DATA REQUEST RESPONSE
Bear Valley Electric Service (BVES)

Request Date:	July 27, 2023
Response Provided by:	Paul Marconi
Title:	President & Treasurer
Response Date:	August 1, 2023
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Data Request No:	OEIS-P-WMP_2023-BVES-004
Subject:	Q01. Non-Exempt Lightning/Surge Arrestors Q02. Grid Design, Operations and Maintenance Targets by Year Q03. BVES's Logarithmic Risk Heat Map Q04. Risk Spending Efficiency Q05. PSPS Risk and Decisions Q06. Online Diagnostic System Q07. Community Outreach Targets – Verification Methods

DATA REQUEST

Q01. Regarding Non-Exempt Lightning/Surge Arrestors

a. Based on previous discussions with BVES to replace installed, non-exempt lightning/surge arrestors with CALFIRE exempt lightning/surge arrestors, please provide a timeline for the project and yearly replacement targets.

Response:
Since September 2020, BVES has only installed CALFIRE exempt lightning/surge arrestors. BVES has 338 lightning/surge arrestors in the BVES system. Approximately half of these lightning/surge arrestors have already been replaced by exempt CALFIRE lightning/surge arrestors. BVES plans to replace all non-exempt lightning/surge arrestors as follows:

- Where other work is planned on poles, such as covered conductor program or other pole upgrade work, lightning/surge arrestors are replaced as part of the planned work.
- Where other work is not planned on poles with non-exempt CALFIRE lightning/surge arrestors, BVES has a program to replace these lightning/surge arrestors with CALFIRE exempt lightning/surge arrestors.

BVES expects to replace all of the non-exempt lightning/surge arrestors by the end of 2026. While BVES has all of its lightning/surge arrestors in its GIS, it does not have information on whether or not the lightning/surge arrestors are CALFIRE exempt. BVES is in the process of adding this information to its GIS and expects to have the GIS updated by the end of 2023. Once the GIS is updated, BVES will be able to provide annual targets.

While the GIS is being updated, BVES will commit to replacing 40 lightning/surge arrestors in 2023.

Q02. Regarding Grid Design, Operations and Maintenance Targets by Year

a. In table 8-3, the units for the undergrounding row are listed as “Initiate Underground Projects as needed (% of Budget). Please provide more detail on the following items: i. Please explain what this unit means, and why it was chosen for this row of the table.
ii. How will BVES confirm if it has met or not met this target in the next WMP?
iii. How is the x% risk impact of this row calculated?
b. In table 8-3, the units for the traditional overhead hardening row are listed as “As Needed Maintenance (% of Budget). Please provide more detail on the following items: i. Please explain what this unit means, and why it was chosen for this row of the table.
ii. How will BVES confirm if it has met or not met this target in the next WMP?
iii. How is the x% risk impact of this row calculated?

Response:
a)
i. The unit is one percentage of yearly underground (UG) capital budget for any UG projects that may occur throughout the year for customer repairs and upgrades. Please refer to BVES 2023-2025 WMP Section 8.1.2.2 Underground of Electric Lines and/or Equipment (Tracking ID: GD_3) for more details.

ii. BVES does not have any large scale project to underground existing Overhead (OH) circuits. However, in any given year there small projects associated with new customers and developments that result in installing underground facilities. For these, BVES utilizes an annual capital budget based on history to validate the WMP target. BVES regularly reviews the annual capital budget.

iii. x% risk impact is calculated using Annual Risk Benefit divided by Unmitigated Risk Score. For this category, Annual Risk Benefit = Risk Benefit/Project Length of 20 years which is utilized for ongoing projects.

b)
i. The unit is one percentage of yearly overhead (OH) addition and replacement of distribution and sub-transition components that may occur throughout the year for customer installations and upgrades. Please refer to BVES 2023-2025 WMP Section 8.1.2.5 Traditional Overhead Hardening (Tracking ID: GD_8) for more details.

ii. . In addition to the other planned OH hardening activities such as covered conductor installation, there are often unscheduled hardening as a result of inspection findings and equipment degradation. For these, BVES utilizes the annual capital budget based on history to validate the WMP target. BVES regularly reviews the annual capital budget.

iii. x% risk impact is calculated by Annual Risk Benefit divided by Unmitigated Risk Score.
For this category, annual Risk Benefit = Risk Benefit/Project Length of 20 years which is utilized for ongoing projects.

Q03. Regarding BVES's Logarithmic Risk Heat Map

a. Understanding the transition to the Technosylva model is incomplete, Energy Safety requests more detail how the 7x7 heatmap works and how it is used (Figure 6.6 does not provide the resolution or enough calculation detail to understand it): i. Provide calculation examples of how the grid is built
ii. How are color codes used (1) How are two yellow risks aggregated?
(2) How does management judge the value of reducing a red risk 20%?

Response:
Q03.a. The following describes the 7x7 heatmap process.

1. <u>Determination of the Likelihood and Consequence of a Risk Event</u>. BVES does not yet have sufficient data to run a probabilistic analysis and generate a statistical

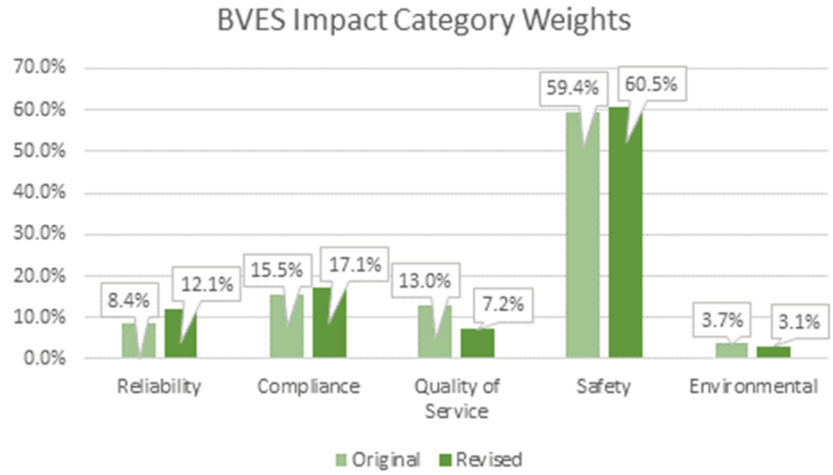
range of potential outcomes/distributions to evaluate likelihood. Instead, BVES begins the risk analysis process with information from specific incidents (e.g. Baldwin sub-transmission line failure from 2010 and the related loss of power to approximately 50% of BVES's customers) and other SME incident experience to identify a worst reasonable case scenario. The SMEs also use other utility information shared through workshops. The risk team and SMEs then assign incident frequencies, which are reflected in the table below, using expertise and experience.

