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

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Caroline Thomas Jacobs, Director

To: The Public, Local and State Agencies, and Stakeholders for Bear Valley Electric Services, Inc. 2021 Wildfire Mitigation Plan Independent Evaluator Annual Report on Compliance

July 15, 2022

Enclosed is the Final 2021 Wildfire Mitigation Plan (WMP) Independent Evaluator Annual Report on Compliance detailing the independent evaluator's assessment of Bear Valley Electric Services, Inc. (BVES) compliance with its 2021 WMP. This report was prepared by BVES contracted independent evaluator and issued to the Office of Energy Infrastructure Safety (Energy Safety) on July 1, 2022, to fulfill the requirements of Public Utilities Code Section 8386.3(c)(2)(B)(i).

The content of this report is the work product of the respective independent evaluator. The findings and conclusions in this report do not represent the views or opinions of the Office of Energy Infrastructure Safety (Energy Safety) or any of its employees. Pursuant to Public Utilities Code Section 8386.3(c)(2)(B)(ii) the independent evaluator's findings are not binding on Energy Safety. Neither Energy Safety nor the State of California, nor any officer, employee, or any of its contractors or subcontractors makes any warranty, express or implied, or assumes any legal liability whatsoever for the contents of these documents.

On July 15, 2022, a public version of this 2021 WMP Independent Evaluator Annual Report on Compliance is published for public review and comment. Please be advised, information designated by BVES as confidential has been redacted from the published report. Comments must be submitted no later than August 15, 2022.[1] Comments must be submitted to Energy Safety's e-filing system in the 2022 Independent Evaluator docket (#2022-IE).[2]

Sincerely,

Melissa Semcer
Deputy Director | Electrical Safety Directorate
Office of Energy Infrastructure Safety

[1] Dates falling on a Saturday, Sunday, or a holiday as defined in Government Code Section 6700 have been adjusted to the next business day in accordance with Government Code Section 6707.
[2] Submit comments to the 2022-IE docket via the Energy Safety e-filing system here: https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=2022-IE (accessed June 28, 2022)

Final Independent Evaluator Annual Report on Compliance

BVES 2021 Wildfire Mitigation Plan Compliance Assessment

Prepared for

Bear Valley Electric Services, Inc.

Prepared by Sargent & Lundy

Final

June 30, 2022

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1. EXECUTIVE SUMMARY

Bear Valley Electric Services, Inc. (BVES) is an investor-owned electric utility in the mountain resort community of Big Bear Lake, California. BVES provides service to approximately 23,000 customers in a service area of approximately 32 square miles.

In accordance with California Office of Energy Infrastructure Safety (Energy Safety) wildfire mitigation requirements, BVES engaged Sargent & Lundy (S&L) to perform an independent evaluation of BVES's compliance with its 2021 Wildfire Mitigation Plan (WMP). As part of this evaluation, S&L performed desktop reviews and site visits (via a third-party contractor, ICON Utility Services) of the WMP initiatives. S&L followed the scope of work outlined in the Energy Safety Independent Evaluator Kick-Off presentation dated April 4, 2022.

The evaluation reviewed and assessed BVES's compliance with its WMP. It included the verification of compliance with initiative targets, verification of funding for each identified WMP activity, and validation and descriptions of relevant BVES quality assurance/quality control (QA/QC) programs in place for WMP compliance.

S&L's evaluation was based on reviews of: (i) the WMP; (ii) the BVES 2021 WMP Revised Annual Filing; (iii) the BVES 2021 annual report on compliance; (iv) quarterly reports (including the quarterly initiative update [QIU]); (v) BVES-provided, initiative-specific documentation; (vi) interviews with BVES subject matter experts (SMEs); and (vii) input from site visits regarding WMP utility initiatives specific to BVES assets. The field visits were performed on May 23—27, 2022 by four International Brotherhood of Electrical Workers (IBEW) qualified electrical workers from S&L's subcontractor, ICON Utility Services. SME interviews were held between June 2, 2022 and June 6, 2022.

1.1. WMP ACTIVITY COMPLETION

S&L reviewed the WMP activities with specific quantifiable or qualitative performance goals and/or targets as indicated in the WMP for compliance. BVES divided the relevant WMP initiatives into the following four assessment categories:

Table 1-1 — WMP Assessment Categories

Assessment Category	Energy Safety Definition	Number of BVES Initiatives
Large Field Verifiable	Large volume (≥100 units) + quantifiable goal/target + field verifiable WMP activities	8
Large Non-Field Verifiable	Large volume (≥100 units) + quantifiable goal/target + non-field verifiable WMP activities	15
Small	Small volume (<100 units) + quantifiable goal/target WMP activities	8
Qualitative	Qualitative goal/target WMP activities	49
Not Applicable	"Not Applicable" or no goal/target WMP activities	14

For each initiative, S&L assessed WMP compliance in multiple dimensions, including work completion, work quality, and adherence to applicable protocols and procedures. For field-verifiable WMP initiative activities (in both the large- and small-volume categories), site visits for a sample of assets verified completion of installation, adherence to applicable protocols, and work quality. For all WMP initiative activities, S&L reviewed publicly available documents, as well as documents provided by BVES, and conducted SME interviews as needed to confirm the performance of the WMP initiative activities and adherence to applicable protocols and procedures.

For the assessment, S&L employed a statistical sampling methodology from which results were extrapolated to determine whether BVES met the performance goal specified in the WMP. For small-volume initiative activities, S&L reviewed and validated approximately 10–100% of available and relevant documents, quality records, and assets; this was largely dependent on document availability and time constraints. For large-volume initiative goal values, S&L attempted to review and validate approximately 5–20% of relevant documents, quality records, and assets.

With respect to the WMP activity completion, of the 94 total initiatives, S&L found that BVES complied with their plan and met the indicated target goals for all but four of their WMP initiatives. Even in instances where BVES did not meet the WMP initiative goal, the intent of the initiative was often achieved. The most common reasons initiative objectives were not met were that: (i) quantitative goals were overestimated (often due to a lack prior experience or unanticipated delays); (ii) there were unforeseen schedule delays (e.g., due to equipment lead times, third-party labor availability, or permitting delays); and (iii) modifications were made to the initiative activity or target goal during the course of the year. S&L found BVES did not meet the goals and/or targets for the following initiative activities:

- 7.3.3.3. Covered Conductor Replacement Program
- 7.3.3.3. Covered Conductor Replacement Program - Radford
- 7.3.3.6. Covered Conductor Project - Radford Line
- 7.3.4.3 Improvement of Inspections

Additionally, BVES did not have specific target goals or relevant activity for 20 of the 94 2021 initiatives. This made initiative assessment challenging, as WMP compliance was subjective. A general lack of granular documentation and quality records was also identified across many of the WMP initiatives; as a result, a review of the S&L-selected sample records was often limited or impossible. Nevertheless, the S&L assessment team found that BVES strove to comply with each of the WMP initiative goals to the best of their ability and appears to be proactive in the process of improving compliance-related documentation, record controls, staffing, and resource expansion for future WMP activities.

1.2. FUNDING VERIFICATION

S&L was able to obtain and compare budgets and actuals (i.e., actual 2021 per initiative BVES spending), including percentage variance, for each WMP initiative activity defined by Energy Safety, considering capital expenses (CAPEX) spending separate from OPEX spending. S&L identified 7 tasks for which actual CAPEX spending was less than what had been budgeted and 28 tasks for which actual operational spending (OPEX) was less than had been budgeted. This report documents the explanations provided by BVES for each instance of CAPEX or OPEX underspending relative to budget.

The greatest driver for the CAPEX underspending was under the “Distribution Pole Replacement & Reinforcement” initiative, which intends to replace the Radford line with covered power lines and poles that are resistant to fire. The budget for this initiative was not used during 2021 since the project is awaiting U.S. Forestry Service permit approval. BVES informed S&L that it anticipates obtaining the required permitting mid-2022.

With respect to OPEX, the largest underspending variance from the forecasted budget, -71%, was for spending on the “Situational Awareness & Forecasting” category. The initiatives under this WMP category are associated with the monitoring of areas with elevated fire risk conditions, weather forecasting, and estimations of impacts on electric lines and equipment, among others. BVES informed S&L that, during 2021, it did not experience any elevated risk events, which significantly reduced the spending required under this initiative.

1.3. VERIFICATION OF QA/QC PROGRAMS

S&L reviewed available documentation and conducted interviews of BVES SMEs to assess the BVES QA/QC programs for WMP compliance. Following an initial S&L request for QA/QC programs related to the WMP initiatives, BVES indicated that, in general, they do not have formal written QA/QC procedures, processes, or programs for controlling WMP activities. S&L's SME interviews and review of available documentation confirmed that—with the exceptions of the vegetation management, risk management, and emergency preparedness programs—the lack of written programs was prevalent throughout all 10 target categories. Despite this, S&L also found that BVES's utilization of informal procedures and team communication to govern and control the majority of their WMP compliance activities was relatively effective; however, it was also clear that detailed written programs and processes would provide enhanced quality controls as well as provide a more granular understanding of how WMP initiative-specific documents and records are generated, maintained, and updated as well as what specific quality records (or lower-tier documents) may be used to populate them. BVES indicated that significant improvements and additions for QA/QC programs for WMP activities are planned for future years with implementation beginning in 2022.

1.4. CONCLUSION

In general, S&L found BVES to be cooperative, responsive, transparent, and knowledgeable during the WMP compliance assessment. BVES did not hesitate to have one or several SMEs attend virtual interviews and respond to clarifications with short notice. The most common obstacle encountered by S&L evaluators during the BVES assessment was documentation submittal delays – especially for the more granular quality records and inspection reports; however, considering that the annual WMP compliance assessment is only in its second year—coupled with BVES being a smaller utility with less staff and resource availability—much of the delay was to be expected. Overall, the S&L assessment team found that BVES genuinely supported the S&L WMP review efforts to the best of their ability.

BVES adequately addressed most of the WMP activities and funded them appropriately. Where the goals or targets were not met, or for initiatives that were not fully funded, BVES appeared to often meet the intent of the initiative or made considerable progress. The most common reasons for variation from the plan was overestimation of target goals, unforeseen schedule delays, and modifications made to the initiative activity or target goal during the course of the year. Additional formal written QA/QC programs and procedures in future years will also help validate the BVES WMP.

2. INTRODUCTION

Bear Valley Electric Services, Inc. (BVES) is an investor-owned electric utility in the mountain resort community of Big Bear Lake, California. BVES provides service to approximately 23,000 customers in a service area of approximately 32 square miles.

In accordance with the California Office of Energy Infrastructure Safety (Energy Safety) wildfire mitigation requirements, BVES engaged Sargent & Lundy (S&L) to perform an independent evaluation of BVES's compliance with its 2021 Wildfire Mitigation Plan (WMP). As part of this evaluation, S&L performed site visits (via a third-party contractor, Icon Utility Services) and desktop reviews of the WMP initiatives. S&L followed the scope of work outlined in the Energy Safety's "Independent Evaluator Kick-Off" presentation dated April 4, 2022.

The evaluation reviewed and assessed BVES's compliance with its WMP. It included the verification of compliance with initiative targets, verification of funding for each identified WMP activity, and validation and descriptions of any relevant BVES quality assurance/quality control (QA/QC) programs in place for WMP compliance.

S&L's evaluation was based on reviews of: (i) the WMP; (ii) the BVES 2021 WMP Revised Annual Filing; (iii) the BVES 2021 annual report on compliance; (iv) quarterly reports (including the quarterly initiative update [QIU]); (v) BVES-provided, initiative-specific documentation; (vi) interviews with BVES subject matter experts (SMEs); and (vii) input from site visits regarding WMP utility initiatives specific to BVES assets. The field visits were performed on May 23–27, 2022 by four International Brotherhood of Electrical Workers (IBEW) qualified electrical workers from S&L's subcontractor, ICON Utility Services. SME interviews were held between June 2, 2022 and June 6, 2022.

3. INDEPENDENT EVALUATOR REVIEW OF COMPLIANCE

As part of this scope of work, S&L reviewed BVES's WMP activities for completion, verified WMP funding, and reviewed QA/QC programs applicable to the WMP. The review was based on available documents, reports, interviews with BVES SMEs, and site visits to multiple assets.

3.1. WMP ACTIVITY COMPLETION

S&L reviewed the WMP activities with specific quantifiable or qualitative performance goals and/or targets, as indicated in the WMP, for compliance. BVES divided the relevant WMP initiatives into four assessment categories as defined by Energy Safety as well as one additional "Not Applicable" (NA) category:

- Large volume (≥100 units) + quantifiable goal/target + field verifiable WMP activities
- Large volume (≥100 units) + quantifiable goal/target + non-field verifiable WMP activities
- Small volume (<100 units) + quantifiable goal/target WMP activities
- Qualitative goal/target WMP activities
- Not Applicable (BVES does not own the relevant WMP initiative assets or there was no specific 2021 goal/target or progress for the associated initiative)

Of the 94 BVES 2021 WMP initiative activities, 8 are considered large volume and field verifiable, 15 are considered large volume and non-field verifiable, 8 are considered small volume, 49 are considered qualitative, and 14 are considered NA.

For each activity, S&L assessed WMP compliance in multiple dimensions, including work completion, work quality, and adherence to applicable protocols and procedures. For field-verifiable WMP initiative activities (in both the large- and small-volume categories), S&L completed site visits(via a third-party contractor, ICON Utility Services) to a sample of assets to verify completion of installation, adherence to applicable protocols, and work quality. For all WMP initiative activities, S&L reviewed publicly available documents, as well as documents provided by BVES, and conducted SME interviews as needed to confirm the performance of the WMP initiative activities and adherence to applicable protocols and procedures.

A list of initiative activities considered for each category is provided in Appendix B.

3.1.1. Sampling Methodology and Discussion

The sampling methodology employed for quantitative, non-field-verifiable initiative documentation inspections (desktop reviews) during the assessment consisted of selecting a portion of each of the 2021

actualized quantitative initiative activity targets for review, inspection, and validation based on the goal volume (small versus large), document and quality record availability, asset accessibility, schedule limitations, and priority focus. S&L extrapolated results to determine whether BVES met the performance goal specified in the WMP.

For the small-volume initiative activities, S&L reviewed approximately 10–100% of available documentation. For the smaller populations, the sample size's percentage range typically included most of the population except when schedule limitations, access, or document availability issues were encountered. For large-volume initiative goal values, S&L attempted to review and validate approximately 5–20% of relevant documents, quality records, and assets. For larger populations, the sample size's percentage range is generally considered substantial enough to be statistically significant while providing reasonable confidence that the results of the sample reviews will be representative of the entire population. Since the entire BVES service area is located in a high fire-threat district (HFTD) and consists almost exclusively of Tier 2 (elevated-risk) areas (with the exception of the Radford line area, where no 2021 BVES WMP activity occurred), priority, fire-threat, and risk-based sample selection was irrelevant. A summary of the quantifiable WMP activities that are not field verifiable (both large and small) along with the associated activity quantity and sample size (i.e., desktop review samples) are shown in Table 3-1.

Table 3-1 — Summary of 2021 BVES WMP Desktop Review Samples by Initiative

No.	Target #	Category / Subject / Program	UtilityInitiativeName	Approach / Review Category	Quant Target Units	Quant Target	Quant Actual	Sample Size	Sample Percent
1	7.3.3.13	Grid Design & System Hardening	Pole Loading & Replacement Program [Primary]	L. Volume - No Field	Number of Poles Assessed	550	557	28	5%
2	7.3.4.1	Asset Management & Inspections	Detailed Inspection Program [Primary]	L. Volume - No Field	Circuit Miles Inspected	50	54.9	14 WOs	N/A
3	7.3.4.4	Asset Management & Inspections	UAV Thermography Program	L. Volume - No Field	Circuit Miles Inspected	211	211	70 WOs	N/A
4	7.3.4.6	Asset Management & Inspections	Intrusive Pole Inspection Program	L. Volume - No Field	Number of Poles Assessed	850	876	17 WOs	N/A
5	7.3.4.7	Asset Management & Inspections	LiDAR Inspection Program [Primary]	L. Volume - No Field	Circuit Miles Surveyed	211	289.56	15 WOs	N/A
6	7.3.4.9	Asset Management & Inspections	Third Party Ground Patrol	L. Volume - No Field	Circuit Miles Inspected	211	211	70 WOs	N/A
7	7.3.4.9	Asset Management & Inspections	UAV Thermography Program	L. Volume - No Field	Circuit Miles Inspected	211	211	70 WOs	N/A
8	7.3.4.11	Asset Management & Inspections	Patrol Inspection Program [Primary]	L. Volume - No Field	Circuit Miles Inspected	255	460.11	18 WOs	N/A
9	7.3.4.13	Asset Management & Inspections	Pole Loading & Replacement Program	L. Volume - No Field	Number of Poles Assessed	550	557	28	5%
10	7.3.4.15	Asset Management & Inspections	GO-174 Substation Inspection Program [Primary]	Small Volume	Number of Monthly Substations Inspected	144	144	26	18%
11	7.3.5.2	Vegetation Management & Inspections	Detailed Inspection Program	L. Volume - No Field	Circuit Miles Inspected	50	54.9	14 WOs	N/A
12	7.3.5.7	Vegetation Management & Inspections	LiDAR Inspection Program	L. Volume - No Field	Circuit Miles Surveyed	211	289.56	35 WOs	N/A
13	7.3.5.9	Vegetation Management & Inspections	UAV & Ground Patrol	L. Volume - No Field	Circuit Miles Inspected	211	211	15 WOs	N/A
14	7.3.5.11	Vegetation Management & Inspections	Patrol Inspection Program	L. Volume - No Field	Circuit Miles Inspected	255	460.11	6 WOs	N/A
15	7.3.5.13	Vegetation Management & Inspections	Quality Control of Inspections	Small Volume	Number of Quality Control Reviews Conducted	72	112	15 WOs	N/A
16	7.3.5.17	Vegetation Management & Inspections	GO-174 Substation Inspection Program	Small Volume	Number of Substations Inspected	144	144	36	25%
17	7.3.9.2	Emergency Planning & Preparedness	Community Outreach Program [Primary]	L. Volume - No Field	Number of Engagements (Radio, Newspaper, Online, Mail)	360	602	61	10%
18	7.3.10.1	Stakeholder Cooperation & Community Engagement	Community Outreach Program	L. Volume - No Field	Number of Engagements (Radio, Newspaper, Online, Mail)	360	602	61	10%

Note: "WOs" is an abbreviation for "Work Orders." For many non-field-verifiable initiatives, the quantitative target's unit of measure was "miles inspected" or "miles surveyed." Verification of these activities occurred through review of relevant selected BVES records in the form of work orders.

The sampling methodology employed for the quantitative, field-verifiable initiatives (small and large volume) consisted of the use of a statistically significant sample size estimate based on the total 2021 quantitative units (population) for each relevant initiative. Using relatively conservative assumptions with a 90% confidence level, this sample size is representative of the total population. Using the Wald method for the binomial distribution, S&L calculated a population proportion estimate assuming that the proportion

distribution will be closely approximated by a normal distribution (for a sufficiently large sample size, this is expected to be true). The following summarizes the formulas and methodology used to estimate the per-initiative sample sizes:

Sample Size Formula with Finite Population Correction:

$$n_0 = \frac{\hat{p} \times (1 - \hat{p}) \times z^2}{MOE^2}$$

$$n = \frac{n_0}{1 + \left(\frac{n_0}{N}\right)}$$

Where:

- n_0: Pre-correction sample size (nearest integer rounding)
- $\hat{p}$: Sample proportion
- z: Probability value—found by using a standard normal table or z-score table (based on desired confidence level)
- MOE: Margin of error (decimal)
- n: Sample size
- N: Population size (in S&L's application, this represents the 2021 actual quantitative value for the initiative)

Assumptions:

- $\hat{p}$ = 0.5 (conservatively assuming maximum distribution variance)
- z = 1.64 (based on 90% confidence level)
- MOE = 5.00%(the nominal assumed value)
- This formula assumes a normal distribution and random sampling.

