspections. These inspections are completed in Tier 2,3 throughout the BVES service territory. BVES tracks conditions found during the detailed inspections and evaluates the types and quantity of conditions in order to identify trends and remedial actions.

J. Sub-transmission and Distribution System Facilities Fly-over Unmanned Aerial Vehicle (UAV) Inspection

"why" engage in activity
BVES will conduct UAV fly-over inspections of its sub-transmission and distribution system. This inspection is intended to complement the ground patrols and detailed inspections of GO 165 and LiDAR inspections. Many electric utilities including major California electric utilities have found inspections utilizing UAVs are highly effective at identifying facilities degradations and issues that ground patrols and details inspections would not necessarily reveal. The UAVs film the facilities using high definition video photography while maintaining an accurate date/time and geolocation stamp on the recorded video stream. The video recordings are then reviewed by qualified analysts who are able to slow down the recording so as to note any issues. When a potential issue is identified, they can freeze the video and perform further analysis such as zooming in on the item in question. Discrepancies are then identified, evaluated, recorded, and remediation or further investigation is assigned.

Alternatives
As noted previously, this inspection is intended to complement the ground patrols and detailed inspections of GO 165 and the LiDAR inspections BVES currently conducts. There is no alternative that is as efficient as this approach. To achieve similar results, BVES would need to inspect each individual facility (over 9,000 poles) using a bucket truck. Some of these facilities (about 15%) are in hard to access areas, which would require climbing the poles or utilizing helicopters.

BVES will review the results of the inspection to determine if it is yielding useful inspection information. BVES will compare findings in the UAV inspection program to findings in the other inspection programs (ground patrols, detailed inspection, LiDAR, etc.).

3. Region prioritization ("where" to engage activity) – *include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk")*

The BVES service area is in Tier 2 and Tier 3 high risk wildfire service areas. BVES assets require periodic inspections and maintenance for both system reliability and wildfire risk management. The inspections are evaluated for effectiveness and data is analyzed to detect signature trends of pending equipment failure. Many of the inspections are CPUC mandated, but additional activities have to added for wildfire protection.

4. Progress on initiative (amount spent, regions covered) and plans for next year

Supporting Table 7.3.2.4-1 Progress on Asset Management and Inspections

Id	Initiative	Region	Amount Spend ($)[26]	Plans for next year

[26] BVES is currently engaged in an effort to update its costing and spending information for each initiative. Additional information on each initiative will be provided in future filings.

A.	Ground Patrol Inspection	Tier 2,3	See Attachment A Table 12	In 2021 and future years, BVES with comply with GO 95 and GO 165. Asset condition and cost data will be used to inform future inspections
B.	Second Ground Patrol (Pilot)	Tier 2,3	See Attachment A Table 12	In 2021 and future years, BVES with comply with GO 95 and GO 165. Asset condition and cost data will be used to inform future ground patrols
C.	Detailed Inspections	Tier 2,3	See Attachment A Table 12	In 2021 and future years, BVES with comply with GO 95 and GO 165. Asset condition and cost data will be used to inform future detailed inspections
D.	LIDAR Inspection Program	Tier 2,3	See Attachment A Table 12	BVES will continue to evaluate the effectiveness of the LIDAR Program.
E.	Infrared inspections	Tier 2,3	See Attachment A Table 12	BVES will continue to evaluate the effectiveness of the Infrared Inspections Program.
F.	Intrusive pole inspections	Tier 2,3	See Attachment A Table 12	In 2021 and future years, BVES with comply and test poles to loading standards, GO95 requirements, intrusive inspection criteria and age and then, replaces or remediates non-compliant poles.
G.	Substation Transformer Inspection	Tier 2,3	See Attachment A Table 12	In 2021 and future years, BVES with comply and Substation Transformer Inspections as required in GO 174.
H.	Protective Substation Relays	Tier 2,3	See Attachment A Table 12	In 2021 and future years, BVES with comply and Substation Relays Inspections as required in GO 174
I.	Circuit Breakers	Tier2,3	See Attachment A Table 12	In 2021 and future years, BVES with comply and Circuit Breakers Inspections as required in GO 174
J.	Sub-transmission and Distribution System Facilities Fly-over Unmanned Aerial Vehicle (UAV) Inspection	Tier 2,3	See Attachment A Table 12	BVES intends to competitively solicit bids from qualified contractors with experience in this inspection type to perform an annual fly-over inspection of BVES facilities. Ideally, this inspection will be performed prior to the fire season. In 2021, BVES aims to conduct the inspection prior to the end of June.

5. Future Improvements to Initiative

Supporting Table 7.3.2.4-2 Future Improvements to Asset Management and Inspections

Id	Initiative	Future Improvements

A.	Ground Patrol Inspection	Currently, BVES has no plans to modify ground patrol inspections. BVES will continue to monitor and audit the program for effectiveness.
B.	Second Ground Patrol (Pilot)	The ground patrol pilot has ended and will be a permanent program in 2021 and future years
C.	Detailed Inspections	Currently, BVES has no plans to modify detailed inspections. BVES will continue to monitor and audit the program for effectiveness.
D.	LIDAR Inspection Program	BVES will continue to monitor the effectiveness of the truck-mounted mobile system for the LIDAR inspection program
E.	Infrared inspections	Currently, BVES has no plans to modify infrared inspections. BVES will continue to monitor and audit the program for effectiveness.
F.	Intrusive pole inspections	Currently, BVES has no plans to intrusive pole inspections. BVES will continue to monitor and audit the program for effectiveness.
G.	Substation Inspections	Substation inspections provide both reliability and wildfire mitigation benefits. The program has been through many years of execution and there are no plans to change this program in the foreseeable future.
H.	Protective Substation Relays	Protective relay inspections provide both reliability and wildfire mitigation benefits. The program has been through many years of execution and there are no plans to change this program in the foreseeable future.
I.	Circuit Breakers	Circuit breaker inspections provide both reliability and wildfire mitigation benefits. The program has been through many years of execution and there are no plans to change this program in the foreseeable future.
J.	Sub-transmission and Distribution System Facilities Fly-over Unmanned Aerial Vehicle (UAV) Inspection	BVES will review the results of the inspection to determine if it is yielding useful inspection information. BVES will compare findings in the UAV inspection program to findings in the other inspection programs (ground patrols, detailed inspection, LiDAR, etc.).

7.3.2.5 Vegetation Management and Inspections

1. ***Risk to be mitigated** / problem to be addressed*

Vegetation around electric distribution lines and equipment poses potential risks for safety, compliance, reliability, and wildfire ignitions. To address these risks and establish mitigation programs, BVES executes robust and detailed vegetation management and inspection initiatives according to detailed specifications, scope, and schedules. BVES has developed detailed work plans which enable compliance and tracking adherence to CPUC rules as well as state and federal laws. This detailed schedule-based approach allows for proper documentation and auditing of vegetation management and inspection programs.

2. ***Initiative selection** ("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives*

A. Vegetation Management Program

"why" engage in activity

BVES has a vegetation management plan in place that meets or exceed the PUC's GOs. 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 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.[27] The plan will be reviewed and updated on an as-needed basis not to exceed 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 identified clearance specifications.
- **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.
- The BVES vegetation management contract contains many provisions to reduce the accumulations of brush and trees wastes that may become fuel for wildfires:
- The Contractor is required to remove all wood and wood products and any other wastes generated by the requested service on a daily basis.
- Other requirements related to temporary slash piles, and proper disposal of wood and wood product waste according to applicable laws, rules, and regulations.
- Removal of all dead and rotting trees as well as those with the potential to fall on lines, even if they are outside the required clearance zone.
- Cutting back trees and limbs to a minimum radial clearance of 72 inches (6 ft) from conductors, going beyond the state compliance standard of 48 inches (4 ft).

As mentioned above, all vegetation management work must adhere to certain specifications, as outlined by BVES. The utility-defined specifications comply with or exceed those outlined in 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, in certain circumstances, to go beyond the regulated vegetation clearance standards. These enhanced specifications include:

[27] 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.

- A minimum radial clearance of 72 inches between bare conductors and vegetation. (BVES's bare conductors operate between 2.4 kV or more volts, but less than 72 kV, which means it must have a minimum radial clearance of 48 inches.)
- No vertical coverage above BVES sub-transmission lines (34.5 kV).
- 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 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. This information will be tracked in BVES's tree tracking program.

Alternatives

Vegetation management and inspection initiatives are completed throughout the BVES service territory. Special attention is given to BVES high threat areas which have both high vegetation or fuels density and high winds. BVES tracks conditions found during the detailed inspections and evaluates the types and quantity of conditions in order to identify trends and remedial actions.

B. Fuels Management and Defensible Space Community Programs

"why" engage in activity

Big Bear Valley has been a proactive community in developing and participating in fuels management and defensible space programs. Since the initial 2005 Big Bear Valley Community Wildfire Protection Plan (CWPP), various wildfire prevention strategies that were identified at that time have been implemented and completed. Since the initial CWPP, significant progress has been made through an ongoing and well-coordinated effort between various local, state, and federal agencies to reduce the amount of hazardous fuels within the valley through a wide range of fuel reduction projects. In the 2018 version of the CWPP, Big Bear Valley reports that $5,107,530 in grants has been received by the Big Bear Valley Fire Department. The Big Bear Fire Department has implemented a hazardous tree removal program which focuses on the removal of those dead trees which pose the greatest threat to habitable structures, roadways, and infrastructure. Community outreach is also an essential part of this program for acceptance and success within the community.

Last year, Bear Valley Community Services District (CSD) applied for a CalFire grant to address the wildfire hazard on the north/northwestern border of Bear Valley Springs, where over 85% of the conifer

forest is dead. A $1,026,144 project will take place between August 2020 and March 2024, where a professional logging company will fall, limb, buck, and remove trees and treat slash.

Since 2006, the Big Bear Fire Department applied for and received grant funding to establish a curbside chipping program. The Annual Curbside Chipping Program encourages homeowners to thin or remove hazardous fuels from their property in accordance with established defensible space guidelines and place the vegetation at the curbside. Unfortunately, the Big Bear Fire Department chipping program was suspended for the 2020 season due to a loss of a $345,000 grant.

BVES will conduct outreach with the U.S. Forest Service, CALFIRE and Big Bear Fire Department in an effort to develop collaborative measures in the area of fuels management in 2021.

Alternatives
Due to the proactive nature of the Big Bear Valley and community, BVES is not contemplating developing a specific fuels management program or joint roadmap with the Forest Service or other land management agencies. However, BVES will continue outreach, support, and participate in community-based fuels management and defensible space programs and establish communications with the USFS to determine interest in working cooperatively on fuels reduction and defensible space efforts. BVES will look to develop collaborative efforts in 2021 as noted above.

C. Forester Consulting Services

"why" engage in activity
BVES entered a contract to engage a full-time contract utility forester in its service territory as part of the BVES team. The contract forester's job duties include inspections, auditing, customer contact and issue resolution, work plan development, specialized projects, contractor safety observations, and vegetation management program documentation and data analysis. The Forrester is expected to be onsite as of April 2021.

Alternatives
A full-time forester resource is required for BVES to have an effective vegetation management program.

3. ***Region prioritization*** *("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk")*

The entire BVES service area is in Tier 2 and Tier 3 high risk wildfire service areas in mountainous, frequently dry terrain. BVES is required to perform many of these activities by the PUC but BVES recognizes the community imperative to carry out these activities in a manner that meets or exceeds the requirements, especially in higher risk areas.

4. *Progress on initiative* (amount spent, regions covered) and plans for next year

Supporting Table 7.3.2.5-1 Progress on Vegetation Management and Inspections

Id	Initiative	Region	Amount Spend ($)[28]	Plans for next year
A.	Vegetation Management Program	Tier 2,3	See Attachment A Table 12	Continue with existing mandated and additional initiatives
B.	Fuels Management and Defensible Space Community Programs	Tier 2,3	See Attachment A Table 12	Continue participation and cooperation with community-based fuels management defensible space programs
C.	Forester Consulting Services	Tier 2,3	See Attachment A Table 12	Integrate contract forester services into BVES operations

5. *Future Improvements to Initiative*

Supporting Table 7.3.2.5-2 Future Improvements to Vegetation Management and Inspections

Id	Initiative	Future Improvements
A.	Vegetation Management Program	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.
B.	Fuels Management and Defensible Space Community Programs	BVES will attempt to establish communications with the USFS to determine interest in working cooperatively on fuels reduction.
C.	Forester Consulting Services	Continue to integrate the Forester Consulting Services into BVES vegetation management programs

7.3.2.6 Grid Operations and Protocols

1. *Risk to be mitigated / problem to be addressed*

Grid operations and protocols encompass company procedures related to wildfires, special work procedures, and wildfire infrastructure protection team definitions. These practices help the utility manage risk on a day-to-day basis and during wildfire high risk periods.

[28] BVES is currently engaged in an effort to update its costing and spending information for each initiative. Additional information on each initiative will be provided in future filings.

Understanding the electric system load/demand allows BVES to create an operating mode optimized for two types of operations: (1) safety and reliability and (2) wildfire prevention during high risk periods. It should be noted that wildfire prevention measures during high fire risk weather conditions override reliability optimization regardless of season or system demand. Generally, since the winter months bring the heaviest load/demand on the BVES distribution system, BVES optimizes the system for safety and reliability during such time. These months are often wet and do not typically 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 are set to not reclose.
    - Auto-Recloser field trip settings adjusted for summer load.
    - Radford 34.5 kV 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.[29] Further, 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. In short, overall system configuration is optimized for fire prevention from approximately April 1 to October 31, using the seasonal characteristics of BVES's climate and load profile. The system is then further adjusted based on the seven-day NFDRS forecast, as well as other operational and weather information available to BVES.

BVES monitors the NFDRS fire danger forecast each day and then determines the proper operational focus from a reliability and fire prevention focus. Exact steps depend on the level of fire-threat. As indicated in Supporting Table 5-9 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 7.3.2.6-1. 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	Yes – "at risk" lines when wind gusts greater than 55 mph		

[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 Warning condition is declared, Field Operations will closely monitor the NFDRS Forecast and other local forecasts to determine the appropriate operational conditions to be implemented.

[29] 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.

Additionally, BVES's weather consultant provides more detailed and frequent forecast updates. It should be noted that generally Red Flag Warning 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.

2. ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives*

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

"why" engage in activity

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 corrections attempts to prevent ignition. This can be coupled with SCADA systems for remote control of the equipment. The list below details BVES's plans in regard to these technologies.

BVES plans to install S&C's Pulse Closer Fault Interrupters across its major 34 kV system auto-reclosers was completed in 2020. 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.

Alternatives:

BVES considered alternatives as part of the planning before the initiative began. This discussion is available in the BVES 2020 WMP. BVES continues to monitor the implementation and alternatives to reduce wildfire risk in the most effective and efficient manner possible.

B. Fault Indicators

"why" engage in activity

BVES has installed Fault Indicators (FIs) at key locations to reduce the time it takes to locate faults; thereby, reducing the time to isolate faults from the system or correcting the damage. This has the effect of reducing the possibility of an ignition developing into a fire that may spread into a wildfire. Prior to the start of the program, BVES had 110 FIs installed in its system at key locations. As part of the WMP, BVES will install an additional 117 FIs at 39 key locations to provide optimal FI coverage in the system in 2022.

Alternatives:

BVES considered alternatives as part of the planning before the initiative began. This discussion is available in the BVES 2020 WMP. BVES continues to monitor the implementation and alternatives to reduce wildfire risk in the most effective and efficient manner possible.

C. Emergency Reports from Third Parties

"why" engage in activity

Reports of wires sparking or smoke could lead to a wildfire. The Utility Engineer & Wildfire Mitigation Supervisor has issued operational guidelines or procedures to follow in the event BVES receives a report

of potential fire such as “arcing, sparks, smoldering, smoke, or fire” or other emergency reports involving the overhead distribution system. Examples of reports could include customer or third party reported arcing, sparking, smoke, or fire sightings. These procedures will be at the discretion of the Utility Manager and, given the event, will require prompt and decisive action to place the system in a safe condition.

Alternatives:
The rapid response to a report of smoke or sparking is a good practice to reduce the risk of a wildfire.

D. Wildfire Infrastructure Protection Teams

"why" engage in activity
During a potential emergency or significant event, a rapid response, with specific resources can reduce the risk of the event leading to a wildfire. BVES has a Wildfire Infrastructure Protection Team (WIPT). Given the need for capabilities during wildfire incidences and other emergencies, the WIPT aligns with BVES’s Emergency Response Team (ERT). Both teams consist of the Utility Manager, Field Operations Supervisor, Service Crew, and Customer Service staff.

The Utility Manager oversees the WIPT. The Field Operations Supervisor will direct field activities and operations during the emergency. The Service Crew (or Dutyman outside normal working hours) will provide initial field response to the emergency. 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 Utility Manager to assist, as needed. For example, Engineering staff may be called out to assist linemen in monitoring local wind speeds.

Alternatives:
No comparable alternative exists. The rapid response of personnel to an emergency event is an essential practice to reduce the risk of a wildfire.

3. ***Region prioritization ("where" to engage activity) –*** *include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk")*

This will apply across the entire BVES service territory. Grid Operations and Protocols guide BVES’s delivery of electricity and help manage risk on a daily basis and during high wildfire risk periods.

4. ***Progress on initiative*** *(amount spent, regions covered) and plans for next year*

Supporting Table 7.3.2.6-2 Progress on Grid Operations and Protocols

Id	Initiative	Region	Amount Spend ($)[30]	Plans for next year
A	High-Speed Clearing (Automatic Reclosers (AR) and Fast-Curve Sensitive Relay Settings)	Tier 2 and Tier 3	See Attachment A Table 12	None – Project completed.

[30] BVES is currently engaged in an effort to update its costing and spending information for each initiative. Additional information on each initiative will be provided in future filings.

B	Fault Indicators	Tier 2 and Tier 3	$150,000	Planning and procurement. Installation will be in 2022.
C	Emergency Reports from Third Parties	Tier 2 and Tier 3	No incremental cost	Program in place and will continue
D	Wildfire Infrastructure Protection Teams	Tier 2 and Tier 3	See Attachment A Table 12	Program in place and will continue

5. Future Improvements to Initiative

Supporting Table 7.3.2.6-3 Future Improvements to Grid Operations and Protocols

Id	Initiative	Future Improvements
A	High-Speed Clearing (Automatic Reclosers (AR) and Fast-Curve Sensitive Relay Settings)	No changes or improvement in program expected
B	Fault Indicators	Program scheduled for 2022
C	Emergency Reports from Third Parties	Ongoing program, no changes expected
D	Wildfire Infrastructure Protection Teams	Ongoing program, no changes expected

7.3.2.7 Data Governance

*1. **Risk to be mitigated** / problem to be addressed*

Data Governance is an enabling investment that supports the overall effort of mitigating wildfires. Proper data governance will support the tracking of events that could lead to a wildfire, tracks the progress of electric system upgrades, and enables the ability to provide information to “other” parties.

BVES recognizes the importance of tracking, in a GIS platform, outage locations and causes. Equally important is having the ability to track electric system upgrades in a GIS data base. Having this information in a standard format supports BVES ability to continuously improve its risk mitigation process.

BVES GIS system presently does not support the sharing data with key stakeholder agencies, such as the CPUC and CALFIRE, and providing its data in accordance with CPUC protocols.

In order to support the above, BVES has an ongoing initiative to update GIS records in the format agreed upon by the Wildfire Safety Division (WSD).

2. *Initiative selection*

"why" engage in activity

A. Consultant GIS Support Services

BVES engaged the support of a consultant to identify gaps and make recommendations for methods to address its GIS process and to immediately update the records in the required format. This initiative will result in a common data definition, increase digitization of field work activities, and update system interfaces to automate data flow into GIS for WSD reporting.

Using the WSD GIS Data Reporting Requirements and Schema as a guide, initial data governance steps are being taken to define the system of record and assessing initial data quality for each of the required feature datasets in the WSD schema.

Alternatives
BVES will continue to explore performing the GIS records update using internal resources. At this time the path forward is using the support of a consulting firm.

3. ***Region prioritization ("where" to engage activity) –*** *include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk")*

This will apply across the BVES service territory.

4. ***Progress on initiative*** *(amount spent, regions covered) and plans for next year*

Currently, this initiative is focused on gathering the required WSD GIS feature datasets and updating the asset and risk event data.

This initiative is broken into the following components:

Asset Lines & Points: Update GIS interfaces to pull asset condition details from source systems and transform it into WSD format for reporting.

Risk Events: Define roles, procedures, and common data definitions for managing risk event data across multiple departments.

By the end of 2021 50% of records will be updated and in the correct format.

Supporting Table 7.3.2.7-1 Progress on Data Governance

Id	Initiative	Region	Amount Spend ($)[31]	Plans for next year
A	Consultant GIS Support Services	Tier 2,3	$150,000	Next year and going forward, the GIS records will be in a format that can be shared with “others” (i.e. WSD)

[31] BVES is currently engaged in an effort to update its costing and spending information for each initiative. Additional information on each initiative will be provided in future filings.

5. Future Improvements to Initiative

Supporting Table 7.3.2.7-2 Future Improvements to Data Governance

Id	Initiative	Future Improvements
A	Consultant GIS Support Services	The consultant will be providing recommendations on improvements in the overall process. These improvements will be considered and evaluated. BVES will continue to evaluate using internal resources verses using a consultant to support the GIS requirements.

7.3.2.8 Resource Allocation Methodology

*1. **Risk to be mitigated** / problem to be addressed*

The purpose of a resource allocation methodology is to ensure a utility's resources are efficiently and effectively utilized to successfully achieve utility objectives and needs.

*2. **Initiative selection ("why" engage in activity) –** include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives*

A. Allocation methodology development and application

The CPUC has not required BVES to conduct a Risk Assessment and Mitigation Phase (RAMP). However, BVES evaluates enterprise risk using a risk-based decision-making framework and has adopted a Fire Safety Circuit Matrix to prioritize wildfire risk and evaluate wildfire risk mitigation. The combination of these methods allows for both a comprehensive analysis of enterprise wide safety risk and wildfire related assessment to generate an effective proxy wildfire ignition risk assessment. BVES Risk-Based Decision-Making Framework effectively targets circuits and assets to assure initiatives that provide the greatest mitigation benefits are properly prioritized. Within the next two years, BVES will work with a contractor to develop a model to better quantify ignition risk drivers and associated probabilities to assist in determining which initiative mitigations to targeted circuits and assets that will provide the greatest benefit to wildfire risk reduction.

B. Risk reduction scenario development and analysis

Please refer to Section 4.2 and Section 4.2.1

C. Risk spend efficiency analysis

Please refer to Section 4.2 and Section 4.2.1

*A. **Region prioritization** ("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk")*

The initiatives apply across the BVES service territory.

B. *Progress on initiative* (amount spent, regions covered) and plans for next year

Supporting Table 7.3.2.8-1 Progress on Resource Allocation Methodology

Id	Initiative	Region	Amount Spend ($)[32]	Plans for next year
A	Allocation methodology development and application	Tier 2,3	$0	N/A
B	Risk reduction scenario development and analysis	Tier 2,3	See Attachment A Table 12	See Sections 4.2 and 4.5.1
C	Risk spend efficiency analysis	Tier 2,3	See Attachment A Table 12	See Sections 4.2 and 4.5.1

C. *Future Improvements to Initiative*

Supporting Table 7.3.2.8-2 Future Improvements to Resource Allocation Methodology

Id	Initiative	Future Improvements
A	Allocation methodology development and application	N/A
B	Risk reduction scenario development and analysis	See Sections 4.2 and 4.5.1
C	Risk spend efficiency analysis	See Sections 4.2 and 4.5.1

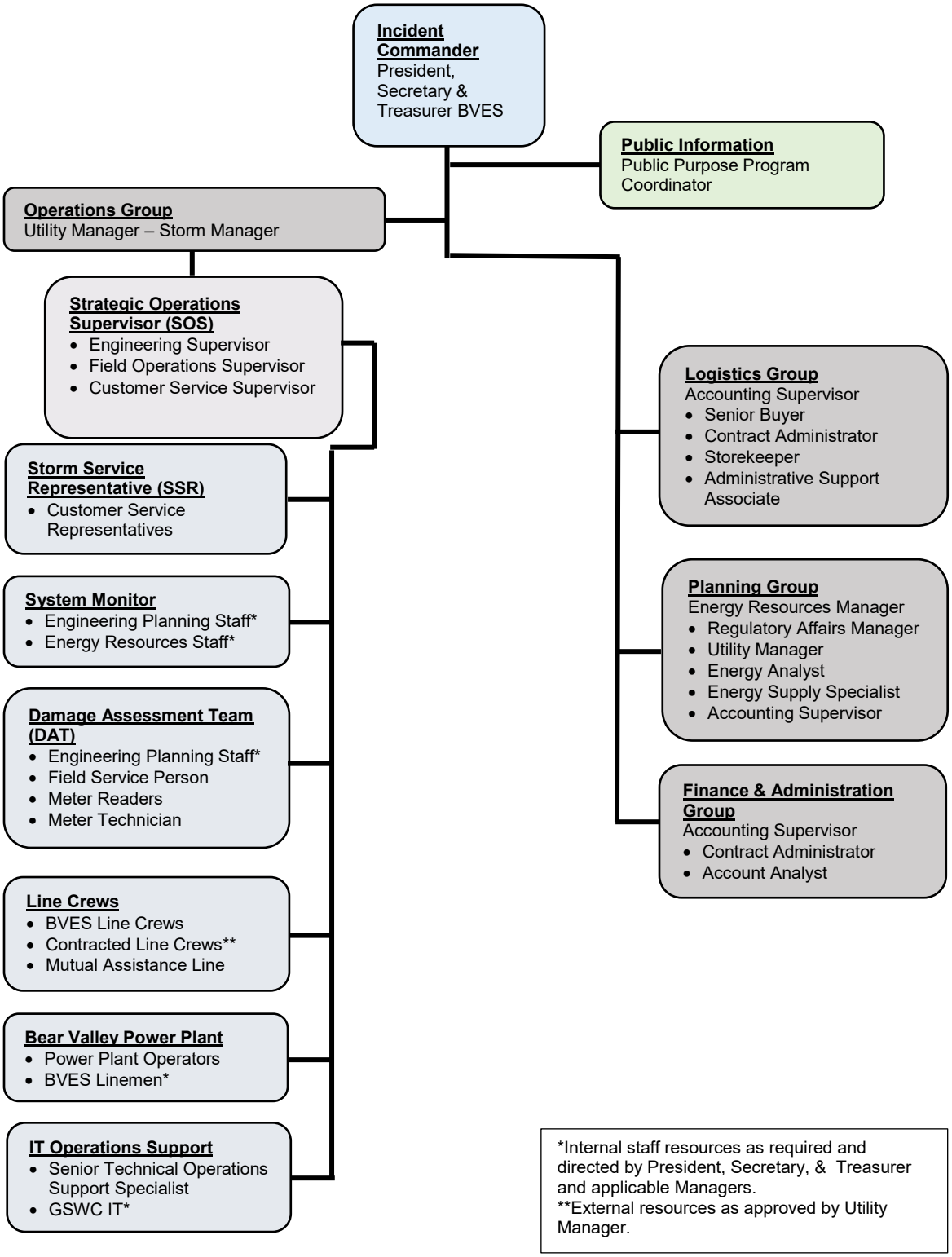
7.3.2.9 Emergency Planning and Preparedness

1. *Risk to be mitigated / problem to be addressed*

BVES responds to emergencies in accordance with its Emergency Response Plan, which is compliant with GO 166 Standards for Operation, Reliability, and Safety During Emergencies and Disasters. A copy of the Emergency Response Plan is forwarded to the Commission annually per GO 166 and attached to this WMP as Appendix B. In responding to emergencies, BVES staff is 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 7-2 illustrates how the BVES staff aligns with the SEMS organizational structure during an emergency.

[32] BVES is currently engaged in an effort to update its costing and spending information for each initiative. Additional information on each initiative will be provided in future filings.

Figure 7.3.2.9-1. BVES Emergency Organization

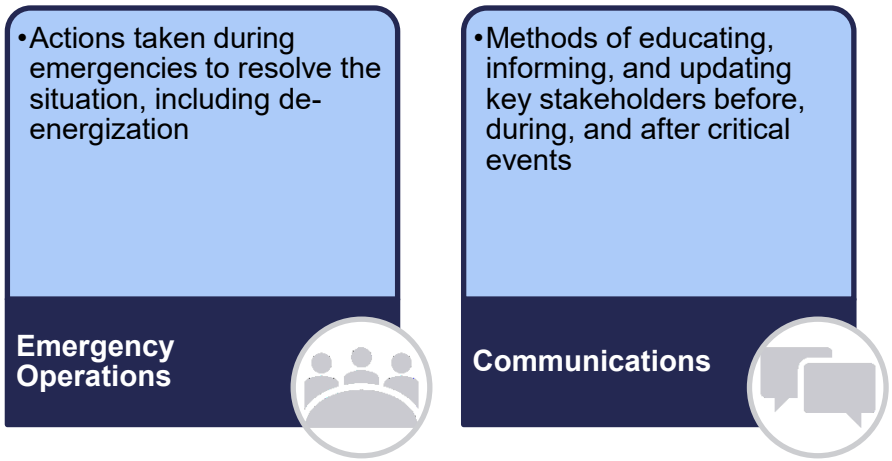


Additional guidance is provided in this section. These procedures apply to both situations that may affect the electrical system (e.g. proactive de-energization) or the area at-large (e.g. wildfire event). This section details these plans, including compliance, and roles and responsibilities for executing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

Plan Overview

The Emergency Preparedness and Response Plan reflects the BVES belief that it is important to have proactive planning and close coordination with local governments, first responders, mutual aid and expert agencies, other stakeholders, and customers. 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 Plan.[33] Figure 7-3 below describes these two complementary components.

Figure 7.3.2.9-2. Emergency Preparedness and Response Components



Due to BVES's unique service territory, several key stakeholders are 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 7-21 provides the stakeholder list. BVES will review the list annually and update it, as needed.

[33] The PSPS Plan is attached as Appendix A

Supporting Table 7.3.2.9-1. BVES Emergency Preparedness and Response Stakeholder List

Stakeholder Group	Description
Customers	• Any person or organization who receives electricity from BVES or is impacted by BVES's services to the community
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

2. ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives*

A. <u>Adequate and trained workforce for service restoration</u>

BVES currently has adequate and trained workforce for service restoration

"why" engage in activity

BVES employees are provided the necessary tools, training, and protocols to support emergency restoration activities because employee and public safety is of the utmost importance. BVES employees are trained to respond to outages, storms, wildfires, and other emergency events efficiently and safely. In accordance with the Emergency Response Plan, BVES employees must coordinate effectively with other public first responders (police, fire, emergency management). BVES has built a SEMS structure that ensures everyone is trained and prepared for their assigned emergency roles. Periodic tabletop exercises are used for preparation for these low frequency, high impact public emergency events.

B. Community outreach, public awareness, and communications efforts

"why" engage in activity

Community outreach, public awareness, and communications efforts are required to reduce the impact to customers and the community from an event causing interrupting of service and/or poses serious public risks. Effective planning and awareness also assist to limit the scope of extreme events and avoid escalation. BVES has altered how the company addressed the risk of catastrophic wildfires due to the increased presence of potential wildfire due to climate changes and environmental conditions. BVES works year-round to educate customers and the general public and work with community partners to improve outreach, awareness, and communications.

The Energy Resource Manager oversees communications plans and activities. Reporting to the energy Resource Manager is the Customer Service Supervisor, who manages communication activities. BVES's communication plan includes a two-pronged approach (1) proactive preparation before emergencies occur and (2) notifications during and after emergency events. Communications protocols vary slightly when dealing with stakeholders that include customers, first responders, the local mutual aid association, local government, among the key stakeholders.

The list below describes the 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, proactive de-energization, and other utility infrastructure-related emergencies. Communication formats are planned in English, Spanish, Tagalog, Vietnamese, Chinese, French, Mixteco and Zapoteco for online resources and when requested by customers. BVES is continuing to enhance its community outreach activities and has conducted a self-identified survey process to account for these populations. Details are provided in Section 8.4 of this 2021 WMP. Indigenous communities surrounding the service area are investigated to account for the unique languages representing English as a Second Language (ESL) speakers. BVES collaborates with other community organizations to assure that a local community resource center is available to customers during emergencies. BVES aligns its communication with other organizations so it is clear and consistent among the local and state organizations.

- Before Emergencies: Proactive outreach includes regular messages related to fire prevention (such as vegetation management, distribution inspection, and de-energization policies) and operational initiatives. This engagement occurs through public workshops, BVES newsletters, social media, website posts, and other forms of media. Special presentations related to fire prevention and preparing for emergencies, including PSPS events, are provided through multiple outlets, including printed material, public service announcements, social media, and special briefings by BVES.

- During / After Emergencies: Notifications include BVES-prepared customer-facing statements for staff to disseminate in the case of de-energization and emergencies, including information about timing and location of such events. These notifications occur through news outlets, printed materials, digital media, radio forums, website updates, social media updates, text messages, local government, and agency media (e.g. City of Big Bear Lake's email blasts), and interactive voice response (IVR) calls. Additional forms of communication may be leveraged as new technologies and software become available.

Post-event BVES provides 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: Communications with local government agencies is essential to BVES's outage and emergency response plans. BVES leadership strives to engage with local agencies in a direct and expedient manner. Coordination and preparation for emergencies, including PSPS, is a shared responsibility between BVES, public safety partners, and local governments; however, BVES is ultimately responsible and accountable for the safe deployment of PSPS. BVES prepares and informs relevant agencies, before, during, and after outages, PSPS, or emergencies. BVES's protocols include establishing a two-way communication channel to help facilitate communications to collaboratively manage the potential impacts of events.

- Before Emergencies: BVES participates in proactive briefings with the local government to collaboratively plan to minimize the impacts of potential emergencies. These briefings include in-person meetings, emails, and coordinated training and drills. BVES solicits feedback from the local government and other agencies on its emergency preparedness communication plans and overall protocols, to incorporate ongoing improvements.

- During / After Emergencies: When an emergency occurs, BVES notifies all relevant local government and agencies immediately to ensure proper response coordination. The Customer Care & Operations Support Superintendent and other staff performing customer and public information functions work closely to coordinate with counterparts including the local government and other agencies, providing outage and emergency notifications, estimated time to restore service, and periodic updates as available. BVES continues to provide timely communications to all parties until the situation has been resolved. These notifications happen through phone, text, email and in-person communications.

- Mountain Mutual Aid Association (MMAA) Participation: The MMAA works in conjunction with the local fire department. BVES's outreach and engagement with the MMAA is similar to the collaborative approach used with local government and agency communications. Specifically, the goal is to inform, prepare, and coordinate closely with community first responders and aid workers.

- Before Emergencies: Proactive briefings center on how the plan impacts the surrounding community based on BVES's utility infrastructure. Briefings may be conducted through email, training, remote collaboration tools, and in-person meetings, among others. BVES gains valuable feedback from MMAA to harmonize its emergency preparedness, communication plans, and overall protocols to align with other community partners aligned in their goal of public safety.

- During / After Emergencies: When an emergency occurs, BVES notifies MMAA members immediately to effectuate a coordinated response. BVES continues to provide timely communications and participate in coordinated activities until the situation has been resolved. Communication and notifications happen through phone, text, email and in-person communications, among others.

- CPUC Reporting: BVES's communication with the CPUC aligns with mandates and requirements.

- Before Emergencies: BVES submits its Fire Prevention Plan, Wildfire Mitigation Plan, and Emergency Response Plans for review and input. All plans are designed to work together to minimize the impact of outages and infrastructure-related events and, most importantly, protect the public safety.

- During / After Emergencies: BVES notifies the Director of Safety Enforcement Division (SED)

within 12 hours of the power being shut off. BVES also notifies the CPUC and Warning Center at the Office of Emergency Services in San Bernardino within one hour of shutting off the power if the outage meets the major outage criteria of GO 166.

BVES provides a written report to the Director of SED no later than 10 business days after a shut-off event ends per ESRB-8. The utility complies with all analysis and report requests during and after any emergencies. Outage data shall also be included in BVES's annual reliability indices report to the CPUC.

C. Customer support in emergencies

"why" engage in activity

Customers often seek and require support during wildfires and public emergencies. BVES developed support plans to provide assistance when and where it is needed directly to those impacted.

As ordered by the CPUC, BVES provides emergency residential and non-residential customer protections to wildfire victims. Example protections include: billing adjustments, deposit waivers, extended payment plans, suspension of disconnection and nonpayment fees, and specific support for low income and medical baseline customers.

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, or resulted in the degradation of the quality of utility service, BVES shall implement certain customer service actions 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.