Incident Frequencies

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

To assess consequence, BVES relies on SME knowledge to define five attributes (Impact Categories): Reliability; Compliance; Quality of Service (which includes cost, quality, and complaints); Safety; and Environmental, using a pairwise comparison to determine the weights to be attributed to each of the categories. A pairwise comparison is a facilitated exercise where the risk project team compares the relative values of examples for each attribute through every possible permutation and the results of the comparisons are used in a mathematical computation to determine the relative weighting for each attribute. The pairwise comparison is carried out twice to validate the comparison, with the graph below showing the results for both trials.

Impact Category Weights Using Pairwise Method



Based on the pairwise comparison, the final weights for each of the impact categories are reflected in the table below.

Final Impact Category Weights

Reliability	Compliance	Quality of Service	Safety	Environmental
12.1%	17.1%	7.2%	60.5%	3.1%

BVES uses a scale from one to seven, with Level 1 defined as negligible and Level 7 as catastrophic. The table below defines the level for each impact category.

Impact Score 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
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 outages **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 accidents.	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).

To ensure that levels were comparable across categories and that the types of events classified under the different categories were adequately defined, BVES ensured equivalence of definitions within and across categories (e.g. a score of 4 in Quality of Service is equivalent to a score of 4 in Compliance). The assessment of levels within categories ensures that as the levels increase, the severity of the impact increases in a comparable way (that there is an adequate increase in impact severity from, for example, level 1 to level 3 within Safety).
The increase from level to level is based on a logarithmic scale. For example, a level 3 Environmental impact is a significant magnitude worse than a level 2 Environmental impact which is, in turn, a significant magnitude worse than a level 1. As noted above, impacts are also calibrated across the five impact categories, with a level 4 impact being equivalent across Safety, Reliability, Compliance, Quality of Service and Environmental. The vertical and horizontal calibration allow comparison of all weighted impact categories when calculating a risk score.

To define magnitude of risks, BVES evaluates the worst-case scenario of each risk, develops frequency and impact factors to be used in evaluating any risk, and defines seven levels of impact to differentiate consequences. The impacts and frequency are scored using the 1-7 scale. Implemented in total, this approach defines the magnitude of any one risk, and allows for risk scoring and evaluation. The table below provides the discrete scores for the 7x7 log model.

Log Score Model

Risk Score = Frequency * SUM $_{i=1 \text{ to } 5}$ (CategoryWeight $_i$ x 10^Impact $_i$)

Frequency	Frequency Years (Events/Year) [Min rate]	Frequency Years (Events/Year) [Max rate]	Frequency Value			Negligible(1)	Minor(2)	Moderate(3)	Major(4)	Extensive(5)	Severe(6)	Catastrophic(7)	
						1	2	3	4	5	6	7	
> 10 times per year	10	100	31.6228	7	0	316.23	3,162.28	31,622.78	316,227.77	3,162,277.66	31,622,776.60	316,227,766.02	7
1 - 10 times per year	1	10	3.1623	6	0	31.62	316.23	3,162.28	31,622.78	316,227.77	3,162,277.66	31,622,776.60	6
Once every 1 - 3 years	0.3300	1.0000	0.5745	5	0	5.74	57.45	574.46	5,744.56	57,445.63	574,456.26	5,744,562.65	5
Once every 3 - 10 years	0.1000	0.3333	0.1826	4	0	1.83	18.26	182.57	1,825.74	18,257.42	182,574.19	1,825,741.86	4
Once every 10 - 30 years	0.0333	0.1000	0.0577	3	0	0.58	5.77	57.74	577.35	5,773.50	57,735.03	577,350.27	3
Once every 30 - 100 years	0.0100	0.0333	0.0183	2	0	0.18	1.83	18.26	182.57	1,825.74	18,257.42	182,574.19	2
Once every 100+ Years	0.0033	0.0100	0.0058	1	0	0.06	0.58	5.77	57.74	577.35	5,773.50	57,735.03	1
				0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
					0	1	2	3	4	5	6	7	

2. Risk Evaluation. Risk evaluation is the process of assessing the results of the risk analysis to determine the severity of a risk. Risk scores provide a relative ranking of risk events. As noted previously, the risk analysis is captured in the risk registry and that information is then used to calculate a risk score, using the formula below:

$$\text{Risk score} = \sum_{i=1}^{n} weight_i * frequency_i * 10^{impact_i}$$

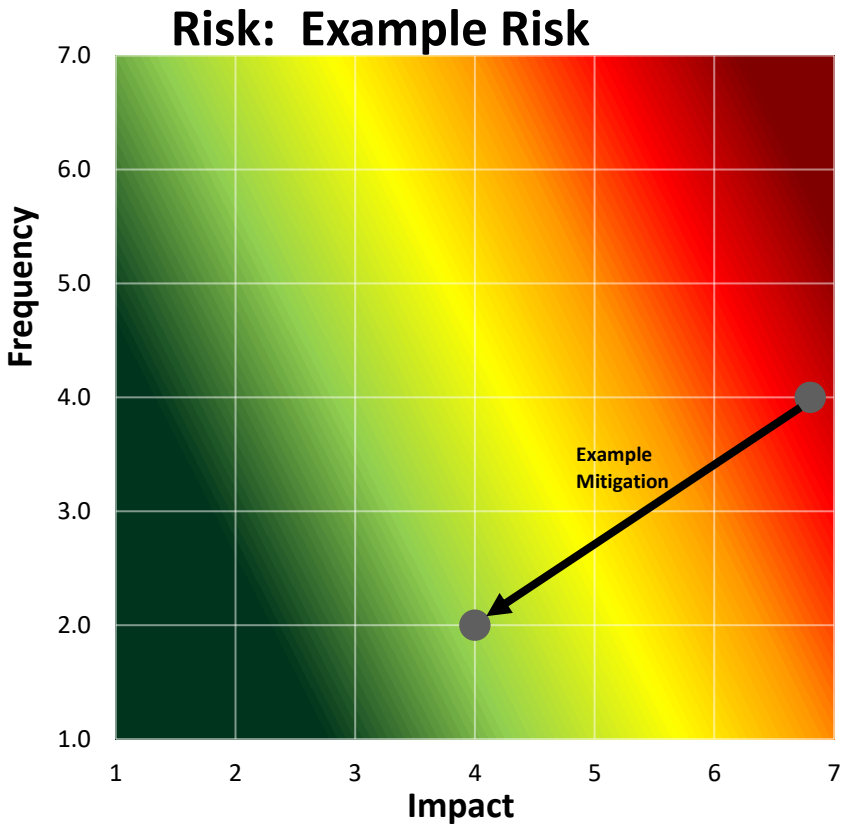
To determine frequency and impact of the worst reasonable case of a risk event, Bear Valley relies on SMEs, other utilities' experiences, and historical data, where available. The BVES risk team applies the formula noted above to the risks in the risk registry to establish an initial risk score.