Initiative 7.3.3.3, "Covered Conductor Replacement Program," and Initiative 7.3.3.9, "Grid Automation Program [Primary]," were given quantitative 2021 target goals measured in miles and percentages, respectively. The statistical sample sizing methodology discussed previously requires discrete population units. Measurements such as miles are not discrete and may lead to extremely variable sample sizes from a given population. For example, using larger units of measure (e.g., miles as opposed to feet) or percentages tends to result in extremely large (and erroneous) required sample sizes to achieve the desired confidence level. Conversely, smaller units of measure tend to result in relatively low sample sizes that may not provide the intended confidence level. For these initiatives, the target distances were divided into pole-

to-pole spans (BVES's average spans are approximately 150 ft long) to provide a more realistic and uniform population size.

Due to logistical issues from the third-party field verification team as well as schedule limitations, initiative activities 7.3.3.6, "Evacuation Route Hardening Program – Pilot," and 7.3.3.9, "Grid Automation Program" could not be confirmed. Each of the remaining WMP large and small volume field verifiable activities received sample field confirmation.

Additionally, for field-verifiable initiative activities, while S&L used randomization schemes to select samples, effort was made to ensure that samples were from relatively diverse regions within the BVES service area (e.g., heavily forested areas, highways, residential locations) where 2021 WMP activities occurred rather than choosing a large cluster of samples in the same region.

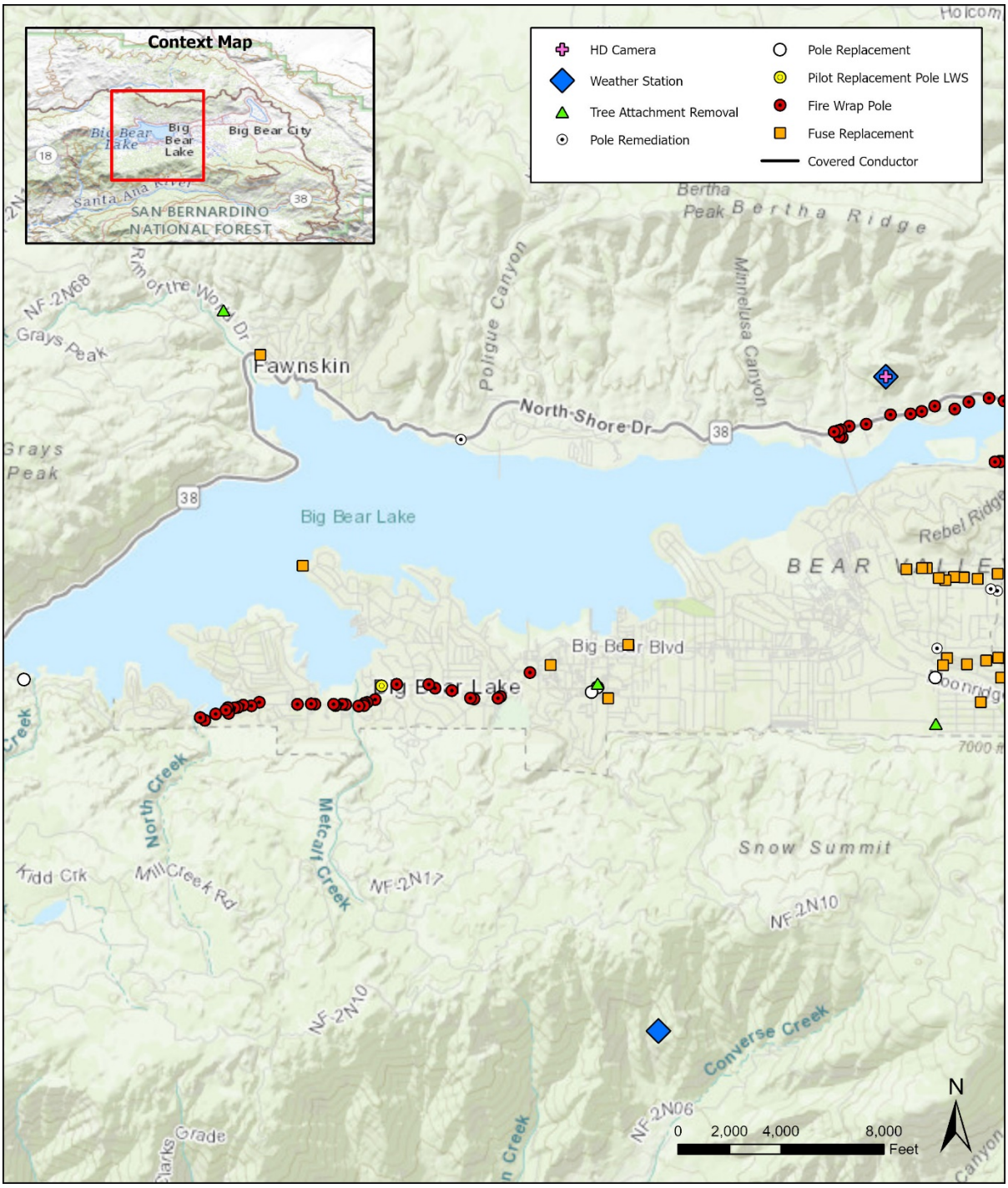
A summary of the quantifiable WMP activities that are field verifiable (both large and small) and associated activity quantity and sample size is shown in Table 3-2. A list of all relevant 2021 WMP initiative sample sizes are included in Appendix C. The maps from Figure 3-1 through Figure 3-2**.** show the selected asset locations for field verification. For many initiatives, interviews with BVES SMEs were required to validate initiative activity goals since written procedures, records, and other documentation was not readily available.

Table 3-2 — Summary of 2021 BVES WMP Field-Verifiable Samples by Initiative[1]

No.	Target #	Category / Subject / Program	UtilityInitiativeName	Approach / Review Category	Quant Target Units	Quant Target	Quant Actual	Sample Size	Actual Sample	Sample Percent
1	7.3.2.1	Situational Awareness & Forecasting	Situational Awareness Hardware Program [Primary]	Small Volume	Number of Weather Stations Installed	2	2	2	2	100%
2	7.3.2.2	Situational Awareness & Forecasting	Situational Awareness Hardware Program	Small Volume	Number of HD Cameras Installed	2	2	2	2	100%
3	7.3.3.3	Grid Design & System Hardening	Covered Conductor Replacement Program	L. Volume Field	Circuit Miles Hardened	12.9	12.3	166 of 433 pole to pole spans	~80% or more of pole to pole spans	80%
4	7.3.3.6	Grid Design & System Hardening	Pole Loading & Replacement Program	L. Volume Field	Number of poles replaced or remediated as a result of failed assessments	200	216	120	54	25%
5	7.3.3.6	Grid Design & System Hardening	Evacuation Route Hardening Program - Pilot	Small Volume	Poles Hardened	5	5	5	0	0%
6	7.3.3.6	Grid Design & System Hardening	Evacuation Route Hardening Program	L. Volume Field	Poles Hardened	400	400	161	135	34%
7	7.3.3.7	Grid Design & System Hardening	Fuse Replacement Program	L. Volume Field	Number of Fuses Replaced	800	862	205	90	10%
8	7.3.3.9	Grid Design & System Hardening	Grid Automation Program [Primary]	L. Volume Field	Yearly Percent of Overall Program Target	10	10	175 of 500 pole to pole spans	0	0%
9	7.3.3.12	Grid Design & System Hardening	Tree Attachment Removal Program	L. Volume Field	Tree Attachment Removal	70	74	59	44	59%

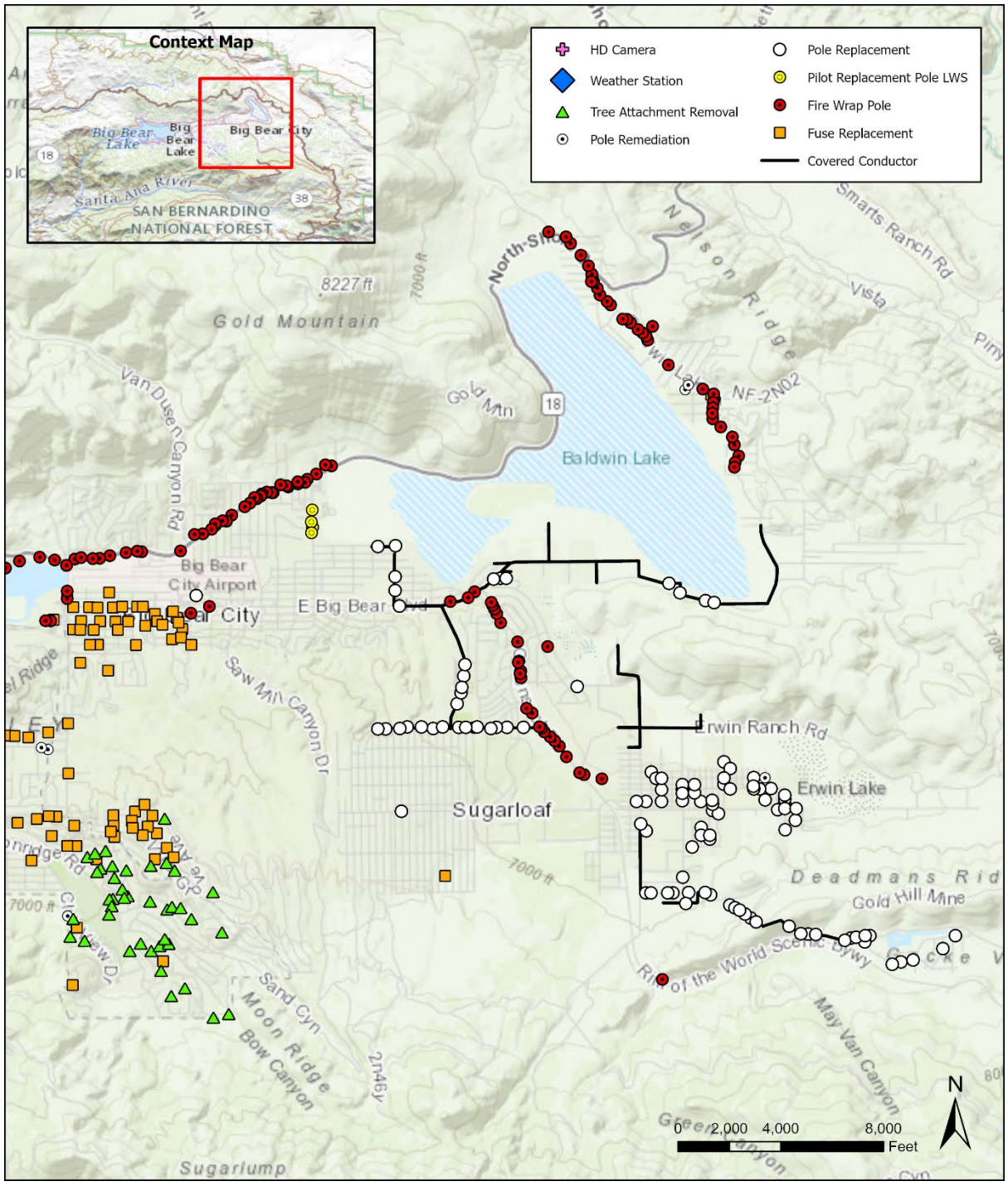
[1] Due to logistical issues from the third-party field verification team as well as schedule limitations, initiative activities 7.3.3.6, “Evacuation Route Hardening Program – Pilot,” and 7.3.3.9, “Grid Automation Program” could not be confirmed.

Figure 3-1 — Overview of Field Verification Sample Locations



Note: This map was generated from BVES provided geographical information system (GIS) data that was adapted by S&L for field verification activities.

Figure 3-2 — Overview of Field Verification Sample Locations



Note: This map was generated from BVES provided GIS data that was adapted by S&L for field verification activities.

Figure 3-3 through Figure 3-10 are representative BVES sampled asset photographs taken by S&L's field verification team.

Figure 3-3 — Representative Photo of an ELF Fuse Installation

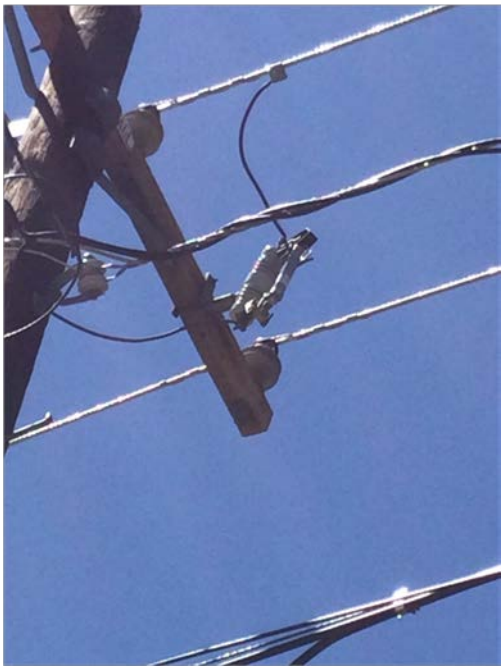


Figure 3-4 — Representative Photo of an ELF Fuse Installation

Figure 3-5 — Representative Photo of a TripSaver Fuse Installation

Figure 3-6 — Representative Photo of a TripSaver Fuse Installation

Figure 3-7 — Representative Photo of a Pole Fire Wrap Installation

Figure 3-8 — Representative Photo of a Pole Fire Wrap Installation

Figure 3-9 — Representative Photo of a Tree Attachment Removal (Tree Replaced by Wood Pole)

Figure 3-10 — Representative Photo of a Pole Replacement

3.1.2. Large Volume Quantifiable Goal/Target – Field Verifiable

"Large Volume Quantifiable Goal/Target – Field Verifiable" activities are initiatives with over 100 quantifiable assets included in the goal or target that can be verified for completion in the field. S&L reviewed a sample of each initiative activity, as described in Section 3.1.1. An IBEW qualified electrical worker from S&L's subcontractor conducted site visits to predetermined locations to confirm installation, work quality, and adherence to applicable utility protocols and standards for each initiative. Additionally, S&L reviewed various documents provided by BVES to help determine completeness. Finally, S&L submitted clarification requests and conducted interviews with BVES SMEs for an understanding of the activities performed. S&L's findings and assessments for each of this category's activities are provided below.

3.1.2.1. Review of Initiatives

3.1.2.1.1. Initiative #7.3.3.3: Covered Conductor Installation

Covered Conductor Replacement Program

Per the 2021 WMP[2], BVES planned to replace all overhead sub-transmission (34.5-kV) and distribution (4-kV) bare wire with covered wire over a total of 12.9 miles through the end of 2021. S&L's field verification team confirmed spans of covered conductor installation along 84 different segments of conductor, noting no issues.

Based on S&L's field verification results, there is reasonable assurance that progress towards the goal for covered conductor replacements for 2021 has been made. However, BVES did not meet the quantitative goal as only 12.3 miles were hardened. Therefore, S&L concludes this goal was not met.

3.1.2.1.2. Initiative #7.3.3.3: Covered Conductor Installation

Covered Conductor Replacement Program – Radford

Per the BVES 2021 WMP Revised Annual Filing,[3] BVES planned to replace bare wire with a high-performance covered conductor on the Radford 34.5-kV line. BVES chose to cover this line due to its location in the HFTD Tier 3 area, the highest wildfire risk area for all BVES's overhead facilities.

The grid hardening initiative for the covered conductor installation for the Radford 34.5-kV line was not completed in 2020 or 2021 due to delays from the U.S. Forest Service (USFS) in receiving the appropriate permitting. Although BVES provided documentation on their efforts to coordinate with USFS, S&L finds that the goal for this initiative was not met.

[2] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[3] BVES 2021 WMP Revised Annual Filing, June 3, 2021

3.1.2.1.3. Initiative #7.3.3.6: Distribution Pole Replacement and Reinforcement, Including with Composite Poles

Pole Loading and Replacement Program

Per the BVES 2021 WMP Revised Annual Filing,[4] BVES has an ongoing program to assess and remediate distribution poles that are found to be noncompliant with the requirements of California General Orders (GOs) 95 and 165. The WMP specified a target of 200 pole remediations and replacements in 2021 towards their goal of completion by 2026.

BVES provided the data for pole replacement and the reinforcement of multiple circuits[5] in 2021. The information included the associated work order ID, section within the circuit, date in which construction was completed, new pole type, GPS coordinates, and old and new pole structure IDs. S&L inspected a sample size of 54 poles, confirmed installation, and noted that the quality of work was found to meet expectations with no issues.

Based on a review of documentation and site inspections performed on BVES distribution poles, it is apparent that BVES is performing distribution pole replacement and reinforcement. The pole replacement and reinforcement data was determined to be a representative sample of the work completed by BVES and provided reasonable assurance that BVES replaced or reinforced 216 poles in 2021, surpassing their target of 200 poles for 2021; therefore, S&L considers this WMP initiative met.

3.1.2.1.4. Initiative #7.3.3.6: Distribution Pole Replacement and Reinforcement, Including with Composite Poles

Covered Conductor Replacement Program – Radford

The covered conductor replacement for the Radford 34.5-kV line was not completed in 2021; this is detailed in Section 3.1.2.1.1.

3.1.2.1.5. Initiative #7.3.3.6: Distribution Pole Replacement and Reinforcement, Including with Composite Poles

Evacuation Route Hardening Program

Per the BVES 2021 WMP Revised Annual Filing,[6] BVES intended to harden the three main evacuation routes (800 poles) over two years with a wire wrap program. The program requires wood poles that are

[4] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[5] 2021 Remediated Poles.zip, 2021 Replacement Poles.zip
[6] BVES 2021 WMP Revised Annual Filing, June 3, 2021

replaced to be done so with fire-resistant composite or other acceptable pole types (lightweight steel [LWS] or ductile iron after testing).

S&L inspected a sample size of 135 poles, retrieved from the dataset[7] provided by BVES, and concluded that the fire wrap and evacuation route hardening inspections provided evidence that the 400-pole target has been met.

3.1.2.1.6. Initiative #7.3.3.7: Expulsion Fuse Replacement

In 2021, BVES intended to install 800 new current limiting and electronic fuses to replace existing expulsion fuse equipment. Per the BVES 2021 WMP Revised Annual Filing,[8] the expulsion fuses would be replaced when other work, such as pole replacement, is scheduled to be performed on a pole with a conventional fuse to reduce labor costs.

S&L reviewed multiple handwritten install logs[9] and a consolidated log[10] of ELF fuses and TripSavers provided by BVES that captured fuse replacement data for over 800 fuses replaced in 2021. The information captured in the log sheets included the install date, pole number, area/address, circuit name, transformer details (e.g., brand, serial number), size of the removed existing fuse, and size of the installed ELF fuse. Field representatives verified 90 poles with replacement fuses installed. The observations verified fuse installation, and the quality of work on the installations met expectations; there were no noted issues with the fuse replacement. BVES clarified that 640 conventional fuses were replaced with ELFs, and 222 conventional fuses were replaced with electronic fuses in 2021, thereby completing the expulsion replacement program. S&L therefore concludes that this initiative was met.

3.1.2.1.7. Initiative #7.3.3.9: Installation of System Automation Equipment

Per the BVES 2021 WMP Revised Annual Filing,[11] BVES intended to implement grid automation into its system. This included installing a fiber optic network throughout the service area, automating substations, automating key field switches, and adding sensors to provide critical system information.

[7] 2021 Fire Wrap Log.xlsx
[8] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[9] ELF Logs.zip
[10] 2021 ELF Fuses and Tripsavers Updated.xlsx
[11] BVES 2021 WMP Revised Annual Filing, June 3, 2021

Due to logistical issues, S&L was unable to verify the fiber optic network installations in the field; however, S&L did review documentation[12] provided by BVES that contained the locations where fiber splicing has been performed along with the design drawing [13]and map[14] of the fiber cable locations.