Support for Low Income Customers - The Customer Care team will freeze low income customers' accounts, stop billing, 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 freezes 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 provides a designated customer contact for all affected customers. The BVES contact reports within CC&B for up to one year from the date the emergency ends. This allows BVES to easily track the customer's account, so when service is re-established, the utility knows to waive any associated fees and to expedite customer re-connection.

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

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

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

Access to Utility Representatives - The BVES Engineering Inspector arranges for connections and facilitates expedited services. Leveraging its IVR system, BVES is able to manage thousands of phone calls simultaneously and redirect 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 continues to work with partners to seek input on emergency response planning and enhance with unique efforts or cooperative plans.

D. Disaster and emergency preparedness plan

"why" engage in activity

Emergency Response preparations are long-term processes for which each BVES Department must be constantly ready, especially during the winter months. Preparations for emergency response are best achieved through training on the Emergency Response Plan (ERP), continuous evaluation of the plan, coordination and outreach with external stakeholders, provisioning emergency response materials and equipment, and establishing mechanisms to rapidly bring emergency response resources to the service area such as mutual aid agreements, contracts, and other partnering agreements.

The ERP is provided to all BVES employees to ensure an efficient, effective, and uniform response during an emergency situation. BVES recognizes the importance of an integrated ERP in order to safely provide for the energy needs of our customers and the requirements of our stakeholders in the event of an emergency. BVES strives to meet customer needs through effective risk assessment, mitigation, preparedness, response, and communications. Our vision is to achieve excellence in emergency management.

In the event of a wildfire or other emergency event, BVES invokes its ERP and staffs up its Emergency Operations Center to coordinate activities to restore service. The BVES restoration strategy and priorities are detailed in the ERP. BVES Wildfire Infrastructure Protection Team (WIPT) oversees response and restoration activities. In the event that additional staff is needed, BVES leverages mutual aid agencies, including the City of Big Bear Lake staff and local aid organizations. The utility also engages temporary employees and contractors on an as-needed basis.

The ERP requires that 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. The SEMS structure utilized by BVES is a utility compatible Incident Command Structure (ICS) framework designed to manage emergency incidents and events.

In an effort to further improve emergency preparedness and response, BVES implemented the iRestore APP, which provides First Responders (Big Bear Fire Department and San Bernardino Sheriff's Department – Big Bear Lake Detachment) and BVES's internal Damage Assessment Teams a tool to quickly document and report problems along its distribution system and facilities to Dispatch. The iRestore Responder Application will provide emergency and remedial response needs at the ground-level allowing public safety partners, utility personnel, and contractors to coordinate and execute emergent corrections and quickly identify at-risk events to bolster near miss tracking in the future.

E. Preparedness and planning for service restoration

"why" engage in activity

Outage events and emergencies are rarely similar in all respects; therefore, this general restoration strategy is constructed to provide the EOC Team with a scalable and flexible restoration strategies that can be employed as required to deal with the unique aspects of each major outage and emergency event. Restoration strategies details are contained in Appendix B, Section 4.3.

F. Protocols in place to learn from wildfire events

"why" engage in activity

Bear Valley Electric Service leverages the protocols included in the company's ERP to learn from wildfire events in the same manner the utility learns from any emergency event. The criticality and scope of the BVES ERP has grown over the past few years. To meet these challenges, emergency preparedness and response activities must be systematic, inclusive, and transparent to review incidents in a manner that is aligned with our core values.

In 2021, BVES will develop and implement a formal after-action program (AAP). It is anticipated that a formal after-action process and report will be required after the activation of the emergency plan in order to have formal review process that will include both BVES staff and community partners.

3. Region prioritization ("where" to engage activity) – include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk")

Emergency planning and preparedness applies to the entire BVES service area.

4. Progress on initiative (amount spent, regions covered) and plans for next year

Supporting Table 7.3.2.9-2 Progress on Emergency Planning and Preparedness

Id	Initiative	Region	Amount Spend ($)[34]	Plans for next year / Improvements
A	Adequate and trained workforce for service restoration	Tier 2,3	No specific budget was developed for this initiative	Continue emergency training for emergency response staff
B	Community outreach, public awareness, and communications efforts	Tier 2,3	No specific budget was developed for this initiative	Continue to improve customer support in emergencies with specific focus on diverse, multicultural, multilingual, senior, special needs, disadvantaged and AFN communities.
C	Customer support in emergencies	Tier 2,3	No specific budget was developed for this initiative	Continue to evaluate improvements to customer support in emergencies

[34] BVES is currently engaged in an effort to update its costing and spending information for each initiative. Additional information on each initiative will be provided in future filings.

D	Disaster and emergency preparedness plan	Tier 2,3	No specific budget was developed for this initiative	Train all BVES emergency response staff on the 2021 ERP Evaluate further effectiveness for emergency responders using the iRestore app.
E	Preparedness and planning for service restoration	Tier 2,3	No specific budget was developed for this initiative	Continue to evaluate improvements to emergency preparedness
F	Protocols in place to learn from wildfire events	Tier 2,3	No specific budget was developed for this initiative	Develop and implement an emergency event after action process and report

5. Future Improvements to Initiatives

Supporting Table 7.3.2.9-3 Future Improvements to Emergency Planning and Preparedness

Id	Initiative	Future Improvements
	N/A	BVES will apply its planned communication outreach activities lessons learned and recommendations through stakeholder engagement into its ERP over time and as appropriate.

7.3.2.10 Stakeholder Cooperation and Community Engagement

As part of a small, tight-knit community, collaboration is built into the daily values and way of working at BVES. BVES collaborates with CalOES, county and local governments, independent living centers, and community representatives. As a result of the March 12, 2020 D.20-03-004, BVES submitted Advice Letter No. 389-E to address outreach with local communities, public safety partners, and local agencies with regard to emergency notification and communication procedures before, during, and after a wildfire Stakeholder cooperation and community engagement are ongoing activities that are organized as needed throughout the year. In 2019 and 2020, BVES completed many wildfire public outreach and awareness activities:

- BVES' WMP and PSPS plans were featured in BVES' summer 2019 and winter 2019/2020 newsletters in English.
- Sent BVES' E-communication customers the WMP video in August 2019 in English.
- Sent the WMP video to BVES's communication outlets in August 2019 in English.
- Posted the WMP video on BVES's Facebook page and the BVES.com homepage in August 2019; the WMP video is currently still posted on both pages in English
- Provided WMP postcards in English and BVES's President spoke about the WMP in front of the attendees at a Mountain Rim Fire Safe Council meeting regarding Wildfire Prevention and Preparedness in September 2019.
- Hosted two community meetings at a local hotel in December 2019. BVES's President presented on a handful of topics, including BVES' WMP and PSPS plan. WMP Postcards in English were available at these meetings.
- Provided WMP postcards in English at a start-up meeting for the Fire Safe Council for Big Bear Valley in February 2020 (BVES is an active member of the Fire Safe Council start-up for the Big Bear Valley).
- Posted approved WMP in English on the BVES website in 2019 and 2020 after the 2019 and 2020 WMP filings, respectively.
- Posted the equipment upgrades, vegetation management, and operational improvements included in the 2019 WMP online to the public in the following languages: English, Spanish, French, Tagalong, Vietnamese, and Chinese.
- Comments and fillings regarding the 2019/2020 WMP are continuously being updated and posted on the website in English.
- Continued to promote the WMP in English on Facebook throughout the course of the year.
- BVES's President is the president of the Bear Valley Mutual Aid Association; he has briefed the individuals in the group about BVES' PSPS plans and WMP in English.

1. ***Risk to be mitigated*** */ problem to be addressed*

As discussed throughout this 2021 WMP, the threat of wildfires in the BVES service area has trended towards an extended wildfire season. BVES recognizes the importance of providing accessible, accurate and timely information that will help educate and enhance local community safety before emergencies, during a wildfire or PSPS event and during event restoration. BVES public outreach and communications activities are tailored to the tight-knit local community and have taken many forms.

2. ***Initiative selection*** *("why" engage in activity) – include reference to a risk informed analysis on empirical (or projected) impact of initiative in comparison to alternatives*

A. BVES Public Outreach and Communications Plan

"why" engage in activity
The importance of public outreach and communications for wildfires cannot be overstated. Prior BVES activities related to public outreach and communications focused upon PSPS and emergency preparedness. A lesson learned through BVES public outreach actions and customer surveys is that a comprehensive Public Outreach and Communications Plan is needed to incorporate both on-going activities and future planned activities. Prior to the 2021 fire season, BVES will begin stages to refine its Wildfire Public Outreach and Communications Plan though no formal steps are developed at this time.

B. PSPS Communications Practices

"why" engage in activity
BVES plans to conduct PSPS[35] communications in a two-pronged approach: before a PSPS activation, and during/after a PSPS event. Through various communications channels, BVES educates the public on PSPS activation, safety, and preparedness. During a PSPS, BVES strives to give customers real-time awareness and updates on the event and public safety. On the BVES website, customers can now enroll in a two-way emergency text communication for wildfire threats and emergency PSPS events. Also on the website are links to PSPS alerts, Fire Season Outlook, Wildfire Emergency Preparedness Checklist and video, emergency planning information and home safety.

Additionally, accurate, effective, and timely communications with key stakeholders is critical in emergency response including PSPS events. BVES has developed business and entity relationships as part of its PSPS Communications Practices. BVES has worked to understand priority stakeholders and critical facilities along with identifying the appropriate contacts, their roles and responsibilities, and the entity's support capabilities and needs in the event a wildfire or PSPS incident occurs.

C. Agency Coordination

"why" engage in activity
Communications with local government agencies is essential to BVES's outage and emergency response plans. BVES leadership strives to engage with local agencies in a direct and expedient manner. Coordination and preparation for emergencies, including PSPS, is a shared responsibility between BVES, public safety partners, and local governments; however, BVES is ultimately responsible and accountable for the safe deployment of PSPS. For PSPS communications, BVES has two-pronged plans for CPUC, local government agencies, and the Mountain Mutual Aid Association.

3. Region prioritization ("where" to engage activity) – *include reference to a risk informed analysis in allocation of initiative (e.g., veg clearance is done for trees tagged as "high-risk")*

This initiative is applicable across the entire BVES service territory.

4. Progress on initiative (amount spent, regions covered) and plans for next year

[35] These actions are described in detail in the BVES PSPS Plan approved February 24, 2021, and attached as Appendix A.

Supporting Table 7.3.2.10-1 Progress on Stakeholder Cooperation and Community Engagement

Id	Initiative	Region	Amount Spend ($)[36]	Plans for next year
A	Public Outreach and Communications Plan	Tier 2,3	See Attachment A Table 12	Develop BVES Public Outreach and Communications Plan prior to 2021 Fire season.
B	PSPS Communications Practices	Tier 2,3	No specific budget was developed for this initiative	Continue existing PSPS Communications Practices
C	Agency Coordination	Tier 2,3	No specific budget was developed for this initiative	Continue existing Agency Coordination

5. Future Improvements to Initiative

Supporting Table 7.3.2.10-2 Future Improvements to Stakeholder Cooperation and Community Engagement

Id	Initiative	Future Improvements
A	Public Outreach and Communications Plan	Develop BVES Public Outreach and Communications Plan prior to 2021 Fire season.
B	PSPS Communications Practices	Continue to evaluate and refine PSPS Communications Practices
C	Agency Coordination	Continue to evaluate and refine Agency Coordination

Stakeholder cooperation and community engagement are ongoing activities that are organized as needed throughout the year. BVES has conducted community outreach related to its PSPS Plan but otherwise does not have a specific engagement plan for the upcoming years. Routine engagements are included as part of BVES's emergency response planning efforts. In accordance with D.20-03-004, BVES conducted a no-contact electronic customer survey on its 2019 public awareness and outreach efforts regarding its WMP. The survey results are currently being analyzed. BVES will report on the survey and utilize the results to improve future outreach activities. Customers could have received or seen various WMP/PSPS related content as part of BVES's outreach.[37]

[36] BVES is currently engaged in an effort to update its costing and spending information for each initiative. Additional information on each initiative will be provided in future filings.

[37] List of outreach and shared content can be found here: https://www.bves.com/media/managed/wmp/BVES_WMP_PSPS_Outreach_2019_2020.pdf.

8. PUBLIC SAFETY POWER SHUTOFF (PSPS), INCLUDING DIRECTIONAL VISION FOR PSPS

8.1 Directional Vision for Necessity of PSPS

Instructions: *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 considers PSPS as a measure of last resort, driven by a combination of extreme fire threat weather, fuel moisture, wind, and situational awareness information to protect the community against ignition threats from energized circuits. Although BVES has never had to implement PSPS, BVES is committed to reducing the scope, frequency, and duration of PSPS events should it be necessary, and will only implement PSPS when the safety risk of imminent fire danger is greater than the impact of de-energization. As BVES continues to reduce ignition risk, BVES anticipates the likelihood to need to use its PSPS to become even more remote, but BVES will continue to evaluate the risk and necessity for its use. Finally, BVES will endeavor to incorporate lessons learned across California regarding the use of PSPS and will update its PSPS Plan (attached to this WMP as Appendix A) and Emergency Response Plan (attached as Appendix B) accordingly.

BVES has conducted public outreach and publishes its vision for necessity of PSPS on its website.[38] Due to previous, ongoing and future grid hardening efforts, the projected risk outlook relative to system hardening efforts carried out on prioritized circuits indicates a lower risk forecast as these initiatives are executed over ten years. This reduces the likelihood and need to initiate PSPS events.

BVES has not initiated any PSPS events over the past three years and does not forecast an imminent need to de-energize in the future based on a one, three, or ten-year forecast. Because BVES has not had to initiate PSPS events, it is not quantifiable to reduce the frequency, scope, or duration of future PSPS events. However, BVES does not view lack of PSPS events as a case for complacency. Accordingly, BVES incorporates PSPS lessons learned from BVES's observation and review of PSPS actions taken by other utilities in California.

In addition to its own plan for proactive de-energization, BVES may also be impacted by PSPS events triggered by SCE, because SCE's system supplies the bulk of energy to BVES's system. Accordingly, BVES closely monitors and coordinates with developments at SCE and is ready to respond to any SCE PSPS that may cut imports to BVES.

Because BVES has never enacted a PSPS and believes that there is a low likelihood that BVES will need to enact a PSPS in the future, BVES does not have a defined vision for the continued evolution of its PSPS Plan. However, BVES recognizes climate change is changing historical weather patterns and fire

[38] BVES, Public Safety Power Shutoff page https://www.bvesinc.com/safety/public-safety-power-shutoff/ .

conditions including severity and the length of the fire season. In a future WMP update, BVES will assess the historical outlook of fire weather conditions over the last ten years and determine any instances where a PSPS activation would have been justified using BVES' PSPS thresholds to assist in scenario development of forecasted risk. Taking no action to harden circuits or reduce the impact of PSPS events, would leave BVES's customers and stakeholders vulnerable to future extreme fire weather events that could necessitate PSPS. Therefore, over the course of the ten-year planning period, grid hardening initiatives, enhanced vegetation management programs, more robust forecasting capabilities, and increased situational awareness will continue to keep the likelihood of PSPS activation remote. Additionally, BVES plans to continue to coordinate with public safety partners and community members as well as provide any PSPS Plan and wildfire safety updates ahead of each wildfire season.

Instructions: *Rank order the characteristic of PSPS events (in terms of numbers of customers affected, frequency, scope, and duration) anticipated to change the most and have the greatest impact on reliability (be it to increase or decrease) over the next ten years. Rank in order from 1 to 9, where 1 means greatest anticipated change or impact and 9 means minimal change or impact on ignition probability and estimated wildfire consequence. To the right of the ranked magnitude of impact, indicate whether the impact is to significantly increase reliability, moderately increase reliability, have limited or no impact, moderately decrease reliability, or significantly decrease reliability. For each, include comments describing expected change and expected impact, using quantitative estimates wherever possible.*

Table 8.1-1 Anticipated Characteristics of PSPS Use Over Next 10 Years

Rank (Order 1-9)	PSPS Characteristic	Significantly increase; increase; no change; decrease; significantly decrease	Comments
2	Number of customers affected by PSPS events (total)	No change	BVES has not initiated any PSPS events. Based on historical weather patterns, BVES assesses that the need to initiate a PSPS would be a rare event due to winds not being high during dry weather periods.
3	Number of customers affected by PSPS events (normalized by fire weather, e.g., Red Flag Warning line mile days)	No change	BVES has not initiated any PSPS events. Based on historical weather patterns, BVES assesses that the need to initiate a PSPS would be a rare event due to winds not being high during dry weather periods.
6	Frequency of PSPS events in number of instances where utility operating protocol requires deenergization of a circuit or portion thereof to reduce ignition probability (total)	No change	BVES has not initiated any PSPS events. Based on historical weather patterns, BVES assesses that the need to initiate a PSPS would be a rare event due to winds not

Rank (Order 1-9)	PSPS Characteristic	Significantly increase; increase; no change; decrease; significantly decrease	Comments
			being high during dry weather periods.
4	Frequency of PSPS events in number of instances where utility operating protocol requires deenergization 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 initiated any PSPS events. Based on historical weather patterns, BVES assesses that the need to initiate a PSPS would be a rare event due to winds not being high during dry weather periods.
5	Scope of PSPS events in circuit events, measured in number of events multiplied by number of circuits targeted for deenergization (total)	No change	BVES has not initiated any PSPS events. Based on historical weather patterns, BVES assesses that the need to initiate a PSPS would be a rare event due to winds not being high during dry weather periods.
7	Scope of PSPS events in circuit events, measured in number of events multiplied by number of circuits targeted for deenergization (normalized by fire weather, e.g., Red Flag Warning line mile days)	No change	BVES has not initiated any PSPS events. Based on historical weather patterns, BVES assesses that the need to initiate a PSPS would be a rare event due to winds not being high during dry weather periods.
8	Duration of PSPS events in customer hours (total)	No change	BVES has not initiated any PSPS events. Based on historical weather patterns, BVES assesses that the need to initiate a PSPS would be a rare event due to winds not being high during dry weather periods.
9	Duration of PSPS events in customer hours (normalized by fire weather, e.g., Red Flag Warning line mile days)	No change	BVES has not initiated any PSPS events. Based on historical weather patterns, BVES assesses that the need to initiate a PSPS would be a rare event due to winds not being high during dry weather periods.

Rank (Order 1-9)	PSPS Characteristic	Significantly increase; increase; no change; decrease; significantly decrease	Comments
1	Other_– Loss of supply due to SCE activated PSPS	Increase	Partial or complete loss of SCE supplies is a possibility, which would result in BVES having to likely implement rolling blackout procedures.

8.2 Protocols on Public Safety Power Shut-off

Instructions: *Describe protocols on Public Safety Power Shut-off (PSPS or de-energization), highlighting changes since the previous WMP report:*

The protocols on PSPS, including the following elements, are described in detail in the attached PSPS Plan in Appendix A to this WMP.

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.

BVES utilizes PSPS as a measure of last resort to protect public safety during times of high fire danger. This is because of the public safety concerns associated with the loss of critical infrastructure and services when power is lost. BVES considers the enactment of a PSPS event as an emergency condition on a level equivalent to natural disasters. BVES uses common emergency response nomenclature that integrates with existing state and local emergency response communication messaging and outreach structures (including the California Alert and Warning Guidelines). BVES describes this in detail in section 6.4 of the attached PSPS Plan. Additionally, during a PSPS event BVES would open up its Community Resource Center at its Main Facility at 42020 Garstin Drive which is described in Appendix A of the attached PSPS Plan.

2. Outline of tactical and strategic decision-making protocol for initiating a PSPS/de-energization (e.g., decision tree).

Section 5 of the attached PSPS Plan outlines the PSPS protocols, which includes the tactical and strategic decision for initiating a PSPS/de-energization. Section 4 describes the conditions that could lead to a PSPS enactment, and Section 2 describes the chain of command for initiating a PSPS event.

In summary, BVES considers the following when determining conditions that would meet or exceed thresholds for de-energization:

- Design strength and other characteristics of distribution overhead facilities,
- Vegetation density,
- NFDRS for 7-day fire threat outlook,
- NWS advisories,
- Local weather forecasts and advisories,
- BVES meteorologist's forecast,
- Information from BVES installed weather stations,

- Real-time information from trained personnel positioned in high-risk areas, and
- Input from state and local authorities and Emergency Management Personnel.

"Extreme fire weather conditions" are deemed to be forecasted or exist when the NFDRS forecast is "red," "orange," or "brown", high winds (45 mph or greater) are forecasted or measured, and the BVES meteorologist forecasts high fire threat conditions. Once it is determined that "extreme fire weather conditions" are forecasted or exist, BVES Staff will implement BVES PSPS Procedures at the direction of the Utility Manager.

3. Strategy to provide for safe and effective re-energization of any area that was de-energized due to PSPS protocol

Section 4.9 of BVES's PSPS Plan describes the internal strategy to safely re-energize any area that was de-energized as part of a PSPS event. Restoration may take place when wind speeds in the affected area where PSPS was invoked calm down below 50 mph for a minimum period of 20 minutes, and crews assess that the fire weather conditions have subsided to "safe levels." However, the crews may extend the calm period beyond 20 minutes, if they assess that further gusts of greater than 50 mph are likely based on their direct observation of local conditions or forecasts indicate a high probability of winds picking up to greater than 50 mph. Crews are to communicate with the Field Operations Supervisor prior to assessing the situation as "safe levels" so that an evaluation of actual conditions in the field may be merged with the latest forecasted information. Restoration activities include: 1) validating that the extreme fire weather conditions have subsided to safe levels, 2) conducting field inspections and patrols of facilities that were de-energized, and 3) re-energization of inspected (and repaired if necessary) circuits.

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 a 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.

See Table 6-1 of the BVES PSPS Plan for a comprehensive template outlining the communications plan for notifying the public and key partners during a potential PSPS activation. Additionally, records of 2019 and partial 2020 activities are publicly displayed on BVES's website with updated correspondence relating to new and planned communication activities.[39] BVES also filed under R. 18-10-007 on December 31, 2020 its 2020 Wildfire Mitigation Community Outreach Survey Results, executed in October 2020.[40] The conducted survey was a joint effort among the SMJUs.[41]

Accurate, effective, and timely communications with key stakeholders is critical in response to emergencies including PSPS events, and, therefore, it is essential that business and entity relationships be developed before emergency response is ever deemed necessary. BVES has worked to identify priority stakeholders and critical facilities along with identifying the appropriate contacts, their roles and

[39] BVES. "BVES WMP & PSPS Outreach (2019 – 2020)." https://www.bvesinc.com/media/managed/wmp/BVES_WMP_PSPS_Outreach_2019_2020.pdf.

[40] CPUC Docket R. 18-10-007. "Bear Valley Electric Service (U 913-E) 2020 Wildfire Mitigation Community Outreach Survey Results." https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M357/K997/357997229.PDF. December 31, 2020.

[41] D.20-03-004 required the IOUs to facilitate and file independent survey results assessing the effectiveness of their community outreach and engagement efforts before, during and after a wildfire, whether pursuant to the in-language requirements or in English, by December 31, 2020.

responsibilities, and the entity's support capabilities and needs in the event a wildfire or PSPS incident occurs. The key stakeholders identified in addition to the AFN and vulnerable populations groups include:

- Local officials (City of Big Bear Lake (CBBL) and San Bernardino County)
- State officials (California Public Utilities Commission)
- San Bernardino County Office of Emergency Services (County OES)
- Big Bear Fire Department
- California Department of Forestry and Fire Protection (CAL FIRE)
- U.S. Forest Service
- San Bernardino County Sheriff's Department Big Bear Lake Patrol Station
- California Highway Patrol (CHP) Arrowhead Area
- California Department of Transportation (Caltrans)
- Big Bear Area Regional Wastewater Agency (BBARWA)
- Big Bear City Community Services District (CSD)
- Big Bear Lake Water Department (DWP)
- Big Bear Municipal Water District (MWD)
- Southwest Gas Corporation
- Bear Valley Community Hospital
- Bear Valley Unified School District
- Big Bear Chamber of Commerce
- Big Bear Airport District
- Big Bear Mountain Resort
- State officials (normally CPUC Energy Division and Safety Enforcement Division)
- Spectrum Communications
- Various cell tower providers
- Various media and communications companies

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 PSPS Plan seeks to minimize the use of PSPS due to the public safety impacts of de-energization. Section 6.4 of BVES' PSPS Plan elaborates upon what the utility identifies as critical facilities and infrastructure. BVES defines 'critical facilities' and 'critical infrastructure' as facilities and infrastructure essential to the public safety and that require additional assistance and advance planning to ensure resiliency during PSPS events. This includes the emergency services sector (i.e. police, fire, emergency operations centers), government facilities, healthcare and the public health sector, the energy sector, water/wastewater systems sector, communications sector, and chemical sector.

Additionally, BVES will perform the following activities:

- Deploy wildfire Response Team(s) to high fire risk areas,
- Adjust protective device settings optimized for fire prevention,
- Increase frequency of consultant meteorologist forecast,
- Increase monitoring of weather stations, forecasts, and fire threat conditions,
- Increase communications with Southern California Edison points of contact,
- Proactively engage with first responders, local government and agencies, and other stakeholders,
- Proactively communicate with customers and other stakeholders,
- Identify Medical Baseline customers and Access and Functional Needs populations that may be impacted,
- Prepare to activate Community Resource Center,

- Activation of Emergency Operations Center and Emergency Response Plan,
- Prepare Bear Valley Power Plant for sustained operations,
- Conduct switch operations to minimize impact of potential PSPS activity,
- Engage temporary generation, and
- Activate Community Resource Center.

8.3 Projected Changes to PSPS Impact

Instructions: *Describe organization-wide plan to reduce scale, scope and frequency of PSPS for each of the following time periods, highlighting changes since the prior WMP report and including key program targets used to track progress over time,*

1. By June 1 of current year

In response to lessons learned, and in order to satisfy the deficiencies raised by the WSD including, most recently, BVES R10, BVES revised its PSPS Plan on February 24, 2021, which is attached to this WMP as Appendix A.

2. By September 1 of current year

BVES does not anticipate a need to develop an organization-wide plan to reduce the scale, scope, and frequency of PSPS impacts by this timeframe beyond the recently adopted PSPS Plan. The current protocols outlined in the PSPS Plan are reasonable and suitable for this period.

3. By next Annual WMP Update

BVES does not anticipate a need to develop an organization-wide plan to reduce the scale, scope, and frequency of PSPS impacts by this timeframe beyond the recently adopted PSPS Plan. The current protocols outlined in the PSPS Plan are reasonable and suitable for this period. BVES has not needed to enact a PSPS in the past and BVES has implemented numerous additional wildfire prevention strategies over that time period. As BVES continues to reduce ignition risk, the need for its PSPS should become even more remote, but BVES will remain vigilant and continue to evaluate the risk and necessity for enacting a PSPS event. Additionally, BVES will monitor developments at SCE and closely coordinate, and be ready to respond to any SCE PSPS that may cut imports to BVES. Finally, BVES will endeavor to follow lessons learned across California regarding the use of PSPS and will update its PSPS Plan and Emergency Response Plan accordingly.

Additionally, BVES plans to integrate recommendations as a result of conducted survey outreach in 2020. These recommendations include, but are not limited to, the following:

- Increase messaging around preparing an emergency kit, irrigation, a readiness plan, and purchasing fire extinguishers, as customers are considerably less likely to have taken these actions, relative to vegetation management;

- Utilize direct mail, bill inserts, email, and BVES website as the channels for communications about wildfire preparedness and safety; consider increasing BVES presence on social media to reach wider audience;

- Use TV news and social networks to educate consumers about PSPS events, and make special effort to reach those with medical conditions requiring electricity; and

- Consider adding a link to the PSPS map to the homepage and the wildfire mitigation page (in addition to the PSPS page) on the BVES website for wider access.

8.4 Engaging Vulnerable Communities

Instructions: *Report on the following:*

1. Describe protocols for PSPS that are intended to mitigate the public safety impacts of PSPS on vulnerable, marginalized and/or at-risk communities. Describe how the utility is identifying these communities.

Section 6 of the attached PSPS Plan describes BVES's communication protocols designed to mitigate the public safety impacts of PSPS on the community. Due to the significant impact that a PSPS event may have on the community and customers, it is essential that early and accurate communications be conducted throughout the PSPS event coincides with local government, agencies, partner organizations (including emergency management community and first responders, CALOES, county and local governments, independent living centers, and representatives of people/communities with access and functional needs), and customers. BVES takes additional steps to ensure that vulnerable, marginalized, and at-risk communities are sufficiently informed of PSPS activities and wildfire outreach. As part of its public outreach, BVES established an advisory board representative of people/communities with AFN, senior citizen groups, business owners, and public health and healthcare providers including those with medical needs. This includes a Community Resource Center (CRC) and communications regarding PSPS.

BVES, in collaboration with its contract public relations firm has also implemented new plans to further enhance its ability to engage vulnerable communities. Working with this firm, BVES will continue its prior communication methods and establish new forms in an effort to better identify and engage with its marginalized and at-risk communities. This included issuing a bifold/postcard (or similar mailer) in both Spanish and English via mail carrier to its identified vulnerable communities. This mailer was also made available on BVES's website in the other top identified languages of French, Tagalog, Vietnamese, and Chinese, as well as languages spoken by indigenous communities, such as Mixteco and Zapoteco. BVES also conducted a non-contact electronic survey regarding its WMP outreach and has made the results of the survey available in English and Spanish on its website. Finally, BVES has implemented and began utilizing newly acquired two-way texting capabilities to notify BVES customers about PSPS events or other emergencies.

2. List all languages which are "prevalent" in utility's territory. A language is prevalent if it is spoken by 1,000 or more persons in the utility's territory or if it is spoken by 5% or more of the population within a "public safety answering point" in the utility territory (D.20-03-004).

The languages prevalent in BVES's service territory include English and Spanish.

3. List all languages for which public outreach material is available, in written or oral form.

BVES works with its contracted public relations firm to provide outreach in a number of languages, including English, Spanish, French, Tagalog, Vietnamese, and Chinese, as well as Mixteco and Zapoteco

4. Detail the community outreach efforts for PSPS and wildfire-related outreach. Include efforts to reach all languages prevalent in utility territory.

BVES hosts and advertises its end-of-year public meeting where WMP and PSPS plans are presented through local radio and newspaper. BVES will ensure its website is updated and contains the current WMP and associated video. BVES also uses Facebook to regularly distribute the WMP including the WMP's identified equipment upgrades, vegetation management, and operational improvements. Finally, BVES issues its annual and bi-annual newsletters that include both the WMP and PSPS plans. BVES will ensure all communications and outreach portals will be maintained in English.

BVES, in collaboration with its contract public relations firm has also implemented new plans to further enhance its ability to engage vulnerable communities. Working with this firm, BVES will continue its prior communication methods and establish new forms to endeavor to identify and engage with its marginalized and at-risk communities. This included issuing a bifold/postcard (or similar mailer) in both Spanish and English via mail carrier to its identified vulnerable communities. This mailer was also made available on BVES's website in the other top identified languages of French, Tagalog, Vietnamese, and Chinese, as well as languages spoken by indigenous communities, such as Mixteco and Zapoteco. BVES also conducted a non-contact electronic survey regarding its WMP outreach and has made the results of the survey available in English and Spanish on its website. Finally, BVES has implemented and began utilizing newly acquired two-way texting capabilities to notify BVES customers about PSPS events or other emergencies.

See example tracking reports for communications delivered throughout 2020. Additional detail is provided in BVES's 2020 Wildfire Mitigation Community Outreach Survey Results.[42]

Figure 8.4-1: WMP/PSPS Tracking for Radio

Date	Method of Communication	Title of Document/Communication
August 4 through 8, and 20, 2020	Radio	PSPS
September 2, 15, 8, 11, 15, 18, 21, 24, and 27, 2020	Radio	WMP
October 10, 15, 20, 24, and 26, 2020	Radio	WMP
October 1 through October 27, 2020	Radio	Two-Way Emergency Text
October 19 through October 30th, 2020	Radio	Grid Reliability Meeting
November 2, 3, 4, 5, 7, 8, 10, 13, and 15, 2020	Radio	Two-Way Emergency Text
November 1, 11, and 17, 2020	Radio	WMP

Figure 8.4-2: WMP/PSPS Tracking for Newspaper

[42] CPUC Docket R. 18-10-007. "Bear Valley Electric Service (U 913-E) 2020 Wildfire Mitigation Community Outreach Survey Results." https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M357/K997/357997229.PDF. December 31, 2020.

Date	Method of Communication	Title of Document/Communication
February 12, and 19, 2020	Newspaper	Fire Safe Council Meeting
July 8, 15, and 22, 2020	Newspaper	WMP
August 12, 2020	Newspaper	WMP
October 7, 2020	Newspaper	WMP
October 21, and 28, 2020	Newspaper	Two-Way Emergency Text

Figure 8.4-3: WMP/PSPS Outreach Events

Date	Method of Communication	Tittle of Document/Communication
February 12, and 19, 2020	Newspaper	Fire Safe Council Meeting
February 25, 2020	Facebook	Notification of kickoff meeting of local fire safe council
August 3, 2020	Website	Advertised virtual community events for BVES's Policies and Procedures for PSPS event on August 7, 12 and 20, 2020
August 17, 2020	Facebook	Reminder of Community Briefing on PSPS event on August 20, 2020
August 20, 2020	Facebook	Reminder of Community Briefing on PSPS event on August 20, 2020
October 19 through October 30, 2020	Radio	Grid Reliability Meeting
November 19, 2020	Website	Reliability Announcement of Public Meeting on December 3, 2020

Table 6-1 of the BVES PSPS Plan (Appendix A) presents the notification and outreach communication template that would be used during PSPS warning, activation, and restoration phases.

8.5 PSPS-Specific Metrics

Instructions: *PSPS data reported quarterly. Placeholder tables below to be filled in based on quarterly data.*

Instructions for PSPS table: *In the attached spreadsheet document, report performance on the following PSPS metrics within the utility's service territory over the past five years as needed to correct previously-reported data. Where the utility does not collect its own data on a given metric, the utility shall work with the relevant state agencies to collect the relevant information for its service territory, and clearly identify the owner and dataset used to provide the response in the "Comments" column.*

Please see the Q4 EC QDR Attachment A, Table 11. The data provided in Table 11 is based on the most current information available at the time and is subject to modification resulting from additional analyses, internal outage audits and assessments, completed following submission of this 2021 WMP Update.

9. APPENDIX

9.1 Definitions of Initiative Activities by Category

Category	Initiative	Definition
A. Risk mapping and simulation	A summarized risk map that shows the overall ignition probability and estimated wildfire consequence along the electric lines and equipment	Development and use of tools and processes to develop and update risk map and simulations and to estimate risk reduction potential of initiatives for a given portion of the grid (or more granularly, e.g., circuit, span, or asset). May include verification efforts, independent assessment by experts, and updates.
	Climate-driven risk map and modelling based on various relevant weather scenarios	Development and use of tools and processes to estimate incremental risk of foreseeable climate scenarios, such as drought, across a given portion of the grid (or more granularly, e.g., circuit, span, or asset). May include verification efforts, independent assessment by experts, and updates.
	Ignition probability mapping showing the probability of ignition along the electric lines and equipment	Development and use of tools and processes to assess the risk of ignition across regions of the grid (or more granularly, e.g., circuits, spans, or assets).
	Initiative mapping and estimation of wildfire and PSPS risk-reduction impact	Development of a tool to estimate the risk reduction efficacy (for both wildfire and PSPS risk) and risk-spend efficiency of various initiatives.
	Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment	Development and use of tools and processes to assess the impact of potential ignition and risk to communities (e.g., in terms of potential fatalities, structures burned, monetary damages, area burned, impact on air quality and greenhouse gas, or GHG, reduction goals, etc.).
B. Situational awareness and forecasting	Advanced weather monitoring and weather stations	Purchase, installation, maintenance, and operation of weather stations. Collection, recording, and analysis of weather data from weather stations and from external sources.
	Continuous monitoring sensors	Installation, maintenance, and monitoring of sensors and associated equipment used to monitor the condition of electric lines and equipment.
	Fault indicators for detecting faults on electric lines and equipment	Installation and maintenance of fault indicators.
	Forecast of a fire risk index, fire potential index, or similar	Index that uses a combination of weather parameters (such as wind speed, humidity, and temperature), vegetation, and fuel conditions, and other factors to judge current fire risk and to create a forecast indicative of fire risk. A sufficiently granular index shall inform operational decision-making.
	Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions	Personnel position within utility service territory to monitor system conditions and weather on site. Field observations shall inform operational decisions.
	Weather forecasting and estimating	Development methodology for forecast of weather conditions relevant to utility
	Impacts on electric lines and equipment	Operations, forecasting weather conditions, and conducting analysis to incorporate into utility decision-making, learning, and updates to reduce false positives and false negatives of forecast PSPS conditions.
C. Grid design and system hardening	Capacitor maintenance and replacement program	Remediation, adjustments, or installations of new equipment to improve or replace existing capacitor equipment.
	Circuit breaker maintenance and	Remediation, adjustments, or installations of new equipment to improve or replace existing fast switching circuit breaker equipment to improve the ability to protect
	installation to de-energize lines upon detecting a fault	Electrical circuits from damage caused by overload of electricity or short circuit.