Once risk events are analyzed and scored, the risk team then conducts an internal working session with a broad set of SMEs to focus on risks that are outliers or for which a SME may question the accuracy of the overall score. After the calibration sessions, the team updates the risk registry with any adjustments.

Inherent risk is the level of risk that exists without risk controls or mitigations. Residual risk is the risk remaining after current controls. Defining residual risk requires the identification of the candidate risk control measures. Planned risk is the risk expected to remain after planned mitigations are implemented.

3. Heat Map. BVES has chosen to use a 7 x 7 heat map matrix to communicate the inherent and residual risk after mitigation. It provides a better differentiation of risk events than a 3 x 3 matrix or a 5 x 5 matrix. BVES captures each risk score in both the risk registry and on a 7 X 7 risk heat map. Below is an example of BVES' 7 X 7 matrix for an example risk.

Example Heat Map



Example calculation:

For the risk scenario "Wildfire – Public Safety", the frequency was set at "4" and the impacts scores were set as follows:

Reliability	5
Compliance	6
Quality of Service	7
Safety	7
Environmental	6

Applying the risk formula (discussed above the risk score is 1,005,021.

If we mitigate the risk with the covered conductor project the risk is frequency is reduced to “3” and the impact scores are reduced as follows:

Reliability	3
Compliance	6
Quality of Service	5
Safety	5
Environmental	6

Applying the risk formula, the mitigated risk score is 15,543.

Colors are used as a visual aid but decisions are made based on the calculated risk and risk reduction for each risk and mitigation. To judge a 20% risk reduction, management would simply apply 20% to the difference between the unmitigated risk and fully mitigated risk to calculate the risk value (20% mitigated). Risk scores are evaluated by the numerical score and the corresponding color is just a visual aid. Generally, the objective it to get the risk score below 180 (green zone).

Q04. Regarding Risk Spending Efficiency

a. To complement the high-level discussion of RSE, provide: i. A table of ranked mitigations that ties to overall impact of mitigations

ii. Provide materials on how ranked mitigations are implemented, particularly when higher ranked mitigations are superseded by lower ranked ones

Response:

Q04.a.i: See attached spreadsheet file “OEIS-P-WMP_2023-BVES-004 Q04”.

Q04.a.ii: Projects and programs as are identified by SMEs as potential risk mitigation measures and they are evaluated through a process designed to identify and determine which projects are potentially viable to deliver consequential wildfire risk reduction. The outcome of this step is an integrated list of projects with a basic understanding of project need, wildfire risk reduction value, timing, and execution challenges, such as permitting, equipment lag, workforce issues, etc. For each potential project, the risk reduction value and risk spend efficiency is calculated using the Risk-Based Decision-Making process (7x7 model). In order for BVES to obtain a reasonable assessment of the risk reduction and risk spend efficiency for each project, BVES always seeks to understand to what degree will the risk reduction work be achieved and, if achievable or partly achievable and at what cost. The following factors are developed and considered by the management team:

- Desired scope of work (what technical specifications will the project achieve)
- Technology risk (is technology mature, used in California, new, etc.)
- Site availability and evaluation (constrained to existing facilities or new property; easements; access for construction, inspection, and O&M; zoning; endangered species, other protected species, cultural or historical concerns, or other

environmental issues; impact on neighboring community during construction and following project, etc.)
- Permitting (are permits required; approval authority(ies); complexity and timeline of permitting process; request from within the Company or contract out to a permitting expert consultant, etc.)
- Availability of material and equipment (delivery lead-time, type of material – special order made to specifications or commodity, etc.)
- Access to qualified labor resources (mobilization/demobilization, Company labor or contracted labor, work hours – day, night, weekends, shift work, etc.)
- Design process (design complexity; can the design be performed within the Company or must it be contracted out; timeline to produce construction grade design, design risk (e.g., during the course design, how likely is it that the scope of the project may be altered and by how much), etc.)
- Stakeholder support (internal approval, regulatory support, public and local stakeholder support)
- Length of construction period (multi-year, work all year round or only during non-winter snow period, etc.)
- Project used and useful timeframe (as the project is constructed is it put in service, put in service in distinct phases, or at end of project)

From the above consideration, management develops the cost of the project, the estimated timeline and sequence of the project, and the risk reduction achieved going back to the Risk-Based Decision-Making model for SMJUs. From these, risk spend efficiency is calculated.

Selection of Projects: Management uses the information developed in the prior step to develop the optimal mix of projects to be included in the WMP (and follow-on updates to the WMP) to deliver maximum risk reduction. This process also includes re-evaluating multi-year projects that are in progress to determine if they should be continued or discontinued. The expected outcome of this step is to develop an integrated and prioritized list of WMP projects to be developed and executed in the next and future WMPs. The list of selected projects is not sequenced in this step. Alternatives to the projects are considered and some projects are removed from consideration in this step.

The risk reductions and RSEs, developed using the Risk-Based Making-Decision process per the previous step, are utilized to establish an initial project selection screening. Then, the resulting outcome of executing the project is projected in the Fire Safety Matrix model. This provides more granular information at the circuit level. It should be noted that BVES's circuits are not long by comparison to many utilities. The longest circuit is 23.9 circuit miles (8 of those circuit miles are underground) and most circuits are less than 10 circuit miles in length. Additionally, the projects are viewed against the Risk Maps developed by Reax to determine where the wildfire mitigation greatest risk benefit may be achieved by each project.