Clarifications with BVES demonstrate that the initiative for 2021 only involved completing the fiber network installation. The automating substations, automating field switches, and sensors will be implemented through 2026.

Based on the documentation reviewed, S&L finds that BVES installed the fiber optic cable network as part of the system automation equipment as intended under this initiative and that this goal was met.

3.1.2.1.8. Initiative #7.3.3.12: Other Corrective Action

Tree Attachment Removal Program

Per the BVES 2021 WMP Revised Annual Filing,[15] BVES planned to continue removal of its 1207 legacy tree attachment service connections with completion slated for 2026. For 2021, S&L reviewed data[16] provided by BVES, which contained 74 entries of tree removal poles. Data in the spreadsheet included the tree marker number, new pole number (if applicable), circuit name, work type performed, new pole type (if applicable), construction completion date, work order number, and GPS coordinates.

S&L inspected 44 of the 74 entries provided and verified that the tree attachment removal activities met the quality requirements and expectations of the BVES vegetation management program and procedures[17]. S&L concludes that this initiative has been met for 2021.

3.1.2.2. Trends and Themes

S&L identified the following trend for the assessment of the WMP "Large Volume Quantifiable Goal/Target – Field Verifiable" initiatives:

- Summary-level spreadsheets and similar high-level documents were often used to manage and track initiative activities; however, in many cases, more granular documentation (such as regular inspection reports, checklists, third-party reports, daily/weekly meeting notes, and similar quality records) was not immediately available for review.

[12] 151-1149_BVES_Fiber_Splice_Inventory.pdf
[13] Fiber location Priority.pdf
[14] Fiber Map Shay Final.pdf
[15] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[16] 2021 TARP Updated GPS 051822.xlsx
[17] BVES INC Vegetation Management and Vegetation Management QC Programs Policy and Procedures Rev1.pdf

3.1.3. Large Volume Quantifiable Goal/Target – Not Field Verifiable

"Large Volume Quantifiable Goal/Target – Not Field Verifiable" activities are initiatives with more than 100 quantifiable assets included in the goal or target that could not be verified for completion in the field. S&L reviewed a sample of each initiative activity as described in Section 3.1.1. In lieu of physical inspections, S&L reviewed various documents provided by BVES to help determine completeness. Additionally, S&L submitted clarification requests and conducted interviews with BVES SMEs to confirm our understanding of the activities. S&L's findings and assessments of each of this category's activities are provided herein.

3.1.3.1. Review of Initiatives

3.1.3.1.1. Initiative #7.3.3.13: Pole Loading Infrastructure Hardening and Replacement Program Based on Pole Loading Assessment Program

Per the BVES 2021 WMP Revised Annual Filing,[18] the pole loading infrastructure hardening and replacement program had a projected target of assessing 550 poles for 2021. S&L reviewed documentation[19] that listed the pole numbers, the date of the inspection, and whether the poles passed the inspection. Per clarification with the BVES SME, poles that were found to fail the wind loading assessment have been designed in 2021 and will be replaced in 2021. S&L therefore concludes that BVES met this initiative for 2021.

3.1.3.1.2. Initiative #7.3.4.1: Detailed Inspections of Distribution Electric Lines and Equipment

Per the BVES 2021 WMP Revised Annual Filing,[20] the detailed inspection of distribution electric lines and equipment is in accordance with GO 165 and consists of visual inspections of overhead electric distribution lines and equipment where individual pieces of equipment and structures are carefully examined—both visually and through routine diagnostic testing, as appropriate—and (if practical and if useful information can be gathered) opened with the condition of each rated and recorded. The detailed inspections are scheduled such that a complete inspection on circuits is scheduled for each specific year and each circuit is on a five-year schedule. The detailed inspections of circuits are staggered to spread across the entire system over five years.

BVES provided a spreadsheet documenting the details and patrol inspections performed in 2021.[21] Based on this documentation, detailed inspections of 141 structures were performed in 2021. Of these, the circuits inspected were Fox Farm (4 kV), Sunrise (4 kV), and Sunset (4 kV). These inspections were performed in

[18] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[19] 2021 Pole Assets.zip
[20] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[21] 2021 Detailed and Patrol Inspections.xlsx

March, July, and September, respectively. The spreadsheet documents the recipient, reporter, date, priority, structure, circuit, inspection type, details, due date, completion date, and foreman.

S&L requested additional information on 24 detailed inspections. Of these, the BVES response[22] identified that eight were "completed in the field, charged to maintenance account, no work order," one was for a "pole to be removed from system in 2022," and the remaining 15 were "to be completed in the field and charged to maintenance account, no work order needed." No additional documentation was prepared for any of the identified inspections.

Based on discussion with the relevant BVES SME, the "Completed Date" and "Foreman" categories of the spreadsheet are utilized when issues are identified during detailed inspection. One example of an issue identified in the "Details" section was "ground molding, pole steps too low." The inspection was on March 1, 2021. As documented in the spreadsheet, the work to address the issue was completed on March 22, 2021. Based on the documentation reviewed and discussion with the SME, BVES satisfied this initiative activity in 2021.

3.1.3.1.3. Initiative #7.3.4.3: Improvement of Inspections

Per the BVES WMP 2021 Revised Annual Filing[23] (Version 2, dated June 3, 2021)—specifically the Section 9 Appendix, "Definitions of Initiative Activities by Category"—this initiative consists of "identifying and addressing deficiencies in inspections protocols and implementation by improving training and the evaluation of inspectors." Table 5.3-1 therein confirms that a "continuous improvement program [is] in place and ongoing." The fourth-quarter initiative update,[24] however, states that BVES does not have a unique WMP initiative for this activity at this time.

For further information, S&L discussed inspection improvement with the relevant BVES SMEs Tom Chou[25] and Jared Hennen[26]. Mr. Chou identified that BVES is continually working to improve and that the spreadsheets they are using to track issues are getting better. Mr. Hennen noted that a new software was implemented in December 2021 and will allow for better consolidated tracking of issues.

BVES's asset and inspection quality management plan[27] (Revision 0, published on December 28, 2021) also addresses inspection improvement. Based on the revision date, this plan was unable to be implemented in 2021, and improvement activities were not documented in other initiatives.

[22] SL RFI for BVES WMP Assessment_20220509.xlsx
[23] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[24] BVES_2021 Q4 QIU_202220201.xlsx
[25] Tom Chou, June 6, 2022
[26] Jared Hennen, June 6, 2022
[27] BVES INC Quality Management Plan Rev0.pdf

Based on the above information, S&L concludes that BVES has not satisfied this initiative activity in 2021.

3.1.3.1.4. Initiative #7.3.4.4: Infrared Inspections of Distribution Electric Lines and Equipment

Per the BVES 2021 WMP Revised Annual Filing,[28] "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." Additionally, the filing states, "BVES paused use of this inspection methodology. Intends to conduct every 5 years. Next inspection is programmed for 2024."

Despite this information, however, unmanned aerial vehicle (UAV) and thermography results were provided in a spreadsheet titled "2021 UAV and Thermography."[29] The response to the request for information (RFI)[30] stated that "Davey provides the UAV data and the third-party data. It is all put into a database under each pole location. The data is not separated by each inspection." Per S&L's interview with the relevant BVES SME,[31] the UAV is generally performed prior to the third-party ground patrol to identify areas of focus, but all the data is sent to BVES in the same spreadsheet. Discussion with the SME also confirmed that, in December 2021, BVES rolled out a new software, iRestore, allowing them to track issues in one consolidated location.

Utilizing the inspection results documented in the UAV and thermography spreadsheet, S&L selected 70 records and requested photos and work order packages associated with the resolution of the identified issues via RFI.[32] Seventy-seven aerial photos, some UAV, were provided and provide satisfactory evidence that this activity occurred as documented. Additionally, BVES identified that vegetation with 10-ft encroachment is not high priority and is being worked on in 2022.

Based on the interviews conducted and documentation reviewed, BVES has satisfied this WMP initiative activity.

3.1.3.1.5. Initiative #7.3.4.6: Intrusive Pole Inspections

Per the BVES quarterly update,[33] the 2021 target for intrusive pole inspections was 850. In accordance with GO 165, these intrusive inspections involve moving soil, taking samples for analysis, or using more sophisticated diagnostic tools beyond visual inspections or instrument reading. Based on the inspection data provided,[34] 874 Resistograph inspections were performed in 2021. An additional 69 inspections were

[28] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[29] 2021 UAV and Thermography.xlsx
[30] SL RFI for BVES WMP Assessment_20220509.xlsx
[31] Jared Hennen, June 6, 2022
[32] SL RFI for BVES WMP Assessment_20220509.xlsx
[33] BVES_2021 Q4 QIU_202220201.xlsx
[34] 2021 Intrusive Poles.zip

recorded as “Visual Only,” and others were noted as “No Inspection Performed” due to access and other issues. All inspections were performed in August and September 2021.

Each inspection was recorded in the BVES-provided data file as one line which documented characteristics such as ID, coordinates, survey date, inspector, issues (such as damage from an animal or broken anchor), and result. Of the 874 records, S&L selected 17 inspection records for review and requested the supporting work orders and any documentation of actions taken to correct those poles identified as “Reject” and “Priority Reject.” In the BVES RFI response, three of the requested poles were given the note that “no work is needed.” Three others stated that the “pole sounds and appears OK” and to “monitor or replace if concerned.” Finally, four were noted “to be completed in the field and charged to maintenance account, no work order needed.” One pole was completed on April 4, 2022, and documentation for three other work orders was provided.

The review of the provided work orders provided evidence that BVES is tracking identified issues to resolution. Discussion with SME Tom Chou[35] clarified that, when issues are identified during intrusive inspection, the issue is validated by BVES, and those requiring replacement are tracked utilizing a separate spreadsheet. This spreadsheet demonstrated how validated issues are tracked to completion.[36]

Based on interviews conducted and documentation reviewed, BVES has satisfied this WMP initiative activity.

3.1.3.1.6. Initiative #7.3.4.7: LiDAR Inspections of Distribution Electric Lines and Equipment

In accordance with the BVES 2021 WMP Revised Annual Filing,[37] BVES conducts one light detection and ranging (LiDAR) sweep per year to evaluate the effectiveness of clearance efforts and identify potential wildfire hazards. This sweep covers 211 circuit miles. BVES awarded the multiyear contract for this work to Davey Tree Expert Co. on July 15, 2019.[38]

Per the relevant BVES SME,[39] in 2021, the LiDAR sweep occurred in April 2021. The data was then processed by Davey Tree Expert Co. and provided to BVES in batches. BVES provided an S&L with Excel file[40] documenting the identified issues. The file had three tabs based on overhead line type: 34 kV, 4kV

[35] Tom Chou, June 6, 2022
[36] 2021 Intrusive Follow Up.xlsx
[37] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[38] LiDAR Inspection Contract-C#3003-000.pdf
[39] Jared Hennen, June 6, 2021
[40] 2021 LiDAR Records.xls

and secondary. Each tab included the clearance level, encroachment, section name, parent section, feeder, phase code, operating voltage, overhead, coordinates, and voltage.

S&L requested that BVES clarify how the LiDAR data was used and what actions were taken based on the shared results. Per the RFI response,[41] the LiDAR provides information as to the general location where there may be vegetation issues. Each possible issue is recorded in the BVES-provided Excel file. Clearance levels were classified as between 0 and 18 in., 18 and 48 in., and 48 and 72 in. Those documenting encroachment of beyond 48 in. are not considered high-priority violations.

Based on the data, there were 200 instances of encroachment of 0–18 or 18–48 in. To correct the LiDAR-identified issues, the RFI response stated that "the data is currently put into a KMZ file and is given to the tree trimming contractor to address. At this time, we do not have documentation of corrections made in the field." The relevant BVES SME[42] described the procedure for processing the LiDAR data and providing it to the tree trimming contractor by stating that, once the data is received, BVES goes out to the field and validates any issues. LiDAR identifies infractions where there should not be any, such as for "Major Woody Stem Exemptions." Once the issues are validated, they are sent to the tree trimming contractor for resolution.

Based on the documentation reviewed and discussion with the SME, BVES satisfied this initiative activity in 2021.

3.1.3.1.7. Initiative #7.3.4.9: Other Discretionary Inspection of Distribution Electric Lines and Equipment, Beyond Inspections Mandated by Rules and Regulations – UAV Thermography Program and Third-Party Ground Patrol

As identified in the BVES 2021 WMP Revised Annual Filing,43 this initiative consists of an additional independent (third-party) patrol inspection—beyond that required by GO 165—of the entire overhead system and a UAV infrared inspection program.

S&L requested that BVES clarify the difference between the results provided for the UAV data and the third-party inspection. The RFI response[44] stated that "Davey provides the UAV data and the third-party data. It is all put into a database under each pole location. The data is not separated by each inspection." The review of this data is address within Initiative #7.3.4.4. The process was discussed with the SME Jared Hennen[45] and according to the interview BVES is implementing the UAV and third-party ground patrol

[41] SL RFI for BVES WMP Assessment_20220509.xlsx
[42] Jared Hennen, June 6, 2022
[43] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[44] SL RFI for BVES WMP Assessment_20220509.xlsx
[45] Jared Hennen, June 6, 2022

initiatives as defined in the BVES 2021 WMP Revised Annual Filing; therefore, BVES has satisfied this WMP initiative activity. Initiative #7.3.4.11: Patrol Inspections of Distribution Electric Lines and Equipment

Per the BVES 2021 WMP Revised Annual Filing,[46] a "patrol inspection" is a visual inspection designed to identify obvious problems and hazards. These patrols are designed to identify gross defects. The initiative aligns with GO 165, which requires utilities to execute careful, visual inspections of overhead electric distribution lines and equipment.

BVES provided a spreadsheet[47] documenting the details and patrol inspections performed in 2021. Based on this documentation, six patrol inspections were performed that year from March through June. S&L requested all six patrol inspection records; they recorded the following issues: broken ground molding, improper midspan clearance, pole sound test failure (two), pole leaning, and a missing guy guard.

Two of the issues were identified in the RFI response[48] as "completed in the field, charged to maintenance account, no work order." One was identified as "emergency work" that "did not have a work order but provided SPIDA [calculations]," and three work order packages were provided.[49] The four poles had associated SPIDA calculations that documented the location analysis, analysis results, summary, pole static analysis, and other attributes. The three complete work order packages also included a drawing, and one included a project capital estimate for "replacing a rotten pole and replacing open wire secondary and removing a tree attachment with a power pole per GO 95 standards." The documentation gives satisfactory evidence that BVES satisfied the initiative activity in 2021.

3.1.3.1.8. Initiative #7.3.4.13: Pole Loading Assessment Program to Determine Safety Factor

Per the WMP, this initiative is covered in the pole loading infrastructure hardening and replacement program based on the pole loading assessment program; see Sections 3.1.2.1.3 and 3.1.3.1.1 for Initiatives 7.3.3.6 and 7.3.3.13, respectively, which apply to this Initiative 7.3.4.13. On the basis of the review documented in those sections, S&L considers this WMP initiative met.

3.1.3.1.9. Initiative #7.3.5.2: Detailed Inspections of Vegetation Around Distribution Electric Lines and Equipment

Per the BVES 2021 Q4 QIU,[50] this WMP initiative target goal is to conduct 50 circuit miles of detailed inspections of vegetation around distribution electric lines and equipment. The detailed and patrol

[46] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[47] 2021 Detailed and Patrol Inspections.xlsx
[48] SL RFI for BVES WMP Assessment_20220509.xlsx
[49] 2021 Inspection WO's.zip
[50] BVES_2021 Q4 QIU_202220201.xlsx

inspections spreadsheet[51] provides inspection reports for the detailed inspections. Per the BVES GO 165 compliance plan,[52] the discrepancies noticed during inspections and other minor maintenance activities must be recorded. The compliance plan details the list of items an inspector must review during a detailed inspection. For vegetation management, the items within the scope of detailed inspections include vegetation causing strain or abrasion on conductors, vegetation contacting or close to a high-voltage conductor, and vegetation contacting low-voltage conductors. The inspection records in the spreadsheet detail the inspections that found discrepancies or required maintenance. There were 141 records for detailed inspections in the spreadsheet. The categories for the spreadsheet include the date of the inspection, priority level, structure number, inspection type (patrol or detailed), and details of the discrepancy or maintenance needed. The inspection work was completed in the field; no other documentation was required.

Additionally, the compliance plan requires inspectors to be qualified. The vegetation management training sheets[53] provide the names of inspectors who attended the vegetation management policy training. Based on this, S&L finds that BVES met its target goal for this WMP initiative activity.

3.1.3.1.10. Initiative #7.3.5.7: LiDAR Inspections of Vegetation Around Distribution Electric Lines and Equipment

Per the BVES 2021 Q4 QIU,[54] the initiative for LiDAR inspections of vegetation around distribution electric lines and equipment has a quantitative target goal of 211 surveyed circuit miles. The actual number of surveyed circuit miles achieved in 2021 is 289.56 miles, which meets the requirement.

The LiDAR inspection portion of BVES's overhead distribution system request for proposal (RFP)[55] states the scope of work and inspection requirements of the contractor chosen to complete the work of this initiative. The contractor conducted the LiDAR inspections for the above-mentioned circuit miles and recorded them in the LiDAR records spreadsheet.[56] There are over 1300 entries in the spreadsheet that detail the vegetation clearance level noted for the inspected area, range of vegetation encroachment, voltage of the distribution electric line, and location.

S&L chose a sample of 35 entries from the spreadsheet to review for this initiative. Of these, 11 samples were deemed as Clearance Level 1, which means encroachment is within the range of 0–18 in. from the electric lines or equipment. Additionally, 13 samples were deemed as Clearance Level 2, which means

[51] 2021 Detailed and Patrol Inspections.xlsx
[52] BVES GO 165 Compliance Plan.pdf
[53] 7.3.5.2 and 7.3.5.11 Vegetation Management Training.pdf
[54] BVES_2021 Q4 QIU_202220201.xlsx
[55] 7.3.5.7 LiDAR Scope of Work.pdf
[56] 2021 LiDAR Records.xlsx

encroachment is within the range of 18–48 in. from the electric lines or equipment—BVES is notified of this vegetation encroachment through the inspection records spreadsheet and provides the location data to the tree trimming contractor to correct. The remaining 11 samples were deemed Clearance Level 3, which are within the range of 48–72 in. from the electric lines or equipment; no specified timeline notification is required for this clearance level per the RFP.[44]

Based on this reviewed data, S&L finds that BVES has met its WMP initiative target goal for this activity.

3.1.3.1.11. Initiative #7.3.5.9: Other Discretionary Inspections of Vegetation Around Distribution Electric Lines and Equipment

Other discretionary inspections of vegetation around distribution electric lines and equipment are included in the UAV and thermography spreadsheet.[57] Per the BVES 2021 Q4 QIU,[58] the target goal for this quantitative initiative was to inspect 211 circuit miles. Per the UAV inspection proposal contract,[59] the 211 circuit miles is the approximate size of the entire BVES facility, including both the 34.5-kV and 4-kV lines and facilities. The actual met goal was stated to be 211 circuit miles. The other discretionary inspections for this initiative include the UAV and thermography inspections. The UAV inspections are conducted through taking pictures of the electric lines and equipment and noting the vegetation encroachment areas.[60] The thermography inspections are recorded on the UAV and thermography spreadsheet. A random sample of 15 entries from a total of 6633 entries were taken for review; the UAV photos[49] show the pictures taken for these sampled inspections. The spreadsheet includes categories such as date, inspector name, site ID, and yes/no answers for various inspection questions related to the electric lines and equipment. The inspectors who completed the sampled entries were also reviewed for their qualifications.[61]

As part of this initiative, other discretionary inspections of distribution electric lines and equipment, beyond inspections mandated by rules and regulations, consist of additional independent inspections that are more than what is required by GO 165. Based on this, and considering that the inspection goal was to cover the entire set of facilities, S&L finds that BVES has met its target goal for this WMP initiative activity.