Category	Initiative	Definition
	Covered conductor installation	Installation of covered or insulated conductors to replace standard bare or unprotected conductors (defined in accordance with GO 95 as supply conductors, including but not limited to lead wires, not enclosed in a grounded metal pole or not covered by: a "suitable protective covering" (in accordance with Rule 22.8), grounded metal conduit, or grounded metal sheath or shield). In accordance with GO 95, conductor is defined as a material suitable for: (1) carrying electric current, usually in the form of a wire, cable or bus bar, or (2) transmitting light in the case of fiber optics; insulated conductors as those which are surrounded by an insulating material (in accordance with Rule 21.6), the dielectric strength of which is sufficient to withstand the maximum difference of potential at normal operating voltages of the circuit without breakdown or puncture; and suitable protective covering as a covering of wood or other non-conductive material having the electrical insulating efficiency (12kV/in. dry) and impact strength (20ft.-lbs) of 1.5 inches of redwood or other material meeting the requirements of Rule 22.8-A, 22.8-B, 22.8-C or 22.8-D.
	Covered conductor maintenance	Remediation and adjustments to installed covered or insulated conductors. In accordance with GO 95, conductor is defined as a material suitable for: (1) carrying electric current, usually in the form of a wire, cable or bus bar, or (2) transmitting light in the case of fiber optics; insulated conductors as those which are surrounded by an insulating material (in accordance with Rule 21.6), the dielectric strength of which is sufficient to withstand the maximum difference of potential at normal operating voltages of the circuit without breakdown or puncture; and suitable protective covering as a covering of wood or other non-conductive material having the electrical insulating efficiency (12kV/in. dry) and impact strength (20ft.-lbs) of 1.5 inches of redwood or other material meeting the requirements of Rule 22.8-A, 22.8-B, 22.8-C or 22.8-D.
	Crossarm maintenance, repair, and replacement	Remediation, adjustments, or installations of new equipment to improve or replace existing crossarms, defined as horizontal support attached to poles or structures generally at right angles to the conductor supported in accordance with GO 95.
	Distribution pole replacement and reinforcement, including with composite poles	Remediation, adjustments, or installations of new equipment to improve or replace existing distribution poles (i.e., those supporting lines under 65 kV), including with equipment such as composite poles manufactured with materials reduce ignition probability by increasing pole lifespan and resilience against failure from object contact and other events.
	Expulsion fuse replacement	Installations of new and CAL FIRE-approved power fuses to replace existing expulsion fuse equipment.
	Grid topology improvements to mitigate or reduce PSPS events	Plan to support and actions taken to mitigate or reduce PSPS events in terms of geographic scope and number of customers affected, such as installation and operation of electrical equipment to sectionalize or island portions of the grid, microgrids, or local generation.
	Installation of system automation equipment	Installation of electric equipment that increases the ability of the utility to automate system operation and monitoring, including equipment that can be adjusted remotely such as automatic reclosers (switching devices designed to detect and interrupt momentary faults that can reclose automatically and detect if a fault remains, remaining open if so).
	Maintenance, repair, and replacement of connectors, including hotline clamps	Remediation, adjustments, or installations of new equipment to improve or replace existing connector equipment, such as hotline clamps.
	Mitigation of impact on customers and other residents affected during PSPS event	Actions taken to improve access to electricity for customers and other residents during PSPS events, such as installation and operation of local generation equipment (at the community, household, or other level).

Category	Initiative	Definition
	Other corrective action	Other maintenance, repair, or replacement of utility equipment and structures so that they function properly and safely, including remediation activities (such as insulator washing) of other electric equipment deficiencies that may increase ignition probability due to potential equipment failure or other drivers.
	Pole loading infrastructure hardening and replacement program based on pole loading assessment program	Actions taken to remediate, adjust, or install replacement equipment for poles that the utility has identified as failing to meet safety factor requirements in accordance with GO 95 or additional utility standards in BVES's pole loading assessment program.
	Transformers maintenance and replacement	Remediation, adjustments, or installations of new equipment to improve or replace existing transformer equipment.
	Transmission tower maintenance and replacement	Remediation, adjustments, or installations of new equipment to improve or replace existing transmission towers (e.g., structures such as lattice steel towers or tubular steel poles that support lines at or above 65 kV).
	Undergrounding of electric lines and equipment	Actions taken to convert overhead electric lines and equipment to underground (i.e., located underground and in accordance with GO 128).
	Updates to grid topology to minimize risk of ignition in HFTDs	Changes in the plan, installation, construction, removal, or undergrounding to minimize the risk of ignition due to the design, location, or configuration of utility electric equipment in HFTDs.
D. Asset management and inspections	Detailed inspections of distribution electric lines and equipment	In accordance with GO 165, careful visual inspections of overhead electric distribution lines and equipment 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.
	Detailed inspections of transmission electric lines and equipment	Careful visual inspections of overhead electric transmission lines and equipment 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.
	Improvement of inspections	Identifying and addressing deficiencies in inspections protocols and implementation by improving training and the evaluation of inspectors.
	Infrared inspections of distribution electric lines and equipment	Inspections of overhead electric distribution lines, equipment, and right-of-way using infrared (heat-sensing) technology and cameras that can identify "hot spots", or conditions that indicate deterioration or potential equipment failures, of electrical equipment.
	Intrusive pole inspections	In accordance with GO 165, intrusive inspections involve movement of soil, taking samples for analysis, or using more sophisticated diagnostic tools beyond visual inspections or instrument reading.
	LiDAR inspections of distribution electric lines and equipment	Inspections of overhead electric transmission lines, equipment, and right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances).
	Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations	Inspections of overhead electric transmission lines, equipment, and right-of-way that exceed or otherwise go beyond those mandated by rules and regulations, including GO 165, in terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept.

Category	Initiative	Definition
	Patrol inspections of distribution electric lines and equipment	In accordance with GO 165, simple visual inspections of overhead electric distribution lines and equipment that is designed to identify obvious structural problems and hazards. Patrol inspections may be carried out in the course of other company business.
	Patrol inspections of transmission electric lines and equipment	Simple visual inspections of overhead electric transmission lines and equipment that is designed to identify obvious structural problems and hazards. Patrol inspections may be carried out in the course of other company business.
	Pole loading assessment program to determine safety factor	Calculations to determine whether a pole meets pole loading safety factor requirements of GO 95, including planning and information collection needed to support said calculations. Calculations shall consider many factors including the size, location, and type of pole; types of attachments; length of conductors attached; and number and design of supporting guys, per D.15-11-021.
	Quality assurance / quality control of inspections	Establishment and function of audit process to manage and confirm work completed by employees or subcontractors, including packaging QA/QC information for input to decision-making and related integrated workforce management processes.
	Substation inspections	In accordance with GO 175, inspection of substations performed by qualified persons and according to the frequency established by the utility, including record-keeping.
E. Vegetation management and inspection	Additional efforts to manage community and environmental impacts	Plan and execution of strategy to mitigate negative impacts from utility vegetation management to local communities and the environment, such as coordination with communities to plan and execute vegetation management work or promotion of fire- resistant planting practices
	Detailed inspections of vegetation around distribution electric lines and equipment	Careful visual inspections of vegetation around the right-of-way, where individual trees are carefully examined, visually, and the condition of each rated and recorded.
	Detailed inspections of vegetation around transmission electric lines and equipment	Careful visual inspections of vegetation around the right-of-way, where individual trees are carefully examined, visually, and the condition of each rated and recorded.
	Emergency response vegetation management due to Red Flag Warning or other urgent conditions	Plan and execution of vegetation management activities, such as trimming or removal, executed based upon and in advance of forecast weather conditions that indicate high fire threat in terms of ignition probability and wildfire consequence.
	Fuel management and reduction of “slash” from vegetation management activities	Plan and execution of fuel management activities that reduce the availability of fuel in proximity to potential sources of ignition, including both reduction or adjustment of live fuel (in terms of species or otherwise) and of dead fuel, including "slash" from vegetation management activities that produce vegetation material such as branch trimmings and felled trees.
	Improvement of inspections	Identifying and addressing deficiencies in inspections protocols and implementation by improving training and the evaluation of inspectors.
	LiDAR inspections of vegetation around distribution electric lines and equipment	Inspections of right-of-way using LiDAR (Light Detection and Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure variable distances).
	Other discretionary inspections of vegetation around distribution electric lines and equipment	Inspections of rights-of-way and adjacent vegetation that may be hazardous, which exceeds or otherwise go beyond those mandated by rules and regulations, in terms of frequency, inspection checklist requirements or detail, analysis of and response to problems identified, or other aspects of inspection or records kept.
	Patrol inspections of vegetation around distribution electric lines and equipment	Visual inspections of vegetation along rights-of-way that is designed to identify obvious hazards. Patrol inspections may be carried out in the course of other company business.

Category	Initiative	Definition
	Quality assurance / quality control of vegetation inspections	Establishment and function of audit process to manage and confirm work completed by employees or subcontractors, including packaging QA/QC information for input to decision-making and related integrated workforce management processes.
	Recruiting and training of vegetation management personnel	Programs to ensure that the utility is able to identify and hire qualified vegetation management personnel and to ensure that both full-time employees and contractors tasked with vegetation management responsibilities are adequately trained to perform vegetation management work, according to BVES's wildfire mitigation plan, in addition to rules and regulations for safety.
	Remediation of at-risk species	Actions taken to reduce the ignition probability and wildfire consequence attributable to at-risk vegetation species, such as trimming, removal, and replacement.
	Removal and remediation of trees with strike potential to electric lines and equipment	Actions taken to remove or otherwise remediate trees that could potentially strike electrical equipment, if adverse events such as failure at the ground-level of the tree or branch breakout within the canopy of the tree, occur.
	Substation inspection	Inspection of vegetation surrounding substations, performed by qualified persons and according to the frequency established by the utility, including record-keeping.
	Substation vegetation management	Based on location and risk to substation equipment only, actions taken to reduce the ignition probability and wildfire consequence attributable to contact from vegetation to substation equipment.
	Vegetation inventory system	Inputs, operation, and support for centralized inventory of vegetation clearances updated based upon inspection results, including (1) inventory of species, (2) forecasting of growth, (3) forecasting of when growth threatens minimum right-of-way clearances ("grow-in" risk) or creates fall-in/fly-in risk.
	Vegetation management to achieve clearances around electric lines and equipment	Actions taken to ensure that vegetation does not encroach upon the minimum clearances set forth in Table 1 of GO 95, measured between line conductors and vegetation, such as trimming adjacent or overhanging tree limbs.
F. Grid operations and protocols	Automatic recloser operations	Designing and executing protocols to deactivate automatic reclosers based on local conditions for ignition probability and wildfire consequence.
	Crew-accompanying ignition prevention and suppression resources and services	Those firefighting staff and equipment (such as fire suppression engines and trailers, firefighting hose, valves, and water) that are deployed with construction crews and other electric workers to provide site-specific fire prevention and ignition mitigation during on-site work
	Personnel work procedures and training in conditions of elevated fire risk	Work activity guidelines that designate what type of work can be performed during operating conditions of different levels of wildfire risk. Training for personnel on these guidelines and the procedures they prescribe, from normal operating procedures to increased mitigation measures to constraints on work performed.
	Protocols for PSPS re-energization	Designing and executing procedures that accelerate the restoration of electric service in areas that were de-energized, while maintaining safety and reliability standards.
	PSPS events and mitigation of PSPS impacts	Designing, executing, and improving upon protocols to conduct PSPS events, including development of advanced methodologies to determine when to use PSPS, and to mitigate the impact of PSPS events on affected customers and local residents.
	Stationed and on-call ignition prevention and suppression resources and services	Firefighting staff and equipment (such as fire suppression engines and trailers, firefighting hose, valves, firefighting foam, chemical extinguishing agent, and water) stationed at utility facilities or standing by to respond to calls for fire suppression assistance.

Category	Initiative	Definition
G. Data governance	Centralized repository for data	Designing, maintaining, hosting, and upgrading a platform that supports storage, processing, and utilization of all utility proprietary data and data compiled by the utility from other sources.
	Collaborative research on utility ignition and/or wildfire	Developing and executing research work on utility ignition and/or wildfire topics in collaboration with other non-utility partners, such as academic institutions and research groups, to include data-sharing and funding as applicable.
	Documentation and disclosure of wildfire-related data and algorithms	Design and execution of processes to document and disclose wildfire-related data and algorithms to accord with rules and regulations, including use of scenarios for forecasting and stress testing.
	Tracking and analysis of near miss data	Tools and procedures to monitor, record, and conduct analysis of data on near miss events.
H. Resource allocation methodology	Allocation methodology development and application	Development of prioritization methodology for human and financial resources, including application of said methodology to utility decision-making.
	Risk reduction scenario development and analysis	Development of modelling capabilities for different risk reduction scenarios based on wildfire mitigation initiative implementation; analysis and application to utility decision-making.
	Risk spend efficiency analysis	Tools, procedures, and expertise to support analysis of wildfire mitigation initiative risk-spend efficiency, in terms of MAVF or MARS methodologies.
I. Emergency planning and preparedness	Adequate and trained workforce for service restoration	Actions taken to identify, hire, retain, and train qualified workforce to conduct service restoration in response to emergencies, including short-term contracting strategy and implementation.
	Community outreach, public awareness, and communications efforts	Actions to identify and contact key community stakeholders; increase public awareness of emergency planning and preparedness information; and design, translate, distribute, and evaluate effectiveness of communications taken before, during, and after a wildfire, including Access and Functional Needs populations and Limited English Proficiency populations in particular.
	Customer support in emergencies	Resources dedicated to customer support during emergencies, such as website pages and other digital resources, dedicated phone lines, etc.
	Disaster and emergency preparedness plan	Development of plan to deploy resources according to prioritization methodology for disaster and emergency preparedness of utility and within utility service territory (such as considerations for critical facilities and infrastructure), including strategy for collaboration with Public Safety Partners and communities.
	Preparedness and planning for service restoration	Development of plans to prepare the utility to restore service after emergencies, such as developing employee and staff trainings, and to conduct inspections and remediation necessary to re-energize lines and restore service to customers.
	Protocols in place to learn from wildfire events	Tools and procedures to monitor effectiveness of strategy and actions taken to prepare for emergencies and of strategy and actions taken during and after emergencies, including based on an accounting of the outcomes of wildfire events.
J. Stakeholder cooperation and community engagement	Community engagement	Strategy and actions taken to identify and contact key community stakeholders; increase public awareness and support of utility wildfire mitigation activity; and design, translate, distribute, and evaluate effectiveness of related communications. Includes specific strategies and actions taken to address concerns and serve needs of Access and Functional Needs populations and Limited English Proficiency populations in particular.
	Cooperation and best practice sharing with agencies outside CA	Strategy and actions taken to engage with agencies outside of California to exchange best practices both for utility wildfire mitigation and for stakeholder cooperation to mitigate and respond to wildfires.

Category	Initiative	Definition
	Cooperation with suppression agencies	Coordination with CAL FIRE, federal fire authorities, county fire authorities, and local fire authorities to support planning and operations, including support of aerial and ground firefighting in real-time, including information-sharing, dispatch of resources, and dedicated staff.
	Forest service and fuel reduction cooperation and joint roadmap	Strategy and actions taken to engage with local, state, and federal entities responsible for or participating in forest management and fuel reduction activities; and design utility cooperation strategy and joint stakeholder roadmap (plan for coordinating stakeholder efforts for forest management and fuel reduction activities).

9.2 Citations for Relevant Statutes, Commission Directives, Proceedings, and Orders

Throughout the WMP, cite relevant state and federal statutes, Commission directives, orders, and proceedings. Place the title or tracking number of the statute in parentheses next to comment, or in the appropriate column if noted in a table. Provide in this section a brief description or summary of the relevant portion of the statute. Track citations as endnotes and order (1, 2, 3…) across sections (e.g., if section 1 has 4 citations, section 2 begins numbering at 5).

Citation	Description/Summary	WMP Sections
Public Utilities Code § 8386	Modified by SB 901 and AB 1054 and requires electric corporations to submit wildfire mitigation plans	All
Public Resources Code § 4292	CAL FIRE requires 10 feet of minimum clearance around the base of the pole cleared of all flammable vegetation down to bare soil and the removal of all dead tree branches within this cylinder up to the cross-arm (within the State Responsibility Area)	7.3.2.5
Public Resources Code § 4293	CAL FIRE requires 10 feet of minimum clearance around the base of the pole cleared of all flammable vegetation down to bare soil and the removal of all dead tree branches within this cylinder up to the cross-arm arm (within the State Responsibility Area)	7.3.2.5
Resolution WSD-002	Guidance Resolution on 2020 Wildfire Mitigation Plans Pursuant to Public Utilities Code Section 8386.	All
Resolution WSD-006	Wildfire Safety Division Draft Action Statement on Bear Valley Electric Service's 2020 Wildfire Mitigation Plan Pursuant to Public Utilities Code Section 8386.	All
Resolution WSD-011	Resolution implementing the requirements of Public Utilities Code Sections 8389(d)(1), (2) and (4), related to catastrophic wildfire caused by electrical corporations	All
Resolution WSD-012	Pursuant to PUC 8389(d)(3), the CPUC, after consultation with the WSD, adopted and approved a wildfire mitigation plan compliance process.	6
Resolution WSD-013	WSD Action Statement on BVES's 2020 WMP and incorporated Remedial Compliance Plan, via the associated Resolution and approved Guidance Resolution, WSD-002	All
R.18-10-007	Order Instituting Rulemaking to Implement Electric Utility Wildfire Mitigation Plans Pursuant to Senate Bill 901 (2018)	All
R.20-07-013	Order Instituting Rulemaking to Further Develop a Risk-based Decision-making Framework for Electric and Gas Utilities	4.2

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Citation	Description/Summary	WMP Sections
R.18-12-005	Order Instituting Rulemaking to Examine Electric Utility De-Energization of Power Lines in Dangerous Conditions.	7.3.2.9, 7.3.2.10, & 8
R.18-03-011	Order Instituting Rulemaking Regarding Emergency Disaster Relief Program.	7.3.2.9, 8
D.14-02-015	CPUC Decision Adopting Regulations to Reduce the Fire Hazards Associated with Overhead Electric Utility Facilities and Aerial Communication Facilities; Requires annual reportable ignitions through the CPUC's Fire Incident Data collection process	4.2
D.18-12-014	CPUC Phase 2 Decision Adopting Safety Model Assessment Proceeding Settlement Agreement with Modifications	4.2
D.19-04-020	Voluntary Agreement on a Risk-Based Decision-Making Framework Between the SED and the SMJUs in their GRCs.	4.2
D.19-05-042	CPUC Decision Adopting De-Energization (Public Safety Power Shutoff) Guidelines (Phase 1 Guidelines)	8
D.19-07-015	CPUC Decision Adopting an Emergency Disaster Relief Program for Electric, Natural Gas, Water, and Sewer Utility Customers	7.3.2.9, 8
D.20-05-051	CPUC Decision Adopting Phase 2 Updated and Additional Guidelines for De-Energization of Electric Facilities to Mitigate Wildfire Risk	8
D.20-03-004	CPUC Decision on Community Awareness and Public Outreach Before, During, and After a Wildfire, and Explaining Next Steps for Other Phase 2 Issues	7.3.2.9, 7.3.2.10, & 8
General Order 95	Overhead electric line design, construction, and maintenance requirements in order to ensure adequacy of service and safety; covers topics such as proper grounding, clearances, strength requirements, and tree trimming	7.3.2.5
General Order 128	Underground electric line design, construction, and maintenance requirements in order to ensure adequacy of service and safety; covers clearance and depths	N/A
General Order 131-D	CPUC Rules relating to the planning and construction of electric operation, transmission/power/distribution line facilities and substations located in California	7.3.2.5
General Order 165	Inspection requirements for transmission and distribution facilities in order to ensure safety and high-quality electrical service; sets maximum allowable inspection cycle lengths, scheduling and	7.3.2.5

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Citation	Description/Summary	WMP Sections
	performance of corrective action, record-keeping, and reporting	
General Order 166	Standards for Operation, Reliability, and Safety During Emergencies and Disasters	7.3.2.9
General Order 174	Inspection requirements for substations to promote the safety of workers, the public, and enable adequacy of service	7.3.2.5
WSD GIS Data Standards	Wildfire Safety Division Draft Geographic Information System Data Reporting Requirements and Schema for California Electrical Corporations (August 21, 2020); Sets forth requirements for WMP spatial data submissions	7.3.2.2, 7.3.2.7

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Appendix A. PUBLIC SAFETY POWER SHUTOFF PLAN

Bear Valley Electric Service, Inc. Public Safety Power Shutoff Plan

February 24, 2021

Approved by: _____

Paul Marconi, President, Treasurer & Secretary

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1. Purpose and Overarching Guidelines

1.1. **Purpose of PSPS.** The purpose of proactive de-energization is to promote public safety by decreasing the risk of utility-infrastructure as a source of wildfire ignitions. Generally, proactive de-energization will be referred to as Public Safety Power Shutoff (PSPS), which is consistent with the terminology used by the major California investor owned utilities.

1.2. **Purpose of PSPS Plan.** This document provides the policies and procedures of Bear Valley Electric Service, Inc. ("BVES") follows with regard to PSPS and addresses the following operational issues:

- PSPS advance planning and preparations prior to the fire season.
- Procedures leading up to, during, and following extreme fire threat weather events in which PSPS may be invoked. These include BVES's operational fire prevention actions and procedures.
- Public outreach, coordination with local and government officials, advisory boards, public safety partners, representatives of people/communities with access and functional needs ("AFN"), tribal representatives (if applicable), senior citizen groups, business owners, and public health and healthcare providers including those with medical needs. This includes a Community Resource Center ("CRC") and communications regarding PSPS.

It should be noted that two other BVES documents provide information important to PSPS:

- ***BVES Emergency Response Plan***: Provides comprehensive outage management procedures, which are applicable to all outages including outages as a result of PSPS. The BVES PSPS Plan is designed to work in conjunction with the ERP and not duplicate existing procedures.
- ***BVES Wildfire Mitigation Plan***: Provides description of system hardening projects, operations and maintenance programs, and other initiatives being pursued by BVES to mitigate the need to execute a PSPS and/or to mitigate the impact of PSPS events. As these projects and programs are completed, this document will be updated as necessary to incorporate the improvements achieved.

1.3. **Compliance.** This documented includes requirements invoked by:

- Safety and Enforcement Division Resolution, Electric Safety and Reliability Branch Resolution ESRB-8 8 of July 12, 2018: Resolution Extending De-Energization Reasonableness, Notification, Mitigation and Reporting Requirements in Decision 12-04-024 to All Electric Investor Owned Utilities.

- California Public Utilities Commission Decision 19-05-036 of May 30, 2019: Guidance Decision on 2019 Wildfire Mitigation Plans Submitted Pursuant to Senate Bill 901.
- California Public Utilities Commission Decision 19-05-040 of May 30, 2019: Decision on 2019 Wildfire Mitigation Plans of Liberty Utilities/CalPeco Electric; Bear Valley Electric Service, a Division of Golden State Water Company; and Pacific Power, a Division of PacifiCorp Pursuant to Senate Bill 901.
- California Public Utilities Commission Decision 19-05-042 of May 30, 2019: Decision Adopting De-Energization (Public Safety Power Shutoff) Guidelines (Phase 1 Guidelines).
- California Public Utilities Commission Decision 20-03-004 of March 12, 2020: Decision on Community Awareness and Public Outreach Before, During and After a Wildfire, and Explaining Next Steps for Other Phase 2 Issues.
- California Public Utilities Commission Decision D20-05-051 of May 28, 2020: Decision Adopting Phase 2 Updated and Additional Guidelines for De-Energization of Electric Facilities to Mitigate Wildfire Risk.

1.4. **Measure of Last Resort.** BVES must only deploy PSPS as a ***measure of last resort*** and must justify why PSPS was deployed over other possible measures or actions. This plan provides courses of action to be taken leading up to possible PSPS such that an actual PSPS is the measure of last resort.

1.5. **Customer Engagement.** Customers and other impacted stakeholders should understand the purpose of PSPS, BVES's process for initiating it, how to manage safely through a PSPS event, and the impacts if deployed. To accomplish this, the BVES shall:

- Develop and use a common nomenclature that integrates with existing state and local emergency response communication messaging and outreach and is aligned with the California Alert and Warning Guidelines.
- Develop notification and communication protocols and systems that reach customers no matter where the customer is located and deliver messaging in an understandable manner.
- Communicate to customers in different languages and in a way that addresses different access and functional needs using multiple modes/channels of communication.
- Coordinate a Community Resource Center and work with local organizations.

1.6. **PSPS Coordination.** Deploying PSPS requires a coordinated effort across multiple state and local jurisdictions and agencies. Coordination in preparation for PSPS is a shared responsibility between BVES, public safety partners, and local governments; however, BVES is ultimately responsible and accountable for the safe deployment of PSPS. BVES must work with the California Governor's Office of Emergency Services to integrate its warning programs with the agencies and jurisdictions within California that have a role in ensuring that the public is notified before, during, and after emergencies.

Throughout this document the collective phrase “Local Government, Agencies, and Partner Organizations” includes applicable local government and agencies, utilities, key non-government and commercial entities and also includes critical facilities and critical infrastructure. Further discussion is provided in Section 5.

BVES, emergency responders, and local governments need to be seamlessly integrated when communicating PSPS notifications, with the goal that local governments provide supplemental or secondary notifications in the near future given the primary or initial notification to the public provided by utilities. For now, BVES retains ultimate responsibility for notification and communication throughout a PSPS event.

BVES must coordinate with California Governor’s Office of Emergency Services and the California Department of Forestry and Fire Protection to engage in a statewide public education and outreach campaign. The campaign must effectively communicate in multiple languages. The campaign must convey, in advance of wildfire season, the immediate and increasing risk of catastrophic wildfires and how to prepare for them, the impacts of PSPS, how the public can prepare for and respond to a PSPS event, what resources are available to the public during these events, what to do in an emergency, how to receive information alerts during a power shutoff, and who the public should expect to hear from and when.

1.7. **PSPS Is an Emergency.** Consequences of PSPS should be treated in a similar manner as any other emergency that may result in loss of power, such as earthquakes, floods or non-utility caused fire events. BVES must avoid development of duplicative or contradictory messaging and notification systems to those already deployed by first responders.

1.8. **Reporting and Continuous Improvement.** BVES must report on lessons learned from each PSPS event, including instances when PSPS protocols are initiated, but de-energization does not occur, in order to further refine PSPS practices.

BVES must work together with the other electric investor-owned utilities to share information and advice in order to create effective and safe PSPS programs at each utility and to ensure that utilities are sharing consistent information with public safety partners.

2. Chain of Responsibility

2.1. **President** is overall responsible for the PSPS Plan and ensuring it is properly implemented, resourced, trained upon, executed, and updated as appropriate. Furthermore, the President shall ensure proper communications and coordination with local government, agencies and customers.

2.2. **Utility Manager** is responsible for executing the BVES PSPS Plan to include:

- Directing emergency operations per this plan and the Emergency Response Plan;
- Ensuring that monitoring of weather forecasts and actual weather conditions is being properly conducted by appropriate staff per this plan;
- Directing (or causing to be directed) the operational activities related to system line-up and PSPS as warranted;
- Ensuring that Field Operations staff are providing timely and accurate information to the Customer Service Supervisor and/or other staff performing customer and public information functions;
- Working closely and coordinating with counterparts at local government and agencies during the lead up to PSPS, during PSPS, and during restoration procedures and as necessary to achieve the fire prevention objectives of this plan;
- Overseeing activation of the Wildfire Response Team (WRT) for PSPS procedures of this plan and determining the appropriate staff composition of the WRT when activated;
- Training (or causing to be trained) BVES staff assigned to perform the various activities required by this plan;
- Ensuring resources are available to properly execute this plan and identifying any gaps in resources to the President as well as proposed remedies;
- Making all reports required by GO-166 and ESRB-8 to the applicable Commission Divisions;
- Working closely with Regulatory Affairs staff to ensure this plan meets regulatory compliance requirements enacted by the Commission;
- Reviewing and evaluating relevant data and documentation of inspections, patrols, operational system lineup, and PSPS activities; and
- Evaluating at least annually, whether changes to this plan are warranted and implementing any necessary changes.

2.3. **Field Operations Supervisor** is responsible for directing operations in the field to include:

- Monitoring (or causing to be monitored) weather advisories, consultant forecasts, and the NFDRS forecast frequently and at least daily;
- Directing and managing operational system line-ups based on conditions as described in this plan;
- Directing and managing PSPS procedures of this plan;

- Directing the activities of the WRT;
- Controlling all switch and system lineup operations;
- Providing (or causing to be provided) timely and accurate information to the Customer Service Supervisor and/or other staff performing customer and public information functions;
- Informing the Utility Manager of any system degradations;
- Collecting relevant data and maintaining documentation of inspections, patrols, operational system lineup, and PSPS activities; and
- Submitting to the Utility Manager recommended changes to this plan as warranted and at least annually.

2.4. **Utility Engineer & Wildfire Mitigation Supervisor** is responsible for fire prevention planning and engineering design of the electric distribution, sub-transmission and substations to include:

- Ensuring system design and construction is in compliance with applicable government rules and regulations to mitigate fire;
- Developing distribution, sub-transmission and substations designs that would enhance fire prevention;
- Researching, evaluating, and sourcing materials that would enhance fire prevention;
- Developing device protective settings and selecting fuses that enhance fire prevention while taking into account the served load demand;
- Supporting Field Operations and the WRT as directed by the Utility Manager in the execution of system operations per this plan; and
- Submitting to the Utility Manager recommended changes to this plan as warranted and at least annually.

2.5. **Customer Program Specialist** under the supervision of the Customer Service Supervisor and the Energy Resource Manager is responsible for the BVES Communications Plan to include:

- Making (or causing to be made) local government, agency, and customer notifications per this plan;
- Ensuring pre-planned statements are PSPS related notifications per this plan;
- Establishing and maintaining customer communications methods, systems, and equipment to support proactive de-energization notifications per this plan;
- Training staff assigned to perform customer and public information functions on generating customer and media notification statements and utilizing the customer communications methods, systems, and equipment;
- Developing (or causing to be developed) the contact list of local government and agencies per this plan;
- Directing a customer education strategy to inform customers about BVES's fire mitigation programs, policies and procedures including PSPS; and

- Submitting to the Utility Manager recommended changes to this plan as warranted and at least annually.

3. BVES Specific Background Information

3.1. **Service Area Description and Environment**. Bear Valley Electric Service is a small electric utility, located in the mountain resort community of Big Bear Lake, California, that provides service to approximately 24,500 customers in a 31-square mile service area. BVES owns and operates 87.8 miles of overhead 34.5 kilovolt sub-transmission miles, 2.7 miles of 34.5 kilovolt underground sub-transmission miles, 488.6 miles of overhead distribution circuit miles, 89.1 miles of underground distribution circuit miles, 13 sub-stations and a natural gas-fueled 8.4 MW peaking generation facility. The BVES service area is rural and mountainous and is served predominantly from bare wire overhead facilities. BVES's entire service area is under the jurisdictional responsibility of the City of Big Bear Lake and some areas (unincorporated) under the responsibility of the County of San Bernardino. The San Bernardino Mountains and forests are managed by the United States Forest Service, California Environmental Protection Agency, and the California Department of Fish and Wildlife.

3.1.1. Since the service territory is entirely above 3,000 feet, all construction is required to conform to "heavy" loading standards of GO-95. In addition, the high elevation provides for a beautiful alpine, heavily treed, mountainous environment that is vulnerable to wildfires. The entire service area is within the High Fire-Threat Districts and has areas designated as Tier 2 and Tier 3 per GO-95 Rule 21.2. Additionally, some of BVES's service area overlap with the Zone 1 per GO-95 Rule 21.2. Therefore, all construction, inspection, vegetation management, and emergency planning must also conform to the High Fire-Threat District requirements of GO-95, GO-165, and GO-166.

3.1.2. Bear Valley serves as a desirable vacation destination during the winter months due to the local ski resorts and winter activities. This creates a winter peaking environment that is enhanced by local snow making activity during the late evening hours. After the normal winter months, the population and load profile dramatically change. Understanding the local load profile is one key element to designing a successful fire prevention strategy.

3.2. **Susceptibility to PSPS**. The BVES service area is susceptible to several conditions in which PSPS would have a direct impact to its customers. These are:

- Extreme fire threat weather and conditions in BVES's service area that warrant BVES to implement PSPS on BVES owned and operated power lines in some or all areas of its service area.
- Extreme fire threat weather and conditions outside of the BVES's service area, in which Southern California Edison (SCE) directs PSPS on SCE owned and operated power lines leading to a partial or complete loss of the three SCE supply lines into the BVES service area. Note that 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.

- Combination of the above, PSPS is warranted in some or all areas of the BVES service area and SCE has implemented PSPS actions that result in a partial or complete loss of supplies to the BVES service area.

4. BVES Fire Prevention Procedures

4.1. **Fire Prevention.** Because PSPS is an operational safety measure of last resort, it is logical that the PSPS Plan include BVES's operational fire prevention plan measures so that the progression of operational steps to be taken by BVES staff is properly sequenced and understood by all stakeholders.

4.1.1. Ordering Paragraph 5 of D.12-01-032 required BVES to prepare a Fire Prevention Plan to identify the occurrence of 3-second wind gusts that exceed the structural and mechanical design standards for overhead power-line facilities. D.14-05-020 modified D.12-01-032 by eliminating the requirement to identify 3-second wind gusts in real time, provided a utility will still address the situation when all three of the following conditions occur simultaneously: (i) 3-second wind gusts exceed the structural or mechanical design standards for the affected overhead power-line facilities, (ii) these 3-second gusts occur during a period of high fire danger, and (iii) the affected facilities are located in a high fire-threat area. D.14-05-020 also required utilities to identify the specific parts of their service territories where all three conditions listed in Ordering Paragraph I (a) occur simultaneously, based on a minimum probability of 3% over a 50-year period that 3-second wind gusts which exceed the design standards for the affected facilities will occur during a Red Flag Warning in a high fire-threat area. Ordering Paragraph 2 of D.17-12-024 requires each electric investor-owned utility have a fire prevention plan for facilities in the High Fire-Threat District containing the information specified in General Order ("GO") 166, Standard 1, Part E, to the extent applicable to the electric utility's service area and to file a report containing the fire prevention plan annually beginning October 31, 2018.

4.1.2. In accordance with D.12-01-032, D.14-05-020, D.17-12-024, and GO-166, this plan lists and describes the operational fire prevention measures BVES intends to implement to mitigate the threat of power-line fires generally and in the situation where all three of the conditions listed in GO-166, Standard 1, Part E occur simultaneously. BVES has identified areas that could be susceptible to these conditions. These areas are heavily forested, abundant in available fuel and could threaten the system when high winds occur. When these conditions exist, BVES has pre-identified areas that are targeted for PSPS in Appendix B.

4.1.3. Note that as previously stated, BVES's Wildfire Mitigation Plan provides descriptions of system hardening projects, operations and maintenance programs, and other initiatives being pursued by BVES to mitigate wildfire. Therefore, the PSPS Plan in conjunction with the Wildfire Mitigation Plan satisfy BVES's Fire Prevention Plan compliance requirements.

4.1.4. The fire prevention plan is intended as a starting point. As system improvements are made and environmental conditions change, the plan will evolve to meet these changes. In creating the plan, BVES has incorporated the input and interests of our stakeholders to ensure that the needs of the community are effectively met while

mitigating the risk of wildfire. Community outreach and communications are a key component of this plan as well as maintaining partnerships with the Big Bear Valley Mountain Mutual Aid Association, City of Big Bear Lake, San Bernardino County, Big Bear Fire Department, Big Bear Lake Sheriff's Department, other local agencies, local utilities, local radio stations, news media, and the public.