Sequencing of Projects: In this step, management uses the information developed in the prior step to develop the optimal sequence in executing the selected WMP projects to

deliver the maximum wildfire risk reduction while balancing constraints (siting, designing, permitting, costs, access to labor, availability of equipment and material, mobilization/demobilization, etc.). This process also includes re-evaluating the pace at which multi-year projects in progress are to be executed, or even paused. The expected outcome of this step is to develop a well-sequenced WMP integrated risk-based project plan by year. The plan's 1-3 year horizon is mostly well defined, the 4-5 year horizon is projected with as much detail as feasible, and the 6-10 year horizon is more notional. This step focuses on allocating resources to the projects that are ready to execute given project constraints (siting, designing, permitting, costs, access to labor, availability of equipment and material, mobilization/demobilization, etc.) in a risk-based prioritized manner based on the information from the prior steps. A project may have a large risk reduction but permitting for the project is lengthy and may still be in progress; therefore, other projects with consequential risk benefit are sequenced ahead of the high risk-benefit project until it is ready to execute. This approach allows BVES to continuously make risk reduction progress in its grid hardening efforts.

Sequencing Specific Project Work Scopes: In this step, management determines the optimal sequence in executing the specific tasks within each of the selected WMP projects to deliver the maximum wildfire risk reduction while considering constraints (siting, designing, permitting, costs, access to labor, availability of equipment and material, mobilization/demobilization, etc.). This process also includes re-evaluating the task sequencing of multi-year projects in progress. Additionally, in determining specific project task sequencing, this step also considers other projects being executed and how best to seize synergy opportunities, improve resource allocation efficiency, stay focused on achieving the greatest risk reduction, and coordinate between projects to avoid inefficiencies, unnecessary delays, and re-work.

In sequencing projects, the focus is risk reduction. BVES prioritizes and plans work based upon the highest relative risk areas as determined in the Fire Safety Matrix model and the Risk Maps developed by Reax Engineering. It should be noted that Bear Valley's entire 32 square mile service area is "high risk." The service area is considered "Very Dry" or "Dry" per the National Fire Danger Rating System (NFDRS) over 75 percent of the time. The service area terrain is characterized with a high density of vegetation – trees and shrubs. The CPUC Fire-Threat Map adopted January 19, 2018, designated Bear Valley's service area as being in the High Fire-Threat District (HFTD) with approximately 90% in Tier 2 (elevated risk) and the remaining 10% in Tier 3 (extreme risk) areas. The Cal Fire California Fire Hazard Severity Zone Map Update Project rates Bear Valley's service area as "Very High Fire Hazard Severity Zone." While one can rank the relative risk of BVES's facilities within the service area, it should be understood that all of BVES's service area is high risk. In such a small service area, an ignition anywhere can produce embers that the wind can carry just a few blocks away and cause a wildfire. In achieving the highest risk reduction, BVES most allow temper execution within the typical project constraints related to siting, designing, permitting, costs, access to labor, availability of equipment and material, mobilization/demobilization, etc.

Q05. Regarding PSPS Risk and Decisions

a. There is insufficient detail and discussion on PSPS risk quantification and decision-making: i. Provide a table or other depiction of PSPS risk scores
ii. Explain what criteria are used to make a PSPS decision based on PSPS risk scores or other PSPS analytics
iii. What is the estimated impact of PSPS on wildfire risk?
iv. What is the impact of planned mitigations on PSPS risk score?

Response:
Q05.a.i: See table is attached file "OEIS-P-WMP_2023-BVES-004 Q05".

Q05.b.ii: At the time of WMP submittal, BVES's criteria was as follows:
Criteria based on many factors including system design limits, system condition, fuel availability, and likelihood of wildfire spread. BVES would invoke PSPS if actual sustained wind or 3-second wind gusts exceed 55 mph and conditions are High Risk for wildfire threat per the National Fire Danger Rating System (NFDRS) for zone SC-10. Additionally, Wildfire Response Teams (WRTs) are deployed in the field if sustained wind or 3-second wind gusts exceed 40 mph. Management may initiate a PSPS if reports from the WRTs indicate blow-ins or other ignition high risk conditions exist below winds or gusts reach 55 mph.

Recently (July 2023), BVES has replaced using the NFDRS with the Technosylva WFA-E in its decision making for PSPS. BVES specifically looks at the risk along its overhead facilities associated with the following consequences in the WFA-E forecast:

- Fire Behavior Index
- Fire Size Potential
- Buildings Impacted
- Population Impacted

High risk combined with high winds and gusts (greater than 55 mph) will trigger a PSPS. Wildfire Response Teams (WRTs) are deployed during high risk periods and wind gusts (greater than 40 mph). If WRTs report hazard conditions (such as blow-ins) exist, PSPS may be invoked at less than BVES's PSPS wind and gust threshold.

Q05.b.iii: BVES has not previously calculated wildfire risk reduction due to PSPS as it views PSPS as a measure of last resort and that once lines are de-energized, the risk of ignition is significantly reduced. It should be noted that BVES has never invoked a PSPS event. Additionally, after review of weather during dry conditions in the last 6 years, BVES has concluded that during that period, winds never approached BVES's PSPS threshold to invoke PSPS. Given the 2023-2025 WMP Guidelines require BVES to calculate wildfire risk reduction due to PSPS, BVES is taking steps to develop this capability.

Q05.a.iv: See table is attached file "OEIS-P-WMP_2023-BVES-004 Q05".

Q06. Online Diagnostic Pilot (SAF_3) a. In Section 8.3, 3-year objectives table 8-21, BVES plans to complete its pilot of its online diagnostics system. In table 8-23, (page 235) of situational awareness targets BVES plans to install online diagnostic system on 2 circuits in 2023, 1 circuit in 2024, and 1 circuit in 2025. i. Provide additional explanation on what equipment or capabilities will be implemented in 2023?
ii. Is the initiative, SAF_3 online diagnostic system, a 1-year pilot that is completed in EOY 2023? (1) If so, provide further detail on the targets for SAF_3 online diagnostics in 2024 and 2025 in table 8-23.
(2) If not, provide additional detail on what will be implemented in 2024 and 2025 for the online diagnostic system?