3.1.3.1.12. Initiative #7.3.5.11: Patrol Inspections of Vegetation Around Distribution Electric Lines and Equipment

Per the BVES 2021 Q4 QIU,[62] this WMP initiative target goal is to conduct 255 circuit miles of patrol inspections of vegetation around distribution electric lines and equipment. The detailed and patrol

[57] 2021 UAV and Thermography.xlsx
[58] BVES_2021 Q4 QIU_202220201.xlsx
[59] C#3152-000 UAV Inspection.pdf
[60] UAV Photos.zip
[61] UAV Inspector.zip
[62] BVES_2021 Q4 QIU_202220201.xlsx

inspections spreadsheet[63] provides inspection reports for the patrol inspections. Per the BVES GO 165 compliance plan,[64] the discrepancies noticed during inspections and other minor maintenance activities must be recorded. The compliance plan details the list of items an inspector must review during a patrol inspection. For vegetation management, the patrol inspection includes confirming whether poles, structures, or conductors have any vegetation clearance infractions. The inspection records in the spreadsheet show the discrepancies found and the maintenance required.

There were six records for patrol inspections in the spreadsheet. The categories of the spreadsheet are detailed in Initiative #7.3.5.2 (see Section 3.1.3.1.9). Of the six records, BVES provided work orders and other supplementary documentation for four of them. The majority of the inspection work was completed in the field; no other documentation was required.

Additionally, the compliance plan requires inspectors to be qualified. The vegetation management training sheets[65] provide the names of inspectors who attended the vegetation management policy training. Based on this, S&L finds that BVES met its target goal for this WMP initiative activity.

3.1.3.1.13. Initiative #7.3.9.2: Community Outreach, Public Awareness, and Communication Efforts

The BVES processes for meeting this WMP[66] initiative is fulfilled by Revision 2 of the BVES emergency response plan and Revision 1 of the BVES public safety power shutoff (PSPS) procedure. These documents provide guidance and a tabulated list for the BVES customer support representatives to follow and has a guidance template for content, media usage, and communication with the receiving community recipients.

Review of the requested WMP/PSPS community engagement examples, as well as publicly available statements, demonstrated that community outreach and communication efforts occurred in 2021.

Based upon the BVES 2021 annual quantity target of 360 engagements and the BVES 2021 quantity actual progress of 602, it is evident that BVES has reached its initiative goal of community outreach, public awareness, and communication efforts.

[63] 2021 Detailed and Patrol Inspections.xlsx
[64] BVES GO 165 Compliance Plan.pdf
[65] 7.3.5.2 and 7.3.5.11 Vegetation Management Training.pdf
[66] BVES 2021 WMP Revised Annual Filing, June 3, 2021

3.1.3.1.14. Initiative #7.3.10.1: Community Engagement

The documents provided for this initiative contain a tabulated list for the BVES customer support representative to follow and a guidance template for content, media usage, and communication with the receiving community recipients.

The BVES Q4 20212021 QIU[67] indicates a 2021 annual target of 360 engagements (radio, newspaper, online, mail) with an actualized Q4 progress of 602 engagements. Additionally, the BVES processes for meeting this WMP initiative is fulfilled by the BVES emergency response plan and the BVES PSPS procedure.

S&L's review of the provided WMP/PSPS community engagement tracking list and requested sample records confirms that community outreach, invoices, and communication efforts occurred in 2021. The sources provide several tables, each for a different community outreach medium and each providing dates, methods of communication, and the title of the document/communication.

Based upon the BVES 2021 annual quantity target of 360 engagements and the BVES 2021 quantity actual progress (Q1-4) of 602, as well as the WMP/PSPS community engagement tracking list, it is evident that BVES has reached its initiative goal of community outreach, public awareness, and communication efforts.

3.1.3.2. Trends and Themes

S&L identified several trends for the assessment of the WMP "Large Volume Quantifiable Goal/Target – Not Field Verifiable" initiatives:

- For many initiatives, no documented procedures or processes governing the performance and control of WMP initiatives were available.
- For most initiatives, BVES did not appear to have a formal written process to control and maintain quality records (e.g., report forms, inspection checklists, work orders) and other documentation.
- Summary-level spreadsheets and similar high-level documents were often used to manage and track initiative activities; however, in many cases, more granular documentation (such as regular inspection reports, checklists, third-party reports, daily/weekly meeting notes, and similar quality records) was not immediately available for review.

3.1.4. Small (<100 Units) Volume Quantifiable Goal/Target

"Small Volume Quantifiable Goal/Target" activities are initiatives with less than 100 quantifiable assets included in the goal or target. Some initiative activities can be verified in the field while others are not field verifiable. S&L attempted to review all initiative activity; however, in some cases, the available time for this

[67] BVES_2021 Q4 QIU_202220201.xlsx

assessment only allowed a sample of assets to be assessed, as described in Section 3.1.1. Where feasible, an IBEW qualified electrical worker from S&L's subcontractor (ICON Utility Services) conducted site visits to predetermined assets and locations to confirm installation, work quality, and adherence to applicable utility protocols and standards for each of these initiatives. Additionally, S&L reviewed various documents provided by BVES to help determine completeness. Finally, S&L submitted clarification requests and conducted interviews with BVES SMEs to confirm understanding of the activities performed. S&L's findings and assessments of each of this category's initiative activities are provided herein.

3.1.4.1. Review of Initiatives

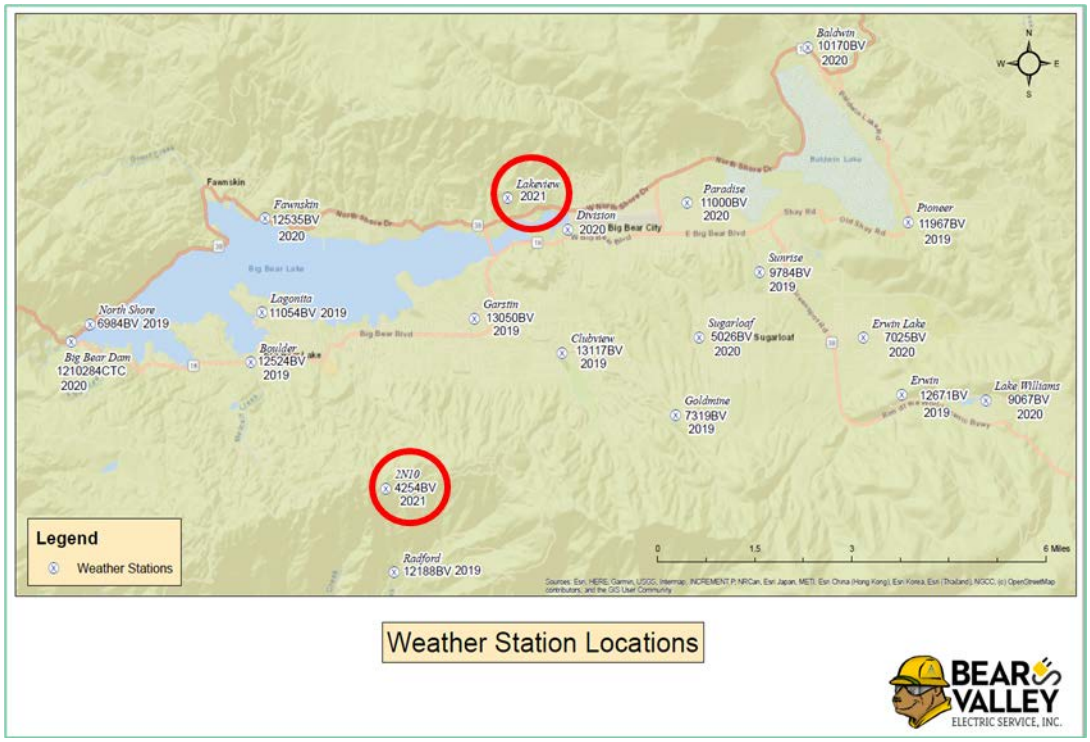
3.1.4.1.1. Initiative #7.3.2.1: Advanced Weather Monitoring and Weather Stations

The WMP[68] indicated that BVES intended to install two new weather stations in 2021. As confirmed by S&L's field verification results, BVES installed two new weather stations in 2021 (i.e., Lakeview and 2N10), giving BVES a total of 20 weather stations when including the 18 weather stations installed in previous years. The acceptability of this WMP initiative activity is achieved based on the supplied documentation.[69]

Additionally, BVES provided weather monitoring reports that included information from the functional weather stations, indicating that the weather stations were installed and functional in 2020 and 2021. As shown in Figure 3-12 and Figure 3-13, a photograph of an installed weather station taken by the S&L field verification team is provided for reference. The locations and identification of the two new weather stations are provided in Figure 3-12. Based upon the BVES 2021 annual quantity target of two and the BVES 2021 quantity actual progress of two, it is evident that BVES is in compliance with its goal. Based on the documentation provided and reviewed, S&L finds that BVES has satisfied this initiative activity goal.

[68] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[69] BVES Weather Station 2021.pdf and BVES Weather Station Locations Map.pdf

Figure 3-11 — Locations of BVES Weather Stations Installed in 2021



BVES, Inc. Advanced Weather Monitoring and Weather Stations				
Station Name	Pole Number	Date of Installation	Cordinates	
2N10	4254BV	2021	34.209833	-116.904333
Lake View		2021	34.26738	-116.880145

Figure 3-12 — Lakeview Weather Station (Taken Near Roadside)

Figure 3-13 — Weather Station 2N10

3.1.4.1.2. Initiative #7.3.2.2: Continuous Monitoring Sensors

The WMP indicated that BVES intended to install two new HD cameras in 2021. Based on field verification results and live website camera streams, BVES did install two new HD cameras at the Lakeview weather station location in 2021. Therefore, supplemented with the review of the supplied documentation, this WMP initiative activity goal has been met.[70]

[70] BVES Weather Station 2021.pdf and BVES Weather Station Locations Map.pdf

3.1.4.1.3. Initiative #7.3.3.3: Covered Conductor Installation

Covered Conductor Pilot

Per the BVES WMP Revised Annual Filing,[71] BVES implemented and completed a covered conductor pilot program in 2020 that replaced 2.16 circuit miles of bare wire with covered wire products; therefore, this initiative is considered not applicable, and this report will focus on the rest of the replacement program under the large-volume, field-verifiable section. No goal was explicitly stated for 2021, and no activities with respect to this initiative were performed in 2021. S&L therefore concludes that BVES met this WMP initiative activity goal.

3.1.4.1.4. Initiative #7.3.3.6: Distribution Pole Replacement and Reinforcement, Including with Composite Poles

Evacuation Route Hardening Program – Pilot

Per the BVES 2021 WMP Revised Annual Filing,[72] an evacuation route hardening pilot project was designed to determine availability, cost effectiveness, and ability to install wildfire mitigating technology along three predetermined evacuation routes. The goal for 2021 was to test LWS poles as part of its pilot program.

Although S&L could not verify the LWS poles in the field, BVES provided documentation[73] of the LWS replacement poles, which included the existing pole numbers, new pole numbers, circuit on which the pole is located, work type, construction year, work order, circuit section, and GPS coordinates.

After review of the provided documentation and based on the conclusions of Section 3.1.2.1.5, S&L confirms that this initiative for 2021 was met.

3.1.4.1.5. Initiative #7.3.4.14: Quality Assurance/Quality Control (QA/QC) of Inspections

Per the BVES 2021 WMP Revised Annual Filing,[74] —specifically the appendix in Section 9—this initiative is defined as the "establishment and function of audit process[es] 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." Per the WMP's Table 5.3-1, the "Projected Target

[71] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[72] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[73] 2021 Replacement Poles LWS.zip
[74] BVES 2021 WMP Revised Annual Filing, June 3, 2021

by End of 2021" for this initiative was identified as "N/A," and the underlying assumption is that "BVES is able to implement Inspection QC program in 2022."

The BVES asset and inspection quality management plan[75] (Revision 0) was issued in December 28, 2021; therefore, BVES has not satisfied this initiative activity in 2021.

3.1.4.1.6. Initiative #7.3.4.15: Substation Inspections

In accordance with the BVES 2021 WMP Revised Annual Filing,[76] BVES plans monthly inspections of each substation in accordance with GO 174. The BVES 2021 WMP Revised Annual Filing anticipated 144 substation inspections in 2021.

Substation inspection reports were provided for each of the 13 substations. The reports document the following information:

- Date, station, inspector name, and time of reading
- Ambient temperature
- Transformer data (number, present and maximum temperature, oil level, gas pressure)
- Voltage regulator data (number, position indictors, indicator range [low and high], present counter, previous counter, and oil clarity)
- Recloser and device data (circuit name, present counter, previous counter, peak/current amps [GND, 1-2, 3-4, 5-6], and battery [no load and load])
- Metering data (circuit name, kW, and kWh)
- Notes

The reports also include a general condition checklist and space for notes. They recorded a total of 154 inspections, above the target of 144. One inspection was performed each month for each substation with the exception of Palomino. The April substation inspection only states "substation rebuilding," and the next substation inspection report is dated August 8, 2011, listing the date as "May – July 2021" with a note, "Palomino sub rebuilding Pioneer Circuit Load on Erwin Circuit. Normal monthly inspections resumed on August 27, 2021."

S&L reviewed two substation inspection sheets for each of the remaining twelve substations. They included the required data and notes such as "adjusted entry gate" and "weeds NE WR door needs alignment." All anticipated inspections were performed.

[75] BVES INC Quality Management Plan Rev0.pdf
[76] BVES 2021 WMP Revised Annual Filing, June 3, 2021

After review of the provided documentation, S&L confirms that this initiative for 2021 was met.

3.1.4.1.7. Initiative #7.3.5.13: QA/QC of Vegetation Inspections

Per the BVES 2021 Q4 QIU,[77] the BVES WMP initiative quantitative goal is 72 quality control reviews conducted. The actual met target was 112 quality control reviews. BVES provided a QA/QC vegetation management spreadsheet[78] that contains 112 records of quality control reviews. S&L randomly sampled 15 of these records and reviewed the tree trimming quality control records[79] for each of these sampled entries.

BVES controls these inspections through their vegetation management spreadsheet and vegetation QA/QC programs procedure.[80] Based on the requirements for the QA/QC vegetation inspections detailed in the procedure, the records meet the procedure's requirements. The records include inspections of vegetation clearance, the trimming of fast-growing trees, clearance above 34.5-kV lines, drip-line inspections, and inspections of exceptions. These quality control reviews are conducted in the areas of work that are completed by the contractors as another quality check for the vegetation management initiatives.

Based on this data, S&L finds that BVES met its WMP initiative target goal for this activity.

3.1.4.1.8. Initiative #7.3.5.17: Substation Inspection (Vegetation Management)

Per the BVES 2021 Q4 QIU,[81] BVES set a goal of 144 substation inspections for vegetation management. BVES has 13 substations; per the substation inspection records,[82] they set a goal to inspect each substation once per month for the 2021 calendar year. There are 154 substation inspection records, one per month per substation except for Palomino substation which was under rebuilding construction for part of the year and had only 10 inspections; therefore, BVES met this goal.

The BVES Operations and Planning Department's policy and procedure for the substation inspection program[83] is what BVES follows to perform substation inspections. This procedure is based on GO 174, which requires various aspects of the substation to be inspected as needed and as required by the utility's inspection procedure. The procedure requires all substations to be inspected at least nine times per calendar year, and inspections are required to be completed by filling out the procedure's Attachment A, the "Substation Inspection Sheet." S&L reviewed the Appendix A forms for all 13 substations and verified

[77] BVES_2021 Q4 QIU_202220201.xlsx
[78] 2021 QA&QC Vegetation Management.xlsx
[79] 7.3.5.13 Vegetation Management QC.pdf
[80] BVES INC Vegetation Management and Vegetation Management QC Programs Policy and Procedures Rev1.pdf
[81] BVES_2021 Q4 QIU_202220201.xlsx
[82] BVES Substation Inspection Records 2021.zip
[83] OpsPlanningPolicyProcedures-15.docx

that substation inspection reports were completed at least nine times per year as required by the procedure. Additionally, each substation, apart from Palomino, has an inspection report for every month, totaling 12 inspections for 2021. Palomino was under rebuilding construction during three months of the year; although the inspector completed an inspection sheet for these months, minimal inspection could take place due to the construction.

In addition to the frequency of inspections, the procedure requires comments to be made when, during inspection, the inspector notes that corrective actions are needed. For the vegetation management portion of the substation inspections, the inspectors should note when weed abatement is required. S&L sampled the substation inspections and noted that, of the 25% sampled, six substation inspections were noted to have excess weeds. The substation weed abatement invoices,[84] which are invoices from the weed abatement contractor to BVES, noted that all six substations were included in the contractor's weed abatement work.

Based on this review, S&L finds that BVES met their WMP initiative goal for this activity and exceeded their target of 144 substation inspections.[85]

3.1.4.2. Trends and Themes

S&L identified several trends for the assessment of the "Small Volume Quantifiable Goal/Target" initiatives:

- For many initiatives, no documented procedures or processes governing the performance and control of WMP initiatives were available.
- For most initiatives, BVES did not appear to have a formal written process to control and maintain quality records (e.g., report forms, inspection checklists, work orders) and other documentation.
- Summary-level spreadsheets and similar high-level documents were often used to manage and track initiative activities; however, in many cases, more granular documentation (such as regular inspection reports, checklists, third-party reports, daily/weekly meeting notes, and similar quality records) was not immediately available for review.

3.1.5. Qualitative Goal/Target

"Qualitative Goal/Target" activities are initiatives without a quantifiable goal or target that were conducted in 2021. S&L reviewed various documents provided by BVES to help determine whether the objectives of the initiative activities were met. Additionally, S&L submitted clarification requests and conducted interviews with BVES SMEs for an understanding of the activities performed. S&L's findings and assessments of each of this category's initiative activities are provided herein.

[84] Substation Weed Abatement Invoices.zip
[85] BVES_2021 Q4 QIU_202220201.xlsx

3.1.5.1. Review of Initiative

3.1.5.1.1. Initiative #7.3.1.1: Summarized Risk Map of Overall Ignition Probability and Estimated Wildfire Consequence Along Electric Lines and Equipment

For 2021, BVES completed a mapping of their service area for wildfire probability, consequence, and risk assessment. This work was ultimately performed by Reax Engineering (Reax) and was provided to BVES in a summarized report on risk mapping.[86] The various sub-initiatives within Initiative 7.3.1 ("Risk Assessment & Mapping") are addressed in this report.

Ignition probability was modeled as a function of wind speed, fuel moisture content pecentage, and conductor density multiplied by time (line-mile·hour). Empirical data of historical ignitions was taken from California Public Utilities Commission (CPUC) reportable events of the Pacific Gas and Electric (PG&E) and Southern California Edison (SCE) service areas as well as from a RTMA (real-time mesoscale analysis), which provides live weather information for the Continental United States in 2.5-km^2 cells. Compiling all this data into discrete probability bins of each unique condition created a model that could be applied to the BVES service area and its local conditions.

Wildfire consequence was modeled according to ELMFIRE, a software package that models wildfire spread according to several inputs, including the following:

- RTMA data, which includes temperature, relative humidity, wind speed, and direction
- Pyrologix 2021 California fuelscape, which provides surface and canopy fuel layers to 30-m resolution
- Building footprint data
- BVES geographical information system (GIS) data containing conductor lengths per 30-m topography grid cell

Several maps depicting the magnitude of ignition probability and wildfire consequence were created using a red–green–blue color scale, with red indicating highest probability/consequence and blue indicating lowest probability/consequence. Uncolored areas were outside the bounds of any risk or consequence from BVES assets. These maps provide BVES a qualitative picture of the relative risks and consequences across their region.