4.2. **Wildfire Mitigation Strategy.** BVES's approach to mitigating wildfire is described in its Wildfire Mitigation Plan (WMP) and is a comprehensive mitigation strategy focused on five principal functional areas to enhance public safety:

- **Design & Construction:** This strategy is discussed in BVES's WMP and is designed to provide effective long-term mitigation solutions that reduce the likelihood of wildfire and also reduce the reliance on other short-term wildfire mitigation measures that have an adverse impact on customers, such as PSPS.
- **Inspection & Maintenance:** This strategy, also detailed in BVES's WMP, is designed to provide effective wildfire risk mitigation where system Design & Construction fall short. For example, where bare conductor is employed, the vegetation management program is essential to mitigating wildfire risk.
- **Situational & Conditional Awareness:** This strategy, detailed in BVES's WMP, is designed to provide decision makers and Field Operations staff critical information so that operational decisions are made on the most accurate information available. Additionally, collecting metrics overtime provide a better picture of the wildfire risk drivers and inform Design & Construction and Inspection & Maintenance strategies.
- **Operational Practices:** This plan mostly focuses this strategy but it is also discussed in the WMP. The Operational Practices strategy is designed to provide effective wildfire risk mitigation where system Design & Construction, Inspection & Maintenance, and Situational & Conditional Awareness fall short. For example, Line crews are required by BVES' procedures to perform circuit patrols during high fire threat conditions upon restoration from outages on circuits with bare conductor.
- **Response & Recovery:** This strategy is designed to provide BVES's plan to respond to wildfires and following wildfires regardless of how the wildfire started.

4.3. **Operational Practices.** This plan focuses on the operational practices to mitigate the need for PSPS so that PSPS is ultimately the measure of last resort during extreme fire threat weather conditions. The following operational tools, which will be discussed further in this procedure, are available to be utilized as conditions warrant and should be exhausted before PSPS is employed (these are not listed in order of priority):

- Set automatic reclosing devices to Manual.
- Set electronic fuses (TripSavers) to Manual.
- Adjust system lineup.
- Conduct circuit patrol when circuit protective device trips for an unknown cause prior to re-energization.

- Have Service Crew and Field Inspector patrol service area focusing on high risk areas.
- Deploy wildfire Response Team(s) to high fire risk areas.
- Adjust protective device settings optimized for fire prevention.
- Increase frequency of consultant meteorologist forecast.
- Increase monitoring of weather stations, forecasts, and fire threat conditions.
- Increase communications with Southern California Edison points of contact.
- Proactively engage with first responders, local government and agencies, and other stakeholders.
- Proactively communicate with customers and other stakeholders.
- Identify Medical Baseline customers and Access and Functional Needs populations that may be impacted.
- Prepare to activate Community Resource Center.
- Activation of Emergency Operations Center and Emergency Response Plan.
- Prepare Bear Valley Power Plant for sustained operations.
- Conduct switch operations to minimize impact of potential PSPS activity.
- Engage temporary generation.
- Activate Community Resource Center.

4.4. **Condition Based Operational Measures.** BVES's operational measures to prevent fire are condition based to ensure the BVES system is optimized for wildfire mitigation, public safety, and reliability. There are two specific levels of conditions in the BVES service area that are considered when determining the appropriate operational measures to be implemented:

- **Seasonal Considerations:** Provide a high level operational system lineup and operating guidance to Field Operations crews.
- **Daily-to-Real-time Considerations:** Provide granular operational system lineup and operating guidance to Field Operations crews based on specific forecasts of the weather and fire threat conditions and current system degradations, which may be due to maintenance activities and/or known equipment and/or facilities failure or degradation. Daily-to-Real-time considerations always override seasonal considerations. For example, having high fire threat weather conditions in January is not common, but possible; therefore, in this case, system and operational guidance would be optimized to prevent wildfires.

4.5. **Seasonal Considerations.** Understanding BVES's system demand, service area environmental factors, and wildfire risk drivers allows BVES to operate the system in a manner that is optimized for public safety including wildfire mitigation, reliability, and increased quality of service delivered. The winter months (November through March) bring the following characteristics to BVES's service area:

- Heaviest load demand due to increased tourism and ski resort snowmaking;
- Low ambient temperatures that frequently go below freezing; and
- Lower wildfire risk due to snow and higher moisture content in the service area.

When electric power is not available for any reason combined with freezing temperatures, the situation is an even greater public safety concern. Therefore, BVES needs to recognize that under these conditions, system reliability and continuity of electric service is important to public safety and every effort should be taken to restore power in a safe and timely manner.

The non-winter months (April through October) bring the following characteristics to BVES's service area:

- Lower load demand due to reduced or minimal tourism and no ski resort snowmaking, therefore BVES's load is generally lowest in April, May, September and October; the load increases somewhat in the summer months of June, July and August;
- Higher ambient temperatures with low humidity that rarely require air conditioning; and
- Higher wildfire risk due to low moisture content in the service area and increase presence of fuel (dry vegetation).

Therefore, during the winter months as described above, the BVES distribution system is optimized for safety and reliability. Following the winter season, the system operational focus is more defensive and optimized almost entirely for fire prevention.

4.6. **Daily-to-Real-time Considerations.** The daily and even hourly changes in environmental and system conditions can change the risk of wildfire significantly. Therefore, the factors affecting Daily-to-Real-time considerations must be understood and be evaluated by the Operations Team to develop the appropriate risk mitigation package on a daily or even more frequently when adverse factors develop or are expected to develop. Some the factors that the Operations Team needs to consider are:

- **Forecasted and actual weather:** Sustained wind speed, wind gust strength, dryness (humidity), precipitation, etc.
- **Fuel inventory:** Buildup of ground cover vegetation, timber on the ground, thickness of forest, etc.
- **Dryness of fuel:** Dryness of dead vegetation, timber on the ground, etc.
- **System design limitations:** Installed bare conductor configuration, conventional expulsion fuses installed in the system, switches with limited protective and remote control capabilities, etc.

- **T&D equipment failure or degradation:** Protective switch failure, loss of remote connectivity with protective devices, etc.
- **Missed or delayed inspection:** Detailed inspection or patrol per GO-95 missed or delayed, GO-174 inspection missed or delayed, other inspection deemed critical missed or delayed, etc.
- **Delayed correction of fire hazard inspection discrepancies:** Correction of "must be fixed before fire season" discrepancies, GO-95 discrepancies not corrected within required periodicity, etc.
- **Operational deviations from normal lineup:** Abnormal system lineup due to planned maintenance, system upgrades, equipment degradation, etc.
- **Degradation in situational awareness:** Failure or loss of connectivity with installed weather stations, loss of NFDRS (e.g., during Federal Government shutdown), loss of remote circuit monitoring, loss of HD Alert Camera coverage, etc.
- **Resource degradation:** Insufficient line crews and/or other key operation staff, loss of utility vehicles, etc.

Therefore, for obvious reasons and as previously stated **Daily-to-Real-time considerations always override seasonal considerations**.

4.7. **Pre-Planned Operational Posture.** Some of the factors discussed in the previous section, may have a determined utility condition based response posture, while others require the specific evaluation by the Operations Team of the particular issue. The operational actions to be taken for forecasted and actual weather, fuel inventory, dryness of fuel, and system design limitation consideration factors are easily pre-determined. Whereas the response to the rest of the Daily-to-Real-time consideration factors, must be individually evaluated to determine their impact on the overall plan. For example, if certain weather stations suffer a failure, the Utility Manager may require the Wildfire Response Team be deployed sooner in a high wind developing situation.

4.7.1. **Seasonal Operational Posture**: The following operational actions are to be taken as follows:

- The Radford Line will be de-energized from April to October. Specific dates will be recommended by the Field Operations Supervisor and approved by the Utility Manager. The line will be ready for re-energization should the load demand require it, for planned maintenance or system upgrades, or for other operational reason approved by the Utility Manager. De-energizing the Radford Line does not degrade redundancy since the supply lines from Lucerne are separate and independent of each other. The Radford Line is simply needed to assist with winter high loads. The Utility Manger will inform the President of any changes in the status of the Radford Line.

- From April to October, certain Auto-Reclosers and Switches shall be placed in "Manual" (e.g., they will not shut and test upon detecting a fault). The Field Operations Supervisor will develop a specific list of the devices to be placed in "Manual" and will forward the list to the Utility Manager and President. Specific dates will be recommended by the Field Operations Supervisor and approved by the Utility Manager. Once BVES's Grid Automation Project establishes connectivity and control of these devices, this policy will be re-evaluated.
- From April to October, all Fuse TripSavers shall be placed in "Manual" (e.g., they will not shut and test upon detecting a fault). Specific dates will be recommended by the Field Operations Supervisor and approved by the Utility Manager. Once BVES's Grid Automation Project establishes connectivity and control of these devices, this policy will be re-evaluated.
- Due to reduced load in non-winter period, the Utility Engineer & Wildfire Mitigation Supervisor will develop specific settings for Auto-Recloser and other protective devices in the field to enhance fire prevention. The list of affected devices will be provided to the Utility Manager and the Field Operations Supervisor. Additionally, the Field Operations Supervisor will be provided the settings that the Field Operations staff will be required to set on each device. Specific dates to enter these reduced settings will be recommended by the Field Operations Supervisor and approved by the Utility Manager. Engineering staff will not change device settings without the Field Operations Supervisor's authorization.
- When an Auto-Recloser, Switch, or Fuse TripSaver that was placed in "Manual" due to the above policy trips open, the affected portions of the de-energized circuit or feeder will be patrolled prior to re-energizing them. If the cause is likely known and the fire risk is "Green" or "Yellow," the Field Operations Supervisor may authorize the Line Crew to test the device once. If the device trips open again, the circuit or feeder must be thoroughly patrolled to determine the fault and ensure there is no risk of causing fire.

4.7.2. **Daily-to-Real-time Operational Posture**: The pre-planned operational postures provided in this section take into account the System Design Limitations factor. As system hardening and other Wildfire Mitigation Plan projects and programs are completed thereby mitigating the risk to wildfire, the Utility Manager will recommend updates to the plan.

BVES's forecasting framework for fire prevention measures relies on the National Fire Danger Rating System (NFDRS) and contracted meteorologist evaluation of the local forecast. The entire BVES system is in NFDRS Predictive Service Area SC10. The predictive service provides a wildfire risk forecast based on weather, on fuel build up, and fuel dryness among other factors and designates high-risk days as indicated in Table 4-1, Fuel Dryness and High-Risk Days, below:

Table 4-1: Fuel Dryness and High-Risk Days

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.
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).

An example of the seven-day forecast is provided below in Table 4-2, Example NFDRS Forecast:

Table 4-2: Example NFDRS Forecast

SC09-Western Mountains							
SC10-Eastern Mountains							
SC11-Southern Mountains							

The NFDRS is generally updated 3-5 times per day. Additionally, it should be noted that it has been observed that during the Federal Government shutdowns due to budget issues, the NFDRS forecast is suspended. Therefore, during these periods, the Utility Manager must recommend measures to mitigate this degradation in situational awareness.

The contracted meteorologist integrates the NFDRS with the detailed local forecast specific to BVES's service area and develops a risk rating as indicated below in Table 4-3, Significant Fire Potential.

Table 4-3: Significant Fire Potential

The Field Operations Supervisor will monitor the fire risk as designated by the consultant meteorologist, the NFDRS fire danger forecast, and indications from installed weather stations, which are equipped with alarms based on actual wind speed and then direct the proper operational pre-planned response. As indicated in Table 4-4 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.

Table 4-4: Operational Direction Based on Wildfire Risk Forecast

Operations Pre-Planned Action	Green	Yellow	Brown	Orange	Red
Auto-Reclosers and Protective Switches with Reclosing Capability[1]	Automatic[1]	Automatic[1]	Manual (Non-Automatic)		
Patrol following circuit or feeder outage[2]	No[2,3]	No[2,3]	Yes		
Fuse TripSavers[1]	Automatic[1]	Automatic	Manual (Non-Automatic)		
Radford Line Use[4]	May be energized	May be energized	De-energize[5]	De-energize	De-energize
Deploy Wildfire Risk Team(s) to "high risk" areas	No	No	Yes, if forecasted sustained wind or 3-second wind gusts expected to exceed 55 or actual sustained wind or 3-second wind gusts exceed 45 mph and expected to increase.		
Forward to Field Operations updated list of medical baseline customers and impacts access and functional needs population	No	No	Yes, if forecasted sustained wind or 3-second wind gusts expected to exceed 55 or actual sustained wind or 3-second wind gusts exceed 45 mph and expected to increase.		
Activate EOC	No	No	Yes, if forecasted sustained wind or 3-second wind gusts expected to exceed 55 or actual sustained wind or 3-second wind gusts exceed 45 mph and expected to increase.		
Prepare Bear Valley Power Plant for sustained operations.	No	No	Yes, if forecasted sustained wind or 3-second wind gusts expected to exceed 55 or actual sustained wind or 3-second wind gusts exceed 45 mph and expected to increase.		
Conduct switching operations to minimize impact of potential PSPS activity	No	No	Yes, if forecasted sustained wind or 3-second wind gusts expected to exceed 55 or actual sustained wind or 3-second wind gusts exceed 45 mph and expected to increase.		
Activate first responder, local government and agency, customer and community, and stakeholders PSPS communications plan	No	No	Yes, if forecasted sustained wind or 3-second wind gusts expected to exceed 55 or actual sustained wind or 3-second wind gusts exceed 45 mph and expected to increase.		

Activate Community Resource Centers	No	No	Yes, if forecasted sustained wind or 3-second wind gusts expected to exceed 55 or actual sustained wind or 3-second wind gusts exceed 45 mph and expected to increase.
Public Safety Power Shutoff	No	No	Yes, if actual sustained wind or 3-second wind gusts exceed 55 mph.[6]

[1] During the non-winter months, certain devices as developed by the Field Operations Supervisor and approved by the Utility Manager will remain in Manual (Non-Automatic) for the entire period regardless of the wildfire risk.
[2] During the non-winter months, when an Auto-Recloser, Switch, or Fuse TripSaver that was placed in "Manual" due to the above policy trips open, the affected portions of the de-energized circuit or feeder will be patrolled prior to re-energizing them. If the cause is likely known and the fire risk is "Green" or "Yellow," the Field Operations Supervisor may authorize the Line Crew to test the device once. If the device trips open again, the circuit or feeder must be thoroughly patrolled to determine the fault and ensure there is no risk to causing fire.
[3]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.
[4] Normally only energized during winter period. If must be de-energized during winter period due to high risk conditions, and load is beyond the capability of the Lucerne supply lines plus the BVPP capacity, then reduce interruptible customer load as needed.
[5] May be energized if forecasted and actual sustained wind and wind gust conditions are less than 40 mph and the Radford Line is required to meet load demand or the support load due to loss of other power sources or due to planned maintenance when the benefits of the maintenance will overall reduce the risk of wildfire. In all of these cases, the Utility Manger will approve energizing the Radford Line and will inform the President.
[6]The Utility Manager may initiate PSPS if in his judgement the actual conditions in the field pose a significant safety risk to the public.

4.8. **Public Safety Power Shutoff (PSPS) Consideration.** Based on the evaluation of BVES's potentially weakest overhead facilities, BVES has determined that specific actions per Table 4-4 above should be taken when wind gusts of 3 seconds or more exceed 55 mph and a period of high fire threat danger exists. These conditions are often referred to as "extreme fire threat weather and conditions." This action is designed to satisfy GO-166 Standard 1.E requirements.

4.8.1. Despite having a proactive and aggressive vegetation management program, vegetation may still contact power lines; for example, in high winds, branches outside the vegetation clearance zone may break and be blown onto bare conductors and/or trees outside the clearance zone may fall into bare conductors. The specific strength of trees and branches is unknown; therefore, in high winds, it is impossible to predict how every tree and branch in the service territory would be impacted. This condition plays a key role how BVES has selected its tripwire 3-second wind gust speed for PSPS and designated certain locations as "at risk" locations for proactive de-energization during extreme fire weather conditions.

4.8.1.1. Changes in vegetation density, circuit improvements such as conversion from overhead to underground, or other environmental factors may drive BVES to re-evaluate the designated "at risk" line sections in its system and, therefore, specific line sections may be added, removed or modified to the "at risk" list as appropriate in the future.

4.8.1.2. It should be noted that while BVES is able to evaluate its facilities and determine the limiting wind speeds when distribution facilities are possibly at high risk, 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

structures that may come loose and impact BVES distribution facilities. Therefore, BVES may determine a need to proactively de-energize facilities during high fire threat and high wind conditions. This would be done in close consult and coordination with local government and agencies.

4.8.1.3. In determining whether to invoke PSPS, BVES staff considers a number of factors affecting whether or not "extreme fire weather and threat conditions" exist including the following:

- Design strength and other characteristics of distribution overhead facilities.
- Vegetation density.
- National Fire Danger Rating System (NFDRS) for 7-day fire threat outlook.
- National Weather Service advisories.
- Local weather forecasts and advisories.
- BVES meteorologist's forecast.
- Information from BVES installed weather stations.
- Real-time information from trained personnel positioned in high-risk areas.
- Input from state and local authorities and Emergency Management Personnel.

"Extreme fire weather conditions" are deemed to be forecasted or exist when the National Fire Danger Rating System forecast is "red," "orange," or "brown" for area SC-10, high winds (45 mph or greater) are forecasted or measured, and the BVES meteorologist forecasts high fire threat conditions.

Once it is determined that "extreme fire weather conditions" are forecasted or exist, BVES Staff will implement BVES Public Safety Power Shutoff Procedures per Section 4 at the direction of the Utility Manager.

4.8.1.4. BVES has identified seven sections of "at risk" areas based on the type of distribution facilities (overhead bare conductions, high voltage, etc.), tree and vegetation density, available dry fuel, and other factors that make certain locations more vulnerable to wildfire risk. As previously stated, BVES's entire service area is in the High Fire Threat District (HFTD) Tiers 2 and 3. The "at risk" areas are identified shown in Appendix A map. These areas may be selectively de-energized by "opening" the Auto-Reclosers (AR) designated in Table 4-5, Switches to De-energize "At Risk" Areas, below.

Table 4-5: Switches to De-energize "At Risk" Areas

Circuit (AR To Be Opened)	Number of Customers
Radford 34kV	0[1]
North Shore 4kV (Open AR) 805)	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

[1]Load is shifted to Shay 34kV line.

It is expected that if PSPS is necessary, in most cases it would be limited to one or more of these "high risk" areas. However, the Operations Team must monitor the entire service area and invoke PSPS as a measure of last resort on any BVES circuit when condition warrant such action.

4.9. **Restoration from PSPS.** When wind speeds in the affected area where PSPS was invoked calm below 50 mph for a minimum period of 20 minutes, crews may assess the fire weather conditions have subsided to "safe levels." However, the crews may extend the calm period beyond 20 minutes, if they assess that further gusts of greater than 50 mph are likely based on their direct observation of local conditions or forecasts indicate a high probability of winds picking up to greater than 50 mph. Crews should communicate with the Field Operations Supervisor prior to assessing the situation as "safe levels" so that an evaluation of actual conditions in the field may be merged with the latest forecasted information. Restoration activities include:

- Validating that the extreme fire weather conditions have subsided to safe levels.
- Conducting field inspections and patrols of facilities that were de-energized.
- Re-energization of inspected (and repaired if necessary) circuits.

5. BVES PSPS Procedures

5.1. **Emergency Response Plan.** Section 4 to the BVES Emergency Response Plan provides an explanation of the BVES system sources of power and actions to be taken when there is partial or complete loss of sources of power. Appendix B to this Plan provides a graphic showing the sources of power available to the BVES system including the SCE supply lines and their capacity. This PSPS Plan provides supplemental guidance in the case of SCE PSPS events that result in a complete or partial loss of all SCE lines in order to avoid a "black start" of the Bear Valley Power Plant (BVPP). Once PSPS is implemented, outages shall be managed using the guidance of the BVES Emergency Response Plan and the supplemental guidance of this procedure.

5.2. **PSPS Phases.** Table 5-1, PSPS Phases for PSPS Procedures, provides a time-line summary of actions to be taken for PSPS on BVES owned bare wire overhead power lines in some or all areas of the BVES service area and/or SCE directed PSPS affecting the BVES service area. It should be noted that weather changes can be sudden and the target timelines may end up being shorter than indicated in Table 5-1. PSPS actions are to be driven by forecasts and actual conditions in the field. The specific phases are:

- **Preparatory Phase:** Conducted annually well before extreme fire threat conditions are expected; or when lessons learned or other conditions warrant updating plans, training, and/or outreach. Develop communication and notification plans jointly with CalOES, county and local governments, independent living centers, and representatives of people/communities with AFN. Create a plan for CRC(s).
- **Warning Phase:** Starts 4-7 days prior to forecasted extreme fire threat weather and conditions. Mainly involves preparing to conduct PSPS when it is warranted and notifying local government, agencies, partner organizations, and customers. This phase includes various levels of notification at the 4-7 days ahead, 4 days ahead, 2-3 days ahead, 1-2 days ahead, and 1-4 hours ahead (PSPS imminent) points in the preparatory process.
- **Implementation Phase:** Involves de-energizing "at-risk" areas due to verified actual extreme fire threat weather and conditions and/or responding to SCE directed PSPS of SCE supply lines to BVES service area.
- **Restoration Phase:** Involves restoring power to de-energized circuits following verification that actual extreme fire threat weather and conditions have subsided and/or restoring SCE supply lines when they are re-energized.
- **Reporting and Lessons Learned Phase:** Documenting and reporting to Safety Enforcement Division required information on the PSPS event and capturing lessons learned to ensure future PSPS events benefit from an understanding of what worked and what did not work in previous PSPS events.

5.3. **PSPS Procedures.** Section 4 (Fire Prevention) provides the operational guidance on actions to be taken to mitigate the risk of fire. PSPS is a ***measure of last resort*** after all other fire prevention measures have been implemented. The drivers leading to the decision to de-energize BVES circuits are provided in Section 4 as well as those to restore from PSPS.

Table 5-1: PSPS Phases for PSPS Procedures

Phase	Timeframe	Internal Staff Actions	External Communications and Notifications
Preparatory	**Pre-fire season.** • Conducted annually well before extreme fire threat conditions are expected; or • When lessons learned or other conditions warrant updating plans, training, and/or outreach. • Coordinate with the CPUC, CalFire, CalOES, communications providers, representatives of people/communities with access and functional needs, and other public safety partners to plan de-energization simulation exercises throughout the utility service territories in the areas with the highest historical and forecasted risk for de-energization	**Planning and Training** • Managers review and update plans and procedures. • Managers ensure staff are trained on PSPS procedures as applicable. • Reach out to media and Community-based organizations to ensure consistent awareness of and availability to third-parties of all messaging and map data, including application programming interfaces, that are used for de-energizations events. • Customer Service Department will ensure all equipment and supplies for the CRC are functional and readily available.	**Local Government, Agencies, and Partner Organizations:** • Provide copy of plan and solicit comments. • Incorporate comments as deemed appropriate. • Conduct meetings to discuss procedures. • Update primary and secondary contacts for PSPS communications. • Advisory Board: May consist of public safety partners, communications and water service providers, local and tribal government officials, business groups, non-profits, representatives of people/communities with access and functional needs and vulnerable communities, and academic organizations. **Customer Outreach and Education:** • Post PSPS information on BVES's Website and social media. • Include PSPS information in periodic customer newsletter. • Conduct public workshops. • Provide PSPS notifications via email, telephone calls, Interactive Voice Response (IVR) proactive calling system, and two-way text messaging.

	in advance of fire season.		
Warning	**4-7 Days Ahead** (Forecasts indicate extreme fire threat weather and conditions may occur)	**Operations & Planning:** • Evaluate possible impacted area(s) and ensure resources ready to support PSPS. • Contact SCE Staff and maintain status of SCE supply lines. • Review operational and maintenance status of sub-transmission system. • Review operational and maintenance status of Bear Valley Power Plant (BVPP). • Review operational and maintenance status of Radford Line. • Consider conducting patrol of Radford Line. • Review National Weather Service (NWS) forecasts, National Fire Danger Rating System (NFDRS) 7-day forecast, and weather and threat assessments from contracted meteorology consultant. • Consider having meteorology consultant provide more frequent forecasts. • Alert customer service to possibility of PSPS. **Customer Service:** • Review and edit as applicable templates for PSPS events and the anticipated impacts on BVES Customers. • Staff drafts notices to Public Affairs consultant for review, significant changes to templates are made. • Create warning notifications to customers via email, telephone calls, IVR proactive calling system, and two-way text messaging.	**None**

Warning	**4 Days Ahead** (Continuing and consistent forecasts of extreme fire threat weather and conditions)	**Operations & Planning:** • Closely monitor fire weather alerts from various sources with the goal of refining the forecast (NWS, NFDRS, and meteorology consultant weather and threat assessments). • Contact SCE Staff and maintain status of SCE supply lines. If any SCE lines are under "PSPS Consideration," take actions per Table 4-2, BVES Action for SCE Lines Under PSPS Consideration. • Ensure sub-transmission system is in most reliable condition. Defer and/or secure from planned maintenance. • Ensure BVPP ready to operate. Defer and/or secure from planned maintenance. • Alert Energy Resource Department of possible extended BVPP operations. • Consider energizing Radford Line, if deemed necessary for reliability. • Closely coordinate with SCE Staff regarding the PSPS status of SCE supply lines (Doble, Cushenberry, and Bear Valley/Radford). • Ensure BVES installed weather stations fully operational. • Ensure circuit load monitoring equipment fully operational. • Place BVES staff incident responders on alert. **Customer Service:** • Finalize **"4 Day Alert"** email regarding continuing and consistent forecasted extreme fire threat weather and conditions, which may lead to possible BVES directed PSPS and/or SCE directed PSPS. Also, provide anticipated impacts on BVES Customers and	**Local Government, Agencies, and Partner Organizations:** • Email **"4 Day Alert"** to local government, agencies, and partner organizations primary and secondary points of contact. • Alert the emergency management community, first responders and local government first.

		direction of event. Obtain President's approval to release. • BVES will issue a press release to local media (newspaper and radio) and will post notification on website. • Create warning notifications to customers via email, telephone calls, (IVR) proactive calling system, and two-way text messaging.	
Warning	**2-3 Days Ahead** (Extreme fire threat weather and conditions forecasted with increasing confidence)	**Operations & Planning:** • Continue to closely monitor fire weather alerts from various sources with the goal of refining the forecast (NWS, NFDRS, and meteorology consultant weather and threat assessments). • Prepare staff rotation plans to support continuous field crew operations, BVPP operations, dispatch, and customer service. • Evaluate need for additional resources from mutual aid agreements (CUEA and MMAA) and contracted services. Alert additional resources points of contact. • Set up processes to frequently monitor BVES installed weather stations. • Review pre-approved field Switching Orders against current system line-up and make changes as applicable with Field Operations Supervisor's approval. • Keep Customer Service informed of latest forecast to ensure accurate communications with stakeholders. • Closely coordinate with SCE Staff regarding SCE supply lines to the BVES service area and take actions per Table 4-2, BVES Action for SCE Lines Under PSPS Watch, as applicable.	**Local Government, Agencies, and Partner Organizations:** • Email **"2-3 Day Notice"** to local government, agencies, and partner organizations primary and secondary points of contact. • Coordinate with the emergency management community, first responders and local government first. • Encourage widest dissemination of this information. **Customer Outreach:** • Post **"2-3 Day Notice"** on BVES website and social media. • Issue **"2-3 Day Notice"** press release for local media. • Send out **"2-3 Day Notice"** via IVR. • Send out "2-3 Day Notice" via Text • Send out "2-3 day Notice" via Email

		Customer Service: • Finalize **"2-3-Day Notice"** regarding forecasted extreme fire threat weather and conditions, which may lead to possible BVES directed PSPS and/or SCE directed PSPS. Also, provides anticipated impacts on BVES Customers and direction of event. Obtain President's approval to release. • BVES will issue a press release to local media (newspaper and radio) and will post notification on website. • Create warning notifications to customers via email, telephone calls, (IVR) proactive calling system, and two-way text messaging.	

Warning	**1-2 Days Ahead**
	(Extreme fire threat weather and conditions forecasted with high degree of confidence)
		Operations & Planning:
		• Continue to closely monitor fire weather alerts from various sources with the goal of refining the forecast (NWS, NFDRS, and meteorology consultant weather and threat assessments).
		• If needed, request additional resources from mutual aid agreements (CUEA and MMAA) and contracted services).
		• Monitor BVES installed weather stations on a frequent basis.
		• Keep Customer Service informed of latest forecast to ensure accurate communications with stakeholders.
		  ○ Set up CRC and conduct a mock SOE scenario to include testing of all equipment and needed supplies.
		  ○ Purchase non-perishable food items to provide to our customers including bottled water.
			Local Government, Agencies, and Partner Organizations:
			• Email **"1-2 Day Notice"** to local government, agencies, and partner organizations primary and secondary points of contact.
			• Coordinate with the emergency management community, first responders and local government first.
			• Encourage widest dissemination of this information.
			
			Customer Outreach:
			• Post **"1-2 Day Notice"** on BVES website and social media.
			• Issue **"1-2 Day Notice"** press release for local media.
			• Send out **"1-2 Day Notice"** via IVR.
			• Send out "1-2 Day Notice" via Text
			• Activate "1-2 day Notice" via Email

		• Continue to closely coordinate with SCE Staff regarding SCE supply lines to the BVES service area and take actions per Table 4-2, BVES Action for SCE Lines Under PSPS Watch, as applicable.
		• When directed by the Utility Manager:
		  ○ Staff incident responders called in.
		  ○ Incident dispatch established.
		  ○ Field Crews dispatched to monitor various actual field conditions for extreme fire weather and other dangerous conditions throughout the service area and "at risk" areas.
		  ○ Implement BVES ERP including staffing the EOC as applicable.
		
		Customer Service:
		• Finalize **"1-2 Day Notice"** regarding imminent extreme fire threat weather and conditions, which may result in BVES directed PSPS and/or SCE directed PSPS. Also, provides anticipated impacts on BVES Customers and duration of event. Obtain President's approval to release.
		• Update list of medical baseline customers that may lose power as result of PSPS.
		• Update list of AFN customers that may lose power as result of PSPS.
		• BVES will issue a press release to local media (newspaper and radio) and will post notification on website.
		• Create warning notifications to customers via email, telephone calls, (IVR) proactive calling system, and two-way text messaging	

Warning	**1-4 Hours Ahead When De-Energization Imminent.** (Extreme fire threat weather and conditions validated by field resources)	**Operations & Planning:** • Closely coordinate with SCE regarding SCE directed PSPS that affect SCE lines into BVES service area and take applicable actions per Table 4-3, BVES Action for SCE Lines De-energized Due to PSPS. • Field Operations staff frequently monitor BVES installed weather stations. • Field Crews patrol throughout service area and the "at risk" areas to monitor various actual field conditions for extreme fire weather and other dangerous conditions. • Field Crews monitor local wind gusts in "at-risk" areas. **Customer Service:** • Finalize "**De-energization Imminent Notice"** regarding extreme fire threat weather and conditions validated by field resources and actual PSPS de-energization(s) directed by BVES and/or SCE and includes areas de-energized, number of customers without power, and best estimated time to restore (ETR). Obtain President's approval to release. • Refine lists of medical baseline customers without power. • Update list of AFN customers that may lose power as result of PSPS • BVES will issue a press release to local media (newspaper and radio) and will post notification on website. • Create warning notifications to customers via email, telephone calls, (IVR) proactive calling system, and two way text messaging.	**Local Government, Agencies, and Partner Organizations:** • Email **"De-energization Imminent Notice"** to local government, agencies, and partner organizations. • Coordinate with the emergency management community, first responders, and local government in managing outages due to PSPS. • Provide list of customers that may be without power and listed as medical baseline customers to Sheriff Department and Fire Department. • Encourage widest dissemination of this information. **Customer Outreach:** • Post "**De-energization Imminent Notice"** on BVES website and social media. • Issue "**De-energization Imminent Notice"** press releases for local media. • Send out "**De-energization Imminent Notice"** via IVR. • Send out "**De-energization Imminent Notice** Day Notice" via Text • Send out "**De-energization Imminent Notice**" via Email

Implementation	**During de-energization event.** (Extreme fire threat weather and conditions validated by field resources)	**Operations & Planning:** • Closely coordinate with SCE regarding SCE directed PSPS that affect SCE lines into BVES service area and take applicable actions per Table 4-3, BVES Action for SCE Lines De-energized Due to PSPS. • Field Operations staff frequently monitor BVES installed weather stations. • Field Crews patrol throughout service area and the "at risk" areas to monitor various actual field conditions for extreme fire weather and other dangerous conditions. • Field Crews monitor local wind gusts in "at-risk" areas. • Field Crews de-energize circuits in "at risk" areas as wind gusts reach threshold for de-energization as designated by Field Operations Supervisor. • Field Crews may de-energize additional power lines they evaluate as posing a public safety hazard and/or as directed by Field Operations Supervisor. • Prepare GO-166 major outage and ESRB-8 notifications as applicable. **Customer Service:** • Finalize "**De-energization Notice"** regarding extreme fire threat weather and conditions validated by field resources and actual PSPS de-energization(s) directed by BVES and/or SCE and includes areas de-energized, number of customers without power, and best estimated time to restore (ETR). Obtain President's approval to release.	**Local Government, Agencies, and Partner Organizations:** • Email **"De-energization Notice"** to local government, agencies, and partner organizations. • Coordinate with the emergency management community, first responders, and local government in managing outages due to PSPS. • Send **"De-energization Updates"** on the PSPS. • Provide list of customers without power and listed as medical baseline and AFN customers to Sheriff Department and Fire Department. • Encourage widest dissemination of this information. • Notify California Public Utilities Commission (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. • Notify President Safety Enforcement Division (SED), CPUC within twelve hours of the power being Shutoff per ESRB-8. **Customer Outreach:** • Post "**De-energization Notice"** and "**De-energization Updates"** (when warranted) on BVES website and social media. • Issue "**De-energization Notice"** and "**De-energization Updates"** (when warranted) press releases for local media. • Send out "**De-energization Notice"** and "**De-energization Updates"** (when warranted) via IVR.

		• Finalize **"De-energization Updates"** providing status changes such as when the number of customers without power and/or ETR(s) change significantly. Obtain President's approval to release. • Refine lists of medical baseline customers without power.ES will issue a press release to local media (newspaper and radio) and will post notification on website. • Issue warning notifications to customers via email, telephone calls, (IVR) proactive calling system, and two-way text messaging.	• Send out "De-energization Notice" and "**De-energization Updates"** (when warranted) via Text • Activate "De-energization Notice" and "**De-energization Updates"** (when warranted) via Email • Communicate with emergency services regarding AFN and medical baseline customers.
Restoration	**Re-energization** (Extreme fire conditions subside to safe levels as validated by field conditions)	**Operations & Planning:** • Field Crews validate that the extreme fire weather conditions have subsided to safe levels as designated by the Field Operations Supervisor and report these conditions to Dispatch. • Field Crews conduct field inspections and patrols of facilities that were de-energized. • When field inspections and patrols are completed satisfactorily, power is restored to the affected circuits. • As SCE restores supply lines, Field Crews conduct switching operations as directed by Field Operations Supervisor to restore systems normal. **Customer Service:** • Finalize **"Intent to Restore"** notice to include ETR(s) and obtain President's approval to release. • Finalize **"Restoration Complete"** notice to be issued when power is fully restored and obtain President's approval to release.	**Local Government, Agencies, and Partner Organizations:** • Send **"Intent to Restore"** notice to local government, agencies, and partner organizations. Encourage widest dissemination of this information. • Coordinate with the emergency management community, first responders, and local government in managing restorations. • Send **"Restoration Complete"** notice to local government, agencies, and partner organizations once power is fully restored or an update if restoration is delayed. **Customer Outreach:** • Post **"Intent to Restore"** notice on BVES website and social media. • Issue **"Intent to Restore"** press release for local media. • Send out **"Intent to Restore"** notice via IVR. • Send out **"Intent to Restore"** notice via Text • Send out **"Intent to Restore"** notice via Email

		• Breakdown of CRC including removal/storage of all equipment and supplies.	• Post **"Restoration Complete"** notice on BVES website and social media once power is fully restored or an update if restoration is delayed. • Issue **"Restoration Complete"** press release for local media once power is fully restored or an update if restoration is delayed. • Send out **"Restoration Complete"** notice via IVR once power is fully restored or an update if restoration is delayed. • Send out **"Restoration Complete"** notice via Text once power is fully restored or an update if restoration is delayed. • Send out **"Restoration Complete"** notice via Email once power is fully restored or an update if restoration is delayed.
Reporting and Lessons Learned	**Post Event**	**Operations & Planning:** • Utility Manager conduct lessons learned with applicable staff. Include Customer Service and solicit input from Local Government, Agencies, and Partner Organizations. • If applicable, update plan and procedures per the lessons learned. • Prepare PSPS Post Event Report required by ESRB-8 and forward to President and Manager Regulatory Affairs for approval.	**CPUC Safety Enforcement Division:** • File a report (written) to President of SED no later than 10 business days after the Shutoff event ends per ESRB-8.