Response:
i. The equipment that has been utilized to implement BVES 2023 online diagnostic system pilot program includes:
1) Self-contained multi-sensing units with a dual layer gateway communication system;
2) A wireless mesh network, automatically formed, connects all sensor along the grid to an area gateway. From the gateway, the data is transmitted to the server via available general communication infrastructure; and
3) A server, that by utilizing an advanced set of algorithms and software, analyzes the data collected from all sensors and provide grid visualization, real-time alerts and alarms accurate location, predictions of malfunctions and operational recommendations. The information is then presented on a customer user interface, including Geographic Information System (GIS). Fault locations are shown on a map. System outputs can be exported to automation system such as ADMS.

ii. The initial install was a pilot and based on the results of the initial install the pilot has transitioned to a project. Therefore, SAF_3 is now a project that continues through 2025. BVES completed installation of online diagnostic system pilot program in June 2023 and is in the process of analyzing the customer user interface of the system. A minimum of two sets of three multi-sensing units and two gateway communication boxes are required per circuit. For the 2024 and 2025 SAF_3 targets, BVES will need to evaluate the circuits to decide the number of and appropriate locations for the sets of three multi-sensing units and gateway communication boxes it will need. A key goal in completing the project is to be able to display fault locations on BVES's GIS and real-time alerting and alarming is activated.

Q07. Regarding Community Outreach Targets – Verification Methods a. In Tables 8-55 and 8-56 of BVES's WMP (pages 347-348), BVES lists "Quantitative" as the method of verification for some of its Community Outreach targets. Please confirm whether these are BVES's intended methods of verification for these targets.
i. If this was a typo/error, please provide the intended method of verification for each of these targets.

ii. If this was not a typo/error, please explain what is meant by “Quantitative” in this context and describe what, specifically, BVES uses to verify progress on and achievement of each of these targets.

Response i and ii:

For Tables 8-55 and 8-56, “Quantitative” measurements are the method of verification for the Community Outreach targets. For each target, the number of appropriate engagements/contacts is tracked and counted as verification. More defined targets for verification of the programs are shown in “Updated Table 55 and 56”.

END OF REQUEST

Attachment OEIS-P-WMP_2023-BVES-004 Q04

ID	Mitigtaion	Execution Period	Duration (years)	Funding Type	Percent Completed or Implemented	Mitigation Converted to Control	Risk Addressed	Un-mitigated Risk Score	Mitigated Risk Score	Risk Benefit	RSE	Risk Elimination Progress	Remaining Risk Benefit
44	Underground Overhead Bare Wire Program - 34.5 kV System	Alternate	10	CAPEX	0%	No	Wildfire - Public Safety	1020565	4915	1,015,650	0.077	0	1,015,650
45	Underground Overhead Bare Wire Program - 4 kV System	Alternate	10	CAPEX	0%	No	Wildfire - Public Safety	1020565	4915	1,015,650	0.035	0	1,015,650
69	Undergrounding of electric lines and/or equipment	Ongoing	Ongoing	CAPEX	100%	Yes	Wildfire - Public Safety	1020565	4915	1,015,650	3.385	1015650	0
5	Covered conductor installation	2021-2030	6	CAPEX	18%	No	Wildfire - Public Safety	1020565	15543	1,005,021	0.164	176120	828,902
61	North Shore Support Project	2026	1	CAPEX	0%	No	Wildfire - Public Safety	1020565	120793	899,772	0.308	0	899,772
3	Replace Radford Line	2022	1	CAPEX	5%	No	Wildfire - Public Safety	1020565	127571	892,994	0.150	44650	848,345
27	Proactive Replacement Program for Poles and Substations	Alternate	NA	CAPEX	0%	No	Wildfire - Public Safety	1020565	127571	892,994	0.083	0	892,994
4	Tree Attachment Replacement Program	2018-2026	9	CAPEX	41%	No	Wildfire - Public Safety	1020565	129563	891,002	1.426	365311	525,691
9	LiDAR inspections of distribution electric lines and equipment	Ongoing	Ongoing	O&M	99%	Yes	Wildfire - Public Safety	1020565	129836	890,729	3.816	881822	8,907
10	3rd Party Ground Patrol	Ongoing	Ongoing	O&M	99%	Yes	Wildfire - Public Safety	1020565	129836	890,729	5.662	881822	8,907
30	Circuit breaker maintenance and installation to de-energize lines upon detecting a fault	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	129836	890,729	7.474	890729	0
31	Covered conductor maintenance	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	129836	890,729	15.048	890729	0
32	Crossarm maintenance, repair, and replacement	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	129836	890,729	8.595	890729	0
49	UAV HD Photography/Videography & Infrared inspections of distribution electric lines and equipment	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	129836	890,729	2.819	890729	0
66	Maintenance, repair, and replacement of connectors, including hotline clamps	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	129836	890,729	35.664	890729	0
67	Other corrective action	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	129836	890,729	4.641	890729	0
68	Transformers maintenance and replacement	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	129836	890,729	5.641	890729	0
70	Detailed inspections of distribution electric lines and equipment	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	129836	890,729	26.960	890729	0
72	Patrol inspections of distribution electric lines and equipment	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	129836	890,729	11.496	890729	0
73	Improvement of inspections	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	129836	890,729	22.203	890729	0
75	Quality assurance / quality control of inspections	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	129836	890,729	22.203	890729	0
77	Substation vegetation management	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	129836	890,729	25.303	890729	0
78	Protective equipment and device settings	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	129836	890,729	36.235	890729	0
83	Fault Isolation Localization and Service Restoration (FLISR)	2020-2022	3	CAPEX	95%	No	Wildfire - Public Safety	1020565	129836	890,729	1.202	846193	44,536
84	Online Diagnostic System	2022	1	CAPEX	0%	No	Wildfire - Public Safety	1020565	129836	890,729	11.876	0	890,729
15	Safety and Technical Upgrades to Pineknot Substation	2019-2020	1	CAPEX	100%	No	Wildfire - Public Safety	1020565	132638	887,927	0.302	887927	0
16	Safety and Technical Upgrades to Fawnskin Substation	2027	1	CAPEX	0%	No	Wildfire - Public Safety	1020565	132638	887,927	0.202	0	887,927
17	Safety and Technical Upgrades to Snow Summit Substation	2024	1	CAPEX	0%	No	Wildfire - Public Safety	1020565	132638	887,927	0.137	0	887,927
18	Safety and Technical Upgrades to Pineknot Substation	2019-2020	1	CAPEX	100%	No	Wildfire - Public Safety	1020565	132638	887,927	0.302	887927	0
19	Safety and Technical Upgrades to Lake Substation	2025	1	CAPEX	0%	No	Wildfire - Public Safety	1020565	132638	887,927	0.402	0	887,927
20	Partial Safety and Technical Upgrades to Village Substation	2025	1	CAPEX	0%	No	Wildfire - Public Safety	1020565	132638	887,927	0.807	0	887,927
21	Safety and Technical Upgrades to Bear Mountain Substation	2028	1	CAPEX	0%	No	Wildfire - Public Safety	1020565	132638	887,927	0.161	0	887,927
25	Install Grid Automation	2023-2026	4	CAPEX	95%	No	Wildfire - Public Safety	1020565	132638	887,927	0.915	843531	44,396
26	Substation inspections	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	132638	887,927	1.973	887927	0