While this risk mapping uses the most accurate available information, Reax noted that there are shortcomings to the model. Weather conditions at the exact point of ignition may not be exactly as stated by the RTMA data; furthermore, the model does not consider factors such as line maintenance, vegetation management, or real-world reactions by firefighter teams.

[86] 2021-12-15 Reax BVES fire risk modeling Rev 0.pdf

Regarding Initiative 7.3.1.1 specifically, the Reax risk mapping report[87] provided a map of overall wildfire risk and consequences based on fire area. This map specifically addresses this initiative, which is to provide a summarized risk map showing wildfire risk and consequence along the electrical utility lines and equipment.

For this initiative in the WMP,[88] BVES set a goal of "qualitative assessment of project status." This evaluation has determined that BVES satisfied their goal.

3.1.5.1.2. Initiative #7.3.1.2: Climate-Driven Risk Map and Modelling Based on Various Relevant Weather Scenarios

As stated for Initiative 7.3.1.1, the Reax risk mapping report[89] used a model that included several pieces of climate data, including the following:

- RTMA data, which includes temperature, relative humidity, wind speed, and direction
- Pyrologix 2021 California fuelscape, which provides surface and canopy fuel layers to 30-m resolution
- Building footprint data
- BVES GIS data containing conductor lengths per 30-m topography grid cell

This climate data is an essential part of both the ignition probability and consequence portions of the model used to create the risk maps; therefore, the same maps used to accomplish Initiative 7.3.1.1 will apply to the goal of Initiative 7.3.1.2 to use climate-driven risk maps and modeling.

For this initiative in the WMP,[90] BVES set a goal of "qualitative assessment of project status." This evaluation has determined that BVES satisfied their goal for Initiative 7.3.1.2.

3.1.5.1.3. Initiative #7.3.1.3: Ignition Probability Mapping Showing Probability of Ignition Along Electric Lines and Equipment

As stated for Initiative 7.3.1.1, the Reax risk mapping report[91] includes risk and consequence maps based on a model that combines empirical historical data of ignitions with real-time climate conditions. Reax created four types of maps of the BVES service area for 2021:

[87] 2021-12-15 Reax BVES fire risk modeling Rev 0.pdf
[88] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[89] 2021-12-15 Reax BVES fire risk modeling Rev 0.pdf
[90] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[91] 2021-12-15 Reax BVES fire risk modeling Rev 0.pdf

- Consequence based on fire area
- Risk based on fire area
- Consequence based on impacted structures
- Risk based on impacted structures

Two of these maps, risk based on fire area and risk based on impacted structures, show the probability of ignition along electric lines and equipment. This probability is expressed qualitatively on the red–green–blue color scale. This provides BVES the relative risk of an ignition occurring in any location within their service area and helps determine resource allocation for mitigation activities.

For this initiative in the WMP,[92] BVES set a goal of "qualitative assessment of project status." This evaluation has determined that BVES satisfied their goal for Initiative 7.3.1.3.

3.1.5.1.4. Initiative #7.3.1.4: Initiative Mapping and Estimation of Wildfire and PSPS Risk-Reduction Impact

The maps in the Reax risk mapping report[93] are static maps depicting theoretical wildfire probability and consequences across the BVES service area. In contrast, PSPS events are based on real-time data to determine when conditions call for PSPS as the last resort to prevent wildfires; therefore, unlike the other risk assessment and mapping initiatives in the WMP, Initiative 7.3.1.4 cannot be satisfied by the maps created by Reax.

For this initiative, BVES stated, "PSPS risk reduction model has not yet been developed; will be considered at a future time contingent on any future PSPS activation." A request for clarification was sent to BVES on May 12, 2022 to determine whether BVES has plans to address this initiative beyond the use of the static mapping. On May 13, 2022, BVES responded, stating that "in 2022, BVES has engaged Technosylva to provide real-time fire threat risk forecasts using their advance prediction models." It is clear that BVES is aware that the work performed by Reax was insufficient for this initiative and has taken action to address this specifically in the future with a separate third-party specializing in real time fire risk mapping.

For this initiative in the WMP,[94] BVES set a goal of "qualitative assessment of project status." This evaluation has determined that BVES satisfied their goal for Initiative 7.3.1.4 due to the plan in place for real-time fire risk mapping in 2022.

[92] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[93] 2021-12-15 Reax BVES fire risk modeling Rev 0.pdf
[94] BVES 2021 WMP Revised Annual Filing, June 3, 2021

3.1.5.1.5. Initiative #7.3.1.5: Match Drop Simulations Showing Potential Wildfire Consequence of Ignitions Occurring Along Electric Lines and Equipment

As stated for Initiative 7.3.1.3, Reax created four types of risk and consequence maps for the 2021 BVES service area shown in their risk mapping report.[95] The two maps that pertain to this initiative are: (i) consequence of a wildfire based on fire area; and (ii) consequence of a wildfire based on impacted structures. Both maps show the expected outcome of damage should a fire break out in any location within the BVES service area. The term "match drop" is not used by Reax, but it is understood that these maps are equivalent to a match-drop simulation, which would show the result of a lit match dropped at any given point and then started a fire. These maps use a qualitative red–green–blue color scale to show the relative consequences of a fire breaking out at all points across the BVES service area in terms of the fire area as well as impacted structures.

For this initiative in the WMP,[96] BVES set a goal of "qualitative assessment of project status." This evaluation has determined that BVES satisfied their goal for Initiative 7.3.1.5.

3.1.5.1.6. Initiative #7.3.2.4: Forecast of Fire Risk Index, Fire Potential Index, or Similar

The WMP[97] for this initiative indicates the following:

> BVES Subject Matter Expert evaluates the frequency of potential ignition events versus a set of impact categories (reliability, compliance, quality of service, safety and environmental) to develop total risk impact and scores. BVES currently uses the National Fire Danger Rating System and a weather consultant to provide a fire risk index. Completed risk model toolkit with final report from contractor. BVES's Public Safety Power Shutoff (PSPS) Procedure, Rev.1, Section 4 expands on the variables and measured datapoints for the fire risk and potential indexes.

BVES does not have a proprietary model or methodology for evaluating the potential impact of ignitions. Based on the documentation reviewed and the results of S&L evaluations, it was determined that BVES has satisfied this WMP activity.

3.1.5.1.7. Initiative #7.3.2.5: Personnel Monitoring Areas of Electric Lines and Equipment in Elevated Fire-Risk Conditions

The WMP[98] for this initiative indicates the following:

[95] 2021-12-15 Reax BVES fire risk modeling Rev 0.pdf
[96] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[97] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[98] BVES 2021 WMP Revised Annual Filing, June 3, 2021

> BVES does not have a specific wildfire mitigation situational awareness and forecasting initiative focused on personnel monitoring areas of electric lines and equipment in elevated fire risk conditions. During high fire threat weather that could lead to PSPS events, BVES deploys crews to monitor conditions in the field, in the high threat areas. For 2021, No high-risk events occurred.

BVES's PSPS Procedure, Revision 1, Section 4, provides measured datapoints for the fire risk and fire indexes. In Appendix A, BVES provides a map of the "high-risk areas" that have the station names and affected customers. BVES has satisfied this WMP initiative; the WMP goal for this initiative was "N/A" with respect to the 2021 initiative, and the goal was to have BVES deploy crews as necessary based upon the fire risk index and other data gathered as well as the PSPS drill script. Based upon the BVES 2021 annual quantity target of zero and the BVES 2021 quantity actual progress (Q1-4) of zero with respect to the number of emergencies, and with BVES customer support processes in place, it is evident that BVES has satisfied the WMP activity.

3.1.5.1.8. Initiative #7.3.2.6: Weather Forecasting and Estimating Impacts on Electric Lines and Equipment

The WMP[99] for this initiative indicates the following:

> The Weather Forecast Consulting Services contract provides information for the WMP initiative's goal. Weather Consulting Services provides BVES staff service area specific forecasts to better understand fire threat weather as well as storm conditions that may affect service which allows BVES to prepare response ahead of time and take precautionary and/or avoidance action.

The general work contract for weather forecast consulting services[100] provides a host of line-item services. BVES currently uses a weather consultant to provide weather forecasts that assist in driving operational decisions, including PSPS. Also, BVES's PSPS Procedure, Revision 1,[101] provides guidance for weather forecasting and measurable data for impact. Based on the documentation reviewed (e.g., the sample fire threat weather forecast) and procedure set in place, BVES has satisfied this initiative activity, as the forecasting efforts were completed as expected.

3.1.5.1.9. Initiative #7.3.3.1: Capacitor Maintenance and Replacement Program

BVES implemented a capacitor maintenance and replacement program for ongoing electrical maintenance and prevention activities that provides a plan for any remediation, adjustments, or installations of new equipment to improve or replace existing capacitors and reduce the likelihood of faults or failures.

[99] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[100] C#3000-000-Weather Consulting-Fully Executed.pdf
[101] BVES INC PSPS Procedures Rev1.pdf

Per the WMP,[102] BVES did not have an immediate plan for this initiative apart from routine preventative maintenance activities; however, training material for the program was provided by BVES as well as a list of attendees who were present for the training. S&L has determined that BVES has satisfied their goal for Initiative 7.3.3.1.

3.1.5.1.10. Initiative #7.3.3.2: Circuit Breaker Maintenance and Installation to De-Energize Lines Upon Detecting a Fault

Per the WMP,[103] BVES does not have a specific wildfire mitigation grid design and system-hardening initiative focused on circuit breaker maintenance and replacement. The WMP indicates that circuit breaker replacement and maintenance is included in the company's standard inspection, maintenance, and replacement protocols. The WMP also notes that circuit breakers are generally installed for all distribution circuits to detect fault current and protect equipment if a fault is detected.

S&L reviewed multiple reports[104] generated by a BVES-subcontracted company to perform substation visual and mechanical inspections through 2021. S&L reviewed technical service reports prepared by the subcontractor for the Big Bear City, Bear Mountain, and Maple substations. Following a review of the substation inspection sheets, S&L noted circuit breakers as part of the scope of the inspections, which included operational timing, trip, insulation resistance, and power factor testing.

Based on the information, BVES is performing circuit-breaker maintenance and installation; therefore, it is determined that BVES met this WMP initiative goal.

3.1.5.1.11. Initiative #7.3.3.4: Covered Conductor Maintenance

As per the WMP,[105] BVES does not have a specific wildfire mitigation grid design and system-hardening initiative focused on covered conductor maintenance. This activity involves the maintenance of multiple assets across their sub-transmission and distribution facilities. Per an interview with the BVES SME,[106] although there are no separate work orders for maintenance, repair, and replacement of covered conductors, crossarms, and connectors, work is still performed as issues arise. BVES has qualified individuals who inspect and maintain these assets and fix issues within days of them becoming aware of a repair being needed. These activities are charged to their overall maintenance budget. Based on this explanation, S&L concludes that this initiative has been met for 2021.

[102] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[103] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[104] 2021 Substation Equipment Testing & Contract.zip
[105] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[106] Tom Chou, July 6, 2022

3.1.5.1.12. Initiative #7.3.3.5: Crossarm Maintenance, Repair, and Replacement

As per the WMP,[107] BVES does not have a specific wildfire mitigation grid design and system-hardening initiative focused on crossarm maintenance, repair, and replacement. The WMP states that routine crossarm maintenance, repair, and replacement is included in the company's standard inspection programs. The overall maintenance of these assets is discussed in Section 3.1.5.1.11.

3.1.5.1.13. Initiative #7.3.3.10: Maintenance, Repair, and Replacement of Connectors, Including Hotline Clamps

As per the WMP,[108] BVES does not have a specific wildfire mitigation grid design and system-hardening initiative focused on maintenance, repair, and replacement of connectors, including hotline clamps. The WMP states that this is included in the company's standard inspection programs. The overall maintenance of these assets is discussed in Section 3.1.5.1.11.

3.1.5.1.14. Initiative #7.3.3.11: Mitigation of Impact on Customers and Other Residents Affected During PSPS Event

BVES has indicated that an energy storage project to mitigate PSPS customer impact is in progress. RFP clarification responses indicated that "BVES plans to install an 8-MW/40-MWh battery storage system in 2023." A purchase and sales agreement, that is currently under negotiation, was provided by BVES. Although there is planning in development to execute an energy storage project, it will not be fully executed and operational until 2023; therefore, S&L concludes that BVES did not meet the goal for this initiative in 2021.

3.1.5.1.15. Initiative #7.3.3.12: Other Corrective Action

Safety & Technical Upgrades of Substations

Per the WMP,[109] BVES completed the Pineknot substation initiative in 2020; therefore, this initiative is based on the upgrades to only the Palomino substation. The upgrades involved converting the existing overhead-type to a padmount design with dead-front that is enabled for supervisory control and data acquisition (SCADA). BVES provided procurement documentation that includes materials, equipment, and labor expenditures for 2021 as well as issued-for-construction (IFC) drawings for the finalized designs. After review of these documents and confirmation with BVES, S&L concludes that the safety and technical upgrades for the Palomino substation are complete and under operation; therefore, this initiative has been met.

[107] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[108] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[109] BVES 2021 WMP Revised Annual Filing, June 3, 2021

3.1.5.1.16. Initiative #7.3.3.14: Transformers Maintenance and Replacement

BVES does not currently have a specific wildfire mitigation grid design and system-hardening initiative focused on transformer maintenance and replacement. The WMP[110] indicates that transformer replacement and maintenance is included in the company's standard inspection, maintenance, and replacement protocols.

After clarification with BVES, S&L understood that the work orders provided—which include materials, equipment, and labor expenditures for undergrounding and replacement poles—provide the costs for installation of the replacement transformers. No transformers were purchased for 2021, and replacements were drawn from existing inventory.

S&L reviewed multiple reports[111] generated by a BVES-subcontracted company to perform substation visual and mechanical inspections through 2021. S&L reviewed technical service reports prepared by the subcontractor for the Bear City, Bear Mountain, and Maple substations. Review of the substation inspection sheets noted transformers as part of the scope of the inspections, which included transformer minimum and maximum temperature, oil levels, gas pressure, a dissolved-gas analysis, and an insulating fluid evaluation.

Based on the information reviewed, BVES is performing transformer maintenance and replacement; therefore, it is determined that BVES met this WMP initiative goal.

3.1.5.1.17. Initiative #7.3.3.16: Undergrounding of Electric Lines and/or Equipment

Per the WMP, BVES did not propose to underground any overhead lines based on their understanding of the capabilities of covered wire systems. BVES did do some underground repair and blanket projects in 2021 that were charged to this WMP initiative, despite no specific goal being set. S&L therefore concludes this initiative has been met.

3.1.5.1.18. Initiative #7.3.5.1: Additional Efforts to Manage Community and Environmental Impacts

The BVES 2021 Q4 QIU[112] states that "BVES does not have a unique WMP initiative for this activity at this time. BVES currently has not encountered the need for additional efforts to manage community and environmental impacts." The qualitative goal for this initiative was designated as "Not Applicable"; therefore, BVES does not have a specific goal for this initiative.

[110] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[111] 2021 Substation Equipment Testing & Contract.zip
[112] BVES_2021 Q4 QIU_202220201.xlsx

BVES did reach out to the community by submitting a briefing to the City of Big Bear Lake's council meeting. The briefing presentation[113] included an overview of BVES's current vegetation management work.

Based on the target and goals for this initiative stated above, S&L finds that BVES meets this WMP initiative activity goal and will continue to reevaluate the need for additional efforts to manage community and environmental impacts.

3.1.5.1.19. Initiative #7.3.5.4: Emergency Response Vegetation Management from Red-Flag Warning or Other Urgent Conditions

The vegetation management plan in the vegetation management contract[114] covers three aspects of vegetation maintenance: preventative vegetation management, corrective vegetation clearance, and emergency vegetation clearance. This initiative falls under the emergency vegetation clearance category.

The BVES hired contractors were required to perform emergency response vegetation management, when requested, per the Forester Contract[115] and the Vegetation Management contract. However, there is no target or actual goals set or achieved for this particular initiative per the BVES 2021 Q4 QIU[116]. The target goal is determined to be "Not Applicable". BVES does have an Emergency Vegetation Clearance Response section in the Vegetation Management contract which details the requirements of the contractor to clear vegetation that may have been moved or fallen during a weather event or other disaster.

Based on this, S&L finds that BVES does meet the initiative, and it does have an emergency plan for vegetation management in the case of a disaster.

3.1.5.1.20. Initiative #7.3.5.5: Fuel Management and Reduction of "Slash" From Vegetation Management Activities

As stated in Initiative #7.3.5.4, the Vegetation Management Plan covers three aspects of vegetation maintenance: preventative vegetation management, corrective vegetation clearance, and emergency vegetation clearance. This initiative falls under the corrective vegetation clearance category.

The goal target for this initiative, per the BVES 2021 Q4 QIU,[117] states that the "contractor removes vegetation waste as part of contract on daily basis." The actual target met states that the "contractor meets requirement; targets met." This initiative is qualitative and does not have a designated quantity to meet. The vegetation management contract requires the contractor to dispose of wastes, including wood and

[113] BVES Inc WMP City Council Briefing Slides 2021-4-14.pdf
[114] C#3095-000 Vegetation Management.pdf
[115] C#3090-000 Forester Contract.pdf
[116] BVES_2021 Q4 QIU_202220201.xlsx
[117] BVES_2021 Q4 QIU_202220201.xlsx

wood products. The contract details specific requirements for these reduction of "slash" activities. BVES does not have any other documentation for these activities.

Based on the qualitative and as needed nature of this initiative activity, S&L finds that BVES has achieved the target goal for this WMP initiative.

3.1.5.1.21. Initiative #7.3.5.6: Improvement of Inspections

The BVES 2021 Q4 QIU[118] states that "BVES does not have a unique WMP initiative for this activity at this time." The qualitative goal for this initiative was designated as "Not Applicable"; therefore, BVES does not have a specific goal for this initiative. Based on this, S&L finds that BVES meets this WMP initiative activity goal, although there is always room to improve inspections through training and lessons learned, as noted in the WMP.[119]

3.1.5.1.22. Initiative #7.3.5.14: Recruiting and Training of Vegetation Management Personnel

Per the BVES 2021 Q4 QIU,[120] the qualitative target for this initiative is to achieve "no gaps in staffing for vegetation management." BVES states that this initiative target is achieved by the oversight of the BVES staff to the vegetation contractor. BVES maintained regular staffing throughout 2021 to meet this initiative, as shown in the staffing log for 2021.[121] This log details the regular staffing achieved by the utility per month in 2021. BVES had one foreman and at least one groundman (sometimes two) for each crew each month. In an interview, the relevant BVES SME stated that staffing through the contractor, Mowbray's Tree Service Inc. (Mowbray's,) allowed BVES to further meet this target. Mowbray's was able to provide all the necessary personnel as required. Based on this, S&L finds that BVES met their target goal for this WMP initiative activity.

3.1.5.1.23. Initiative #7.3.5.15: Remediation of At-Risk Species

The BVES 2021 Q4 QIU[122] states that "BVES does not have a unique WMP initiative for this activity at this time. BVES has not had an issue and has discussed this with its Vegetation Management contractor. BVES will be bringing on a Forester in 2021 to review this initiative more closely." The qualitative goal for this initiative was designated as "Not Applicable." BVES provided the forester contract,[123] which details the contract requirements for the forester contractor they brought on in 2021, Davey Resource Group.

[118] BVES_2021 Q4 QIU_202220201.xlsx
[119] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[120] BVES_2021 Q4 QIU_202220201.xlsx
[121] 7.3.5.14 Staffing log.pdf
[122] BVES_2021 Q4 QIU_202220201.xlsx
[123] C#3090-000 Forester Contract.pdf

As mentioned, BVES did plan to contract a forester group, and as shown in the forester contract, they completed that plan by signing a contract with Davey Resource Group on December 22, 2020. Additionally, BVES provided a tree-removal spreadsheet[124] listing trees that have been removed as part of the greater vegetation management goal. Within this spreadsheet, the species of tree is listed, demonstrating that BVES and its contractor are noting the specific tree species that require removal. Based on this, S&L finds that BVES meets this WMP initiative goal.