5.4. **SCE Directed PSPS Procedures.** Close coordination with SCE is essential to mitigating the impact of any SCE directed PSPS events that would result in a complete and/or partial loss of SCE supply lines. The following preparatory coordination has been established:

- Each year, before the fire season, BVES Management Team will engage SCE Management on coordination for potential and actual PSPS events.
- BVES Management Team will update contact information with the SCE Key Account Manager for the BVES account.
- BVES Field Operations staff will update contact information with the SCE Lugo and Colton Control Stations which have direct operational control over the SCE supply lines to BVES.

When PSPS events are forecasted and/or implemented, the SCE Key Account Manager will coordinate with the BVES Management Team and the SCE Lugo and Colton Control Stations will coordinate directly with the designated BVES Field Operations Team.

Table 5-2, BVES Action for SCE Lines Under PSPS Consideration, provides procedures to implement to best prepare the BVES system for a complete and/or partial loss of SCE supply lines.

Table 5-2: BVES Action for SCE Lines Under PSPS Consideration

Condition	BVES Action
SCE places Doble or Cushenberry Line under PSPS Consideration.	1. Notify key internal staff and brief Field Operations staff on condition for situational awareness. 2. Operations & Planning Manager evaluate energizing Radford Line for improved reliability.
SCE places Bear Valley Line under PSPS Consideration.	1. Notify key internal staff and brief Field Operations staff on condition for situational awareness. 2. If Radford is energized, shift loads to Shay Line.
SCE places Doble **and** Cushenberry Lines under PSPS Consideration.	1. Notify key internal staff and brief Field Operations staff on condition for situational awareness. 2. Energize the Radford Line. 3. Prepare for potentially losing all SCE supply lines from Lucerne. 4. Prepare for sustained BVPP operations and rolling blackouts. 5. Evaluate distribution circuit loads.
SCE places Doble or Cushenberry, and Bear Valley Lines under PSPS Consideration	1. Notify key internal staff and brief Field Operations staff on condition for situational awareness. 2. Prepare for potentially losing all SCE supply lines from Lucerne. 3. Prepare for sustained BVPP operations and rolling blackouts. 4. Evaluate distribution circuit loads.
SCE places Doble, Cushenberry, and Bear Valley Lines under PSPS Consideration	1. Notify key internal staff and brief Field Operations staff on condition for situational awareness. 2. Prepare for potentially losing all SCE supply lines into BVES service area. 3. Prepare for sustained BVPP operations and rolling blackouts. 4. Evaluate distribution circuit loads.

Table 5-3, BVES Action for SCE Lines De-energized Due to PSPS, provides procedures to use in the event of a partial or complete loss of SCE supply lines due to PSPS. These procedures are based on procedures specified in Section 4 to the BVES Emergency Response Plan except that they take into account that BVES will closely coordinate with SCE Staff as follows:

- BVES will receive warnings of impending PSPS on the SCE lines about 2 days prior to the event.
- BVES will receive updates to the status of the lines under PSPS Consideration.
- SCE will notify BVES at least 4 hours prior to de-energizing any SCE supply lines to BVES service area.

These timely notifications will allow BVES to take preparatory action to shed load to within the expected capacity of its remaining sources of power and will allow BVES to avoid a “black start” on the BVPP. Therefore, the procedures of Table 5-3 should be followed during PSPS event. However, if there is a sudden complete or partial loss of

SCE supply lines, the procedures in Section 4 of the BVES Emergency Response Plan are more appropriate and should be followed as directed by the Utility Manager.

Table 5-3: BVES Action for SCE Lines De-energized Due to PSPS

Condition	BVES Action
SCE De-energizes Doble or Cushenberry Line for PSPS.	1. Notify key internal staff and brief Field Operations staff on condition for situational awareness. 2. Energize Radford Line as needed to meet load demand. If the Utility Manager deems it necessary, energize the Radford Line as needed for reliability. 3. Startup of the BVPP as needed to meet load demand. 4. No reduction on load necessary, since the Doble and Cushenberry are capable of carrying the other's load. 5. Implement applicable portions of BVES Emergency Response Plan for a partial loss of SCE supply lines.
SCE De-energizes Bear Valley Line for PSPS.	1. Notify key internal staff and brief Field Operations staff on condition for situational awareness. 2. If Radford is energized, shift loads to Shay Line prior to de-energizing for PSPS. Generally, this should be done about 4 hours prior to the SCE de-energizing the line. 3. If needed, start up the BVPP to meet load demand. 4. If needed, instruct interruptible customers (Bear Mountain Resorts) to reduce load as needed to meet load demand. 5. Implement applicable portions of BVES Emergency Response Plan for a partial loss of SCE supply lines.
SCE De-energizes Doble or Cushenberry **and** Bear Valley Lines for PSPS.	1. Notify key internal staff and brief Field Operations staff on condition for situational awareness. 2. Since the Doble and Cushenberry are capable of carrying the other's load, follow the procedure for "SCE De-energizes Bear Valley Line for PSPS" above. 3. Prepare for potentially losing all SCE supply lines into BVES service area. 4. Prepare for sustained BVPP operations and rolling blackouts. 5. Evaluate distribution circuit loads. 6. Implement applicable portions of BVES Emergency Response Plan for a partial loss of SCE supply lines.
SCE De-energizes Doble and Cushenberry Lines for PSPS.	1. Notify key internal staff and brief Field Operations staff on condition for situational awareness. 2. If not already done, energize the Radford Line. 3. Four hours prior to SCE de-energizing the lines, per the Field Operations Supervisor's direction, shift as much of the load to the BVPP and Radford Line as follows: a. Open the Shay and Baldwin ARs. b. "Express" the Radford Line to Meadow Substation without overloading the Radford Line per Field Operations' switching order.

Table 5-3: BVES Action for SCE Lines De-energized Due to PSPS

Condition	BVES Action
	c. Start up the BVPP, place enginators on-line and increase load to within the combined capacity of the BVPP and Radford Line. d. Implement BVES Emergency Response Plan for sustained loss of SCE supplies from Lucerne including "rolling blackout" procedures. 4. Prepare for sustained BVPP operations and rolling blackouts. 5. Frequently monitor distribution circuit loads.
SCE de-energizes Doble, Cushenberry, and Bear Valley Lines for PSPS.	1. Notify key internal staff and brief Field Operations staff on condition for situational awareness. 2. If the Radford Line is energized, shift loads to the Shay Line. 3. Four hours prior to SCE de-energizing the lines, per the Field Operations Supervisor's direction, perform the following: a. Start up all of the BVPP enginators. b. Reduce system load to within the capacity of the BVPP by isolating distribution circuits as directed by the Field Operations Supervisor. c. Once system load is matched with the BVPP capacity, open the Shay and Baldwin ARs. d. Implement BVES Emergency Response Plan for sustained loss of all SCE supply lines including "rolling blackout" procedures.

6. PSPS Public Outreach and Communications

6.1. **Importance of Public Outreach.** Due to the significant impact that a PSPS event may have on the community and customers, it is essential that early and accurate communications be conducted throughout the PSPS event coincides with local government, agencies, partner organizations (includes emergency management community and first responders, CALOES, county and local governments, independent living centers, and representatives of people/communities with access and functional needs), and customers. Effective communications are key to allow stakeholders to take preparatory actions that will mitigate the impact of a PSPS event on them.

6.2. **ERP Communications Procedures.** During the time period leading up to the PSPS event, during a PSPS event, and during the restoration period from a PSPS event, the Emergency Response Communications Plan (Section 5) of the Emergency Response Plan (ERP) shall be implemented as applicable in conjunction with this plan.

6.3. **PSPS Planned Communications.** Table 6-1, BVES PSPS Communications Template Listing, are to be prepared by the Customer Program Specialist and be preapproved through the President well ahead of expected PSPS events such that BVES staff may quickly initiate effective communications with stakeholders during a PSPS event. The templates are designed to provide a standard "fill in the blank" notice that may be amended depending on the specific situation as applicable. Templates shall initially be reviewed and edited as applicable by BVES's public relations contractor. Additionally, the templates shall be reviewed annually and/or when lessons learned indicate changes to the templates are appropriate.

Table 6-1: BVES PSPS Communications Template Listing

Template	Content	Media	Recipients
4-Day Alert	Provides notice of continuing and consistent forecasted extreme fire threat weather and conditions, which may lead to possible BVES directed PSPS and/or SCE directed PSPS. Also, provides anticipated impacts on BVES Customers and direction of event.	• Email	• Local Government, Agencies, and Partner Organizations (Includes emergency management community and first responders, CALOES, county and local governments, independent living centers, and representatives of people/communities with access and function needs), and customers (including medical baseline and behind-the-meter).

Table 6-1: BVES PSPS Communications Template Listing

Template	Content	Media	Recipients
2-3 Day Notice	Provides notice of forecasted extreme fire threat weather and conditions, which may lead to possible BVES directed PSPS and/or SCE directed PSPS. Provides anticipated impacts on BVES Customers and duration of event.	• Email • BVES Website • Social Media • Press Release • IVR Message • Text Message	• Local Government, Agencies, and Partner Organizations (Includes emergency management community and first responders, CALOES, county and local governments, independent living centers, and representatives of people/communities with access and function needs) and customers (including medical baseline and behind-the-meter).
1-2 Day Notice	Provides notice regarding imminent extreme fire threat weather and conditions, which may result in BVES directed PSPS and/or SCE directed PSPS. Also, provides anticipated impacts on BVES Customers and duration of event.	• Email • BVES Website • Social Media • Press Release • IVR Message • Text Message	• Local Government, Agencies, and Partner Organizations (Includes emergency management community and first responders, CALOES, county and local governments, independent living centers, and representatives of people/communities with access and function needs) and customers (including medical baseline and behind-the-meter).

Table 6-1: BVES PSPS Communications Template Listing

Template	Content	Media	Recipients
De-energization Imminent Notice	Provides notice that BVES directed PSPS and/or SCE directed PSPS is imminent (within 1-4 hours) based on validated extreme fire threat weather and conditions. Also, provides anticipated impacts on BVES Customers and duration of event.	• Email • BVES Website • Social Media • Press Release • IVR Message • Text Message	• Local Government, Agencies, and Partner Organizations (Includes emergency management community and first responders, CALOES, county and local governments, independent living centers, and representatives of people/communities with access and function needs) and customers (including medical baseline and behind-the-meter).
De-energization Notice	Provides notice of extreme fire threat weather and conditions validated by field resources and actual PSPS de-energization(s) directed by BVES and/or SCE and includes areas de-energized, number of customers without power, and best estimated time to restore (ETR).	• Email • BVES Website • Social Media • Press Release • IVR Message • Text Message	• Local Government, Agencies, and Partner Organizations (Includes emergency management community and first responders, CALOES, county and local governments, independent living centers, and representatives of people/communities with access and function needs) and customers (including medical baseline and behind-the-meter).

Table 6-1: BVES PSPS Communications Template Listing

Template	Content	Media	Recipients
De-energization Updates	During de-energization event, provides notice of changes such as when the number of customers without power and/or ETR(s) changes significantly.	• Email • BVES Website • Social Media • Press Release • IVR Message • Text Message	• Local Government, Agencies, and Partner Organizations (Includes emergency management community and first responders, CALOES, county and local governments, independent living centers, and representatives of people/communities with access and function needs) and customers (including medical baseline and behind-the-meter).
Intent to Restore	Provides notice that extreme fire threat weather and conditions have subsided, BVES crews are performing post-PSPS restoration inspections, and ETR(s).	• Email • BVES Website • Social Media • Press Release • IVR Message • Text Message	• Local Government, Agencies, and Partner Organizations (Includes emergency management community and first responders, CALOES, county and local governments, independent living centers, and representatives of people/communities with access and function needs) and customers (including medical baseline and behind-the-meter).

Table 6-1: BVES PSPS Communications Template Listing

Template	Content	Media	Recipients
Restoration Complete	Provides notice that power is fully restored.	• Email • BVES Website • Social Media • Press Release • IVR Message • Text Message	• Local Government, Agencies, and Partner Organizations (Includes emergency management community and first responders, CALOES, county and local governments, independent living centers, and representatives of people/communities with access and function needs) and customers (including medical baseline and behind-the-meter).

6.4. **Critical Facilities and Infrastructure.** The term 'critical facilities' and 'critical infrastructure' refers to facilities and infrastructure that are essential to the public safety and that require additional assistance and advance planning to ensure resiliency during PSPS events. The following provides guidance on what constitutes critical facilities and infrastructure:

6.4.1. Emergency Services Sector

- Police Stations
- Fire Stations
- Emergency Operations Centers

6.4.2. Government Facilities Sector

- Schools
- Jails and prisons

6.4.3. 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

6.4.4. Energy Sector: Public and private utility facilities vital to maintaining or restoring normal service, including, but not limited to, interconnected publicly-owned utilities.

6.4.5. 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.

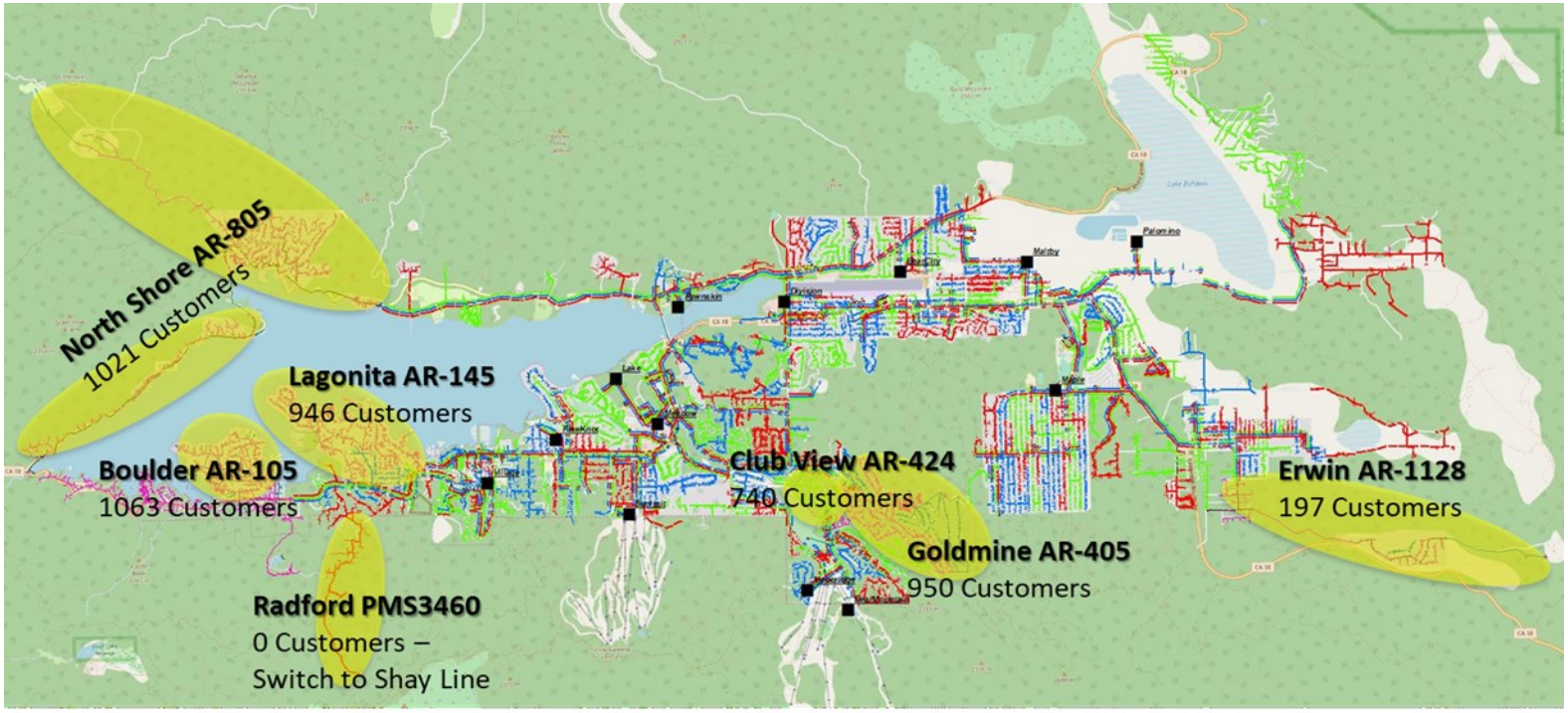
6.4.6. Communications Sector: Communication carrier infrastructure including selective routers, central offices, head ends, cellular switches, remote terminals and cellular sites.

6.4.7. Chemical Sector: Facilities associated with the provision of manufacturing, maintaining, or distributing hazardous materials and chemicals.

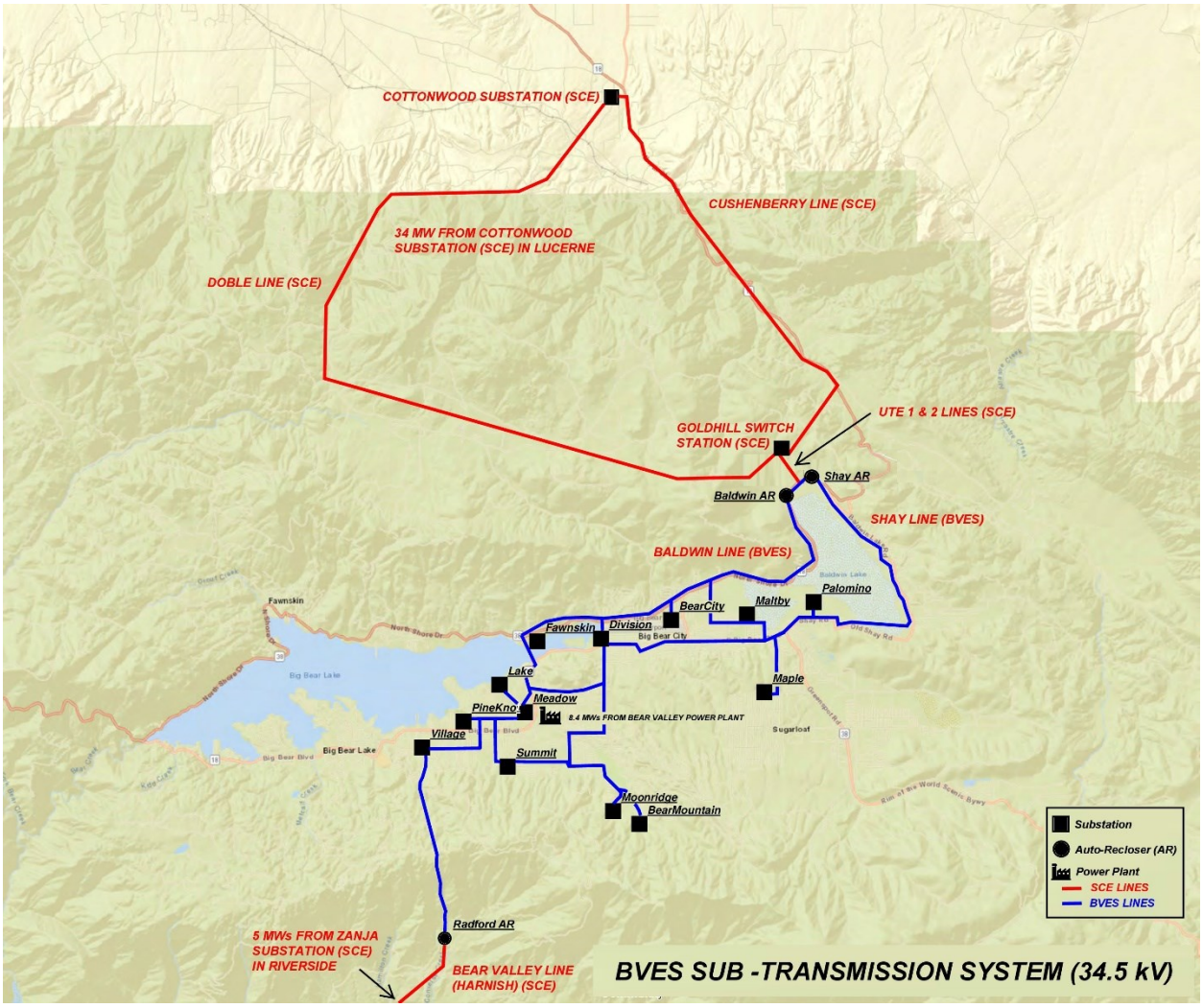
6.5. **Key Partners.** The follow provides the list of pertinent Local Government, Agencies, and Partner Organizations to BVES PSPS notifications. This list overlaps with the list of what is considered critical facilities and infrastructure:

- Local officials (City of Big Bear Lake) and San Bernardino County)
- State officials (normally CPUC Energy Division and Safety Enforcement Division)
- San Bernardino County Office of Emergency Services (County OES)
- Big Bear Fire Department
- California Department of Forestry and Fire Protection (CAL FIRE)
- U.S. Forest Service
- San Bernardino County Sheriff's Department Big Bear Lake Patrol Station
- California Highway Patrol (CHP) Arrowhead Area
- California Department of Transportation (Caltrans)
- Big Bear Area Regional Wastewater Agency (BBARWA)
- Big Bear City Community Services District (CSD)
- Big Bear Lake Water Department (DWP)
- Big Bear Municipal Water District (MWD)
- Southwest Gas Corporation
- Bear Valley Community Hospital
- Bear Valley Unified School District
- Big Bear Chamber of Commerce
- Big Bear Airport District
- Big Bear Mountain Resorts
- Spectrum Communications
- Various cell tower providers

Appendix A: BVES "High Risk Areas" for PSPS Consideration



Appendix B: BVES Supply Lines, Sources of Power and Sub-Transmission System



Appendix C: BVES Community Resource Center Protocols

1. During a PSPS event, Bear Valley Electric Service, Inc. will set up a Community Resource Center (CRC) at its Main Facility at 42020 Garstin Dr., Big Bear Lake, CA 92315 adjacent to the Warehouse. The Customer Service and Operations Support Supervisor shall be responsible for ensuring these protocols are properly implemented when the CRC is activated.
2. The CRC shall be operable from 8:00 a.m. to 10:00 p.m. during an active PSPS event. Actual hours of operation will be coordinated and determined by the local government in cases in which early closure of a facility is required due to inability to access a facility until 10:00 p.m.
3. The will initially be set up in the Warehouse so that quick access and set up may occur.
4. The setup of the CRC shall be ADA (Americans with Disabilities Act) accessible to meet the needs of people/communities with access and functional needs and medical baseline customers.
5. At all times the CRC shall comply with social distancing or other public health protocols that are in place.
6. The following supplies and equipment are stored in the CRC Storage Container to support CRC operations:

    - Tents (2)
    - Water
    - Snacks (such as crackers, granola bars, etc…)
    - Chairs
    - Heaters
    - Extension cords
    - Disposable masks (as necessary)
    - Gloves (as necessary)
    - Hand sanitizer (as necessary)
    - Flash lights
    - Small first aid kits
    - Blankets
    - Surge Protectors
    - Gas tank
    - Generators
    - Wireless internet access point

7. The CRC will operate as follows:

    a. The Customer Service and Operations Support Supervisor and Customer Program Specialist will be in charge of the CRC.

    b. The CRC will be set up and operated by:

        - Field personnel/warehouse person will set up and assist as needed
        - Customer Service and Operations Support Supervisor
        - Customer Program Specialist

    c. Security and Access will be conducted by the Customer Service Representatives and Operations Support Specialists.

8. Customer Service Representatives will staff an Information Booth to provide customers the latest information regarding PSPS and services available to them.

9. Medical Equipment Access (Generators/power supplies) will be provided for Customers who are on medical devices such as oxygen, etc.

10. Access to Wi-Fi and back-up cell phones (as necessary) will be provided to Customers.

11. Until portable restroom facilities are available, customers will have access to the Main Office restroom facilities.

Appendix B. BVES EMERGENCY RESPONSE PLAN

Bear Valley Electric Service, Inc. Emergency Response Plan

February 24, 2021

Approved by: _____

Paul Marconi, President, Treasurer, & Secretary

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Appendix J: Sample Mutual Assistance Agreement Letter

1. **Purpose and Introduction.** The Emergency Response Plan (ERP) is provided to all Bear Valley Electric Service, Inc. ("BVES") employees to ensure an efficient, effective and uniform response during an emergency situation. BVES recognizes the importance of an integrated ERP in order to safely provide for the energy needs of our customers and the requirements of our stakeholders in the event of an emergency.

The ERP outlines BVES' philosophy and procedures for managing major emergencies that may disrupt electric service to our customers or threaten the health and safety of the people in the communities we serve. The ERP further establishes the structure, processes and protocols for the Company's emergency response and identifies departments and individuals that are directly responsible for that response and critical support services. In addition, it provides a management structure for coordination and deployment of the essential resources necessary for the response.
The ERP is designed to provide a framework for managing and responding to:

- Large outages
- Numerous smaller outages
- Potential for large outages
- Potential for numerous smaller outages
- Any combination of the above

The ERP may be invoked as a precautionary measure when there is a strong potential for outages or in response to actual outages. The ERP is designed to be implemented as needed in conjunction with other procedures, plans, and policies such as:

- Public Safety Power Shutdown Plan
- Wildfire Mitigation Plan
- Field Operations and Engineering Procedures
- Customer Service Procedures
- Other organizations such as State, County, and City Emergency Disaster Plans

The ERP complies with the requirements set forth in the Public Utilities Commission of the State of California's General Order No. 166, Standards for Operation, Reliability, and Safety during Emergencies and Disasters.

1.1. **Plan Goals.** When an emergency occurs, BVES' response actions are guided by the following overriding emergency goals (in order of priority):

- **Safety:** Protect the life-safety of our customers, employees and the general public.
- **Restoration of Power:** Restore electric service to customers in a safe and timely manner.
- **Communications:** Keep customers, stakeholders, and staff informed.

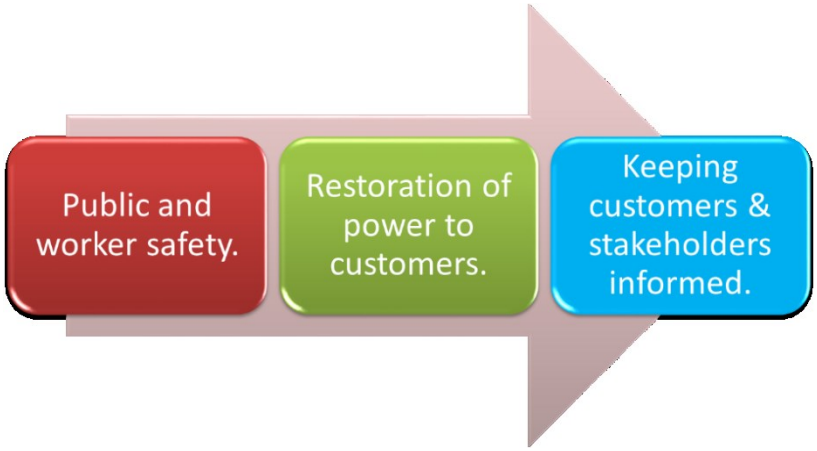

Figure 1-1: ERP Goals

1.2. **Plan Vision.** BVES strives to meet customer needs through effective risk assessment, mitigation, preparedness, response and communications. Our vision is to achieve excellence in emergency management performance.

1.3. **Plan Policy.** BVES strives to utilize effective emergency management principles that enhance the Company's ability to provide safe and reliable electric power and its ability to communicate timely and accurate information to customers and stakeholders by:

- Conducting effective risk assessments for operating and business functions;
- Developing appropriate prevention or risk mitigation strategies;
- Implementing comprehensive emergency preparedness programs;
- Responding with appropriate resources to address emergencies;
- Communicating with customers and other stakeholders with timely and accurate information;
- Recovering from events safely and expeditiously; and
- Improving continuously.

Since major outage events and emergencies are rarely similar in all respects, the ERP is constructed in such a way to provide BVES management with a trained and operationally ready workforce and a response operations process that may be employed as required to deal with the unique aspects of each major outage and emergency event.
The effectiveness of the ERP is based on BVES' commitment to prepare for, to implement, and to review procedures after each implementation. An after action review process shall facilitate continuous improvement in the Company's response and restoration processes.
Execution of the appropriate response to affect rapid and safe recovery is dependent upon the scalability of this plan. For example, storm intensities and the number of customers affected

vary and, therefore, the level of recovery resources committed to each event is adjusted as appropriate even though the operational concepts remain consistent.

1.4. **Plan Responsibility.** It is the responsibility of all Managers and Supervisors to ensure the ERP is reviewed by all staff and is updated when appropriate. Specific responsibilities are provided throughout the ERP.

1.5. **General Overview.** BVES customers receive electric service through an overhead and underground distribution system. Extreme weather events such as heavy rain, hail, snow, ice, lightning, high winds, and/or extreme dry heat may adversely impact the integrity of the distribution system, resulting in occasional interruptions of electric service. The distribution system is also susceptible to damages as a result of major disasters, such as earthquakes, flooding, wildfires, and mud and rock slides. Furthermore, in the interest of public safety, BVES may deem it necessary to proactively de-energize large portions of the distribution system to protect the public; for example, BVES may de-energize circuits or portions of circuits during extreme fire threat weather conditions. BVES normally imports power to its service area via Southern California Edison's (SCE) transmission lines. Therefore, the BVES service area may be susceptible to outages caused by events outside of its services area. All of the above may result in major power outages of varying extent and length depending on the severity of the event. Since electricity is a critical element in our daily lives, prompt restoration is a reasonable customer expectation and a BVES goal. In the case of major disasters, rapid and efficient restoration of power; especially to critical infrastructure, is essential to overall community disaster recovery.

The response to customer outages caused by severe weather events, other disasters or events affecting power delivery to the BVES service area is predicated on recognizing and understanding the magnitude of the event as well as the availability of resources to support the restoration process. This plan has been designed to provide a systematic organized response plan for the purpose of promoting a safe and efficient recovery from any of those conditions. Since the potential of sustaining damages is highest for storm situations, the plan specifically addresses these situations but it may easily be adapted to major outages caused by other disasters or causes.

It is also recognized that no plan can possibly predict and cover every emergency situation. Therefore, the ERP provides a structure that is based on a set of reasonable assumptions for the most likely emergencies requiring emergency response; but it also provides the Company's Incident Commander the authority, flexibility, and discretion to alter the Company's emergency response to tailor it to the specific emergency situation in order to optimize the utilization of Company resources and to achieve the emergency response goals in an effective and efficient manner.

A critical component of the ERP is close coordination with stakeholders that depend on BVES's service and assistance for their response actions and who may, also, be able to assist BVES in its response actions. The coordination must occur in developing the plan, training on the plan, executing the plan, and in plan refinements. Some of BVES's major stakeholders include:

- Local officials (City of Big Bear Lake (CBBL) and San Bernardino County)
- State officials (California Public Utilities Commission)
- San Bernardino County Office of Emergency Services (County OES)
- Big Bear Fire Department
- California Department of Forestry and Fire Protection (CAL FIRE)
- U.S. Forest Service
- San Bernardino County Sheriff's Department Big Bear Lake Patrol Station
- California Highway Patrol (CHP) Arrowhead Area
- California Department of Transportation (Caltrans)
- Big Bear Area Regional Wastewater Agency (BBARWA)
- Big Bear City Community Services District (CSD)
- Big Bear Lake Water Department (DWP)
- Big Bear Municipal Water District (MWD)
- Southwest Gas Corporation
- Bear Valley Community Hospital
- Bear Valley Unified School District
- Big Bear Chamber of Commerce
- Big Bear Airport District
- Big Bear Mountain Resort
- Various media and communications companies

Accurate, effective and timely communications with key stakeholders is critical in emergency response and, therefore, it is essential that business relationships be developed before emergency response is necessary. Understanding stakeholders' key staff, contact information, roles and responsibilities, and capabilities are extremely useful in achieving successful emergency response.

2. **Emergency Response Organization.** The ERP requires that 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. The SEMS structure utilized by BVES is a utility compatible Incident Command Structure (ICS) framework designed to manage emergency incidents and events.

2.1. **Standardized Emergency Management System.** SEMS is an emergency preparedness and response system that has been endorsed by the State of California. It is the cornerstone of California's emergency response system and the fundamental structure for the response phase of emergency management. It unifies all elements of California's emergency management community into a single integrated system and standardizes key elements. Additionally, it provides a common structure for all organizations responding to an emergency situation and a means of systematic planning. The benefits of using the SEMS include:

- Use of common terminology among agencies.
- Use of parallel organizational functions among agencies.
- Provides a standard means of systematic planning.

The basic SEMS organization structure is shown in Figure 2-1, SEMS Organization:

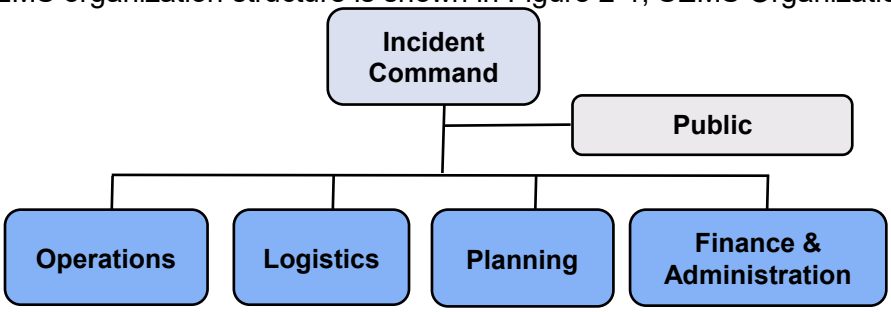

Figure 2-1: SEMS Organization

By organizing the response team along the SEMS structure, the BVES emergency response team is able to coordinate with other government and agencies via their corresponding groups. For example, BVES Operations would coordinate directly with the City of Big Bear Lake Emergency Operations Center or the San Bernardino County Office of Emergency Services Operations Groups as applicable. Additionally, when BVES sends a representative to these two centers the representative shall already have a good understanding of the emergency response organization.

2.2. **BVES Emergency Organization.** The organization chart presented below in Figure 2-2, BVES Emergency Organization, provides the BVES Emergency Organization structure for the full mobilization (Level 1) of BVES' staff in responding to emergencies per this plan. It is the intent that this organizational structure would operate out of an Emergency Operations Center (EOC) established by BVES and be sustainable for long-term emergency response activities.

BVES Emergency

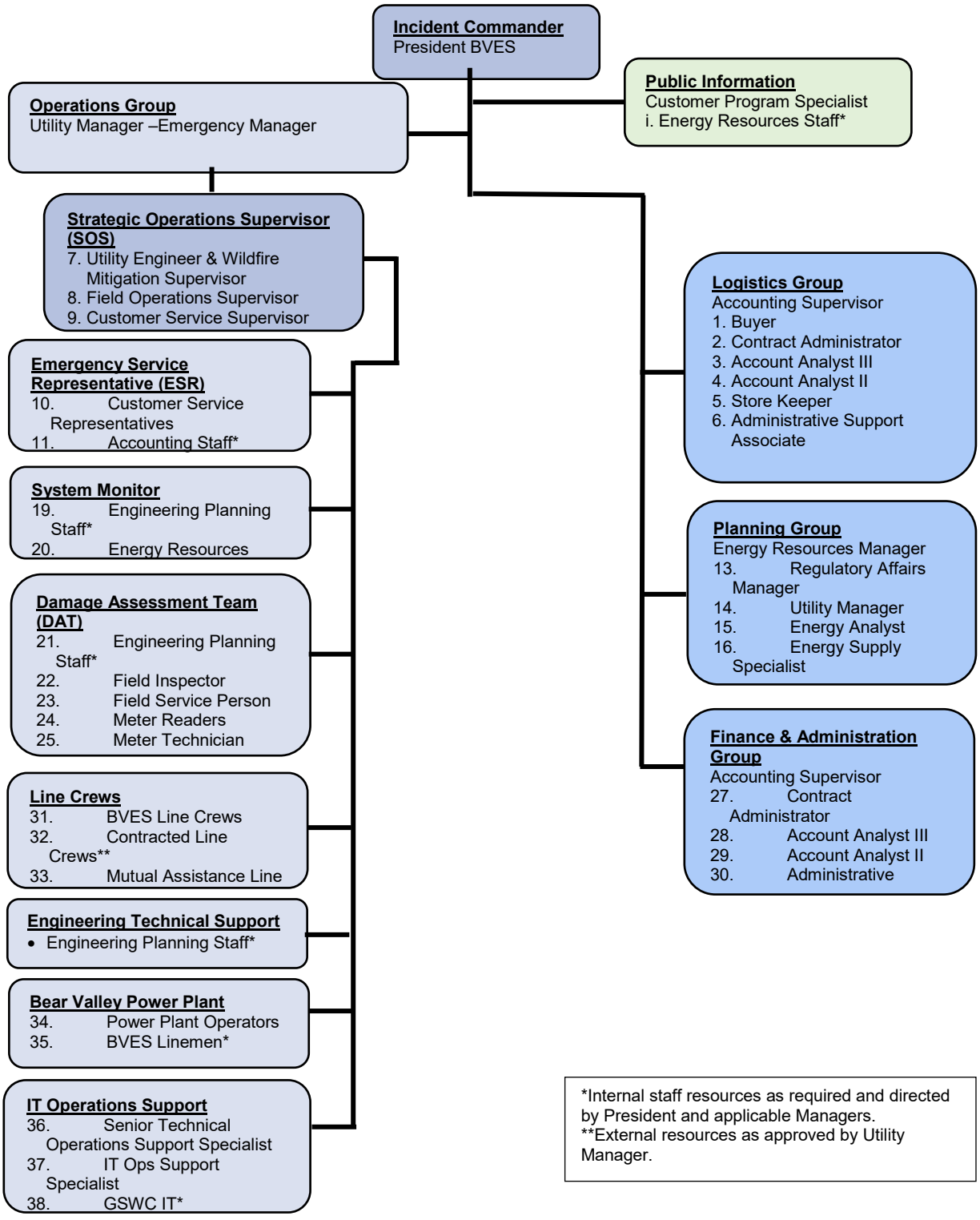

Figure 2-2: BVES Emergency Organization

The specific description of roles and responsibilities for the positions in the BVES Emergency Organization are provided in Section 2.4.