55	Partial Safety and Technical Upgrades to Maltby Substation	2024	1	CAPEX	0%	No	Wildfire - Public Safety	1020565	132638	887,927	0.493	0	887,927
56	Substation Automation	2023-2025	3	CAPEX	0%	No	Wildfire - Public Safety	1020565	132638	887,927	1.454	0	887,927
57	Switch and Field Device Automation	2023-2026	4	CAPEX	0%	No	Wildfire - Public Safety	1020565	132638	887,927	1.240	0	887,927
85	Substation and Grid Infrastructure Improvements	Ongoing	Ongoing	CAPEX	100%	Yes	Wildfire - Public Safety	1020565	132638	887,927	2.166	887927	0
14	Evacuation Route Hardening- Wire Wrap Mesh	2021-2031	11	CAPEX	15%	No	Wildfire - Public Safety	1020565	134630	885,935	0.971	135425	750,510
24	Recloser Upgrade Project	2019-2020	2	CAPEX	100%	No	Wildfire - Public Safety	1020565	160657	859,907	2.961	859907	0
54	Fault indicators for detecting faults on electric lines and equipment	2022-2023	1	CAPEX	0%	No	Wildfire - Public Safety	1020565	160657	859,907	3.184	0	859,907
60	Fuse TripSaver Automation	2023-2026	4	CAPEX	0%	No	Wildfire - Public Safety	1020565	160657	859,907	5.516	0	859,907
62	Advanced Metering Infrastructure (AMI) Project	2025	1	CAPEX	0%	No	Wildfire - Public Safety	1020565	160657	859,907	0.294	0	859,907
11	Install Weather Stations	2020-2021	2	CAPEX	100%	No	Wildfire - Public Safety	1020565	251084	769,481	7.847	769481	0
12	Weather Forecasting Services	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	253077	767,488	15.010	767488	0
23	Automatic recloser operations	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	253077	767,488	19.131	767488	0
52	Evacuation Route Hardening - Install Fire Resistant Poles	Alternate	6	CAPEX	0%	No	Wildfire - Public Safety	1020565	253077	767,488	0.095	0	767,488
53	Evacuation Route Hardening- Underground Overhead Facilities	Alternate	6	CAPEX	0%	No	Wildfire - Public Safety	1020565	253077	767,488	0.050	0	767,488
58	Capacitor maintenance and replacement program	2023-2026	4	CAPEX	0%	No	Wildfire - Public Safety	1020565	275467	745,098	2.225	0	745,098
88	Facilities Infrastructure and Capital Equipment Improvements	Ongoing	Ongoing	CAPEX	100%	Yes	Wildfire - Public Safety	1020565	276030	744,535	1.489	744535	0
8	Contract Exacter Services	Alternate	None	O&M	0%	No	Wildfire - Public Safety	1020565	281097	739,468	5.905	0	739,468
13	Install ALERT Wildfire HD Camera System	2020-2021	2	CAPEX	100%	No	Wildfire - Public Safety	1020565	281097	739,468	23.248	739468	0
22	Risk Assessment & Mapping & Resource Allocation Methodology	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	2.077	739468	0
29	Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	32.697	739468	0
35	Protocols for PSPS re-energization	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	13.334	739468	0
36	Preparedness and planning for service restoration and Protocols in place to learn from wildfire events	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	27.052	739468	0
37	Adequate and trained workforce for service restoration	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	46.422	739468	0
38	Disaster and emergency preparedness plan	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	51.509	739468	0
39	Centralized repository for data	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	3.712	739468	0
40	Tracking and analysis of near miss data	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	51.509	739468	0
41	Implement iRestore APP	2020	3	CAPEX	100%	No	Wildfire - Public Safety	1020565	281097	739,468	10.897	739468	0
46	Forester Consulting Services	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	3.581	739468	0
59	Critical Vehicle Replacement Program	Ongoing	Ongoing	CAPEX	0%	No	Wildfire - Public Safety	1020565	281097	739,468	1.327	0	739,468
63	Distribution Management Center	2024	1	CAPEX	0%	No	Wildfire - Public Safety	1020565	281097	739,468	20.362	0	739,468
64	Server Room	2023	1	CAPEX	0%	No	Wildfire - Public Safety	1020565	281097	739,468	5.968	0	739,468
76	Fuel management (including all wood management) and management of “slash” from vegetation management activities	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	3.270	739468	0
79	Personnel work procedures and training in conditions of elevated fire risk	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	47.597	739468	0
80	Documentation and disclosure of wildfire-related data and algorithms	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	44.764	739468	0
81	Allocation methodology development and application	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	47.597	739468	0
82	Stakeholder Cooperation & Community Engagement	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	6.811	739468	0
87	Overhead Distribution and Transmission Infrastructure Improvements	Ongoing	Ongoing	CAPEX	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	0.924	739468	0
90	New Business Funded by BVES and Others	Ongoing	Ongoing	CAPEX	100%	Yes	Wildfire - Public Safety	1020565	281097	739,468	6.430	739468	0

1	Enhanced Vegetation Management Program	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	403414	617,151	0.136	617151	0
2	Pole loading infrastructure hardening and replacement program based on pole loading assessment program	2018-2022	5	CAPEX	42%	No	Wildfire - Public Safety	1020565	403414	617,151	0.253	259203	357,948
6	Expulsion fuse replacement	2020-2021	2	CAPEX	100%	No	Wildfire - Public Safety	1020565	403414	617,151	0.208	617151	0
71	Distribution pole replacement and reinforcement, including with composite poles	2022	1	CAPEX	0%	No	Wildfire - Public Safety	1020565	403414	617,151	1.543	0	617,151
74	Intrusive pole inspections	Ongoing	Ongoing	O&M	100%	Yes	Wildfire - Public Safety	1020565	403414	617,151	9.510	617151	0