3.1.5.1.24. Initiative #7.3.5.16: Removal and Remediation of Trees with Strike Potential to Electric Lines and Equipment

The qualitative target for this initiative is removal of strike potential trees within 30 days of identification. BVES hired Mowbray's to perform the required vegetation and tree trimming services needed to meet this initiative. The vegetation management contract[125] requires the strike potential trees to be removed within 30 days of identification.

BVES provided a tree removals spreadsheet[126] that provides tree removal records and includes removal start and end dates. As required, the records show that removal of the strike potential trees was completed well within the 30-day required timeframe. As stated in for Initiative #7.3.5.20 (Section 3.1.5.1.27), BVES provided pictures of the trees removed. This target goal was qualitative, as the required strike potential trees to remove are based off the existence of the strike potential trees. S&L finds that BVES met the WMP initiative goal for this activity.

3.1.5.1.25. Initiative #7.3.5.18: Substation Vegetation Management

The BVES 2021 Q4 QIU[127] states that the qualitative target for this goal is for the contractor to assess and remove vegetation at the BVES substations on an annual basis. BVES provided substation weed abatement invoices[128] for BVES from the contractor in charge of assessment and removal of the vegetation at the substations. These invoices show that 10 substations were inspected and determined to require weed abatement and cleanup on the exterior of the substation. Additionally, as covered in Initiative #7.3.5.17 (see Section 3.1.4.1.8), the substations that required weed abatement, as noted by the BVES inspectors, were serviced by this contractor; weeds were removed.

[124] 2021 Tree Removals.xlsx
[125] C#3095-000 Vegetation Management.pdf
[126] 2021 Tree Removals.xlsx
[127] BVES_2021 Q4 QIU_202220201.xlsx
[128] Substation Weed Abatement Invoices.zip

The weed abatement was required as needed based on BVES substation inspection records; therefore, this target was qualitative. Based on this information, S&L finds that BVES met the WMP initiative and target goal for this activity through the contracted services to remove excess vegetation at the substations.

3.1.5.1.26. Initiative #7.3.5.19: Vegetation Inventory System

Per the BVES 2021 Q4 QIU,[129] the qualitative goal for this initiative activity was to update the geodatabase system as necessary. The target met description in the Q4 QIU states that "trimmed trees were entered into GIS." The GIS was reviewed for tree trimming additions in Q4, and it was found that at least three vegetation-related, tree-trimming datapoints were added to the system.[130] The geodatabase system and upgrades for 2022 were discussed in an interview with the relevant BVES SME, who stated that upgrades were in progress in 2022 to supplement the GIS with iRestore (an electric inspection application). This is intended to facilitate easier recordkeeping. For 2021, as stated, some upgrades were made to be able to utilize the GIS to pinpoint vegetation management locations. Based on this information, S&L finds that BVES met its qualitative target goal for this initiative.

3.1.5.1.27. Initiative #7.3.5.20: Vegetation Management to Achieve Clearances Around Electric Lines and Equipment

Based on the BVES 2021 Q4 QIU,[131] the target for this initiative is to maintain minimum clearances. GO 95 requires a minimum radial clearance of 48 in. BVES's vegetation management contract[132] with Mowbray's requires a 72-in. radial clearance. Mowbray's is the contractor BVES uses to execute the vegetation clearing efforts around electric lines and equipment.

The WMP[133] states that the goal for this initiative is to proactively maintain vegetation. The WMP and the vegetation management contract also states requirements for the contractor to not only clear the vegetation that is currently within the 72-in. requirement but also to proactively clear the vegetation that is expected to grow into the 72-inch minimum in the next scheduled maintenance period (three years). Additionally, when vegetation is removed, fast growing tree species will be trimmed back to 12 ft. The "Tree Trunk and Major Limb Exception" section of the vegetation management contract explains that tree trunks greater than 18 in. in diameter may encroach up to 18 in. minimum (as allowed by GO 95) as long as they do not encroach within 12 in. during any weather condition.

[129] BVES_2021 Q4 QIU_202220201.xlsx
[130] 2021 Geo Database.zip
[131] BVES_2021 Q4 QIU_202220201.xlsx
[132] C#3095-000 Vegetation Management.pdf
[133] BVES 2021 WMP Revised Annual Filing, June 3, 2021

BVES conducted quality control reviews of the vegetation management around electric lines and equipment, as stated in Initiative #7.3.5.13 (see Section 3.1.4.1.7). Based on these requirements, the BVES contractor had to meet the target of maintaining these minimum clearances. BVES provided records showing the trees removed by Mowbray's.[134] These records were supplemented by pictures of the removed trees for 14 record samples chosen by S&L.[135] The photographic records concur that the trees were removed as stated in the records.

Based on the qualitative nature of this initiative, and the fact that this vegetation management is only required when notably needed by the contractor, S&L finds that BVES met the target goal for this WMP initiative activity. However, the S&L field verification team noted that some instances of vegetation overgrowth were found during site inspection. While these instances were not severe enough to be in violation of code requirements, they appeared to fall outside of industry best practices.

3.1.5.1.28. Initiative #7.3.6.1: Automatic Recloser Operations

As there was no specific 2021 activity goal/target provided in the WMP for this initiative,[136] S&L considers it complete.

3.1.5.1.29. Initiative #7.3.6.2: Crew-Accompanying Ignition Prevention and Suppression Resources and Services

The WMP[137] indicates that BVES does not have fire suppression resources; rather, BVES uses external 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. Based on the fact that there were no emergency events in 2021 and that external resources and services are utilized, it is evident that BVES has reached its qualitative goal of ongoing compliance.

3.1.5.1.30. Initiative #7.3.6.3: Personnel Work Procedures and Training in Conditions of Elevated Fire Risk

The WMP[138] states that this initiative is addressed by Wildfire Infrastructure Protection Teams, with roles and responsibilities for staff to respond to protect system infrastructure in case of emergencies. Personnel work procedures in conditions of elevated fire risk are addressed in the BVES PSPS procedure[139] and the

[134] 2021 vegetation complete record.xlsx
[135] 7.3.5.20 Removal Pictures.zip
[136] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[137] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[138] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[139] BVES INC PSPS Procedure Rev1.pdf

BVES emergency response plan.[140] A training drill was conducted on June 21, 2021;[141] S&L reviewed the drill script[142] and found that the drill utilizes the PSPS plan and BVES emergency response procedures. Following the training drill, a "lessons learned" meeting[143] was held to discuss the results of the training and the effectiveness of the PSPS procedure. As a result of the meeting, three action items were identified to improve the system.

Based on the existing procedures, training documents, and commitment to continuous improvement, BVES achieved the qualitative goal of continuing compliance with the programs and procedures.

3.1.5.1.31. Initiative #7.3.6.4: Protocols for PSPS Re-Energization

Per the WMP,[144] BVES considers re-energization after a PSPS event to be a subset of outage restoration and re-energization protocols generally included in Initiative 7.3.6, "Grid Operations and Protocols"; therefore, the utility does not have a separate protocol for PSPS. Based on the protocols discussed in Initiative #7.3.6.3, BVES met the qualitative goal of this initiative.

3.1.5.1.32. Initiative #7.3.6.5: PSPS Events and Mitigation of PSPS Impacts

The WMP[145] identifies that this is a system-wide initiative to ensure that BVES has protocols and procedures to respond to and recover from de-energization events to proactively prevent wildfires. During an interview on June 2, 2022, Paul Marconi, BVES's president, confirmed that there were no PSPS events in 2021. The procedures and training to mitigate impacts are documented in Initiative #7.3.6.3. Based on the zero PSPS events in 2021 and the existing procedures and training documents, BVES met the qualitative goal of this initiative.

3.1.5.1.33. Initiative #7.3.6.6: Stationed and On-Call Ignition Prevention and Suppression Resources and Services

The WMP[146] indicates that BVES does not have fire suppression resources. BVES works with Big Bear Fire Department, San Bernardino County Fire Department, and CALFIRE to provide crews on call for ignition prevention and suppression. Based on the fact that there were no emergency events in 2021, and the fact that BVES uses external resources and services, it is evident that BVES has reached its initiative goal to have the ability to comply with the plan and respond to emergencies.

[140] BVES INC PSPS Procedure Rev1.pdf
[141] PSPS drill 062121 Minutes.pdf
[142] Script-GO-166 2021 v2.docx
[143] PSPS Exercise June 21 Lessons Learned.pdf
[144] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[145] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[146] BVES 2021 WMP Revised Annual Filing, June 3, 2021

3.1.5.1.34. Initiative #7.3.7.1: Centralized Repository for Data

BVES maintains a GIS for their assets and their service area. The data from this GIS can be found within the GIS zip file[147] provided by BVES. This acts as a central repository for data pertaining to the GIS, including versions of the database titled "Q2," "Q3," and "Q4," corresponding to the updated versions of the GIS completed for each of those quarters in 2021.

For this initiative in the 2021 Q4 QIU,[148] BVES set a goal of "continued development and storage of GIS data" and claimed an actual achievement of "continued refinement for GIS resources." As evidence of their achievement, BVES provided a contractual agreement for Guidehouse[149] to perform an analysis of the BVES GIS and determine areas which need improvement. BVES also provided the final analysis report.[150] This report determined areas of the GIS that could be improved and outlined a timeline of near-, mid-, and long-term actions to achieve these improvements. Some of these actions have already been achieved, such as risk assessment and mapping activities as well as general data keeping improvements from earlier versions of the GIS.

Based on the WMP goal of "continued development and storage of GIS data," S&L finds that BVES satisfied Initiative #7.3.7.1 of the WMP.

3.1.5.1.35. Initiative #7.3.7.2: Collaborative Research on Utility Ignition and/or Wildfire

Per the 2021 Q4 QIU,[151] BVES does not list a goal in 2021 for this WMP initiative but has stated interest in collaborative research on utility ignition and/or wildfire in the future. Since there was no goal set and no action taken, it is determined that BVES has satisfied Initiative #7.3.7.2.

3.1.5.1.36. Initiative #7.3.7.3: Documentation and Disclosure of Wildfire-Related Data and Algorithms

Per the 2021 Q4 QIU,[152] BVES does not list a goal in 2021 for this WMP initiative, as documentation and disclosure of wildfire-related data and algorithms is covered generally under normal business operations. Since there was no goal set and no action taken, it is determined that BVES has satisfied Initiative #7.3.7.3.

[147] 2021 Geo Database.zip
[148] BVES_2021 Q4 QIU_20220201 Final.xlsx
[149] BVES_WMP_Change Request 02 from Guidehouse.pdf
[150] BVES GIS Gap Analysis Recommendations FINAL 11-30-20.pdf
[151] BVES_2021 Q4 QIU_202220201.xlsx
[152] BVES_2021 Q4 QIU_202220201.xlsx

3.1.5.1.37. Initiative #7.3.7.4: Tracking and Analysis of Near-Miss Data

BVES uses an outage log spreadsheet[153] documenting every incident throughout 2021 that caused an outage to customers. Within this spreadsheet, each outage is marked for a wildfire near miss as "yes" or "no." BVES recorded 11 wildfire near misses from a total of 82 outages. Three near misses were due to a spark-producing event around fuel dryness and availability, two were due to vegetation contact with wires, and six were due to lightning strikes. Other than comments about the event, no analysis of the data is performed within this log. For the 2021 goal, BVES indicated that this log has been aligned with a template from the Wildfire Safety Division/Office of Energy Infrastructure Safety (WSD/OEIS) for recording these events.

During an SME interview with the responsible BVES personnel, S&L learned how this logging sheet is used and whether any further analysis of the data is performed. BVES does not perform any formal data analysis but does discuss the trends of these near misses in a general sense during meetings. They will use information on near misses, such as frequency and severity, to take corrective action when needed. This is how the near-miss data log fits into the total wildfire mitigation strategy.

Based on the goal of continued use of the near-miss log, BVES satisfied the initiative for 2021; however, S&L suggests a future goal that includes some sort of formal analysis of the near-miss events beyond a simple documentation of each occurrence in order. In doing so BVES can ensure that the goal set for the initiative fully supports the WMP's intention of both tracking and analyzing near-miss data.

3.1.5.1.38. Initiative #7.3.8.1: Allocation Methodology Development and Application

For resource allocation methodology development, per the 2021 Q4 QIU,[154] BVES stated that a "program [is] in place" and that there is "continued compliance with the program" for both the 2021 goal and actual achievement; however, there was no supporting documentation listed to specify this program. A request for clarification was sent to BVES on May 24, 2022; on May 27, 2022, BVES responded as follows:

> BVES seeks to maximize the use of its limited resources to efficiently allocate financial and human capital by establishing a methodology that would evaluate spending to achieve the most significant risk reduction per dollar spent. BVES Management uses the Fire Safety Matrix and Risk Maps developed by REAX engineering to determine the budgets for the WMP initiatives. Resource Allocation Methodology is basically encompassed in BVES's operations supervision & engineering (FERC 580) budget and spend. The budget for this initiative is already in rates. The budget is based on an estimate the level of effort as applied to the applicable FERC codes that cover this initiative

[153] 2021 Outage Log.xlsx
[154] BVES_2021 Q4 QIU_202220201.xlsx

(e.g., a percentage is applied to the budgeted FERC code(s)). The actual spend is based on the same percentage applied to the actual spend in the applicable FERC code(s). There are no specific timesheets for this initiative. BVES's accounting system is not that granular and given the low values, it would not be cost effective to have staff track and document their specific time in this initiative.

BVES states that their resource allocation methodology is determined by referencing the risk maps provided by Reax[155] as well as the fire safety circuit matrix[156] to maximize the impact of each dollar spent on risk mitigation. BVES also uses the risk management program manual[157] to dictate how each position in the company is responsible for risk mitigation activities and how risk is calculated to apply resources for mitigation activities appropriately. Based on this, S&L finds that BVES has satisfied the goal of Initiative 7.3.8.2 of the WMP.[158]

3.1.5.1.39. Initiative #7.3.8.2: Risk Reduction Scenario Development and Analysis

Per the 2021 Q4 QIU,[159] the goal set for this initiative by BVES in 2021 was stated as a "qualitative assessment of project status." BVES listed the actual achievement for this initiative as a "completed risk model toolkit with final report from [the] contractor."

During a SME interview with the responsible BVES personnel, S&L understood that BVES hired a contractor who provides weekly weather condition reports that give the BVES team an estimate of the fire risk each week due to factors such as upcoming humidity and wind speed. BVES uses this information to better plan their week-to-week strategy for fire mitigation activities.

Based on the goal set and actions completed in 2021, S&L finds that BVES has satisfied Initiative 7.3.8.2 of the WMP.[160]

3.1.5.1.40. Initiative #7.3.8.3: Risk Spend Efficiency Analysis

Per the 2021 Q4 QIU,[161] the goal for Initiative 7.3.8.3 was a "qualitative assessment of project status." For the 2021 goal, BVES stated that the "risk spend efficiency [is] in progress after finalizing [the] risk mapping initiative."

[155] 2021-12-15 Reax BVES fire risk modeling Rev 0.pdf
[156] FireSafetyCircuitMatrix 2022-1-26 Update.xlsx
[157] RM Program Manual Final 06-2017.pdf
[158] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[159] BVES_2021 Q4 QIU_202220201.xlsx
[160] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[161] BVES_2021 Q4 QIU_202220201.xlsx

The mapping initiative refers to the risk mapping completed by Reax and provided to BVES in the risk mapping report[162]

Risk spend efficiency calculations require both a risk score and spending amount for each item or activity related to wildfire mitigation. BVES provided two documents detailing the risk scoring methodology and spending amounts across the BVES service area.

The fire safety circuit matrix[163] provides a spreadsheet view of all 26 BVES circuits and the total risk score of each. The input variables to calculate the total score include both risk factors and risk mitigation factors. The amount that each factor contributes to the total score is provided as well. The calculation methodology used by BVES is found to be consistent and reasonable for a qualitative initiative. Had this been a quantitative initiative with specific risk–spend goals, a further analysis of the risk scoring methodology or specific instructions from Energy Safety could have been required. Some of the risk factors used to calculate the total score include fire threat district level, fuel availability, length of overhead bare wire, and susceptibility to high winds.

The BVES risk register[164] calculates the RSE (risk spend efficiency) of each mitigation activity. This is the amount of risk that is reduced per dollar spent on each mitigation activity; it is divided into the three categories: public safety, loss of property, and loss of energy supplies (PSPS events). The risk calculation method used here is different than in the safety circuit matrix. Specifically, it is calculated as follows:

*Risk = Frequency*SUM(Category Weight*10^Impact)*

The categories and weights listed were reliability (12.1%), compliance (17.1%), quality of service (7.2%), safety (60.5%), and environmental (3.1%). For each mitigation activity, the risk score was calculated before and after completion of the activity, which shows how much the mitigation activity affects the total risk to public safety, property damage, or loss of energy. This difference of mitigated and unmitigated risk scores is divided by annual spend to give the final RSE, which was then plotted for each activity. This gives an estimate of how much each mitigation activity reduces the risks of wildfires per dollar spent. While this analysis is imperfect due to the difficult nature of accurately calculating risk, it is sufficient in the pursuit of providing BVES a qualitative analysis for where they are spending their money and, relatively, how much benefit they are getting out of each mitigation activity.

[162] 2021-12-15 Reax BVES fire risk modeling Rev 0.pdf
[163] FireSafetyCircuitMatrix 2022-1-26 Update.xlsx
[164] BVES Risk Register 2021-2-18 WMP Input.xlsx

Based on the qualitative goal of a qualitative assessment of project status, it is determined that BVES has satisfied the goal of WMP[165] Initiative 7.3.8.3.

3.1.5.1.41. Initiative #7.3.9.1: Adequate and Trained Workforce for Service Restoration

The relevant quality documents governing this initiative are Revision 2 of the BVES emergency response plan[166] and Revision 1 the BVES PSPS procedure.[167] The documents provide a relatively detailed methodology for PSPS and emergency response organizational roles and responsibilities, response plan training and exercises, preparedness, background information, guidelines, procedures, checklists, and resources. Paul Marconi, BVES's president, was interviewed and described the ongoing training process utilizing their learning management system (LMS). LMS tracks required training to ensure that all employees are training on the latest procedure versions. In addition, the California Utilities Emergency Association (CUEA) mutual assistance agreement plan[168] authorizes third-party assistance in the event of an emergency affecting electrical generation, electrical or natural gas transmission, and/or related facilities.

Based on documentation reviews and the interview with Paul Marconi, S&L finds it evident that actions are taken to identify, hire, retain, and train a qualified workforce to conduct service restoration in response to emergencies, including a short-term contracting strategy and implementation. BVES has satisfied this initiative activity goal.

3.1.5.1.42. Initiative #7.3.9.2: Community Outreach, Public Awareness, and Communication Efforts

The BVES processes for meeting this WMP initiative is fulfilled by Revision 2 the BVES emergency response plan[169] and Revision 1 of the BVES PSPS procedure.[170] These documents provide guidance and a tabulated list for the BVES customer support representatives to follow and has a guidance template for content, media usage, and communication with the receiving community recipients.

The provided WMP/PSPS community engagement examples, KBHR radio and Grizzly newspaper invoices, and the publicly available statements via the BVES website and Facebook were reviewed and cross-referenced with the community outreach tracking list.[171] The extensive outreach over several media sources evidenced that community outreach and communication efforts had occurred in 2021.

[165] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[166] BVERS INC EmergencyResponsePlan Rev2.pdf
[167] BVES INC PSPS Procedure Rev1.pdf
[168] 2015CUEAMutualAssistanceAgreement116.pdf
[169] BVERS INC EmergencyResponsePlan Rev2.pdf
[170] BVES INC PSPS Procedure Rev1.pdf
[171] 2021 WMP PSPS.docx

Based upon the BVES 2021 annual quantity target of 360 engagements and the BVES 2021 quantity actual progress of 602 engagements, S&L finds it evident that BVES has reached its initiative goal of community outreach, public awareness, and communication efforts.