2.3. **BVES Emergency Operations Center (EOC).** An EOC shall be designated for BVES staff use in the event of an emergency. The EOC is the central command and control facility responsible for carrying out the principles of emergency preparedness and emergency response functions described in the ERP, ensuring public and worker safety, continuity of operations, and timely communications with customers and stakeholders.

An EOC is primarily responsible for strategic direction and operational decisions. Due to the relatively small size of BVES, the Strategic Operations Supervisor (SOS) under the direction of the Operations Group at the EOC shall provide tactical emergency response direction and directly control field assets. The activities under the SOS' management at the EOC shall include all dispatch functions to include customer communications and field operations. For the purpose of the ERP, when "dispatch" functions are referred to the EOC they are intended for the SOS and supporting team at the EOC.

The common functions of the EOC is to collect, gather and analyze data; make decisions that protect public and worker safety and property; safely maintain and/or restore continuity of operations, within the scope of applicable regulations and laws; and disseminate those decisions to all concerned customers and stakeholders in a timely manner.

2.3.1. The EOC is where the Incident Command, Operations, Planning, Logistics, Financial & Administration, and Public Information groups are located and come together. It serves as the central point for:

- Information gathering and dissemination.
- Directing emergency and restoration operations at both the strategic and tactical level.
- Coordinating with other external agencies and stakeholders.
- Developing and issuing customer and stakeholder communications.
- Evaluating available resources and requesting or relinquishing resources as appropriate.

2.3.2. The EOC shall meet the following requirements:

- Be available for immediate occupancy.
- Have access to backup electrical power.
- Contain access to multiple communication systems such as telephones, mobile phones, VHF radio, internet service, Interactive Voice Response (IVR), etc.
- Be equipped with emergency supplies, system maps and operating information.
- Be capable of sustaining long-term emergency response.

2.3.3. The primary EOC for BVES shall be located at BVES' Main Office at 42020 Garstin Dr., Big Bear Lake, CA 92315 in the "Main Conference Room."

2.3.3.1. The Utility Manager is responsible for ensuring the primary EOC is ready for immediate occupancy. Appendix A, EOC Preparedness and Setup Checklist, provides a list of equipment, capabilities, materials and supplies that should be available to the primary EOC. Some items need not be located in the EOC, but should be in close proximity and readily accessible to EOC staff. The Senior Technical Operations Support Specialist shall maintain Appendix A up to date as configuration and technology changes are implemented and provide the Administrative Support Associate the latest version of the checklist. The checklist will also be maintained in the EOC.

2.3.3.2. If the primary EOC will not be ready for immediate occupancy, the Utility Manager shall establish an alternate EOC that is ready for immediate occupancy and shall notify BVES staff. Table 2-1 below provides a list of possible alternate EOCs to be considered.

Table 2-1: Possible Alternate Emergency Operation Centers

Location	To Be Considered
Operations & Planning spaces at the BVES Main Office	Primary EOC not available. Also consider this site, when scope of emergency response activation is reduced (such as Level 2 activation) and all or most activity is carried out by Field Operations.
Company's General Office in San Dimas, California	When evacuation of the BVES service area is ordered.
State or County's Incident Commander's base camp	When the BVES Main Office is not accessible.
Other suitable area designated by the Utility Manager	When primary EOC is not accessible or available and the above options are not the optimal location.

2.3.3.3. In selecting an alternate EOC location, the Utility Manager shall at a minimum consider the following factors:

- Safety of BVES emergency response staff
- Location of hazards and potential movement of hazards
- Location of the emergency
- Communications capability and ability to coordinate efficiently with stakeholders
- Location and accessibility to BVES resources (staff, equipment, material, etc.)

2.4. **Roles and Responsibilities.** This section provides the general intended roles and responsibilities of the BVES Emergency Organization shown in Figure 2-2. It should be noted that the Incident Commander and Group Leaders have the authority to modify roles and responsibilities of those under their responsibility to optimally respond to the specific emergency event. When modifications are made, these should be included during the after action report for the event so that possible changes to the ERP may be considered. BVES has a small staff, therefore, in the interest of sustainability, efficiency and effectiveness, some staff are "dual hatted" and may be assigned multiple roles and responsibilities.

2.4.1. *Incident Commander*

2.4.1.1. President, BVES is the primary BVES staff assigned. Alternates that may be assigned include: Utility Manager, Energy Resources Manager, Regulatory Affairs Manager, or other Company officials as directed by the Chief Executive Officer (CEO).

2.4.1.2. Incident Commander reports directly to the CEO.

2.4.1.3. Overall responsible for organizing and directing the ERP by providing strategic direction for the emergency response. Activities associated with the Incident Commander are mostly strategic in nature and include, but are not limited to:

- Direct EOC activation. Based on the emergency level and the particular situation surrounding the emergency, may direct partial activation of the EOC.
- Authorize de-activation of the EOC (or any partial de-activation).
- Authorize use of alternate EOC location when appropriate.
- Provide timely and accurate updates to Senior Company management (CEO, CFO, VP Regulatory Affairs, etc.) of emergency response.
- Approve and/or conduct high-level communications with federal, state, county, and/or city officials as well as other utilities and non-governmental organization (NGOs).
- Approve and/or conduct external communications with media and the public.
- Approve regulatory reports for outages, incidents and accidents (GO-95, GO-128 & GO-166). Work closely with Regulatory Affairs at the General Office (GO).
- Approve situation reports that may be requested by external organizations such as California Utility Emergency Association (CUEA), State of California Office of Emergency Services (OES), San Bernardino County OES, City of Big Bear Lake, California Public Utilities Commission (Safety Enforcement Division and Energy Division), local Incident Commander, etc.
- Ensure Operations, Planning, Logistics, and Finance & Administration Groups (SEMS) are properly resourced to respond to emergency.
- Lead periodic update meetings with the BVES SEMS Group Leaders.

- Approve requests for mutual aid.
- Approve use of emergency contracting and procurement provisions.

2.4.2. Public Information Group.

2.4.2.1. Customer Program Specialist is the primary BVES staff assigned to this group. Alternates who may be assigned include: Energy Supply Specialist, Customer Service Supervisor, or others as designated by the Incident Commander. Generally, the Customer Program Specialist and Energy Supply Specialist (or other staff assigned) shall alternate shifts.

2.4.2.2. Public Information reports directly to the Incident Commander on all public information issues and coordinates directly with the leaders of the Operations, Planning, Logistics and Finance & Administration Groups to stay informed on the latest status of the emergency response. Attends BVES SEMS leadership meetings.

2.4.2.3. Public Information facilitates communication with all stakeholder groups, including the news media and provides a variety of public information services during an electric system emergency. Activities associated with Public Information include, but are not limited to:

- Develop public engagement strategy and directs all aspects of public messaging.
- Keep customers, stakeholders, BVES management and employees informed on the status of the emergency response including extent of outages, cause of outages, damage and casualty assessments, restoration efforts in progress and planned, estimated time to restore service, and updates to the emergency response through widely available communications channels.
- Act as the central point of contact for any external public inquiries.
- Prepare and distribute public information releases for media, website, social media, interactive voice response and two-way text messages, state and local government, and other BVES stakeholders.
- Prepare and distribute responses to media inquiries.
- Coordinate with the General Office and other stakeholder public information officials.
- Work closely with the Incident Commander, public relations contractor and General Office (Regulatory Affairs) on public engagement.
- Work closely with other SEMS Groups to be informed of latest information.
- Provide line crews, customer service and other staff who operate in the field or interact directly with customers with the latest information to be shared with public.
- Coordinate participation in joint press conferences with other stakeholders as needed or directed.
- Organize press conferences as needed or as directed.
- Assist in preparing the Incident Commander and other BVES staff for press conferences and interviews.

- Follow media and social media for discussion of BVES and develop rapid response to dispel erroneous information.
- Update BVES website, social media, local media, interactive voice response and two-way text messages, and other communications platforms as conditions change.
- Activate advertising campaigns with local media when appropriate.

2.4.3. Operations Group. The Operations Group is overall responsible for all of the emergency response actions in the field necessary to safely restore service to customers. As such, this group is made up of customer service, line crews, field operations, engineering and planning, and power generation staff and contractors. The Emergency Manager leads this group.

2.4.3.1. *Emergency Manager*. Utility Manager is the primary BVES staff assigned. Alternates who may be assigned include: Energy Resource Manager, Utility Engineer & Wildfire Mitigation Supervisor and Field Operations Supervisor. The Emergency Manager reports directly to the Incident Commander. Activities associated with the Emergency Manager are partly strategic and partly tactical in nature and include, but are not limited to:

- Ensure public, employee and contractor safety is top priority in all restoration activities.
- Authorize deviations to the ERP as necessary to safely, efficiently and effectively execute restoration activities.
- Attend BVES SEMS leadership meetings.
- Issue the work schedule and shift rotations for all staff and contractors assigned to the Operations Group.
- Direct the number of Emergency Service Representatives, System Monitors, Damage Assessment Teams, and Line Crews to be assigned per shift.
- Ensure staff and contractors are adequately rotated to allow for rest and safe operations.
- Authorize overtime labor expense as needed.
- Direct all restoration and emergency response activities in the field.
- Keep Incident Commander and Public Information informed of progress.
- Drive to obtain and communicate “estimated time of restoration” (ETR) for outages and update this information as the situation progresses.
- Coordinate with other SEMS Groups.
- Constantly evaluate restoration progress and optimize utilization of available resources to safely, efficiently and effectively restore service.
- Identify and request additional resources when needed and stand-down resources when no longer required.
- Coordinate restoration activities with other external entities (City, County, Fire Department, Sheriff, CHP, Forestry Service, CALTRANS, other utilities, contractors, etc.).
- Assign and dispatch a knowledgeable Company representative to local government and/or agency Incident Command as needed.
- Ensure outages, incidents, and accidents are properly documented.

- Assist in preparing regulatory reports for outages, incidents, and accidents (GO-95, GO-128 & GO-166).
- Prepare external situation reports as requested.
- Ensure cost recovery records and documentation for restoration work are being maintained as requested by the Finance and Administration Group.
- Review weather forecast and other external information to optimize restoration response.
- Prepare mutual aid inquiries and requests.
- Communicate logistics requirements to complete restoration activities.
- Work collaboratively with other stakeholder organizations and the General Office as applicable on logistics issues.
- Perform other operations activities as directed by the Incident Commander.

2.4.3.2. *Strategic Operations Supervisor (SOS)*. The Field Operations Supervisor, Utility Engineer & Wildfire Mitigation Supervisor, and Customer Service Supervisor are the primary BVES staff assigned. Alternates who may be assigned include: Utility Manager and the Regulatory Compliance Project Engineer. The SOS reports directly to the Emergency Manager. Activities associated with the SOS are mostly tactical in nature and include, but are not limited to:

- Ensure public, employee and contractor safety is top priority in all restoration activities.
- Maintain the “common operational picture” in the EOC. Utilizes the Outage Management System (OMS), Supervisory Control and Data Acquisition (SCADA), CC&B, GIS applications, and other applications to manage information and data in support of restoration efforts.
- Act as the Emergency Manager’s direct representative in the EOC and direct all operations activities to include all dispatch functions while the EOC is activated. For the purpose of this ERP, the SOS is equivalent to “Dispatch” and the terms may be used interchangeably.
- Function as the central Dispatch during ERP implementation. Receive, prioritize, dispatch, and resolve all Field Activities (FA’s) and Transmission and Distribution (T&D) system problems reported by other means per BVES priorities identified in the ERP.
- Direct all restoration and emergency response activities in the field.
- Direct and supervise the Emergency Service Representative(s), System Monitor, Damage Assessment Team(s), Line Crews (BVES, contracted and/or mutual aid), Bear Valley Power Plant Operators, IT Operations Support and Contracted Services (for example, snow removal, vegetation management, etc.) in all aspects of ERP activities.
- Ensure resources are safely, efficiently and effectively deployed per the ERP priorities and as directed by the Emergency Manager.
- Recommend to the Emergency Manager whether to increase, maintain, or decrease restoration resources to safely, efficiently, and effectively execute the restoration activities.
- Properly document outages, incidents, and accidents.
- Maintain cost recovery records and documentation of work completed as requested by the Finance Group at the General Office.

- Review weather forecast and other external information to optimize restoration response.
- Develop logistics requirements necessary to complete restoration activities.
- Keep Emergency Manager and Public Information informed of progress.
- Update Situation Report.
- Dispatch the Bear Valley Power Plant (BVPP) as needed. Coordinate any logistics necessary to operate the power plant.
- Ensure accurate and detailed status of T&D switches, equipment and facilities are maintained in the EOC and updated as changes occur.
- Approve field switching orders and direct all field switching operations.
- Mostly operate in the EOC but may go out to the field as needed to personally view issues. When departing the EOC, the SOS should designate a knowledgeable staff member to be in charge of the EOC during his absence. It may be advantageous for the off-going SOS to tour outage sites immediately after shift and provide the SOS a report. Alternatively, it may be advantageous for the on-coming SOS to tour outage sites prior to shift.

2.4.3.3. *Emergency Service Representative (ESR)*. BVES staff who are assigned to this task are the Customer Service Representatives and the Customer Service Specialist. The number of ESR staff assigned per shift shall be directed by the Emergency Manager. Other staff may be requested to augment the ESR Team or to augment certain functions of the ESR Team (for example, EOC staff may be used to call back customers as needed). Additionally, the ESR function or some portions of the ESR function may be transferred to BVES's contracted call center during non-business hours when call volume is low. ESR staff reports directly to the Strategic Operations Supervisor. Activities associated with the ESR Team include, but are not limited to:

- Process incoming customer calls.
- Issue FA's as appropriate.
- Route FA's to EOC dispatch for action.
- Update the Outage Management System as applicable.
- Assist EOC Dispatch in organizing and prioritizing incoming FA's as directed by SOS.
- During extremely high volume periods, alternative procedures may be employed to route FA's more efficiently as directed by the Emergency Manager. For example, the ESRs may be requested to route a periodic CSV file from CC&B of new FA's to EOC Dispatch instead of individual FA's.
- May be assigned to provide first layer of sorting FA's by type (outage, line down, etc.) as directed by the SOS.
- Respond to customer inquiries on system status using latest information from EOC.
- Provide SOS information on customers with "Life Support" and Access and Functional Needs (AFN) customers affected by outages.
- Update IVR and two-way text messages as directed by the SOS.
- Update Customer Care and Billing (CC&B) with results of completed FA's from EOC.
- Call customers to verify power restoration as directed by SOS.

- Normally ESR staff perform assigned duties in the Customer Service area. The Emergency Manager may direct ESR staff to work at another area.

2.4.3.4. *System Monitor.* Staff assigned to this position are directed by the Emergency Manager and are generally selected from the following staff: Energy Analyst, Regulatory Compliance Project Engineer, Wildfire Mitigation & Reliability Engineer, Utility Planner, GIS Specialist, Engineering Technician, Engineering Inspector, Substation Technician, Meter Technician, Field Inspector, Senior Account Analyst, Account Analyst, and Administrative Support Associate. Other staff as deemed qualified by the Emergency Manager may also be assigned. Normally, one System Monitor shall be assigned per shift but additional System Monitors may be assigned to certain shifts when activity is expected to be high. The System Monitor reports directly to the SOS. Activities associated with the System Monitor include, but are not limited to:

- Assist the SOS in maintaining the "common operational picture" in the EOC. Utilizes the Outage Management System (OMS), SCADA, CC&B, GIS applications, and other applications to manage information and data in support of restoration efforts.
- Work closely with Emergency Service Representatives to transfer information.
- Update the Situation Report.
- Assist in receiving, prioritizing, dispatching, and resolving all FA's and T&D system problems reported by other means per BVES priorities identified in the ERP.
- Take reports from the Line Crews, Damage Assessment Teams and other field assets and communicate this information to appropriate EOC staff.
- Document outages, incidents, and accidents.
- Maintain cost recovery records and documentation of work completed as requested by the Finance and Administration Group.
- Review weather forecast and other external information and provide this information to the SOS and Emergency Manager.
- Maintain status of the BVPP as needed.
- Assist SOS in maintaining an accurate and detailed status of T&D switches, equipment and facilities in the EOC.
- Assist the SOS in execution of responsibilities as directed.
- Perform assigned duties in the EOC.

2.4.3.5. *Damage Assessment Team (DAT)*. Staff assigned to this team are as directed by the Emergency Manager and are generally selected from the following staff: Field Inspector, Substation Technician, Meter Technician, Field Serviceperson, Meter Readers, Wildfire Mitigation & Reliability Engineer, Utility Planner, GIS Specialist, Engineering Technician, Engineering Inspector, Buyer, Storekeeper, Regulatory Compliance Project Engineer, and Energy Analyst. Other staff as deemed qualified by the Emergency Manager may also be assigned to this team. Normally, each DAT shall consist of two people. At least one DAT shall be assigned to each shift. Additional DATs may be assigned to certain shifts when activity is

expected to be high. The DAT reports directly to the SOS. Activities associated with the DAT include, but are not limited to:

- Assist the SOS in execution of responsibilities as directed.
- Perform field investigations as directed by SOS.
- Keep the SOS informed of their position when out in the field.
- Provide detailed assessments and documentation including photographs and video of damage to SOS.
- Coordinate with and assist Line Crews as directed by SOS.
- Normally travel in pairs; especially during storm and other potentially hazardous conditions and at night. When conditions are favorable, the Emergency Manager may permit DAT field inspections to be performed by a single person.
- When not in the field, perform duties in the EOC as directed by the SOS.

2.4.3.6. *Line Crews*. Staff assigned to this crew are BVES Journeyman Lineman Crews (including Apprentice employees). Other BVES staff that are Journeyman Lineman (for example, Field Inspector) may be assigned as needed and directed by the Emergency Manager to augment BVES Line Crews. Emergency Manager may also assign Contracted Line Crews and Line Crews from other utilities through mutual aid agreements. The Emergency Manager shall direct the specific crew sizes, shift lengths and rotations, and functions (such as construction, service response, wire down and minor damage response, switching operations, patrols, damage assessments, etc.). The Line Crews report directly to the SOS. Activities associated with the Line Crews include, but are not limited to:

- Perform field activity work (such as construction, service response, wire down and minor damage response, switching operations, patrols, damage assessments, etc.) as directed by SOS.
- Keep SOS informed of work progress and developments in the field.
- Keep SOS informed of the status of T&D switches, equipment and facilities.
- Provide information (such as labor hours, equipment usage, and material consumption) to allow the collection of accurate cost recovery records and documentation for work completed.
- Assist in documenting outage and T&D system damage and restorations efforts.
- Consult with SOS on technical issues that may require Engineering & Planning evaluation and input.
- Request additional resources as needed.
- Operate Bear Valley Power Plant engines as directed.

2.4.3.7. *Engineering Technical Support*. The primary assigned are Engineering and Planning staff (Utility Engineer & Wildfire Mitigation Supervisor, Regulatory Compliance Project Engineer, Utility Planner(s), Wildfire Mitigation & Reliability Engineer, GIS Specialist,

Engineering Technician, and Engineering Inspector) as designated by the Emergency Manager. This function may be augmented by mutual aid from other utilities and/or qualified contractors as the Emergency Manager deems necessary. Normally, Engineering Technical Support is an "on-call" function as requested by the SOS. Engineering and Planning staff are generally "dual hatted" and perform other ERP functions as assigned by the Emergency Manager. When there is a need for Engineering Technical Support, the System Monitor and SOS shall prioritize the specific workload for each Engineering and Planning staff (for example, Utility Planner may be pulled from the DAT to perform planning activities such as loading assessments on pole replacements and then return to DAT duties once the engineering work is completed).

2.4.3.8. *BVPP Operators*. Primary assigned are the BVPP Operators. BVES Journeyman Lineman may also be assigned as directed by the Emergency Manager. Additionally, the Emergency Manager may contract out for additional BVPP Operators, if needed. The Emergency Manager shall direct BVPP Operators and their shift schedule as necessary to support the anticipated or actual dispatching of the power plant. The BVPP Operators report directly to the SOS. Activities associated with the BVPP Operators include, but are not limited to:

- Operate the BVPP as directed by SOS.
- Maintain BVPP at the ready when not dispatched.
- Ensure backup systems fully operational.
- Ensure readiness to perform "Black Start" procedure.
- Request additional resources as needed.
- Document materials and labor hours expended.

2.4.3.9. *IT Operations Support*. Primary assigned is the Senior Technical Operations Support Specialist and the Technical Operations Support Specialist. GSWC IT resources may provide backup support for this function. IT Support shall report directly to the SOS. Activities associated with IT Support include, but are not limited to:

- Ensures utmost business continuity by monitoring and maintaining EOC, Operations & Planning, Customer Service, Accounting and Energy Resources communications and IT systems are operating properly.
- Provides support to ensure connectivity to critical applications.
- Coordinates communications and IT systems issues with GSWC IT.
- Resolves local IT and network connectivity issues with field equipment and systems (for example, SCADA).
- Coordinates communications and connectivity with other entities as directed.
- Assists with other duties as directed by the SOS.

2.4.4. Logistics Group.

2.4.4.1. The Accounting Supervisor is the primary BVES staff assigned in charge of the Logistics Group. Alternates that may be assigned include the Senior Accounting Analyst, Buyer or others as designated by the Incident Commander.

2.4.4.2. The Logistic Group shall normally be made up Accounting Supervisor, Senior Account Analyst, Buyer, Storekeeper, Accounting Analyst, Administrative Support Associate, and other staff as designated by the Incident Commander.

2.4.4.3. Logistics Group reports directly to the Incident Commander on all logistics issues and coordinates directly with the leaders of the Operations, Planning, Logistics and Finance & Administration Groups to provide optimal logistics support to ensure restoration activities are safe, efficient and effective. Activities associated with Logistics Group include, but are not limited to:

- Group leader attends BVES SEMS leadership meetings.
- Maintain at least one group member at the EOC. EOC presence may be modified to “on call” when logistics work is not significant (for example, during night shift) as approved by the Incident Commander.
- Work closely with Emergency Manager and SOS to forecast contracted services, equipment and material requirements for restoration activities.
- Invoke contracts for response services as requested by the Emergency Manager (for example, emergency line work, snow clearing, tree trimming and clearing, etc.).
- Process emergency contracts and procurement requests as needed to support emergency restoration activities.
- Ensure materials for recovery activities are available, issued to Line Crews as needed, and properly documented when utilized or consumed.
- Ensure vehicle fleet fueled, winterized and ready to support response activities.
- Ensure BVES facilities properly functioning to support EOC and response activities.
- Arrange meals as necessary for staff engaged in response activities.
- Arrange lodging and other mobilization logistics for mutual aid and contracted crews as requested by the Emergency Manager.
- Work collaboratively with other stakeholder organizations and the General Office as applicable on logistics issues.
- Perform other logistics activities as directed by the Incident Commander.
- Develop lists of lessons learned for after action evaluation and improvements to logistics.

2.4.5. Planning Group.

2.4.5.1. The Energy Resources Manager is the primary BVES staff assigned in charge of the Planning Group. Alternates that may be assigned include the Utility Manager, Regulatory Affairs Manager, or others as designated by the Incident Commander.

2.4.5.2. The Planning Group shall normally be made up of the Regulatory Affairs Manager, Utility Manager, Customer Care and Operations Support Supervisor, Accounting Supervisor, Energy Supply Specialist, Energy Analyst, and other staff as designated by the Incident Commander.

2.4.5.3. The Planning Group reports directly to the Incident Commander on all planning issues and coordinates directly with the leaders of the Operations, Logistics and Finance & Administration Groups to provide optimal planning support to ensure restoration activities are safe, efficient and effective. Activities associated with Planning Group include, but are not limited to:

- Group leader attends BVES SEMS leadership meetings.
- Maintain at least one group member at the EOC. EOC presence may be modified to "on call" when planning work is not significant (for example, during night shift) as approved by the Incident Commander.
- Work closely with Emergency Manager to develop a high level restoration strategy.
- Evaluate the adequacy of response and recommend adjustments as needed.
- Evaluate weather forecasts and other event information to develop contingencies.
- Determine if Catastrophic Emergency Memorandum Account (CEMA) request is appropriate and coordinate with local government officials and Regulatory Affairs on emergency declarations.
- Develop load forecasts and plan sources of energy supply to best meet load demand.
- Work collaboratively with other stakeholder organizations and the General Office as applicable on planning issues.
- Perform other planning activities as directed by the Incident Commander.
- Develop lists of lessons learned for after action evaluation and improvements to plans.

2.4.6. Finance & Administration Group.

2.4.6.1. The Accounting Supervisor is the primary BVES staff assigned in charge of the Finance and Administration Group. Alternate staff may be assigned include the Energy Resource Manager, Senior Account Analyst, or others as designated by the Incident Commander.

2.4.6.2. The Finance & Administration Group shall normally be made up of the Senior Account Analyst, Account Analyst, Administrative Support Associate, and other staff as designated by the Incident Commander.

2.4.6.3. The Finance & Administration Group reports directly to the Incident Commander on all finance and administration issues and coordinates directly with the leaders of the Operations, Logistics and Planning Groups to provide optimal Finance & Administration support to ensure that restoration activities are safe, efficient and effective. Activities associated with Finance & Administration Group include, but are not limited to:

- Group leader attends BVES SEMS leadership meetings.
- Maintain at least one group member at the EOC. EOC presence may be modified to "on call" when planning work is not significant (for example, during night shift) as approved by the Incident Commander.
- Work closely with Operations & Logistics Groups to track expenses (labor, invoices for services, materials consumed, etc.).
- Ensure clear guidance provided to groups to ensure expenses properly tracked.
- Treat each event as possible Catastrophic Event, which costs could be authorized for recovery.
- Execute CUEA administrative requirements as needed.
- Work collaboratively with other stakeholder organizations and the General Office as applicable on finance and administration issues.
- Perform other finance and administrative activities as directed by the Incident Commander.
- Develop lists of lessons learned for after action evaluation and improvements to finance and administration.

2.5. **Plan Changes.** BVES Incident Commander has the authority to modify this plan including the organizational structure as needed to optimally respond to the specific emergency at hand. Specifically, the Incident Commander, must evaluate each emergency situation and determine:

- To what extent should the BVES Emergency Organization be staffed.
- To what extent should the EOC be activated.
- Should additional resources (for example, mutual aid and/or contracted services) be mobilized.

3. Emergency Response Event Preparations.

3.1. **Preparations.** Emergency Response preparations are a long-term process for which each BVES Department must be constantly ready, especially during the winter months. Preparations for emergency response are best achieved through training on the ERP, continuous evaluation of the plan, coordination and outreach with external stakeholders, provisioning emergency response materials and equipment, and establishing mechanisms to rapidly bring emergency response resources to the service area such as mutual aid agreements, contracts, and other partnering agreements.

3.2. **Emergency Response Preparations Checklist.** Appendix B, Emergency Response Preparations Checklist, is designed to assist Managers and Supervisors in short-term emergency response preparations.

3.2.1. The President shall direct the execution of the Emergency Response Preparations Checklist based on available forecasting information. In general, it is easier to stand down from a forecasted storm event that does not materialize than to ramp up in the middle of a major storm event. Therefore, erring on the side of being ready is always the better choice. The President may direct the suspension of the Emergency Response Preparations Checklist if the forecast changes and it is no longer warranted.

3.2.2. The checklist is ideally triggered at the 96-hour point prior to a potential emergency response event such as a major forecasted winter storm. However, staff must be flexible and understand not all emergency response events will be accurately forecasted; hence, the implementation time of this checklist may be significantly less than 96-hours. In the event that major outages occur without warning, it is still useful to go through the Emergency Response Preparations Checklist and complete the preparatory checklist items as applicable.

3.2.3. The checklist is designed to be all-inclusive of plausible emergency response to storm events for the BVES service area such as winter snow storms. Therefore, certain preparatory items may not be applicable for all emergency response events; for example, vehicle snow chains may not be required during a loss of import power supply lines from Southern California Edison (SCE). The Utility Manager may direct that certain items on the checklist need not be executed as applicable. Additionally, the Utility Manager may direct new preparatory items be added to the checklist depending on specific impending conditions. The Utility Manager shall use this checklist as applicable when extreme fire threat weather that could result in PSPS conditions is forecasted. The Utility Manager shall keep the President informed of any changes to the checklist.

3.2.4. During after action reviews for emergency response events as well as the annual Emergency Preparedness and Response Plan drill, the Emergency Response Preparations Checklist should be reviewed for adequacy and updated as applicable.

3.3. **Contingency Operating Procedures.** The Field Operations Supervisor shall develop pre-approved switching orders and operating procedures that would most likely to be used in the more plausible loss of supply and outage scenarios. The Field Operations Linemen, the Power Plant Operators, and other applicable BVES Staff should train on these procedures as applicable so that in the event they are needed, the procedures are readily available, approved, and understood by staff. Switching orders and operating procedures should include at a minimum the following:

- BVPP Black Start System Line-up Switching Order.
- BVPP Black Start Engine Startup Procedures (with and without back-up BVPP generator).
- Switching Order to express the Radford SCE Source to Meadow Substation.
- Rolling blackout procedure when only Radford SCE Source and BVPP are available (13.4 MW Capacity Limit).
- Rolling blackout procedure when only BVPP is available (8.4 MW Capacity Limit).
- Load shedding procedures and priorities.
- Proactive de-energization of high risk circuits in the event of extreme fire threat weather.

3.4. **Mobile Emergency Generation.** The Utility Manager shall ensure that there is a contingency plan to connect mobile emergency generators to the BVES system to provide emergency power. The contingency plan should at a minimum include the following:

- Source at least 5 MWs of mobile emergency generation (may be multiple generators) that may be brought to the BVES service area within 24 hours of being requested. If possible, at least two vendor sources should be identified.
- Identify the fuel requirements and replenishment source(s) for the proposed mobile emergency generation.
- Identify the locations in the BVES system where the mobile emergency generators would be located and connected to the BVES system.
- Identify the connection type and ensure that this is compatible with the sourced mobile emergency generators and the BVES system.
- Identify if any networking is required by the supplier for the mobile emergency generators to operate and, if so, how this shall be accomplished.
- Identify any protection needed and ensure that it is available between the source mobile emergency generators and the BVES system connection points.
- Identify the operating control requirements for the sourced mobile emergency generators (for example, monitoring requirements, startup and shutdown procedures, voltage and load regulation, phase synchronization, operating checks and maintenance, operator labor requirements, etc.) and address how these shall be accomplished (for example, supplier shall operate the mobile emergency generators, etc.).

3.5. **Material and Equipment.** Obtaining material and equipment is always a challenge given that the BVES service area is remotely located and at approximately 7,000 feet in mountainous terrain with only three points of access. The roads present a significant challenge to large trucks under most conditions and all vehicles in wintery ice and snow conditions. Therefore, it is essential to the success of BVES' emergency response plan that certain minimum levels of materials and equipment be always readily available in the BVES service area.

3.5.1. The Utility Manager shall provide the Accounting Supervisor a minimum quantity of T&D equipment and materials to maintain at BVES to allow timely repairs to likely T&D system failures (overhead facilities, underground facilities, and substation equipment). Additionally, the Utility Manager should identify other vital spares to sustain BVPP operations.

3.5.2. The Field Operations Supervisor shall provide the Accounting Supervisor the minimum quantities of materials and supplies necessary to safely operate field crews involved in restoration repairs. These supplies should include items such as traffic control markers and signs, caution cones, portable site lighting, caution lighting, yellow CAUTION tape and red DANGER tape, portable safety barriers, personal protective equipment (PPE), winter and foul weather gear, etc.

3.5.3. All Managers and Supervisors shall ensure that their staff that would be assigned to operate in the field have available to them the appropriate PPE, adequate weather protection (cold weather gear, rain gear, sunscreen and head gear, etc.), and equipment to perform their duties as assigned by the ERP.

3.5.4. The Buyer and Storekeeper under the supervision of the Accounting Supervisor shall ensure the equipment and materials identified above are stocked to the minimum quantities. Additionally, they shall ensure the identified equipment and materials are readily sourced and may be ordered and delivered in short timeframe.

3.6. **Vehicles.** All Managers and Supervisors are responsible for ensuring that the vehicles and trucks assigned to them and their employees are ready to operate safely and as needed during restoration activities under the anticipated weather and terrain challenges of the BVES services area.

3.6.1. The Accounting Supervisor shall develop a minimum list of equipment for all BVES vehicles to operate safely in the anticipated weather and terrain conditions including snow and ice that are reasonably encountered in the BVES service area (for example, snow tires, snow chains, shovel, first aid kit, light, fire extinguisher, etc.).

3.6.2. The Field Operations Supervisor shall develop a list of any additional equipment necessary for all utility trucks (digger and bucket trucks), work trucks (foreman and Dutyman trucks) and other vehicles used by Field Operations employees to operate safely and as needed in the anticipated weather and terrain conditions that are reasonably encountered in the BVES service area.

3.6.3. The Storekeeper under the direction of the Accounting Supervisor shall coordinate with the applicable Managers and Supervisors to ensure all vehicles and trucks are fully equipped, properly serviced, and ready to safely operate as needed in the anticipated weather and terrain conditions that are reasonably encountered in the BVES service area.

3.6.4. If a vehicle is not properly equipped, in good working order, and/or safe to operate for the current or anticipated conditions, it should be identified as such by the applicable Manager or Supervisor that is responsible for the vehicle or truck and restricted in use (for example, if a vehicle is not equipped with snow tires and chains, it should not be used in snow conditions).

3.7. **Contracts for Services.** During emergency restoration response activities, outside contracted services may be required to ensure efficient and effective restoration of electric service. However, it is extremely difficult to source and contract out services on short notice during an emergency. Therefore, Managers and Supervisors should identify the critical contracted services that may be reasonably expected to be needed for restoration activities, source providers of these services, and establish emergency contract agreements in accordance with the Company's procurement policy.

3.7.1. **Table 3-1** lists the contracted services that should have pre-arranged emergency contract agreements in place.

Table 3-1: List of Minimum Contingency Contracted Services

Contracted Service	Responsibility	Additional Emergency Requirement
T&D overhead and underground high voltage utility power line construction.	Utility Manager	• Must have 24/7 contact. • Onsite within 8 hours.
T&D substation and major electrical equipment troubleshooting, repair and replacement services.	Utility Manager	• Must have 24/7 contact. • Onsite within 24 hours.
T&D work package design and development services.	Utility Engineer & Wildfire Mitigation Supervisor	• Onsite within 48 hours.
Civil construction for utility underground infrastructure repair and construction, road and sidewalk repair and construction, retaining wall repair and	Field Operations Supervisor	• Must have 24/7 contact. • Onsite within 8 hours.