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ID	Mitigtaion	Execution Period	Duration (years)	Equivalent Annual Cost	Funding Type	Percent Completed or Implemented	Mitigation Converted to Control	Risk Addressed	Un-mitigated Risk Score	Mitigated Risk Score	Risk Benefit	RSE	Risk Elimination Progress	Remaining Risk Benefit
1	Enhanced Vegetation Management Program	Ongoing	Ongoing	$ 4,523,140	O&M	100%	Yes	PSPS (loss of supplies)	435776	42363	393,413	0.087	393413	0
2	Pole loading infrastructure hardening and replacement program based on pole loading assessment program	2018-2022	5	$ 2,444,131	CAPEX	42%	No	PSPS (loss of supplies)	435776	42363	393,413	0.161	165233	228,179
3	Replace Radford Line	2022	1	$ 5,958,811	CAPEX	5%	No	PSPS (loss of supplies)	435776	13524	422,252	0.071	21113	401,139
5	Covered conductor installation	2021-2030	6	$ 6,141,342	CAPEX	18%	No	PSPS (loss of supplies)	435776	468	435,308	0.071	76283	359,024
7	Construct Solar Generating Facility within BVES Service Territory	2023	1	$ 16,000,000	CAPEX	0%	No	PSPS (loss of supplies)	435776	131971	303,805	0.019	0	303,805
8	Contract Exacter Services	Alternate	None	$ 125,220	O&M	0%	No	PSPS (loss of supplies)	435776	421505	14,271	0.114	0	14,271
9	LiDAR inspections of distribution electric lines and equipment	Ongoing	Ongoing	$ 233,416	O&M	99%	Yes	PSPS (loss of supplies)	435776	131971	303,805	1.302	300767	3,038
10	3rd Party Ground Patrol	Ongoing	Ongoing	$ 157,327	O&M	99%	Yes	PSPS (loss of supplies)	435776	131971	303,805	1.931	300767	3,038
11	Install Weather Stations	2020-2021	2	$ 98,064	CAPEX	100%	No	PSPS (loss of supplies)	435776	131971	303,805	3.098	303805	0
12	Weather Forecasting Services	Ongoing	Ongoing	$ 51,131	O&M	100%	Yes	PSPS (loss of supplies)	435776	133963	301,813	5.903	301813	0
15	Safety and Technical Upgrades to Pineknot Substation	2019-2020	1	$ 2,936,929	CAPEX	100%	No	PSPS (loss of supplies)	435776	421505	14,271	0.005	14271	0
16	Safety and Technical Upgrades to Fawnskin Substation	2027	1	$ 4,400,000	CAPEX	0%	No	PSPS (loss of supplies)	435776	421505	14,271	0.003	0	14,271
17	Safety and Technical Upgrades to Snow Summit Substation	2024	1	$ 6,500,000	CAPEX	0%	No	PSPS (loss of supplies)	435776	421505	14,271	0.002	0	14,271
18	Safety and Technical Upgrades to Pineknot Substation	2019-2020	1	$ 2,936,929	CAPEX	100%	No	PSPS (loss of supplies)	435776	421505	14,271	0.005	14271	0
19	Safety and Technical Upgrades to Lake Substation	2025	1	$ 2,208,687	CAPEX	0%	No	PSPS (loss of supplies)	435776	421505	14,271	0.006	0	14,271
20	Partial Safety and Technical Upgrades to Village Substation	2025	1	$ 1,100,000	CAPEX	0%	No	PSPS (loss of supplies)	435776	421505	14,271	0.013	0	14,271
21	Safety and Technical Upgrades to Bear Mountain Substation	2028	1	$ 5,500,000	CAPEX	0%	No	PSPS (loss of supplies)	435776	421505	14,271	0.003	0	14,271
22	Risk Assessment & Mapping & Resource Allocation Methodology	Ongoing	Ongoing	$ 356,028	O&M	100%	Yes	PSPS (loss of supplies)	435776	42552	393,224	1.104	393224	0
25	Install Grid Automation	2023-2026	4	$ 970,422	CAPEX	95%	No	PSPS (loss of supplies)	435776	421505	14,271	0.015	13557	714
26	Substation inspections	Ongoing	Ongoing	$ 449,954	O&M	100%	Yes	PSPS (loss of supplies)	435776	421505	14,271	0.032	14271	0
27	Proactive Replacement Program for Poles and Substations	Alternate	NA	$ 10,795,533	CAPEX	0%	No	PSPS (loss of supplies)	435776	13524	422,252	0.039	0	422,252
30	Circuit breaker maintenance and installation to de-energize lines upon detecting a fault	Ongoing	Ongoing	$ 119,175	O&M	100%	Yes	PSPS (loss of supplies)	435776	421505	14,271	0.120	14271	0
31	Covered conductor maintenance	Ongoing	Ongoing	$ 59,194	O&M	100%	Yes	PSPS (loss of supplies)	435776	13524	422,252	7.133	422252	0
32	Crossarm maintenance, repair, and replacement	Ongoing	Ongoing	$ 103,639	O&M	100%	Yes	PSPS (loss of supplies)	435776	13524	422,252	4.074	422252	0
35	Protocols for PSPS re-energization	Ongoing	Ongoing	$ 55,458	O&M	100%	Yes	PSPS (loss of supplies)	435776	59326	376,450	6.788	376450	0
36	Preparedness and planning for service restoration and Protocols in place to learn from wildfire events	Ongoing	Ongoing	$ 27,335	O&M	100%	Yes	PSPS (loss of supplies)	435776	59326	376,450	13.771	376450	0
37	Adequate and trained workforce for service restoration	Ongoing	Ongoing	$ 15,929	O&M	100%	Yes	PSPS (loss of supplies)	435776	59326	376,450	23.632	376450	0
38	Disaster and emergency preparedness plan	Ongoing	Ongoing	$ 14,356	O&M	100%	Yes	PSPS (loss of supplies)	435776	59326	376,450	26.222	376450	0
39	Centralized repository for data	Ongoing	Ongoing	$ 199,215	O&M	100%	Yes	PSPS (loss of supplies)	435776	132638	303,138	1.522	303138	0
40	Tracking and analysis of near miss data	Ongoing	Ongoing	$ 14,356	O&M	100%	Yes	PSPS (loss of supplies)	435776	59326	376,450	26.222	376450	0
41	Implement iRestore APP	2020	3	$ 67,860	CAPEX	100%	No	PSPS (loss of supplies)	435776	132638	303,138	4.467	303138	0
42	BVPP Reliability Upgrades	2021-2023	3	$ 2,770,940	CAPEX	60%	No	PSPS (loss of supplies)	435776	111511	324,264	0.117	194559	129,706
44	Underground Overhead Bare Wire Program - 34.5 kV System	Alternate	10	$ 13,224,000	CAPEX	0%	No	PSPS (loss of supplies)	435776	48821	386,955	0.029	0	386,955
45	Underground Overhead Bare Wire Program - 4 kV System	Alternate	10	$ 28,632,240	CAPEX	0%	No	PSPS (loss of supplies)	435776	48821	386,955	0.014	0	386,955
46	Forester Consulting Services	Ongoing	Ongoing	$ 206,491	O&M	100%	Yes	PSPS (loss of supplies)	435776	148821	286,954	1.390	286954	0
47	Construct Energy Storage Facility within BVES Service Territory	2024	1	$ 11,172,000	CAPEX	0%	No	PSPS (loss of supplies)	435776	131971	303,805	0.027	0	303,805