3.1.5.1.43. Initiative #7.3.9.3: Customer Support in Emergencies

The BVES processes for meeting this WMP[172] initiative activity are contained in Revision 2 the BVES emergency response plan[173] and Revision 1 of the PSPS procedure.[174] The documents provide relatively a detailed methodology for PSPS and emergency response communications and customer support during emergencies.

Based upon the 2021 Q4 QIU,[175] the BVES initiative and actual progress of zero emergencies, and the BVES customer support processes in place, S&L finds it evident that BVES has reached its goal and satisfied this WMP initiative.

3.1.5.1.44. Initiative #7.3.9.4: Disaster and Emergency Preparedness Plan

The acceptability of this WMP[176] initiative activity is fulfilled in Revision 2 the BVES emergency response plan[177] and Revision 1 of the PSPS procedure.[178] The documents provide a detailed methodology for PSPS and emergency response event preparation, procedures, and evacuation.

Based on the documentation reviewed, the BVES 2021 Q4 QIU[179] annual quantity target of zero emergencies, the BVES 2021 quantity actual progress of zero emergencies, and the BVES disaster and emergency preparedness processes in place, S&L finds it evident that BVES reached its goal and satisfied this initiative activity.

3.1.5.1.45. Initiative #7.3.9.5: Preparedness and Planning for Service Restoration

The acceptability of this WMP[180] initiative activity is fulfilled in Revision 2 the BVES emergency response plan[181] and Revision 1 of the PSPS procedure.[182] Based on the documentation reviewed, the BVES 2021

[172] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[173] BVERS INC EmergencyResponsePlan Rev2.pdf
[174] BVES INC PSPS Procedure Rev1.pdf
[175] BVES_2021 Q4 QIU_202220201.xlsx
[176] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[177] BVERS INC EmergencyResponsePlan Rev2.pdf
[178] BVES INC PSPS Procedure Rev1.pdf
[179] BVES_2021 Q4 QIU_202220201.xlsx
[180] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[181] BVERS INC EmergencyResponsePlan Rev2.pdf
[182] BVES INC PSPS Procedure Rev1.pdf

Q4 QIU[183] annual quantity target of zero emergencies, and the BVES 2021 actual progress of zero emergencies, it is evident that BVES has reached its goal and satisfied this initiative activity.

3.1.5.1.46. Initiative #7.3.9.6: Protocols in Place to Learn from Wildfire Events

The acceptability of this WMP[184] initiative activity is fulfilled in Revision 2 the BVES emergency response plan[185] and Revision 1 of the PSPS procedure.[186] Based upon the documentation reviewed, the BVES 2021 Q4 QIU[187] annual quantity target of zero emergencies, and the BVES 2021 actual progress of zero emergencies, it is evident that BVES has reached its goal and satisfied this initiative activity.

3.1.5.1.47. Initiative #7.3.10.2: Cooperation and Best Practice Sharing with Agencies Outside California

The acceptability of this WMP initiative activity is fulfilled in Revision 2 the BVES emergency response plan[188] and Revision 1 of the PSPS procedure.[189] In the BVES INC PSPS procedure, (Revision 1, Section 6), there is a list categorizing the agencies that are contacted with respect to lessons learned; BVES interfaces with a range of universities for research purposes as well. Based on this data, BVES has satisfied the WMP initiative activity.

The following provides the list of pertinent local government agencies and partner organizations for 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)

[183] BVES_2021 Q4 QIU_202220201.xlsx
[184] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[185] BVERS INC EmergencyResponsePlan Rev2.pdf
[186] BVES INC PSPS Procedure Rev1.pdf
[187] BVES_2021 Q4 QIU_202220201.xlsx
[188] BVERS INC EmergencyResponsePlan Rev2.pdf
[189] BVES INC PSPS Procedure Rev1.pdf

- 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
- Based on the documentation reviewed, S&L determined that BVES has satisfied this initiative activity goal.

3.1.5.1.48. Initiative #7.3.10.3: Cooperation with Suppression Agencies

The acceptability of this WMP initiative activity is fulfilled in Revision 1 of the PSPS procedure,[190] specifically Section 6.5 ("Key Partners"), which states that "mutual aid agreements are an efficient and effective resource multiplier available to BVES restoration efforts; therefore, it is important that these agreements be maintained and that staff understand what resources they may provide and how to request the resources."

The pertinent local government agencies and partner organizations for BVES PSPS notifications are listed in Section 3.1.5.1.47. This list overlaps with the list of what is considered critical facilities and infrastructure. Based on the documentation reviewed, it was determined that BVES has satisfied this initiative activity goal.

3.1.5.1.49. Initiative #7.3.10.4: Forest Service and Fuel Reduction Cooperation and Joint Roadmap

BVES does not have a unique WMP initiative for this activity at this time. Per the WMP[191] and Q4 2021 QIU,[192] there was no initiative program or specific goals or targets set in 2021. Based on the information reviewed, BVES satisfied this initiative activity in 2021.

[190] BVES INC PSPS Procedure Rev1.pdf
[191] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[192] BVES_2021 Q4 QIU_202220201.xlsx

3.1.5.2. Trends and Themes

S&L identified several trends and themes during the assessment of the "2021 BVES WMP Qualitative Goal/Target" initiatives:

- In many cases, high-level documents and reports were used to satisfy multiple initiative goals. This is exemplified by the Reax report on risk mapping,[193] which provided a few risk maps to satisfy all the initiatives related to risk mapping and analysis. Another example is the risk spend efficiency analysis[194] and fire safety circuit matrix,[195] both of which are used to satisfy all initiatives related to resource allocation and risk reduction methodology. This approach is effective in using limited monetary resources to satisfy the goals of the WMP, although a more granular approach to each initiative could help achieve future WMP goals that may become more specific.
- BVES has used the assistance of third-party contractors to complete the work required to meet several of the qualitative initiatives. Examples of this include the Reax report[196] (providing risk mapping) and the Guidehouse GIS gap analysis.[197] This is an effective way to satisfy the goals of the WMP while managing the time of BVES staff.
- For many initiatives, no documented procedures or processes governing the performance and control of WMP initiatives were available.
- For most initiatives, BVES did not appear to have a formal written process to control and maintain quality records (e.g., report forms, inspection checklists, work orders) and other documentation.
- Summary-level spreadsheets and similar high-level documents were often used to manage and track initiative activities; however, in many cases, more granular documentation (such as regular inspection reports, checklists, third-party reports, daily/weekly meeting notes, and similar quality records) was not immediately available for review.
- Many of the BVES qualitative initiative goals/targets were not well defined or measurable with clearly scheduled milestone dates, making the assessments of compliance challenging and subjective.

3.1.6. "Not Applicable" or No Goal/Target Initiatives

In 2021, there were several initiative activities for which no activity was recorded for various reasons. In other cases, the initiative was deemed to be not applicable to BVES. These activities are discussed herein.

[193] 2021-12-15 Reax BVES fire risk modeling Rev 0.pdf
[194] BVES Risk Register 2021-2-18 WMP Input.xlsx
[195] FireSafetyCircuitMatrix 2022-1-26 Update.xlsx
[196] 2021-12-15 Reax BVES fire risk modeling Rev 0.pdf
[197] BVES GIS Gap Analysis Recommendations FINAL 11-30-20.pdf

3.1.6.1. Review of Initiative

3.1.6.1.1. Initiative #7.3.2.2: Continuous Monitoring Sensors – Situational Awareness Hardware Program/Remote Sensor Technology (Continue Evaluation of Future Need)

The acceptability of this WMP initiative activity is achieved in the supplied documentation.[198] Also, another source[199] shows supply for a general work contract for weather forecast consulting services that provide a host of line item services. Based on the documentation provided and reviewed, it is evident that BVES is in compliance with its goal, and S&L finds that BVES has satisfied this initiative activity goal.

Table 3-3 — Excerpt of General Work Contract for Weather Forecast Consulting Service

WEATHER FORECAST CONSULTING SERVICES	Price
Detailed weekly weather forecast & outlook. Daily weather updates in times of adverse weather. 24/7 cell phone access in times of severe weather/spot forecasts. Other available services mentioned above.	[redacted]
Total Monthly Cost	[redacted]

3.1.6.1.2. Initiative #7.3.2.3: Fault Indicators for Detecting Faults on Electric Lines and Equipment

Revision 1 of the PSPS procedure,[200] Section 4, expands the logic and provides measured datapoints for the decision to deploy crews as the data describes. According to the WMP[201] and Q4 2021 reports, “no work was planned or conducted in 2021 for this initiative. BVES has 110 Fault Indicators (FIs) installed in the system and intends to install an additional 117 in the system in 2022.” The current status of this initiative activity is indicated as “planned” per the Q4 2021 QIU; therefore, BVES has satisfied the WMP initiative activity.

[198] BVES Weather Station 2021.pdf and BVES Weather Station Locations Map.pdf
[199] C#3000-000-Weather Consulting-Fully Executed.pdf
[200] BVES INC PSPS Procedure Rev1.pdf
[201] BVES 2021 WMP Revised Annual Filing, June 3, 2021

3.1.6.1.3. Initiative #7.3.3.8: Grid Topology Improvements to Mitigate or Reduce PSPS Events

Per the WMP,[202] BVES does not have a specific wildfire mitigation grid design and system-hardening initiative focused on grid topology improvements to mitigate or reduce PSPS events. BVES communicated to S&L that no activities with respect to this initiative were performed in 2021. The WMP indicates that BVES recognizes that it is challenging to mitigate wildfire risk through grid topology changes alone and therefore focuses more on the augmentation of existing circuitry through its system-hardening efforts.

Based on the information reviewed, BVES did not have a specific initiative activity focused on grid topology improvements to mitigate or reduce PSPS events; no goal was explicitly stated for 2021, and no activities with respect to this initiative were performed in 2021. S&L therefore concludes that BVES met this WMP initiative activity goal.

3.1.6.1.4. Initiative #7.3.3.15: Transmission Tower Maintenance and Replacement

Per the WMP,[203] BVES does not have a specific initiative focused on transmission tower maintenance and replacement. BVES indicates it does not have any transmission-level assets and maintains a 34.5-kV sub-transmission line that is treated as a higher-voltage asset. S&L therefore concludes that BVES met this WMP initiative activity.

3.1.6.1.5. Initiative #7.3.3.17: Updates to Grid Topology to Minimize Risk of Ignition in HFTDs

Per the WMP,[204] BVES does not have a specific initiative focused on grid topology to minimize risk of ignition in HFTDs. BVES communicated to S&L that no activities with respect to this initiative were performed in 2021. The WMP indicates that BVES recognizes that it is challenging to mitigate wildfire risk through grid topology changes alone and therefore focuses more on the augmentation of existing circuity through its system-hardening efforts.

No specific goal was listed for this initiative in 2021. Based on the information reviewed, as well as the evidence that BVES is augmenting the existing circuitry through its system-hardening efforts as mentioned in the WMP, S&L finds that BVES met this WMP initiative activity.

[202] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[203] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[204] BVES 2021 WMP Revised Annual Filing, June 3, 2021

3.1.6.1.6. Initiative #7.3.4.2: Detailed Inspections of Transmission Electric Lines and Equipment

Per the WMP,[205] BVES does not have a specific initiative for this activity because BVES does not have any transmission-level assets and maintains a sub-transmission line (34.5 kV) that is treated as a higher-voltage asset; therefore, this initiative is not applicable.

3.1.6.1.7. Initiative #7.3.4.5: Infrared Inspections of Transmission Electric Lines and Equipment

Per the WMP,[206] BVES does not have a specific initiative for this activity because BVES does not have any transmission-level assets and maintains a sub-transmission line (34.5 kV) that is treated as a higher-voltage asset; therefore, this initiative is not applicable.

3.1.6.1.8. Initiative #7.3.4.8: LiDAR Inspections of Transmission Electric Lines and Equipment

Per the WMP,[207] BVES does not have a specific initiative for this activity because BVES does not have any transmission-level assets and maintains a sub-transmission line (34.5 kV) that is treated as a higher-voltage asset; therefore, this initiative is not applicable.

3.1.6.1.9. Initiative #7.3.4.10: Other Discretionary Inspections of Transmission Electric Lines

Per the WMP,[208] BVES does not have a specific initiative for this activity because BVES does not have any transmission-level assets and maintains a sub-transmission line (34.5 kV) that is treated as a higher-voltage asset; therefore, this initiative is not applicable.

3.1.6.1.10. Initiative #7.3.4.12: Patrol Inspections of Transmission Electric Lines and Equipment

Per the WMP,[209] BVES does not have a specific initiative for this activity because BVES does not have any transmission-level assets and maintains a sub-transmission line (34.5 kV) that is treated as a higher-voltage asset; therefore, this initiative is not applicable.

[205] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[206] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[207] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[208] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[209] BVES 2021 WMP Revised Annual Filing, June 3, 2021

3.1.6.1.11. Initiative #7.3.5.3: Detailed Inspections of Vegetation Around Transmission Electric Lines and Equipment

Per the WMP,[210] BVES does not have a specific initiative for this activity because BVES does not have any transmission-level assets and maintains a sub-transmission line (34.5 kV) that is treated as a higher-voltage asset; therefore, this initiative is not applicable.

3.1.6.1.12. Initiative #7.3.5.8: LiDAR Inspections of Vegetation Around Transmission Electric Lines and Equipment

Per the WMP,[211] BVES does not have a specific initiative for this activity because BVES does not have any transmission-level assets and maintains a sub-transmission line (34.5 kV) that is treated as a higher-voltage asset; therefore, this initiative is not applicable.

3.1.6.1.13. Initiative #7.3.5.10: Other discretionary inspection of transmission electric lines and equipment

Per the WMP,[212] BVES does not have a specific initiative for this activity because BVES does not have any transmission-level assets and maintains a sub-transmission line (34.5 kV) that is treated as a higher-voltage asset; therefore, this initiative is not applicable.

3.1.6.1.14. Initiative #7.3.5.12: Patrol Inspections of Vegetation Around Transmission Electric Lines and Equipment

Per the WMP,[213] BVES does not have a specific initiative for this activity because BVES does not have any transmission-level assets and maintains a sub-transmission line (34.5 kV) that is treated as a higher-voltage asset; therefore, this initiative is not applicable.

3.2. VERIFICATION OF FUNDING

3.2.1. Scope of Study

S&L's purpose for the verification of initiative funding was to review the financial projections made by BVES for 2021 and document each instance where BVES spent less than 100% of its forecasted expenditures for WMP activities. For each such instances, S&L requested explanations from BVES, which are documented as part of this report.

[210] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[211] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[212] BVES 2021 WMP Revised Annual Filing, June 3, 2021
[213] BVES 2021 WMP Revised Annual Filing, June 3, 2021

Initially, S&L reviewed the aggregated forecasted and actual capital expenditures (CAPEX) and operational expenditures (OPEX) for each of the 10 WMP categories. As a next step, S&L reviewed the forecasted and actual CAPEX and OPEX for each WMP initiative activity within the 10 WMP categories. These evaluations included the review of areas of overspending and underspending.

As part of the review, S&L examined the following documents related to the funding of WMP categories and initiatives:

- BVES's 2021 WMP annual filing, Version 2
- BVES's 2021 Annual Report on Compliance (ARC) cost table[214]
- The WMP memorandum account (WMPMA)[215]
- The fire risk mitigation memorandum account (FRMMA)[216]
- The fire hazard prevention memorandum account (FHPMA)[217]
- The catastrophic event memorandum account (CEMA)[218]

3.2.2. General Findings

For 2021, S&L found that the total spending for wildfire mitigation was below the total budget forecast by $2.28 million (about 10 % of the forecasted budget), as shown in Table 3-4.

Table 3-4 — WMP Funding Verification Summary

WMP Category	Dollars ($000)		Category % of Total Forecast	Variance (Over (+) or Under (-) Spent)	
	Forecast	Actual		Dollars ($000)	% of Forecast
Risk Assessment & Mapping	91.51	92.25	0.39%	0.74	0.81%
Situational Awareness & Forecasting	127.84	161.28	0.54%	33.44	26.16%
Grid Design & System Hardening	19,114.61	16,742.59	80.83%	-2,372.01	-12.41%
Asset Management & Inspections	766.36	471.49	3.24%	-294.87	-38.48%
Vegetation Management & Inspections	3,186.82	3,238.81	13.48%	52.00	1.63%

[214] BVES_2021 ARC_20220331_vF.xlsx
[215] BVE fire mitigation 68552 thru 12-31-2021 revised 1.20.22.xlsx and 352- E Authorization.pdf.
[216] BVE fire mitigation 68552 thru 12-31-2021 revised 1.20.22.xlsx and 352- E Authorization.pdf.
[217] BVE fire prevention 1670.41.xlsx.
[218] CEMA Application A. 20-04-001.PDF.

WMP Category	Dollars ($000)		Category % of Total Forecast	Variance (Over (+) or Under (-) Spent)	
	Forecast	Actual		Dollars ($000)	% of Forecast
Grid Operations & Operating Protocols	37.80	43.14	0.16%	5.34	14.12%
Data Governance	114.86	240.78	0.49%	125.93	109.64%
Resource Allocation Methodology	43.48	46.92	0.18%	3.45	7.92%
Emergency Planning & Preparedness	101.99	167.85	0.43%	65.86	64.57%
Stakeholder Cooperation & Community Engagement	63.73	65.66	0.27%	1.93	3.02%
Total	23,648.99	21,270.77	100.00%	-2,378.22	-10.06%

A majority of the WMP budget forecast (80.83%) was allocated to the “Grid Design & System Hardening” WMP category. A minor forecasted budget was allocated to “Grid Operations & Operating Protocols” (0.16%) and “Resource Allocation Methodology” (0.18%), totaling a less than 0.5% allocation. For the overall 2021 WMP budget, BVES underspent approximately 10% of its forecasted budget. More details on budget underspending for 2021 are presented in Section 3.2.3 and Section 3.2.4 for the CAPEX and OPEX budgets, respectively.

3.2.3. Findings for CAPEX Spending

The total CAPEX spending for wildfire mitigation during 2021 was below the forecasted budget by $2.28 million, as detailed in Table 3-5.

Table 3-5 — WMP CAPEX Budget Allocation per Category

WMP Category	Dollars ($000)		Category % of Total Forecast	Variance Over (+) or Under (-) Spent	
	Forecast	Actual		Dollars ($000)	% of Forecast
Risk Assessment & Mapping	–	–	–	–	–
Situational Awareness & Forecasting	40.00	135.88	0.21%	95.88	239.70%
Grid Design & System Hardening	18,863.73	16,472.72	99.38%	-2,391.00	-2.683%
Asset Management & Inspections	77.66	90.92	0.41%	13.27	17.08%

WMP Category	Dollars ($000)		Category % of Total Forecast	Variance Over (+) or Under (-) Spent	
	Forecast	Actual		Dollars ($000)	% of Forecast
Vegetation Management & Inspections	–	–	–	–	–
Grid Operations & Operating Protocols	–	–	–	–	–
Data Governance	–	–	–	–	–
Resource Allocation Methodology	–	–	–	–	–
Emergency Planning & Preparedness	–	–	–	–	–
Stakeholder Cooperation & Community Engagement	–	–	–	–	–
Total	18,981.38	16,699.52	100.00%	-2,281.86	-12.02%

The CAPEX forecasted budget was allocated to "Situational Awareness & Forecasting," "Grid Design & System Hardening," and "Asset Management & Inspections." Most of the CAPEX forecasted budget, 99.4%, was allocated to "Grid Design & System Hardening." For the "Situational Awareness & Forecasting" and "Asset Management & Inspections" categories, the allocated budget was 0.21% and 0.41%, respectively, of the total CAPEX budget. No CAPEX funds were forecasted or spent for the remaining seven WMP categories.