Contracted Service	Responsibility	Additional Emergency Requirement
construction, backhoe services, hauling and other civil construction services.		
Crane and lifting Services.	Field Operations Supervisor	• Must have 24/7 contact. • Onsite within 8 hours.
Vegetation clearance from high voltage overhead power lines and tree removal.	Field Operations Supervisor	• Must have 24/7 contact. • Onsite within 8 hours.
Airborne inspection, heavy lift and construction services	Utility Manager	• Must have 24/7 contact.
Environmental cleanup and mitigation to oil and hazmat spills.	Accounting Supervisor	• Must have 24/7 contact. • Onsite within 8 hours.
Welding and metal fabrication services.	Field Operations Supervisor	• Must have 24/7 contact. • Onsite within 8 hours.
Snow removal for BVES Main Facility and Stockyard, substations and other areas as directed.	Field Operations Supervisor	• Must have 24/7 contact. • Onsite within 4 hours.
Troubleshooting, repair and replacement parts for emergency generators (Main Office and BVPP).	Field Operations Supervisor	• Must have 24/7 contact. • Onsite within 12 hours.
Mechanical and electrical troubleshooting, repair services and replacement parts for BVPP equipment and support systems (Waukesha Model VHP7104GSI engine/generator sets).	Field Operations Supervisor	• Must have 24/7 contact. • Onsite within 12 hours.
Utility Truck troubleshooting, repair and support services	Field Operations Supervisor	
Vehicle troubleshooting, repair and support services	Storekeeper	
Diagnostic and technical support services for SCADA and associated network systems.	Senior Technical Operations Support Specialist	
Diagnostic and technical support services for Outage Management System (OMS) and related applications.	Senior Technical Operations Support Specialist	
Diagnostic and technical support services for Interactive Voice Recording (IVR) and related applications.	Customer Service Supervisor	
Diagnostic and technical support services for Company's phone system.	Senior Technical Operations Support Specialist	
Diagnostic and technical support services for Company's internal and external network and connectivity systems.	Senior Technical Operations Support Specialist	
Diagnostic and technical support services for Company's External Website.	Customer Program Specialist	
Public relations (PR) services	Customer Program Specialist	• Must have 24/7 contact.

Contracted Service	Responsibility	Additional Emergency Requirement
		• Provide remote PR response within 2 hours
Media advertising services	Customer Program Specialist	

3.7.2. Many of the services listed in Table 3-1 are used in the normal course of BVES operations through already established contracts. Where this is the case, it is advantageous to include any additional emergency response requirements rather than sourcing to different suppliers.

3.7.3. The Administrative Support Associate in coordination with the Utility Manager and Accounting Supervisor shall develop a list of Contingency Contracted Services and file the list in Appendix C, Contingency Contracted Services. The list shall be in tabular format and at a minimum include the following information:

- Contractor Entity Name
- Services Provided with brief description of any specific emergency requirements
- Point of Contact
- Contact phone numbers including afterhours numbers
- Main Office location

The list shall be reviewed and updated by the Administrative Support Associate each quarter.

3.7.4. Where onsite mobilization is required to perform the requested services, Managers and Supervisors should carefully consider the feasibility for the contractor to reach the BVES service area in a timely manner given the remote and mountainous terrain.

3.7.5. When advanced warning or forecasting is available, the Utility Manager may direct pre-positioning of equipment and materials to improve the ability of the contractor to mobilize. For example, a contractor for T&D overhead and underground high voltage utility power line construction may be requested to pre-position trucks at BVES ahead of a snow storm.

3.7.6. When advanced warning or forecasting is available, it is generally useful for Managers and Supervisors alert their points of contact for contracted services that there may be an impending requirement for their services.

3.8. **Mutual Aid.** Mutual Aid agreements are an efficient and effective resource multiplier available to BVES restoration efforts. Therefore, it is extremely important that these agreements be maintained current and that staff understand what resources they may provide and how to request the resources.

3.8.1. California Utilities Emergency Association. The California Utilities Emergency Association (CUEA) Mutual Aid Agreement allows member utilities to request and obtain labor, materials, and/or equipment resources from other member utilities in a rapid manner on a reimbursable basis. BVES shall be an active member of CUEA and shall participate in the Energy Committee meetings and activities as feasible. Generally, CUEA meetings and activities provide information on emergency response planning at other utilities and state agencies. Additionally, CUEA is an excellent forum for organizations to discuss best practices. The Utility Manager shall be responsible for managing CUEA mutual aid agreement and shall ensure processes are in place and applicable Operations Staff are trained to:

- Inquire about CUEA resources and make formal mutual aid requests in accordance with the CUEA agreement.
- Provide mobilization support such as lodging and meals to responding mutual aid crews and other labor resources provided through CUEA.
- Direct and manage mutual aid crews and other labor resources provided through CUEA.
- Provide logistics support (materials, equipment and other resources as needed) to mutual aid crews and other labor resources provided through CUEA.

The Administrative Support Associate shall ensure CUEA documents are available to the Operations Group and in the EOC.
The Accounting Supervisor shall ensure processes are in place to account for and pay for CUEA mutual aid resources that respond to BVES' aid requests. This shall require close coordination with the Operations Group.

3.8.2. Mountain Mutual Aid Association. The mission of the Big Bear Valley Mountain Mutual Aid Association ("MMAA") is to coordinate and facilitate resources to minimize the impact of disasters and emergencies on people, property, the environment, and the economy. This is accomplished by detailed valley-wide evacuation planning and dedicated support to all involved emergency responders and their agencies. MMAA's vision is to prepare Big Bear Valley citizens, tourists, businesses, and governments to maximize their resistance to disaster through preparedness, mitigation, response, and recovery activities. BVES shall be an active member of MMAA and shall actively participate in the MMAA meetings and activities. This is especially important in establishing strong personal business relationships with key players and stakeholders in the community such that during an emergency event, the BVES Team is working with stakeholders it is already familiar with. **Table 3-2** provides a listing of the MMAA current membership. The Utility Manager shall be responsible for managing MMAA mutual aid agreement and shall ensure processes are in place and applicable Operations Staff are trained to:

- Coordinate activities with MMAA.
- Request support and resources of MMAA members.

MMAA has the ability to provide a wide range of direct support to BVES restoration activities during emergency response including traffic controls, road-clearing services, coordination with local government agencies, other utilities, and other nongovernmental organizations, and communications with the public. Additionally, one of the most significant strengths of MMAA is its ability to coordinate through its member organizations support and relief for customers experiencing extended sustained major power outages. This may include health and welfare checks, shelters, meals, cooling centers, restroom and shower stations, etc.

Table 3-2: Bear Valley Mountain Mutual Aid Association Membership

Organization		
• City of Big Bear Lake • Big Bear Fire Department • San Bernardino County Fire • San Bernardino County Department of Public Health • San Bernardino County Office of Emergency Services (OES) • San Bernardino County Sheriff's Department • San Bernardino County Transportation Authority • San Bernardino County Emergency Communications Service (ECS) • U.S. Forest Service • California Highway Patrol • California Department of Transportation	• Big Bear Airport • Big Bear City Community Services District • Big Bear Lake Department of Water & Power • Big Bear Lake Municipal Water District • Big Bear Area Regional Water Authority • Bear Valley Electric Service, Inc. • Southwest Gas • Bear Valley Community Healthcare District • Bear Valley Unified School District • Mountain Area Regional Transit Authority	• Bear Mountain Ski Resorts • Big Bear Chamber of Commerce • Big Bear Lake Resort Association • Big Bear Valley Recreation & Park District • American Red Cross • Big Bear Community Emergency Response Team (CERT) • Big Bear Valley Community Organizations Active in Disaster (COAD) • Big Bear Valley Voluntary Organizations Active in Disaster (VOAD) • Civil Air Patrol • Salvation Army

3.9. **Communications Layers and Message Deck.** Communications with stakeholders and customers during emergency response is one of BVES' top three priorities. The Customer Service Supervisor with the support of the Customer Program Specialist shall ensure the following:

- Multiple layers of communications are established to reach customers. These should include agreements with local media (newspaper, internet news, radio stations, etc.), Company Website, Company social media, Interactive Voice Response (IVR) System, email blast, etc.

- Training applicable staff and testing all of the established communications layers.
- Leveraging the communications platforms available to other stakeholder organizations. For example, the Big Bear Chamber of Commerce has an email blast channel to its member businesses and the City of Big Bear Lake has an email blast channel to many of its residents.
- Developing pre-approved message templates that properly guide staff preparing communications to customers and stakeholders with the necessary information to provide a useful update. For example, pre-staged press releases, website messages, social media messages, IVR messages, etc. on sustained outages may be prepared well in advance of any emergency with “fill-in-the-blanks” for the specific event.

3.10. **Staff Roster and Recall List.** A critical component of successfully implementing the ERP is the ability to rapidly recall staff as need. Therefore, it is critical that contact information for each staff be maintained up to date and be made available to staff that would execute the recall.

3.10.1. The Administrative Support Associate is responsible for maintaining and updating the BVES Staff Roster and Recall List. This list shall be filed in Appendix D, BVES Staff Roster and Recall List, to the ERP. This list shall be reviewed for accuracy each quarter by the Administrative Support Associate and updated as needed.

3.10.2. When new staff join or staff terminate their employment at BVES, the Administrative Support Associate shall update BVES Staff Roster and Recall List.

3.10.3. Additionally, when staff change their contact information, it is essential that they inform their Supervisor and the Administrative Support Associate so that the recall roster may be updated.

3.10.4. The recall roster should include at a minimum employee name, home phone, mobile phone, personal email, and address. It is critically important that the roster have a phone number where the employee may be contacted at any time. The address is important because in a major storm it may be safer and more efficient to send a Company vehicle to pick up staff to respond to the ERP and staff up the EOC. Personal email is important because an initial group email blast may be sent to set in motion mobilization of the EOC, while calling each staff member is pursued.

3.10.5. The Administrative Support Associate shall develop and update as necessary a group email address for staff using both their personal and work email addresses for recall purposes.

3.11. **Key External Contacts List.** BVES' ability to contact external stakeholders and resource providers is critical to successfully executing ERP restoration activities.

3.11.1. The Administrative Support Associate in coordination with Managers and Supervisors shall develop the Key External Contacts List and file the list in Appendix E, Key External Contacts List. The list shall be in tabular format and at a minimum include the following information:

- Key External Contact Entity Name
- Point of Contact
- Contact phone numbers including afterhours numbers
- Email
- Main Office location

The list shall be reviewed and updated by the Administrative Support Associate each quarter.

3.11.2. Managers and Supervisors should provide the Administrative Support Associate updates to the Key External Contacts List as changes occur.

3.11.3. Table 3-3 provides the minimum key external contact categories that should be included in the Key External Contacts List.

Table 3-3: Key External Contacts

Category
• State government, agencies and departments
• Local government, agencies and departments
• Utilities
• Non-governmental organizations (business and community organizations; volunteer relief and aid groups; other disaster relief entities)
• Media groups

3.12. **Emergency Operations Center and BVES Main Facility.** Readiness of the EOC and BVES Main Facility to support ERP restoration activities on short notice is an essential element to successfully executing the ERP.

3.12.1. The Utility Manager is responsible for ensuring readiness of the EOC as detailed in Section 2.3. Appendix A, EOC Preparedness Checklist, provides a list of equipment, capabilities, materials and supplies that should be available to the primary EOC. The Operations Group should be familiar with this checklist and be trained on setting up the EOC.

3.12.2. Each Manager and Supervisor is responsible for ensuring that facilities and resources under their responsibility are ready to support the ERP restoration activities.

3.12.3. The Accounting Supervisor is responsible for ensuring the BVES Main Facility is ready to support sustained EOC and ERP operations to include stocking consumables for EOC and restoration activities, providing staff on-site meals, water and other necessary habitability amenities.

4. Emergency Response Procedures.

4.1. **Emergency Response Plan Implementation and Emergency Operations Center Activation.** BVES responds to emergencies and outages based on the resource requirements to properly resolve the situation in a safe, timely, efficient and effective manner. When the restoration efforts are beyond the capabilities of the normally assigned Field Operations staff and normal Customer Service resources, the ERP should be implemented.

4.1.1. Response Levels. There are three basic outage response levels that BVES uses. Level 1 and 2 pertain to the ERP and Level 3 refers the normal BVES working hours and afterhours Field Operations and Customer Service outage response procedures and processes. When the ERP is activated, Level 1 or 2 are used to describe level of EOC activation and restoration response process. Level 3 is the normal Service Crew (or Dutyman for afterhours) response process to outages and system problems during the course of normal T&D operations. The response levels to outages and emergencies are summarized in Table 4-1.

Table 4-1: BVES Outage and Emergency Response Levels

Response	Event Type	Action	Comments
Level 1	High Risk Long-term*	EOC fully activated ERP processes implemented	It is preferred to fully activate EOC and then shift to Level 2 activation, if full response determined to not be necessary.
Level 2	Moderate Risk Short-term	EOC partially activated ERP processes implemented	Level of EOC activation and ERP implementation as directed by Utility Manager.
Level 3	Low Risk Short-term	Normal Service Crew/Dutyman and Customer Service processes	These events are normally within the capability of assigned Service Crew or Dutyman to resolve with the normal on call resources.

*Long-term is generally defined as 12 hours.

4.1.2. Plan Activation. The President shall direct activation of the ERP and, therefore, the EOC and shall also direct the applicable response Level. The President should consider the following in evaluating whether or not to implement the ERP and, if the ERP is to be implemented, to what Level (1 or 2) to activate the EOC:

- Will resources beyond BVES' normal outage response posture be required and to what extent? Will external resources (mutual aid and/or contracted services be required)?
- Will the restoration efforts be long-term (generally 12 hours or greater)? If long-term, how long?

- Will the restoration efforts be more efficient if the BVES staff is organized for around the clock customer service and field operations?
- Will the restoration efforts require increased management and logistics support beyond that of the Field Operations Supervisor?
- Is the outage (or high potential for outage) expected to have significant impact on BVES customers and/or stakeholders?
- Will rapid and close coordination be required with other government and agencies directing response actions to an emergency (for example, Incident Commander for a wildfire in or adjacent the BVES service area)?
- Will communications efforts require increased and dedicated resources beyond the normal Customer Service communications posture?

4.1.2.1. In considering the above factors, the President shall drive to ensure that the BVES response is at the appropriate level to achieve a safe, timely, and prudent allocation of resources in the best interest of customers and other stakeholders.

4.1.2.2. The ERP will be directed in response to an extended outage as a result of proactive de-energization (public safety power shutdown) to shut off power in high risk areas when extreme fire conditions present a clear and imminent danger to public safety. The focus of implementing the ERP in this circumstance would be to improve coordination with local government and agencies and provide affected customers relief resources generally through mutual aid (MMAA) as needed. Specific public safety power shutdown procedures are provided separately in the BVES Public Safety Power Shutdown Plan.

4.1.2.3. The President shall direct activation of the EOC in situations where an outage has not yet occurred but the likelihood is significant. An example of a high risk situation is a wildfire that has not yet resulted in outages but has the potential to do so and/or may require rapid and close coordination with the Fire Incident Commander.

4.1.2.4. It is generally preferred to fully activate EOC and then shift to Level 2 activation as conditions warrant. By bringing in the full EOC organization, the staff can be briefed on the situation and then stood down with specific instructions tailored to the Level 2 response requirements.

4.1.2.5. When the EOC is directed to be activated, the President shall designate staff to utilize Appendix D, BVES Staff Roster and Recall List, to alert employees to staff the EOC. Additionally, a group email should be sent out to staff using their work and personal email address.

4.1.2.6. When the ERP is implemented for training, such as for the annual drill, the Utility Manager shall put controls in place to prevent drill activities from interfering and/or confusing staff, customers, and stakeholders with real-world BVES operations.

4.2. **Essential Elements of Information (EEI).** EEIs are key information that the Incident Commander and EOC Group Leaders need in order to make timely and informed decisions on emergency response. The EEIs listed in Table 4-2, Essential Elements of Information, are critical to the BVES Emergency Leadership Team's ability to assess the emergency situation and decision making in emergency response. Therefore, obtaining this information and continually updating it must be a priority for all staff assigned to the emergency response efforts.

Table 4-2: Essential Elements of Information

EEI	Remarks
Potential hazards that impact the safety and health of BVES employees, contracted and mutual assistance personnel, first responders, and the public	**Safety is our top priority.** Therefore, it is vitally important to identify potential hazards so that resources may be properly allocated to assessing, mitigating and eliminating the hazards.
Updated common operating picture based on indications and sensors, forecasts, and the accumulation of information from the field	Maintaining a common operating picture is a primary function of the EOC staff so that each Group is able to provide a coordinated and collaborative uniform response to the emergency. Additionally, the common operating picture leads to consistent messaging with customers and stakeholders based on the best available information.

Facility and equipment assessments and operational impacts to BVES' business operations
• Status of Power Delivery Systems
  ○ 34.5 kV sub-transmission system
  ○ Substations
  ○ Distribution system
• Status of Power Supply (**Cause of supply disruptions and estimated time of restoration**)
  ○ SCE Supplies from Goldhill
  ○ SCE Supply from Redlands
  ○ Bear Valley Power Plant
• Status of Communications
  ○ Internet connectivity
  ○ SCADA network
  ○ BVES work radios
  ○ Land line phones
  ○ Cell phones
  ○ Internal network connectivity
  ○ Weather station network
  ○ BVES Website
  ○ BVES Social Media
• Status of IT Applications
  ○ CC&B
  ○ IVR/two-way text
  ○ OMS
	Identifying causes of power delivery system (T&D) outages and supply disruptions is essential to determining the proper restoration actions to be taken.
	
	Maintaining accurate status as conditions in the field change and restoration activities progress throughout the emergency response is key to ensuring restoration resources are properly allocated and optimized at all times.
	
	Developing **estimated time of restoration (ETR)** is critical information that our customers and stakeholders need in order for them plan their responses and mitigations to the outage. ETRs must be updated as they change.
	
	Communications are often the weak link in emergency response. During an emergency some communications may be degraded and alternate systems may be necessary. Therefore, understanding the status of communication systems is critical to ensuring connectivity with field crews, damage assessment teams customers, and stakeholders.

EEI	Remarks
○ GIS applications ○ SCADA • Status of facilities, equipment, and materials ○ Emergency Operations Center ○ BVES Main Office ○ BVES Yard ○ Work trucks and vehicles ○ Poles, wire, transformers and other material	Many utility activities rely upon IT systems for rapid and efficient response. These systems are also susceptible to degradation during an emergency and workarounds may be necessary. Therefore, identifying IT problems and/or limitations is vital to directing effective restoration activities. As a result of the emergency or for other reasons, facilities and equipment may be degraded and material availability may be limited. Therefore, knowing the status of facilities, equipment, and materials is essential to developing restoration actions.
Status of contracted and mutual aid assistance requests	Outside line crew assistance, tree trimming services, crane support, snow removal services, civil construction services, and other outside assistance is often critical to successfully executing restoration activities. Therefore, is critical to fully understand: • Which entity (or entities) are providing resources? • What specific resources they are providing (equipment and personnel)? • How and when will they arrive at BVES's service area? • What logistic support will they require?
Limitations on access and transportation due to flooding, roadway damage, debris, or other closures	Access to BVES's service area under normal circumstances is limited. During an emergency, it is plausible that some or all of the access may be interrupted, which will significantly impact the ability to bring resources to BVES. Additionally, access to certain areas within the service area may be severely impaired due to the emergency. Therefore, it is critical that the EOC Team fully understand access limitations and have backup plans in place.
Interdependencies between BVES, government agencies, other utilities (water, gas, and electric), and critical infrastructure	Outages may have significant impact on government agencies, other utilities (water, gas, and electric), and critical infrastructure; especially, when their backup systems fail. Therefore, the EOC Team must be fully aware of how outages are impacting the area and coordinate a prioritized restoration plan that fully considers the above.
BVES staff supporting other agencies (for example, Incident Commander representative)	Imbedding a BVES representative with the on scene Incident Commander and/or local government EOCs (City or County) has proven to be highly effective in coordinating emergency response actions. The EOC Team must communicate frequently with the imbedded BVES representative to ensure coordinated and uniform emergency response.

4.3. **Restoration Strategy.** Outage events and emergencies are rarely similar in all respects; therefore, this general restoration strategy is constructed to provide the EOC Team

with a scalable and flexible restoration strategies that can be employed as required to deal with the unique aspects of each major outage and emergency event.

4.3.1. Restoration Strategy Assumptions. Restoration strategies and guidance in the ERP assume that the BVES system is in its **normal winter line-up** as follows:

- Bear Valley Power Plant (BVPP) is available for normal full power operations (8.4 MW).
- 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-Re-closers (34 MW).
- Radford SCE sub-transmission power lines and facilities from Zanja 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 system line-up.

Therefore, staff must ensure that when implementing guidance provided in the ERP that they fully understand the current line-up of the BVES system and, if there are deviations to the normal winter line-up, they must 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 SOS.

4.3.2. Restoration Priorities. The Utility Manager shall 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 shall 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 (water, sewage, gas, communications), Airport, Traffic Control, Incident Commander Site, Incident Base Camp, Incident Evacuation Centers, communications (Spectrum and various cell providers), radio stations;
- Major commercial activities critical to **continuity of community services**: gas stations, food stores, supply stores, repair shops, eateries and lodging facilities to support outside first responders (CAL FIRE), as well as financial institutions.
- **Medical Baseline Customers** and **Access and Functional Needs Customers**
- **Number of customers** affected; and
- **Length of time** customers have been without power;

4.3.3. Restoration Progression. In directing restoration efforts to achieve the priorities of Section 4.2.2 above, the Operations Group shall generally find it most efficient to dedicate restoration resources to restoring the following types of facilities in the prescribed order to optimally restore electric service:

- Energy supply sources Southern California Edison (SCE) supply lines, Bear Valley Power Plant (BVPP), etc.
- Sub-transmission circuits (34.5 kV)
- Substations
- Distribution circuits (4 kV)
- Feeders
- Distribution transformers
- Individual customer service lines

Taking into account restoration priorities and progression, Table 4-3 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 Utility Manager must have wide discretion when developing the specific restoration priorities and may choose to deviate from the general guidance.

Table 4-3: 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/Radford	Pineknot Village Maltby Division	Interlaken Boulder Harnish Country Club Georgia Paradise Erwin Lake Castle Glen	• Additional critical infrastructure • Major commercial activities & airport • Large number of residential customer.
3	NA	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 customer.

4.3.4. Loss or Significant Reduction of Energy Supply. BVES normally imports all of the supplies necessary to meet customer demand via SCE power lines and augments the supplies using the BVPP when the maximum capacity from the SCE Cottonwood lines are reached. Table 4-4 provides information on BVES system sources of power.

Table 4-4: BVES System Sources of Power

Source	Capacity	Comments
Goldhill: Includes SCE lines and facilities from Cottonwood (Doble, Cushenberry, Goldhill Switch Station, and Ute 1 & 2).	34 MW	Connected to the BVES system at the Shay and Baldwin Auto-Re-closers
Radford: Includes SCE line (Bear Valley) and facilities from Zanja.	5 MW	Connected to the BVES system at the Radford Auto-Re-closer
Power Plant: Includes Bear Valley Power Plant (BVPP) generation equipment and facilities.	8.4 MW	Seven 1.2 MW natural gas fired engines
Net Energy Metering & Distributed Energy Resources	3.3 MW	Distributed throughout system. Limited to day-light production only

Table 4-5 provides guidance on some of the more likely loss of energy supply scenarios to the BVES Service Area. Each of these scenarios assumes a complete loss of the affected power source(s). However, it should be realized that it is also possible that certain power sources may be degraded providing some limited capacity instead of being completely lost. In these cases, the Operations Group should follow the framework provided in Table 4-5 modified to take into account the limited supply capacity of the degraded power source(s).

Table 4-5: Actions for Loss of Supplies

Actions	Loss of all SCE Supplies (Goldhill & Radford)	Loss of SCE Goldhill Supplies	Loss of SCE Radford Supply	Loss of BVPP
Contact and coordinate with SCE.	Call SCE Lugo Substation and SCE Control Center Colton. Obtain system status, actions in progress or scheduled and estimated time of restoration (ETR).	Call SCE Lugo Substation. Obtain system status, actions in progress or scheduled and ETR.	Call SCE Control Center Colton. Obtain system status, actions in progress or scheduled and ETR.	NA
Assess situation	Based on ETR for all or partial energy supplies and demand, take all or some of the actions specified below as appropriate.	Based on ETR for all or partial energy supplies and demand, take all or some of the actions specified below as appropriate.	If situation is long-term, work with interruptible customers to coordinate timing of their loads to reduce or eliminate interruptions.	If situation is long-term, work with interruptible customers to coordinate timing of their loads to reduce or eliminate interruptions.
Activate EOC	Yes – Level 1 Event	Yes – Level 2 Event	No – Level 3 Event	No – Level 3 Event
Switching Operations	Line-up system for BVPP Black Start Procedures	Express Radford to Meadow.	Shift Village Substation to Shay Line	NA
Dispatch BVPP	Execute BVPP Black Start Procedures and Start up Enginators one at a time being careful to not exceed the load capacity.	Start up Enginators one at a time being careful to not exceed the load capacity.	Start up Enginators as needed based on load.	Conduct actions to repair BVPP.
Interrupt interruptible customers	Will be required to meet demand.	Will be required to meet demand.	Possibly required to meet demand. Work with customers to coordinate demand to reduce or eliminate interruptions.	Possibly required to meet demand. Work with customers to coordinate demand to reduce or eliminate interruptions.
Rolling blackout procedures	Will be required to meet demand.	Will be required to meet demand.	Not likely required.	Not likely required.

Actions	Loss of all SCE Supplies (Goldhill & Radford)	Loss of SCE Goldhill Supplies	Loss of SCE Radford Supply	Loss of BVPP
Contract emergency mobile generation	Consider based on ETR if greater than 24 hours.	Consider based on ETR if greater than 24 hours.	Not likely required.	Not likely required.
Public Engagement	Work with community and stakeholder to reduce non-essential loads. Keep customers and stakeholders informed of ETR and rolling blackouts.	Work with community and stakeholder to reduce non-essential loads. Keep customers and stakeholders informed of ETR and rolling blackouts.	Not likely required.	Not likely required.
Compliance reporting	Conduct CPUC Major Outage Report per GO-166 due to greater than 50% of customers experiencing outage.	Conduct CPUC Major Outage Report per GO-166 due to greater than 50% of customers experiencing outage.	Conduct CPUC Major Outage Report per GO-166 if media coverage expected or occurs.	Not likely required.
Load forecasting	Energy Resources to provide detailed hourly forecasts and make recommendations to support load with BVPP and mobile generation.	Energy Resources to provide detailed hourly forecasts and make recommendations to support load with BVPP and mobile generation.	Energy Resources to provide detailed hourly forecasts and make recommendations to support load without Radford Line.	Energy Resources to provide detailed hourly forecasts and make recommendations to support load without BVPP.

4.3.5. Downed Wire Response. During a major storm, BVES may receive many trouble calls reporting primary and service lines down throughout the service area. Wires down that present an imminent fire or electrocution hazard or are identified as being primary distribution line voltage shall receive top priority. In general, higher priority shall be assigned to calls involving wires blocking state highways or wires down on buildings or vehicles. Personnel investigating downed wire shall determine the wire type (primary, secondary or service conductor) and take actions as directed by the SOS and per Table 4-6, Downed Wire Response.

Table 4-6: Downed Wire Response

Conductor	Action
Primary	• If a fire has started or the threat of fire is imminent, call 911 and then call the SOS to have the circuit de-energized by the most rapid means possible (this may require dropping the main BVES supply transmission lines remotely). • Warn others to stay clear. • Isolate the area by setting up CAUTION tape and traffic cones and barriers. • Call into the EOC the exact location (address and pole numbers). • If wire is energized, but not a fire threat stay at site until Lineman Crew takes over or the line is de-energized. • Once line is de-energized, area isolated and/or Lineman Crew onsite, proceed to next location as directed by SOS.
Secondary	• If a fire has started or the threat of fire is imminent, call 911 and then call the SOS to have the circuit de-energized by the most rapid means possible. • Warn others to stay clear. • Isolate the area by setting up CAUTION tape and traffic cones and barriers. • Call into the EOC the exact location (address and pole numbers).

Conductor	Action
	• If wire is energized and located near a school, high pedestrian area, on a main roadway, or near a conductive structure, but not a fire threat stay at site until Lineman Crew takes over or the line is de-energized. • Once line is de-energized or it is determined that the area is low risk and the area isolated and/or Lineman Crew onsite, proceed to next location as directed by SOS.
Service	• If a fire has started or the threat of fire is imminent, call 911 and then call the SOS to have the circuit de-energized by the most rapid means possible. • Warn others to stay clear. • Isolate the area by setting up CAUTION tape and traffic cones and barriers. • Call into the EOC the exact location (address and pole numbers). • If wire is energized and located near a school, high pedestrian area, on a main roadway, or near a conductive structure, but not a fire threat stay at site until Lineman Crew takes over or the line is de-energized. • Once line is de-energized or it is determined that the area is low risk and the area isolated and/or Lineman Crew onsite, proceed to next location as directed by SOS. • If the line is disconnected from the pole, it is not necessary to isolate the area. Simply call the situation into the EOC and proceed to next location as directed by SOS.

4.3.6. Sub-Transmission and Distribution (T&D) Casualties. The most common cause of outages for the BVES services area are casualties to T&D facilities resulting in a major outage, multiple outages of varying sizes, and/or some combination thereof. Restoration from these outages is mostly dependent on the available resources, which can quickly be overwhelmed if not properly managed.

4.3.6.1. The Operations Group shall prioritize restoration activities and resource allocation according to the general priorities identified in Section 4.3.2 and shall restore T&D facilities in the order listed in Section 4.3.3 to achieve these priorities. In establishing restoration priorities, public and worker safety is always the top priority.

4.3.6.2. SOS balances efforts to conduct repairs while attempting to restore service to as many customers as possible by isolating the damaged facilities to as close to the damage as feasible with the goal of minimizing the number of customers affected by the outage. The SOS should evaluate the time to isolate the damage and restore service to some customers against the estimated time to repair the damage and restore power to all customers. The most efficient and effective course of action shall depend on the extent of damage, availability of resources to conduct repairs, and availability of resources to perform switching operations.

4.3.6.3. Once damaged facilities are identified to the Operations Group, the SOS shall have the facilities field checked by the Damage Assessment Team (DAT) or by other competent staff, such as nearby field crews, to determine the extent of required repairs needed as well as the ability to isolate the damage and restore power to as many customers as possible.

4.3.6.4. Based on the results of the field check, the SOS shall:

- Determine the priority to repair the damages;
- Direct switching operations to restore power to as many customers as possible, if feasible;
- Determine the repair work scope (for example, temporary repair such as shoring up damaged facilities or permanent repair per BVES construction standards, etc.);
- Assign Engineering Planning resources as deemed necessary (for example, perform pole loading assessments for pole replacements);
- Schedule Field Crew resources as applicable;
- Direct assigned Field Crew to draw necessary materials and conduct repairs;
- Inform and periodically update the Public Information Group and Emergency Service Representatives so that they may keep customers and stakeholders informed; and
- Close out or cause to be closed out the applicable Field Activity.

4.4. **EOC and Emergency Response Workflows.** The EOC and emergency response workflows are designed to:

- Develop and maintain an accurate common operational picture.
- Continually assess damage and develop optimal restoration response.
- Dispatch resources for emergency restoration activities.
- Manage field activity reports.
- Keep customers and other stakeholders informed.
- Ensure restoration activities are properly resourced.

4.4.1. EOC Setup. The EOC shall be set up in accordance with Appendix A, EOC Preparedness and Setup Checklist. The Strategic Operations Supervisor in consultation with the Emergency Manager shall direct which applications are to be displayed on the available large screens and projector and how the white board shall be utilized. The displays should be optimized to provide EOC staff and decision makers an accurate common operational picture based on the best information available.

4.4.2. EOC Staffing. The following staff shall normally be present or represented as applicable in the EOC:

- Incident Commander
- Public Information Group
- Emergency Manager
- Strategic Operations Supervisor (SOS)
- System Monitor

- Damage Assessment Team (DAT) – when not assigned to the field
- Emergency Service Representative (ESR) – normally located in the Customer Service area to reduce noise level in EOC
- Engineering Technical Support
- IT Operations Support – normally located in IT spaces
- Logistics Group
- Planning Group
- Finance & Administration Group

4.4.3. Managing Field Activities. The Emergency Manager may find it useful to manage Field Activities by utilizing a spreadsheet to track each Field Activity by recording and sorting the following information:

- Field Activity Number
- Date
- Time
- Location
- Circuit
- Substation
- Status (Unassigned/Crew Assigned/Completed)
- ETR
- Grouping (often multiple Field Activities are resolved when a common fault/damage location is repaired)
- Customer call back
- Comments
- Other information as deemed necessary by the Emergency Manager

4.4.4. Workflows. The EOC shall process incoming damage reports and service request as Field Activities using the workflows shown in Appendix F, Emergency Response Workflows. The emergency response workflows are provided for Level 1 and 2 activations. For reference, the Level 3 (normal service response) is also provided. The Utility Manager may direct deviations to the workflows if it is determined that a more effective and efficient workflow process may be achieved. When conducting after action reviews for emergency response events as well as the annual Emergency Preparedness and Response Plan drill, the Appendix F, Emergency Response Workflows, should be evaluated for possible changes and improvements, and updated if deemed appropriate.

4.4.5. Situation Report. Developing a common operational picture is an important function of the EOC staff in order to ensure decision making is optimal. One essential tool in developing the common operational picture is to periodically update a Situation Report (SITREP).

Appendix G provides an example SITREP. The SITREP should be updated by the SOS at least once per shift and more often if conditions are rapidly changing. The SITREP should be displayed in the EOC and sent to the Incident Commander, Public Information Group, EOC Group Leaders, Emergency Service Representatives, and others as deemed appropriate by the Emergency Manager.

4.4.6. Damage Assessments. The Damage Assessment Team(s) shall be dispatched from the EOC to investigate Field Activities and other damage reports. They shall complete a Damage Assessment form and provide it to the SOS. Appendix H provides a sample Damage Assessment Form. If they have several sites to visit, they may consider taking a picture of the completed form and sending to the EOC. Also, the DAT should take as many pictures needed to identify the damage and allow for the Engineering Team to plan the necessary repair work for the line crews. For example, the DAT should take pictures of any damaged equipment and facilities so that material may be pulled and staged for the line crews. Also, the DAT may make use of tools such as FaceTime to communicate with the EOC and provide the EOC a complete assessment of the damage conditions and the iRestore First Responder app to quickly make a basic report with location and a picture.

4.4.7. Work Orders. The SOS shall direct the use of Work Order jackets for the more complex repairs so that the scope of work performed and material and equipment utilized is properly documented. These Work Order jackets should include one-line diagrams and material sheets as applicable along with specific instructions from Engineering & Planning if warranted. Appendix I provides a sample Work Order Jacket.

4.5. **Resources.** Using best available information, the Utility Manager shall continually assess the following:

- Resources necessary to execute the restoration activities in a safe, effective and efficient manner;
- Available resources in the Service Area;
- Gaps in resource availability to execute the restoration activities in a safe, effective and efficient manner; and
- When resources from outside entities such as CUEA mutual aid and/or contracted resources may be released.

Based on the above assessments, the Utility Manager shall coordinate with the Logistics Group leader to request additional resources as necessary to fill resource gaps and to relinquish resources when no longer required. Possible resources in addition to BVES resources include CUEA mutual assistance, contracted services and Big Bear Valley Mountain Mutual Aid Association.

4.5.1. California Utilities Emergency Association (CUEA). The Utility Manager shall determine if gapped resources are best provided by utilizing the hCUEA Mutual Aid Agreement, which allows member utilities to request and obtain labor, materials, and/or equipment resources from other member utilities in a rapid manner on a reimbursable basis. The specific process for requesting and receiving mutual aid from member utilities is provided in the CUEA Mutual Aid Agreement. Table 4-7, CUEA Mutual Assistance Process, provides a summary of the process for requesting and receiving CUEA mutual assistance.