49	UAV HD Photography/Videography & Infrared inspections of distribution electric lines and equipment	Ongoing	Ongoing	$ 315,974	O&M	100%	Yes	PSPS (loss of supplies)	435776	131971	303,805	0.961	303805	0
54	Fault indicators for detecting faults on electric lines and equipment	2022-2023	1	$ 270,108	CAPEX	0%	No	PSPS (loss of supplies)	435776	48821	386,955	1.433	0	386,955
55	Partial Safety and Technical Upgrades to Maltby Substation	2024	1	$ 1,800,900	CAPEX	0%	No	PSPS (loss of supplies)	435776	421505	14,271	0.008	0	14,271
56	Substation Automation	2023-2025	3	$ 610,496	CAPEX	0%	No	PSPS (loss of supplies)	435776	421505	14,271	0.023	0	14,271
57	Switch and Field Device Automation	2023-2026	4	$ 716,161	CAPEX	0%	No	PSPS (loss of supplies)	435776	421505	14,271	0.020	0	14,271
59	Critical Vehicle Replacement Program	Ongoing	Ongoing	$ 557,116	CAPEX	0%	No	PSPS (loss of supplies)	435776	48420	387,356	0.695	0	387,356
61	North Shore Support Project	2026	1	$ 2,924,268	CAPEX	0%	No	PSPS (loss of supplies)	435776	414834	20,941	0.007	0	20,941
63	Distribution Management Center	2024	1	$ 36,317	CAPEX	0%	No	PSPS (loss of supplies)	435776	42151	393,625	10.839	0	393,625
64	Server Room	2023	1	$ 123,908	CAPEX	0%	No	PSPS (loss of supplies)	435776	42151	393,625	3.177	0	393,625
65	Critical BVPP Safety and Environmental Compliance Service Program	Ongoing	Ongoing	$ 81,491	O&M	75%	No	PSPS (loss of supplies)	435776	111511	324,264	3.979	243198	81,066
66	Maintenance, repair, and replacement of connectors, including hotline clamps	Ongoing	Ongoing	$ 24,976	O&M	100%	Yes	PSPS (loss of supplies)	435776	13524	422,252	16.907	422252	0
67	Other corrective action	Ongoing	Ongoing	$ 191,938	O&M	100%	Yes	PSPS (loss of supplies)	435776	13524	422,252	2.200	422252	0
68	Transformers maintenance and replacement	Ongoing	Ongoing	$ 157,917	O&M	100%	Yes	PSPS (loss of supplies)	435776	13524	422,252	2.674	422252	0
69	Undergrounding of electric lines and/or equipment	Ongoing	Ongoing	$ 300,000	CAPEX	100%	Yes	PSPS (loss of supplies)	435776	48821	386,955	1.290	386955	0
70	Detailed inspections of distribution electric lines and equipment	Ongoing	Ongoing	$ 33,039	O&M	100%	Yes	PSPS (loss of supplies)	435776	131971	303,805	9.195	303805	0
71	Distribution pole replacement and reinforcement, including with composite poles	2022	1	$ 400,000	CAPEX	0%	No	PSPS (loss of supplies)	435776	42363	393,413	0.984	0	393,413
72	Patrol inspections of distribution electric lines and equipment	Ongoing	Ongoing	$ 77,483	O&M	100%	Yes	PSPS (loss of supplies)	435776	131971	303,805	3.921	303805	0
73	Improvement of inspections	Ongoing	Ongoing	$ 40,118	O&M	100%	Yes	PSPS (loss of supplies)	435776	131971	303,805	7.573	303805	0
74	Intrusive pole inspections	Ongoing	Ongoing	$ 64,897	O&M	100%	Yes	PSPS (loss of supplies)	435776	42363	393,413	6.062	393413	0
75	Quality assurance / quality control of inspections	Ongoing	Ongoing	$ 40,118	O&M	100%	Yes	PSPS (loss of supplies)	435776	131971	303,805	7.573	303805	0
77	Substation vegetation management	Ongoing	Ongoing	$ 35,202	O&M	100%	Yes	PSPS (loss of supplies)	435776	421505	14,271	0.405	14271	0
78	Protective equipment and device settings	Ongoing	Ongoing	$ 24,582	O&M	100%	Yes	PSPS (loss of supplies)	435776	421505	14,271	0.581	14271	0
83	Fault Isolation Localization and Service Restoration (FLISR)	2020-2022	3	$ 740,947	CAPEX	95%	No	PSPS (loss of supplies)	435776	421505	14,271	0.019	13557	714
84	Online Diagnostic System	2022	1	$ 75,000	CAPEX	0%	No	PSPS (loss of supplies)	435776	48508	387,268	5.164	0	387,268
85	Substation and Grid Infrastructure Improvements	Ongoing	Ongoing	$ 410,000	CAPEX	100%	Yes	PSPS (loss of supplies)	435776	421505	14,271	0.035	14271	0
86	Generating Facility Infrastructure Improvements	Ongoing	Ongoing	$ 200,000	O&M	100%	Yes	PSPS (loss of supplies)	435776	111511	324,264	1.621	324264	0
87	Overhead Distribution and Transmission Infrastructure Improvements	Ongoing	Ongoing	$ 800,000	CAPEX	100%	Yes	PSPS (loss of supplies)	435776	48508	387,268	0.484	387268	0
88	Facilities Infrastructure and Capital Equipment Improvements	Ongoing	Ongoing	$ 500,000	CAPEX	100%	Yes	PSPS (loss of supplies)	435776	42239	393,537	0.787	393537	0