Table 4-7: CUEA Mutual Assistance Process

Process Step	Responsibility	Amplifying Comments
Determine if CUEA Mutual Aid **may** be required	Utility Manager	The Operations Group evaluates if CUEA resources may be required and if there is a possibility, this should be communicated to the Logistics Group.
Issue a "Mutual Assistance Inquiry Only"	Logistics Group Leader	Providing the CUEA Staff with a Mutual Assistance Inquiry Only allows the CUEA to alert member utilities so that they may evaluate which resources are available without incurring costs. This request is best made via email but it may also be made via phone call. The following information should be included in the inquiry: • BVES Contact Name • BVES Contact Phone Number • BVES Contact Email • Type of Emergency • Type of Assistance Requested • Desired Date & Time Needed • Additional Details or Comments
Determine that CUEA Mutual Aid **is** required.	Utility Manager	Obtain Incident Commander's authorization to proceed with CUEA mutual aid request and then, request Logistics Group make arrangements.
Issue a "Mutual Assistance Formal Request"	Logistics Group Leader	Send the CUEA Staff a Mutual Assistance Formal Request with following information: • BVES Contact Name • BVES Contact Phone Number • BVES Contact Email • Type of Emergency • Type of Assistance Requested • Desired Date & Time Needed • Additional Details or Comments This request is best made via email but it may also be made via phone call and then followed up by email.
Pre-arrival coordination	Logistics Group Leader	Once a member utility (referred to as "Assisting Party") agrees to provide resources, the Logistics Group shall work with the Assisting Party point of contact to facilitate all logistics

Process Step	Responsibility	Amplifying Comments
		arrangements to include mobilization through demobilization. Specifically, the following information should be obtained: • Date and estimated time of arrival of the Assisting Party resources • Name and contact information of the Assisting Party's Team leader • Names and contact information of the Assisting Party Team members • How lodging will be handled [1] • How meals will be handled [2]
Mutual Assistance Agreement Letter	Finance & Administration Group Leader	Once the pre-arrival information is verbally agreed upon, the Finance & Administration Group shall draft the Mutual Assistance Agreement Letter, route it to the Utility Manager and Logistics Group Leader for review and to the Incident Commander for approval signature. Appendix G, Mutual Assistance Agreement Letter, provides a sample letter.
Setup Assisting Party in BVES Accounts Payable System	Finance & Administration Group Leader	Coordinate with the Assisting Party to ensure they are able to invoice BVES in accordance with the CUEA Mutual Aid Agreement. Provide the Assisting Party invoicing instructions to ensure timely payments.
Mobilization	Logistics Group Leader	Coordinate with Assisting Party Team Leader and local facilities to ensure lodging is ready and assist in resolving any arrival issues such as providing information on access to Big Bear Lake, chain requirements and any other travel support (such as permission to pass through areas that may be closed to general public).
Arrival Meeting	Utility Manager and Logistic Group Leader	Upon arrival of the Assisting Party, the Utility Manager and Logistic Group Leader shall meet with the Assisting Party Team Leader, introduce key staff, and go over the following: • Safety procedures[3] • Coordination meetings[4] • Communications[5] • Work controls and construction standards[6] • Material usage[7] • Situation update[8]
Tour of Facilities	Utility Manager	Following the Arrival Meeting, the Utility Manager shall have a BVES employee provide the Assisting Party with a brief orientation tour of key facilities essential to supporting their work including the following: • EOC • Warehouse • Stockyard • Where to park trucks • Material disposal • Hazmat disposal • Other logistics support (for example, where to fuel trucks)
Demobilization and Departure Out Brief	Utility Manager and Logistic Group Leader	Ensure lodging checkout is completed and bills are paid. Copy receipts. Review material used by Assisting Party and resolve

Process Step	Responsibility	Amplifying Comments
		any documentation issues. Discuss any lessons learned or areas for improvement to allow the Assisting Party to be more effective in the future.
Compensation	Utility Manager and Accounting Supervisor	Coordinate with Assisting Party to review invoices in accordance with the CUEA Mutual Aid Agreement with all of the supporting documentation. The Utility Manager should be the approving manager for the invoices.

Notes:
[1]It is BVES's responsibility to make lodging arrangements; however, an Assisting Party may desire to make lodging arrangements on their own and be reimbursed per the Mutual Aid Agreement.
[2]It is BVES's responsibility to provide meals; however, an Assisting Party may desire to make meal arrangements on their own and be reimbursed per the Mutual Aid Agreement.
[3]Review BVES safety procedures to include tailboard policy and documentation, grounding policy, lock-out/tag-out policy, confined space policy and the BVES Accident Prevention Manual.
[4]Agree upon how the Assisting Party shall interact and receive direction on work from the Operations Group. Sometimes it might be efficient for the Assisting Party to have the Team Leader spend time in the EOC with the Operations Group and out in the field with the Assisting Party crews. Other options include having the Crew Forman check-in before and after each shift.
[5]Establish lines of communications with the Assisting Party Team Leader and crews. They may include cell phones and/or BVES provided radios.
[6]Brief the Assisting Party on BVES work controls including how work will be directed and construction standards used by BVES. Ensure Assisting Party understands what they are permitted to do and when they must seek Engineering approval for any deviations.
[7]Brief the Assisting Party on BVES material control and documentation procedures. Also, agree upon how to replenish truck stock.
[8]Brief the Assisting Party on the current situation, damage assessments and services that the Assisting Party shall be required to perform. This is an excellent opportunity to develop an initial game plan with the Assisting Party.

4.5.2. Contracted Services. Contracted Services as listed in Table 3-1 should be in place such they may be readily requested. The Utility Manager shall determine which contracted services are needed and the specific scope of work and provide this information to the Logistics Group Leader. The Logistics Group Leader shall contact the requested contracts and make the arrangements to receive the services. Appendix C, Contingency Contracted Services, provides contact information for anticipated contract services.

4.5.2.1. The Logistics Group shall work with the contractor(s) to establish the specific estimated time of arrival, mobilization and demobilization support needed, and the onsite contractor supervisor/foreman contact information.

4.5.2.2. Upon arrival of contracted crews, the Utility Manager, Field Operations Supervisor, and Logistic Group Leader shall meet with the contractor supervisor, introduce key staff, and go over the following:

- **Safety procedures:** Review BVES safety procedures to include tailboard policy and documentation, grounding policy, lock-out/tag-out policy, confined space policy and the BVES Accident Prevention Manual.
- **Coordination meetings:** Agree upon how the contractor shall interact and receive direction on work from the Operations Group. Sometimes it might be efficient for the contractor to

have the supervisor spend time in the EOC with the Operations Group and out in the field with the contractor crews. Other options include having the Crew Forman check-in before and after each shift.

- **Communications:** Establish lines of communication with the Assisting Party Team Leader and crews. They may include cell phones and/or BVES provided radios.
- **Work controls and construction standards:** Brief the contractor on BVES work controls including how work shall be directed and construction standards used by BVES. Ensure contractor understands what they are permitted to do and when they must seek Engineering approval for any deviations.
- **Material usage:** Brief the Assisting Party on BVES material control and documentation procedures. Also, agree upon how to replenish truck stock.
- **Situation update:** Brief the contractor on the current situation, damage assessments and services that the contractor shall be required to perform. This is an excellent opportunity to develop an initial game plan with the contractor.

4.5.2.3. Following the Arrival Meeting, the Utility Manager shall have a BVES employee provide the contractor with a brief orientation tour of key facilities essential to supporting their work including the following:

- EOC
- Warehouse
- Stockyard
- Where to park trucks
- Material disposal
- Hazmat disposal
- Other logistics support (for example, where to fuel trucks)

4.5.2.4. Once the Utility Manager releases the contractor from providing further services, an out brief meeting shall be conducted with the contractor supervisor, Utility Manager and the Logistics Group Leader to ensure the following: lodging checkout is completed and bills are paid (if BVES handled mobilization); review material used by contractor and resolve any documentation issues; and discuss any lessons learned or areas for improvement to allow the contractor to be more effective in the future.

4.5.2.5. If a contract is not in place for contracted services that are determined to be necessary for emergency response actions, the Utility Manager may direct, with the President's prior approval, that emergency contracting procedures per the Company's procurement policy be executed to the obtain the required services. Any verbal service requests should be followed up as soon as feasible in writing (normally by email) by the Logistics Group with the applicable contractor. The email should include the scope of work and price. This should then be followed

up with the appropriate procurement documents (for example, contract, service purchase order, etc.).

4.5.3. Big Bear Valley Mountain Mutual Aid Association ("MMAA"). While MMAA does not have power line construction and repair resources, they do have access to significant support resources including traffic controls, road clearing services, coordination with local government agencies, other utilities, and other nongovernmental organizations, and communications with the public. Additionally, one of the most significant strengths of MMAA is its ability to coordinate through its member organizations support and relief for customers experiencing extended sustained major power outages. This may include health and welfare checks, shelters, meals, cooling centers, restroom and shower stations, etc. Therefore, when the Utility Manager determines that some of these resources are needed, he/she shall inform the Logistics Group Leader who shall coordinate with MMAA in accordance with the MMAA Agreement to request and obtain the desired resources. Coordination with MMAA supplied resources should include Point of Contact, resource estimated time of arrival, appropriate briefings and facility tours by the Operations Group (use the guidance in Section 4.3.1), and agreement on reimbursement if applicable.

4.6. **Catastrophic Events Memorandum Account (CEMA).** CEMA is a process to establish an account to allow utilities to recover the incremental costs incurred to repair, restore or replace facilities damaged during a disaster declared by the appropriate federal or state authorities. If a catastrophic event is declared a state of emergency by the state or federal government, then utilities can record costs caused by the event in this memorandum account. It should be noted that the utility cannot record or request recovery of costs incurred before the date the event is declared a state of emergency. By recording these costs, the utilities can later ask for recovery of these costs from the Commission. The CPUC then reviews these costs and approves them as appropriate.

4.6.1. Anytime the ERP is activated, accurate records of expenses, labor hours, materials and other costs incurred during the recovery from the disaster shall be maintained such that the incremental costs of recovery efforts may be documented in the event CEMA is invoked. The Finance and Administration Group shall provide specific guidance to Staff to ensure accurate records are maintained. Note that often a state of emergency is declared after the event and recovery have transpired, so each ERP activation should be treated as a CEMA event.

4.6.2. The President shall coordinate with the Regulatory Affairs Manager to ensure that after a state of emergency occurs and BVES begins booking costs resulting from the event, that a letter is sent to the CPUC Executive President within 30 days. The letter shall provide not only the details of the disaster but also an estimate of the costs to be incurred. The Finance and Administration Group shall develop the estimate for the letter with input from the Operations Group.

4.6.3. Regulatory Affairs Manager shall request cost recovery of the CEMA in a formal proceeding. The Utility Manager with assistance from Accounting Supervisor shall provide the necessary details to support Regulatory Affairs in the CEMA filing.

4.7. **Evacuation.** In the event public officials declare an evacuation order, for all or parts of the Big Bear Valley area, staff's first priority is to address the immediate needs and safety of themselves and family, and once that is taken care of then each employee has a role to play as follows.

4.7.1. Critical Workers**.** Certain staff are considered Critical Workers and are issued an Emergency Pass by the San Bernardino County Sheriff's Department. The Emergency Pass is only to be used for BVES work and in accordance with local authority instructions. The Emergency Pass should never be used for personal reasons. BVES Critical Workers are:

- President
- Utility Manager
- Field Operations Supervisor
- Utility Engineer & Wildfire Mitigation Engineer
- Senior Technical Operations Support Specialist
- All Linemen
- Field Inspector
- Substation Technician
- Meter Technician
- Power Plant Operators
- Other staff as designated by the Utility Manager

Every two years the Administrative Support Associate shall request new Emergency Passes for the BVES staff classified as critical workers. Also, when new staff arrive the Administrative Support Associate shall obtain an Emergency Pass for them if they are classified as critical workers.

4.7.2. Evacuation Order. In the event government authorities declare an evacuation order for the Bear Valley area, all staff shall follow the evacuation procedure. For partial evacuation orders, the Utility Manager shall evaluate the extent and impact of the partial evacuation and determine if this procedure should be executed and if modifications to the procedure are warranted. For example, an evacuation order for Fawnskin only would likely result in BVES implementing its ERP and staffing its EOC, the evacuation procedures would likely not need to be executed.

4.7.2.1. *Utility Manager* shall:

- Direct all non-evacuated staff actions.
- Implement the ERP.
- Consult the local government Incident Commander (IC) and/or applicable Emergency Operations Center (City of Big Bear Lake or San Bernardino County OES) and determine the desired condition of the distribution system and any support needed.
- Place the distribution system in a safe condition while supporting as practicable the IC's efforts.
- Determine the necessary support staff required to safely operate the system and in consultation with the local government IC where they should be located. If the local government IC determines support staff may safely be located at the BVES Main Office, then that is preferred. If it is not safe to remain at the BVES Main Office, the BVES support staff shall relocate to the Base Camp being utilized by the IC or other designated area as agreed upon by the IC.
- Inform the President of the plan.
- Provide instructions to Critical Workers.
- Release any staff who are no longer needed and direct them to safely evacuate.
- When the evacuation order is lifted, direct restoration activities as needed and the return to normal operations.

4.7.2.2. *Staff classified as Critical Workers* shall:

- Report to the designated area as directed by the Utility Manager. Support staff relocating to the Base Camp or other designated area shall bring utility trucks and equipment as determined necessary by the Utility Manager.
- Dispatch to perform tasks as directed by the Operations Group. BVES staff dispatched to perform tasks in the evacuated areas shall always perform these tasks in at least pairs and shall conduct a communications and status check with the Operations Group at least hourly.
- BVES Staff representative should be assigned to the IC's Base Camp to coordinate any support needed. BVES Representative assigned to the local government IC Base Camp or an EOC shall be designated by the Utility Manager, knowledgeable of the BVES distribution system, and have direct access to the Utility Manager such that IC and/or EOC requests are not delayed.
- Consideration shall also be given to providing BVES Staff representative to supporting Emergency Operations Center (City of Big Bear Lake or San Bernardino County OES).
- Released critical workers in the affected areas should evacuate in a safe manner off the mountain in a safe and orderly manner following local authority instructions. Report to the General Office in San Dimas, CA or other area as designated by the Energy Resources Manager.

4.7.2.3. *Non Critical Worker Staff* in the affected areas should evacuate in a safe manner off the mountain in a safe and orderly manner following local authority instructions. Report to

the General Office in San Dimas, CA or other area as designated by the Energy Resources Manager.

4.7.2.4. *Energy Resources Manager* shall:

- Direct all evacuated staff actions.
- If the General Office is not to be used as the evacuation point, designate a suitable area for evacuated staff to gather.
- Perform an accounti
- ng of the whereabouts of all BVES staff. Inform the President.
- Setup remote support EOC and establish the Planning, Logistics, and Finance & Administration Groups with available staff.
- Establish continuous and reliable communication lines with Operations Group remaining in the service area.
- Provide resources as requested by the Operations Group.
- Provide updates to President, Regulatory Affairs, and Senior GSWC Staff.
- Make preparations to obtain utility mutual assistance via the California Utilities Emergency Association (CUEA) and/or contracted Linemen as determined necessary by the Operations Group.
- When the evacuation order is lifted, coordinate with the President and Utility Manager the orderly and safe return of staff to the service area.

4.7.2.5. *Customer Care and Operations Support Supervisor* shall:

- Establish remote customer service support.
- Update public information media as applicable (press releases, website and social media updates, IVR messages, etc.).

4.8. **End State.** The Utility Manager shall direct the transition from emergency response operations under this plan (Level 1 or 2) to normal operations (Level 3) when the following conditions are met:

- BVES system is no longer at risk for continued disruptions due to the incident.
- BVES power supplies are have been restored to meet service area load demand and are evaluated as reliable.

- BVES sub-transmission system is restored to meet service area power delivery needs and is evaluated as reliable.
- BVES substations and distribution systems are restored to meet service area power delivery needs and are evaluated as reliable.
- Response crews have been demobilized.
- System issues and problems are within the normal Level 3 response capabilities.
- Long-term customer support has been established as necessary (for example, following a declaration of 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) and is capable of being properly managed by the normal supervisory element.

Generally, the transition from Level 1 shall be progressive to Level 2 as emergency response requirements wind down and then to Level 3.

4.9. **After Action Reports.** Once the incident is officially terminated, the Utility Manager shall schedule and conduct formal hot washes/debriefing sessions with applicable staff and have an After Action Report prepared. The After Action Report should include:

- Dates/times of the incident
- Description of the incident
- Level of plan activation and if the EOC was staffed
- Records of public communications that were performed
- List of damages to system
- List of personal deaths, injuries, and other accidents associated with the incident
- List of external (contracted and mutual aid) resources utilized
- Develop incremental cost of emergency response actions
- Lessons learned
- Evaluation on whether or not the plan was properly followed
- Specific improvement actions including assignment of responsibility to complete and due date

A thorough follow-up includes reviewing all plans and procedures, making the necessary revisions from lessons learned, and ensuring distribution to all stakeholders/plan holders.

4.10. **Annual Emergency Response Plan Training and Exercise.**

4.10.1. Annual Training. The Utility Manager shall conduct staff training for designated personnel on the Emergency Response Plan in preparation for emergencies and major outages each year just before the winter storm season; typically, in September or October. The training shall be designed to overcome problems identified in the evaluations of responses to a major outage or exercise and shall reflect relevant changes to the plan.

4.10.2. Annual Exercise. The Utility Manager shall conduct an exercise annually using the procedures set forth in this emergency plan. If the BVES uses the Emergency Response Plan during the twelve-month period in responding to an event or major outage, the annual exercise is not required for that period. However, the Utility Manager should also evaluate whether or not staff would benefit from the exercise regardless of the fact that the Emergency Response Plan was utilized within the previous 12-month period. For example, if a major change to the Outage Management System is installed since the last Emergency Response Plan activation, it would be appropriate to at a minimum exercise that portion of the plan.

4.10.3. Exercise Notice. The Utility Manager shall provide no less than ten days' notice of the annual exercise to appropriate state and local authorities, including the CPUC, state and regional offices of the OES or its successor, the California Energy Commission, and emergency offices of the counties in which the exercise is to be performed.

4.10.4. Exercise Evaluation. The response to an exercise or major outage shall be evaluated per Section 4.9. The evaluation shall be provided to Regulatory Affairs Manager so that it may be forwarded to the CPUC as part of the report required by GO-166 Standard 11.

4.10.5. Emergency Response Outreach Training. The Utility Manager shall conduct outreach with the county and city emergency response officials and participate as applicable in other emergency exercises designed to address problems on electric distribution facilities or services, including those emergency exercises of the state and regional offices of the OES or its successor, and county emergency offices.

5. Emergency Response Communications Plan.

5.1. **Strategy Overview.** Achieving unity of effort provides for the most effective and efficient emergency response. This is best attained through the "4 C's" of disaster planning:

- Collaboration
- Cooperation
- Coordination
- Communication

The first three hinge upon effective communications. The overall communications strategy is structured so that all stakeholders receive accurate, timely and consistent information, with an overall message for safety of the public, employees and contractors. Communications with local government agencies, customers and other stakeholders are vital to the successful implementation of the ERP. The plan aims to identify who should be given specific information, when that information should be delivered, and what communication channels shall be used to deliver the information.

During a major outage the Operations Group shall make it a priority to provide the following information to the Public Information Group:

- **Extent of the outage** – using our Outage Management System (OMS) and available field assessment and data, determine how many customers are affected and in which areas
- **Cause of the outage** – provide in broad terms. If unknown, provide status of crews responding to investigate including updating once the power has been restored.
- **Estimated time of restoration (ETR)** – this is the key information customers want to know. If unknown, state so and update as more information becomes available. Don't let ETRs become stale (for example, if a posted ETR is extended, update the posting with a revised ETR).

The Customer Service Supervisor is responsible for updating and executing the BVES communications plan in support of the ERP. The Utility Manager is responsible for ensuring that accurate information from the Operations Group flows to staff responsible for executing the communications plan.

5.2. **Establish Multiple and Effective Communication Channels.** Establishing a multilayered communications plan utilizing many separate communications channels is

essential to ensuring that the communications plan shall be effective in reaching targeted audiences under uncertain and severe conditions, as would be expected for major outages and disasters and/or following such events. For example, some customers may lose their landline capability in a power outage but still have cell phone service. Plan resiliency, therefore is dependent on having many overlapping layers of communications.

5.2.1. Outbound Communications

- Company website
- Company social media
- Online meetings/broadcasts
- Interactive Voice Response System
- Press releases to local media
- Press conference
- Phones – landlines, mobile cellular, and satellite lines
- Email
- Two-way text messaging
- Door hangers
- Keeping staff who interact with customers informed with latest message
- Advertising
- Community workshops and presentations
- Mail (for example, flyers, newsletters)
- Bill inserts
- County and City communication systems
- Big Bear Chamber of Commerce email blast
- City email blast
- Bear Valley local government, agencies and utilities Public Information Group

5.2.2. Inbound Communications:

- Interactive Voice Response System
- Call center phone lines
- Company social media
- Customer service windows
- Bear Valley local government, agencies and utilities Public Information Group
- Phones – landlines, mobile cellular, and satellite lines
- Email
- Text messaging
- Activate internal PSPS list
- Press inquiries

- iRestore Reports

5.2.3. Internal Communications:

- Phones – landlines, mobile cellular, and satellite lines
- Email
- Text messaging
- FaceTime, Skype, Online Meetings, etc.
- Intranet – shared drives, internal applications, and SharePoint
- Radios – VHF
- Direct reports

5.2.4. There are many developing and evolving communications technologies; therefore, it is essential that staff continually evaluate the above lists and modify as applicable. Changes should be evaluated each time the plan is updated.

5.2.5. Besides having multiple communications channels, there are three other elements that are essential to ensuring an effective communications strategy:

- Testing and exercising the communications channels frequently so that staff are trained on their usage, target audiences and key stakeholders are familiar with them, and technical issues are resolved prior to an actual emergency. Once testing and exercising of communication channels is complete, adjustments will be made based on lessons learned.
- Establishing good business relationships and rapport with target audiences and key stakeholders prior to any emergency.
- Maintaining accurate contact information with key stakeholders per Section 3.11 (Key External Contacts List) of this plan.

5.3. **Conduct Pre-Incident Outreach and Education.** BVES has developed a multi-level approach to community education and outreach related to public awareness of outages, emergencies, and emergency preparedness. An important aspect of managing expectations is to conduct education and outreach with customers and key stakeholders well in advance of any emergency. This allows target audiences the opportunity to be ready and provides them the knowledge of what to expect and how to prepare in the event of an emergency such as an extended outage due to a major winter storm or other natural disaster. *A community that is knowledgeable and ready for emergency events will be a force multiplier in emergency response actions*.

5.3.1. City and County Outreach. The Utility Manager shall coordinate with city and county officials in compliance with Public Utilities (P.U.) Code Section 768.6, which requires the following outreach by BVES:

- In developing and adopting an emergency and disaster preparedness plan, BVES shall invite appropriate representatives of every city and county within the BVES service area to meet with, and provide consultation to BVES.
- BVES shall provide the point of contact designated by the city and county with an opportunity to comment on draft emergency and disaster preparedness plans.
- Every two years, in order to update and improve BVES's emergency and disaster preparedness plan, BVES shall invite appropriate representatives of every city and county within its service area to meet with, and provide consultation to BVES. All recommendations and input will be considered and updated should it be determined to be beneficial for the ERP. The meeting shall be noticed and shall be conducted in a public setting that allows for the participation of appropriate representatives of counties and cities within the BVES service area. Participating counties and cities shall be provided with the opportunity to provide written and verbal input regarding BVES's emergency and disaster preparedness plan. For purposes of this public meeting, BVES may convene a closed meeting with representatives from every city and county within its service area to discuss sensitive security-related information in BVES's emergency and disaster preparedness plan and to solicit comments.
- BVES shall notify the commission of the date, time, and location of the above meeting. BVES shall memorialize the meeting and shall submit its records of the meeting to the commission.
- BVES may comply with the meeting requirement that is ordered by the Public Utilities Code by : i) making a presentation regarding its emergency and disaster preparedness plan at a regularly scheduled public meeting of each disaster council created pursuant to Article 10 (commencing with Section 8610) of Chapter 7 of Division 1 of Title 2 of the Government Code within BVES' service area; or ii) at a regularly scheduled public meeting of the governing body of each city located within the service area.

5.3.2. General Public, Customer and Stakeholder Outreach and Education (before an emergency). Utilizing Company website, social media, public workshops, meetings with key stakeholders, press releases, advertising, newsletters, bill inserts, two-way text communication, IVR, and other communications channels, the Utility Manager and Customer Service Supervisor shall work to educate, inform and conduct outreach with the general public, customers and stakeholders such as local government and agencies, community groups and other utilities on the following topics:

- Customer power outage readiness preparation, including publishing a customer checklist for outages
- Backup generators and safety training

- Reporting outages
- Reporting wire down events and how to handle the situation
- Public Safety Power Shutoff policies
- Wildfire prevention measures including the vegetation management, covered wire, and distribution system inspection programs
- Operational initiatives that support wildfire prevention efforts such as re-closer and circuit patrol policies
- Outage restoration strategies used by BVES
- Infrastructure projects to improve safety, reliability and mitigate wildfires
- Other topics as deemed appropriate by the Utility Manager and/or Energy Resources Manager

In addition to the above outreach, the Utility Manager shall endeavor to periodically brief key elements of the ERP at Big Bear Valley Mountain Mutual Aid Association ("MMAA") meetings, Big Bear Joint Utility meetings, Big Bear Fire Department and Sheriff's Department leadership.

The Utility Manager and Customer Service Supervisor shall develop and implement a strategy to periodically brief local government and agencies on BVES' emergency response plan. During these interactions, it is important to establish business relationships with local government and its agencies, other key community stakeholders, and other utilities so that during emergencies the BVES Leadership Team may seamlessly engage these groups. The Utility Manager and Customer Service Supervisor shall develop a contact list of the key staff at local government and agencies to notify during emergency events. The contact list should include preferred and back-up means of contact (for example, mobile phone number, email, office phone, etc.). The contact list shall be verified, corrected and updated as necessary at least every six months by the Administrative Support Associate.

The list of local government and agencies and key stakeholders shall include at a minimum the following organizations:

- Local officials (City of Big Bear Lake (CBBL) and San Bernardino County)
- State officials (normally CPUC Energy Division and Safety Enforcement Division)
- San Bernardino County Office of Emergency Services (County OES)
- Big Bear Fire Department
- California Department of Forestry and Fire Protection (CAL FIRE)
- U.S. Forest Service
- San Bernardino County Sheriff's Department Big Bear Lake Patrol Station
- California Highway Patrol (CHP) Arrowhead Area
- California Department of Transportation (Caltrans)
- Big Bear Area Regional Wastewater Agency (BBARWA)
- Big Bear City Community Services District (CSD)

- Big Bear Lake Water Department (DWP)
- Big Bear Municipal Water District (MWD)
- Southwest Gas Corporation
- Bear Valley Community Hospital
- Bear Valley Unified School District
- Big Bear Chamber of Commerce
- Big Bear Airport District
- Big Bear Mountain Resort
- Local communication companies (Spectrum and various cell providers)

5.4. **Provide Outreach in Prevalent Languages.** United States Census data shows that the top three primary languages used in California are English, Spanish and Chinese (including Cantonese, Mandarin and other Chinese languages). BVES shall communicate its emergency preparedness outreach and response in English, Spanish, Chinese (including Cantonese, Mandarin and other Chinese languages), Tagalog, and Vietnamese. Additionally, BVES has included two indigenous languages (Zapateco and Mixteco) as part of its wildfire mitigation communications.

5.5. **Provide Emergency Incident Communications.** Utilizing the multiple communications channels discussed earlier, the Public Information Group and Emergency Response Leadership Team shall engage and educate the general public, local government and its agencies, and other key stakeholders to provide notification of outages and emergencies, estimated time to restore service, cause of outage (if known), and periodic updates as appropriate. The following sections provide detail on how these communications shall be conducted.

5.5.1. Set Expectations and Develop Trust. When an emergency occurs, BVES shall communicate with the general public, customers, local government and its agencies, and key stakeholders as soon as possible to set expectations and address emergency issues. When business operations or households are disrupted by power outages, customers expect to know how long they shall be impacted. Thus, estimated restoration times (ETRs) shall be developed, monitored, adjusted and communicated. Establishing ETRs is a key function of the Operations Group. Regulators and local government officials shall be notified regarding the impact to communities per GO 166 Standard 6. Customer Service Supervisor shall:

- Work with BVES's public relations contractor subject matter experts (SMEs) to develop consistent and accurate BVES messaging to customers and stakeholders.
- Employ consistent and frequent multi-channel communications to disseminate information that leverage and reinforce one another.
- Brief employees; especially field staff and customer service representatives, on the latest information so that their interactions with the public are consistent with the messaging.

- Coordinate closely with the Operations Group to provide customers and stakeholders system updates including best known restoration times.
- Ensure that all communications are accurate and always factually correct. If incorrect information is inadvertently issued, then it is important that a correction be issued as soon as known and that the error be acknowledged. If information is not certain, then avoid reporting it or qualify it as appropriate. For example, "BVES has received reports of a downed tree on its power lines on Moonridge Road; field crews have been dispatched to validate the report and assess any damage that may have resulted."
- Strive to be transparent; it is absolutely critical to our credibility and to ensuring that the public, customers and stakeholders have the upmost confidence in our ability to perform our essential public service – providing safe, reliable, and high quality electric service.
- Per GO 166 Standard 6, BVES shall provide an initial notification within one hour of the identification of a major outage or other newsworthy event. BVES shall also notify the Commission and San Bernardino County 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 BVES shall be conducted between personnel identified in advance, as set forth in Standard 4.B (Communications Strategy with Government). From time to time the Commission staff may issue instructions or guidelines regarding reporting.

5.5.2. Notify and Engage Key Stakeholders. Keeping local government and agency officials as well as other key stakeholders informed of emergencies is critical to their ability to operate and support their missions. It is far more advantageous for these officials and key stakeholders to receive information directly from BVES Leadership in a timely manner rather than via the media.

Utilizing the contact list developed during pre-incident engagement, BVES Leadership should notify local government and agencies and other key stakeholders of emergencies and provide them updates as appropriate. Some of this notification may be achieved by sending to the local "Public Information Officer" developed through MMAA group email notifications and status updates.

5.5.3. Notify Customers and General Public. The Customer Service Supervisor shall develop pre-planned statements with fill-in-the-blank sections for potential outage and emergency events. These pre-planned statements shall be used as deemed appropriate by the Customer Service Supervisor to update customers and the general public as soon as feasible via the following means:

- News releases (newspaper, online news outlets, radio, etc.)
- Website updates
- Social media updates

- IVR messages
- Two-way text communication
- Email notifications to customers
- Other public and customer engagement media (for example, City of Big Bear Lake's email blast)

Specific guidance on developing press releases and statements and engaging the media is provided in the next section. Customer Service Supervisor shall develop pre-planned statements for IVR and text message use. IVR and text messages should be short – about one sentence – and may refer the customer to additional information sources such as our website or social media. For example, "BVES crews are responding to outages on the North Shore and the estimated time to restore power is 2 pm – additional information is available at www.bves.com."

5.5.4. Media Engagement Procedures. By proactively engaging the media, BVES is able to reach a wide audience in its service area and establish the opportunity to convey the correct narrative and information to the general public. When engaging the media, it should be understood that in general the media are:

- Professionals at what they do – they are normally just doing their job and are experts at interviews.
- Often, they are deadline driven.

Therefore, when working with the media as a Company spokesperson, staff must be prepared and properly authorized. Any employee speaking to media whether "on the record" or "off the record" automatically becomes a spokesperson for the Company willingly or unwillingly.

5.5.4.1. *Authorized Media Engagement.* The Public Information Group is the authorized group to interact with the media and they shall lead all media engagement efforts. They shall work closely with the Operations Group to ensure they have accurate information, develop press releases with the assistance of the Company's public relations firm, coordinate releases with other organizations such as local government and agencies, and clear press releases with the President prior to releasing them.

It should be recognized that media representatives could reach out to BVES employees at any time; especially, BVES employees (and their contractors) out in the field. Therefore, Managers and Supervisors must ensure their employees are periodically updated with the status of the emergency response and train their employees to respond to direct media reporter inquiries as follows:

- At all times act politely and professionally.
- Write down the reporter's name, organization, and phone number.
- Write down any questions the reporter may have.

- It is acceptable for field crews and staff to respond to questions directly pertaining to the conditions or work being performed by them. For example, it is acceptable for field crews to describe how the weather is impacting their immediate restoration work out in the field.
- However, any larger questions, such as estimated time of restoration, other reported outages, availability of resources (manpower and materials), restoration strategy should be written down and the reporter informed that BVES shall get back to them.
- In all cases, the employee approached by the media must inform their Supervisor or Manager as soon as possible of the inquiry and pass along the contact information, questions asked, and any answers provided. This information must be immediately conveyed to the Public Information Group.
- The Public Information Group should follow up as soon as feasible with the reporter even if the employee responded to the questions.

5.5.4.2. *Press Release Content*. The Public Information Group shall develop press releases from pre-planned press release templates as feasible. These are especially useful in the initial stages of an emergency where information is still sparse. They allow for rapid dissemination of initial information of the emergency scope. As the Operations Group obtains more accurate information from Field Crews, the press releases should be updated accordingly. Additionally, they shall consult with BVES's public relations contractor to develop press releases and an engagement strategy tailored to the specific emergency.

Press releases should make the best attempt at addressing the "who, where, why, what, when, and how" to the emergency event. However, do not delay issuing a press release to obtain all of this information. The information can be relayed in press release updates. Ideally, in a large outage, the following information should be released as it is known:

- **(Who/where)** Location of the outage and who is affected – use geographic locations such as areas or streets (for example, "Moonridge Area", "from the Village to the Dam on the South shore of the lake", "from Pine Knot Ave to Paine Rd on the South Shore of Big Bear Lake", etc.). Avoid using circuit and/or substation names to describe the location, since these names have little meaning to the public.
- **(When)** Time outage started and estimated time of restoration (ETR).
- **(Who)** Number of customers without power. Provide the best estimate available and update as it is changed.
- **(Why/what)** Cause of the outage and location of damage/problem. Use simple descriptions that a non-utility audience would understand (for example, "car hit a ground mounted transformer causing sufficient damage to take it out of service," "an 80-foot tree fell from across the street on Pine Knot Ave onto a major overhead power line," "loss of power supply from Goldhill due to fault on Southern California Edison equipment," etc.).
- **(When)** Whether or not Field Crews are conducting repairs to restore power. If crews are not on site, provide an estimated time of arrival if available.

- **(How)** Actions being taken to restore power (starting BVPP, conducting field switching to alternate sources of power, conducting repairs to damaged equipment, etc.).

Pictures of the damage and field crews conducting repairs are always very useful.

5.5.4.3. *Press Release Protocols*. The Public Information Group under the leadership of Customer Program Specialist shall be responsible for drafting and issuing press releases from the Company to the media. Press releases shall be drafted, approved, and released per the protocol shown in Figure 5-1, Press Release Protocol.

Figure 5-1: Press Release Protocol

5.5.5. Post Emergency Event Close-out Statement. Once the Emergency Response is determined to be no longer necessary, Customer Service Supervisor shall prepare a summary press release and statement providing customers a brief summary of the emergency event and provide any post incident support instructions such as:

- Information on whom to contact at BVES to reconnect service for customers whose weather head or other equipment was damaged preventing immediate service restoration.
- Information on obtaining post incident customer support per Section 6 of this plan.

5.6. **Reports to the Commission.** The Utility Manager shall ensure required reports to the Commission and its Divisions are made in a timely and complete manner. These reports include:

- Notify California Public Utilities Commission (CPUC) and Warning Center at the Office of Emergency Services San Bernardino within one hour of an outage if the outage meets the major outage criteria of GO-166.
- Notify President Safety Enforcement Division (SED), CPUC within twelve hours of the power being shut-off per ESRB-8.
- Provide a report (written) to President of SED no later than 10 business days after the shut-off event ends per ESRB-8.

6. **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 customer billing, support for low income, life support, Access and Functional Needs (AFN) customers, and other forms of customer support.

6.1. **Support for Low Income, Life Support and AFN customers.** The Customer Care Team shall freeze low income, life support, and AFN customer accounts and stop all California Alternative Rates for Energy (CARE) High-Usage tracking. The Supervisor shall work with implementation contractors and emergency assistance programs to update affected customers on eligibility requirements and enroll them in assistance programs.

6.2. **Billing Adjustments.** The Customer Care Team shall freeze accounts and stop billing during the disaster event to ensure bills are not estimated or generated for affected customers. Billing shall resume once the case is closed by the Customer Care & Billing (CC&B) technical team, upon notice from the Supervisor.

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

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

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

6.6. **Repair Processing and Time**. During emergencies, BVES shall set up specialized repair teams to expedite repair processing. If additional support is needed, BVES shall leverage mutual aid programs with other emergency response resources and shall work with electrical

contractors to ensure timely service restoration. Exact timing shall be dependent on the nature of the situation.

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

6.8. **Access to Outage Reporting and Emergency Communications.** During emergencies, BVES shall invoke its emergency communications plan per the ERP to attempt to reach as many customers as feasible with outage, restoration and recovery information via multilayered communications channels and multiple languages per Section 5.4 of the ERP.