In the aggregate, spending for "Situational Awareness & Forecasting" exceeded the forecasted budget by about 240%. There are six initiatives within this category, and the spending on two of these initiatives surpassed the allocated amount. For Initiative 7.3.2.1, "Advanced Weather Monitoring & Weather Stations," BVES completed its target to install two weather stations during 2021; however, due to the remote locations for these installations, the labor to complete the tasks was higher than anticipated. This was also the case for Initiative 7.3.2.2, "Continuous Monitoring Sensors," for which BVES completed its target to install two cameras for the ALERT wildfire camera installation program but exceeded the allocated budget due to higher-than-anticipated labor in remote locations.

As mentioned above, the largest allocation for the CAPEX forecasted budget was for "Grid Design & System Hardening," with 13% of the budgeted funds not spent during 2021. S&L learned that the greatest driver for this underspending was under the "Distribution Pole Replacement & Reinforcement" initiative, which intends to replace the Radford line with covered power lines and poles that are resistant to fire. The budget

for this initiative was not used during 2021 since the project is awaiting the U.S. Forestry Service permit approval. BVES informed S&L that it anticipates obtaining the required permitting mid-2022.

Spending for "Asset Management & Inspections" exceeded the forecasted CAPEX budget by 17%. This pertains to the inspections performed under the pole loading assessment and remediation program, for which the performed inspections exceeded the forecasted target.

With respect to initiatives at the lowest task level, there were seven initiatives where the actual CAPEX spending was below the forecasted budget, as shown in Table 3-6.

Table 3-6 — WMP Funding Verification Summary, CAPEX Budget Underspends

Initiative Category	2021 Initiative Number	Initiative Name	Funding Discrepancy Amount ($000)	Detail on Funding Discrepancy
Grid Design & System Hardening	7.3.3.3.2	Covered conductor installation	-$1,057.65	Spend was below the forecast by 88%. The Radford line project was delayed beyond 2021 since the project is awaiting the U.S. Forestry Service permit approval. BVES anticipates obtaining the required permitting mid-2022.
Grid Design & System Hardening	7.3.3.6.1	Distribution pole replacement and reinforcement, including with composite poles	-$355.59	Spending was below the forecast by 38%. The work performed under separate initiatives—for the covered wiring project and pole loading and remediation project—resolved work that would have been conducted under this initiative. This resulted in spending below the forecast due to work required by this initiative being addressed under other initiatives.
Grid Design & System Hardening	7.3.3.6.4	Distribution pole replacement and reinforcement, including with composite poles	-$4,206.66	Spending was below the forecast by 99%. The Radford line project was delayed beyond 2021 since the project is awaiting the U.S. Forestry Service permit approval. BVES anticipates obtaining the required permitting mid-2022.
Grid Design & System Hardening	7.3.3.9.2	Installation of system automation equipment	-$187.50	Spending was below the forecast by 50%. Some of the work originally planned under this initiative required the service area fiber network to be operational. Said fiber network was not operational until December 2021; therefore, some of the project work was deferred to 2022.
Grid Design & System Hardening	7.3.3.12.1	Other corrective action – safety and technical upgrades of substations (Palomino substation)	-$142.10	Spending was below the forecast by 8%. The expenses for the Palomino substation safety and technical project were slightly below the forecasted budget; however, the project was completed in accordance with the design specifications.

Initiative Category	2021 Initiative Number	Initiative Name	Funding Discrepancy Amount ($000)	Detail on Funding Discrepancy
Grid Design & System Hardening	7.3.3.12.2	Other corrective action – tree attachment removal program	-$250.79	Spending was below the forecast by 48%. BVES informed S&L that the budget for this initiative was a best estimate of cost. BVES also explained that each tree attachment has a unique cost reflecting the particularities of the pole, for example the time to do the job and the location of the pole. For 2021, BVES performed tree attachment removals in the Moonridge area, which is close to the road and did not require permitting, thus lowering the costs associated to the work. BVES exceeded its 2021 target to remove 70 tree attachments, having removed a total of 74 attachments.
Grid Design & System Hardening	7.3.3.14.	Transformers maintenance and replacement	-$310.00	Spending was below forecast by 100%. BVES was not required to purchase new transformers due to the inventory not decreasing below minimum.

Note: With respect to the 2021 WMP page numbers for these items, the WMP document does not present a specific budget broken out by initiative; rather, the budget presented in the WMP document is established by initiative category, as shown in Table 3-4. The forecasted budget by initiative specified in Table 3-6 was provided by BVES.[219]

3.2.4. Findings for OPEX Spending

The total OPEX spending for wildfire mitigation during 2021 was below the forecasted budget by $96,360, as detailed in Table 3-7.

Table 3-7 — WMP OPEX Budget Allocation per Category

WMP Category	Dollars ($000)		Category % of Total Forecast	Variance (Over (+) or Under (-) Spent)	
	Forecast	Actual		Dollars ($000)	% of Forecast
Risk Assessment & Mapping	91.51	92.25	1.96%	0.74	0.81%
Situational Awareness & Forecasting	87.84	25.40	1.88%	-62.44	-71.08%
Grid Design & System Hardening	250.88	269.87	5.37%	18.99	7.57%
Asset Management & Inspections	688.70	380.56	14.75%	-308.14	-44.74%
Vegetation Management & Inspections	3,186.82	3,238.81	68.28%	52.00	1.63%

[219] BVES_2021 ARC_20220331_vF.xlsx

WMP Category	Dollars ($000)		Category % of Total Forecast	Variance (Over (+) or Under (-) Spent)	
	Forecast	Actual		Dollars ($000)	% of Forecast
Grid Operations & Operating Protocols	37.80	43.14	0.81%	5.34	14.12%
Data Governance	114.86	240.78	2.46%	125.93	109.64%
Resource Allocation Methodology	43.48	46.92	0.93%	3.45	7.92%
Emergency Planning & Preparedness	101.99	167.85	2.19%	65.86	64.57%
Stakeholder Cooperation & Community Engagement	63.73	65.66	1.37%	1.93	3.02%
Total	4,667.61	4,571.25	100.00%	-96.36	-2.06%

As shown above, most of the WMP OPEX budget, 68%, was allocated to “Vegetation Management & Inspections.” Minor spending budgets were allocated to “Grid Operations & Operating Protocols,” “Resource Allocation Methodology,” and “Stakeholder Cooperation & Community Engagement,” each with a 1% allocation of the total OPEX budget.

The largest underspending variance from the forecasted budget, -71%, was for spending on “Situational Awareness & Forecasting.” The initiatives under this WMP category are associated with the monitoring of areas with elevated fire risk conditions, weather forecasting, and estimation of impacts on electric lines and equipment, among others. BVES informed S&L that, during 2021, BVES did not experience any elevated risk events, which significantly reduced the spending required under this initiative.

However, other categories of WMP initiatives showed an overspending variance from the forecasted OPEX budget. Spending for “Data Governance” was more than double the forecasted budget, with a variance of 110%. This deviation resulted from the actual costs to upgrade the GIS database being higher than estimated. The GIS database upgrades were made to improve BVES ability to gather, track, and distribute data by having a centralized data repository with consistent data schemes across different platforms.

Another WMP initiative that resulted in higher expenditures than projected was “Emergency Planning & Preparedness” (a 65% overspend). The reason for such variance was based on public outreach costs being significantly higher for said outreach to be effective.

With respect to initiatives at the lowest task level, there were 28 activities where the actual OPEX spending was below the forecasted budget, as shown in Table 3-8.

Table 3-8 — 2021 WMP Funding Verification Summary, OPEX Budget Underspends

Initiative Category	2021 Initiative Number	Initiative Name	Funding Discrepancy Amount ($000)	Detail on Funding Discrepancy
Risk Assessment & Mapping	7.3.1.3.	Ignition probability mapping showing the probability of ignition along the electric lines and equipment	-$0.25	Spending was below the forecast by 1% due to the actual time used by staff on ignition probability mapping being slightly less than forecasted. The planning goals established for 2021 were met.
Risk Assessment & Mapping	7.3.1.4.	Initiative mapping and estimation of wildfire and PSPS risk-reduction impact	-$0.91	Spending was below the forecast by 5% due to the actual time used by staff on this initiative being slightly less than forecasted. The planning goals for initiative mapping and estimation of wildfire and PSPS risk-reduction impact established for 2021 were met.
Risk Assessment & Mapping	7.3.1.5.	Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment	-$0.69	Spending was below the forecast by 4% due to the actual time used by staff on this initiative being slightly less than forecasted. The planned goals for this initiative for 2021 were met.
Situational Awareness & Forecasting	7.3.2.4.	Forecast of a fire risk index, fire potential index, or similar	-$9.80	Spending was below the forecast by 44%. This variation was due to BVES not experiencing any elevated risk events in 2021 that required elevated spending in this initiative.
Situational Awareness & Forecasting	7.3.2.5.	Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions	-$42.84	Actual spending was below the forecast by 100%. During 2021, BVES did not experience any elevated risk events that required staff to monitor areas of electric lines and equipment in elevated fire risk conditions.
Situational Awareness & Forecasting	7.3.2.6.	Weather forecasting and estimating impacts on electric lines and equipment	-$9.80	Actual spending was below the forecast by 44%. During 2021, BVES experienced fewer major weather events than the amount that was budgeted. This resulted in no contracted overtime of a BVES weather consultant and no required increase in the frequency of weather reports.
Grid Design & System Hardening	7.3.3.4.	Covered conductor maintenance	-$5.34	Spending was below the forecast by 15%. In the last two years, BVES has installed about 20 circuit miles of covered wire. Since this is all of the covered wire in the system, and it being relatively new, the maintenance required was less than estimated.

Initiative Category	2021 Initiative Number	Initiative Name	Funding Discrepancy Amount ($000)	Detail on Funding Discrepancy
Grid Design & System Hardening	7.3.3.5.	Crossarm maintenance, repair, and replacement	-$6.45	Spending was below the forecast by 11% due to the actual time charged by staff to perform work being less than budgeted. BVES replaced 216 poles in 2021, and crossarms were replaced. BVES inspections (detailed, patrol, third-party patrol, and UAV surveys) were conducted, and crossarm issues were documented and repaired in accordance with GO 95, Rule 18 requirements.
Grid Design & System Hardening	7.3.3.14.	Transformers maintenance and replacement	-$6.64	Actual spending was below the forecast by 34%. Since no transformers were required to be purchased due to inventory not going below minimum, less labor was expended due to the small number of transformers that needed replacement.
Asset Management & Inspections	7.3.4.1.	Detailed inspection program	-$7.23	Actual spending was below the forecast by 47%. The scope of inspection work was achieved at a lower-than-projected cost. BVES conducted detailed inspections of 54.9 circuit miles, in excess of its 2021 target of 50 circuit miles.
Asset Management & Inspections	7.3.4.4.	Infrared inspection program	-$6.62	Spending was below the forecast by 11%. BVES informed S&L that the budget for this initiative was a best estimate for the cost to contract the work; however, BVES was able to contract the required scope of work at a lower cost. The entire BVES system was inspected using thermography.
Asset Management & Inspections	7.3.4.6.	Pole loading assessment and remediation program – intrusive pole inspection activities	-$119.49	Actual spending was below the forecast by 80%. Work under this initiative was contracted to Alamon, Inc. at a lower cost than projected. The scope of work was completed, having tested 876 poles, exceeding the 2021 target of 850 poles.
Asset Management & Inspections	7.3.4.7.	LiDAR inspection program	-$60.44	Spending was below the forecast by 50%. Work under this initiative was contracted to Davey Tree Expert Co. at a lower cost than projected. The entire BVES system was inspected using LiDAR.

Initiative Category	2021 Initiative Number	Initiative Name	Funding Discrepancy Amount ($000)	Detail on Funding Discrepancy
Asset Management & Inspections	7.3.4.9.1	Detailed inspection program – third-party ground patrol	-$29.07	Actual spending was below the forecast by 65%. Work under this initiative was contracted to Davey Tree Expert Co. at a lower cost than projected. The entire BVES system was inspected in accordance with BVES target using third-party ground patrol.
Asset Management & Inspections	7.3.4.9.2	UAV HD photography/videography inspection program	-$6.62	Spending was below the forecast by 11%. Work under this initiative was contracted to Davey Resource Group, Inc. at a lower cost than projected. The entire BVES system was inspected in accordance with BVES target under the specifications of this initiative.
Asset Management & Inspections	7.3.4.11.	Ground patrol inspection program	-$16.87	Actual spending was below the forecast by 47%. The projected costs were developed based on historical costs. BVES informed S&L that the inspector responsible for this work had been in the position for three years and developed more efficient processes to conduct inspections; therefore, the entire BVES system was inspected (using patrol inspection) per GO 166 in less hours than estimated.
Asset Management & Inspections	7.3.4.15.	Substation inspection program	-$67.18	Actual spending was below the forecast by 40%. BVES informed S&L that the substation technician combined the work under this initiative with other work under different initiatives, such as corrective maintenance work, resulting in lower labor costs; therefore, the scope of work was fulfilled at a lower cost than projected, achieving the target of 144 substation inspections.
Vegetation Management & Inspections	7.3.5.1.	Additional efforts to manage community and environmental impacts	-$3.54	Spending was below the forecast by 9%. The actual time used by staff for this initiative was slightly less than budget. BVES worked with this initiative to conduct additional efforts to manage community and environmental impacts during 2021.

Initiative Category	2021 Initiative Number	Initiative Name	Funding Discrepancy Amount ($000)	Detail on Funding Discrepancy
Vegetation Management & Inspections	7.3.5.2.	Detailed inspections and management practices for vegetation clearances around distribution electrical lines and equipment	-$7.23	Actual spending as below the forecast by 47%. The projected costs were developed based on historical costs. BVES informed S&L that the inspector responsible for this work had been in the position for three years and developed more efficient processes to conduct inspections. Detailed inspections of 54.9 circuit miles were performed in 2021, exceeding the 50-mile inspection target.
Vegetation Management & Inspections	7.3.5.6.	Improvement of inspections	-$0.80	Spending was below the forecast by 2%. The time used by staff in this initiative was slightly lower than anticipated; however, inspection improvement activities, such as the update of the vegetation management QA/QC instructions, was performed.
Vegetation Management & Inspections	7.3.5.7.	Remote sensing inspections of vegetation around distribution electric lines and equipment	-$60.44	Actual spending was below the forecast by 50%. Work was contracted at a lower cost than projected. The entire BVES system was inspected using LiDAR.
Vegetation Management & Inspections	7.3.5.9.1	Other discretionary inspections of vegetation around distribution electric lines and equipment – enhanced vegetation management program – off-schedule work activities	-$29.07	Actual spending was below the forecast by 65%. Work was contracted at a lower cost than projected.
Vegetation Management & Inspections	7.3.5.9.2	Other discretionary inspections of vegetation around distribution electric lines and equipment – UAV HD photography/videography inspection program	-$6.62	Actual spending was below the forecast by 11%. Work under this initiative was contracted to Davey Resource Group, Inc., at a lower cost than projected. The entire BVES system was inspected in accordance with BVES target under the specifications of this initiative.

Initiative Category	2021 Initiative Number	Initiative Name	Funding Discrepancy Amount ($000)	Detail on Funding Discrepancy
Vegetation Management & Inspections	7.3.5.11.	Patrol inspections of vegetation around distribution electric lines and equipment – enhanced vegetation management program – patrol inspections	-$16.87	Actual spending was below the forecast by 47%. The projected costs were developed based on historical costs. BVES informed S&L that the inspector responsible for this work had been in the position for three years and developed more efficient processes to conduct inspections. The entire BVES system was inspected using patrol inspection per GO 166 at a lower-than-projected cost.
Vegetation Management & Inspections	7.3.5.17.	Substation inspection	-$1.70	Spending was below the forecast by 25%. BVES informed S&L that the substation technician combined the work under this initiative with other work under different initiatives, such as equipment inspections and corrective maintenance work, resulting in lower labor costs; therefore, the scope of work was fulfilled at a lower cost than projected, achieving the target of conducting 144 substation inspections.
Emergency Planning & Preparedness	7.3.9.5.	Preparedness and planning for service restoration	-$0.07	Actual spending was below the forecast by 1%. All planning preparedness requirements related to service restoration, including the implementation of the GO 166 guidelines, was performed.
Emergency Planning & Preparedness	7.3.9.6.	Protocols in place to learn from wildfire events	-$0.16	Actual spending was below the forecast by 2%. Actual time by staff was slightly less than anticipated.
Stakeholder Cooperation & Community Engagement	7.3.10.4	Forest service and fuel reduction cooperation and joint roadmap	-$2.88	Actual spending was below the forecast by 19%. Time used by staff and contractors was less than anticipated. This program is new for BVES, and the budget was higher than needed.

Note: With respect to the 2021 WMP page numbers for these items, the WMP document does not present a specific budget broken out by initiative; rather, the budget presented in the WMP document is established by initiative category, as shown in Table 3-4. The forecasted budget by initiative specified in Table 3-8 was provided by BVES (BVES_2021 ARC_20220331_vF.xlsx).

3.3. VERIFICATION OF QA/QC PROGRAMS

As part of the WMP compliance, S&L reviewed BVES's QA/QC programs. S&L also reviewed available documentation and conducted interviews of BVES SMEs to validate these QA/QC programs.

Following an initial S&L request for QA/QC programs related to the WMP initiatives, BVES indicated that, in general, they do not have formal written QA/QC procedures, processes, or programs for controlling WMP activities. Their process is quoted below from 2021 and was confirmed again by the BVES president, Paul Marconi, on June 2, 2022:

> QA/QC process for WMP work – we do not have a formal written process. This [is] the process we utilize:
>
> a) Contractor's design/planning group develops work package (instructions, drawings, materials, etc.).
> b) All work is reviewed by BVES prior to construction to ensure the accuracy of the scope, design, material, and supporting documentation. This review is conducted by the BVES Field Inspector and/or the Engineering & Planning Department.
> c) Once BVES approves the work package, BVES orders material and/or draws from stock if available.
> d) At BVES's direction, Contractor performs the specific work.
> e) BVES Field Inspector monitors the work in progress and performs regular progress inspections.
> f) When Contractor reports work is complete, BVES Field Inspector performs final inspection of the work in the field and performs the initial work package audit. Upon approval of field work and work package, an initial billing review is performed and approval for invoicing is given.
> g) Upon receipt of an invoice, the Project Coordinator performs a work package audit and validates the materials and work performed. Project Coordinator also performs a validation of billing units and ensures the Field Inspector's verification of work completion and approval for billing.[220]

With the exceptions of the vegetation management, risk management, and emergency preparedness programs, the lack of written QA/QC programs for WMP compliance is pervasive throughout all target categories. As a note, BVES indicated that, although not formally introduced until after 2021, new tools (e.g., iRestore) as well as significant QA/QC program updates and new written procedures—covering many WMP categories and initiative activities—have been implemented in 2022 and were under development during 2021.

For each category, a description and method of validation for the relevant BVES QA/QC programs have been provided.

[220] Email from Paul Marconi. "BVES RFI: Complete listing, description, and support files of existing QA/QC programs in place to ensure compliance with WMPs." 2021 May 26.

3.3.1. Category #1: Risk Assessment and Mapping

BVES has no formal written QA/QC programs or processes for WMP compliance of this category; the risk assessment and mapping was performed by Reax.[221] The scope of the work was given in the BVES task order document from Guidehouse,[222] which defines the work product that would be delivered to BVES and is aligned with the WMP initiatives for the "Risk Assessment and Mapping" category. BVES signed and approved for the work to be done to the standards of the contract. Beyond this, there are no written QA/QC documents for this WMP category. This was a new activity for 2021, which is expected to see further changes in 2022. As this activity becomes more defined and more information is gathered on effective risk mapping, it will be beneficial to implement a QA/QC program that covers risk mapping.

3.3.2. Category #2: Situational Awareness and Forecasting

There is no formal written QA/QC program for the initiatives contained in this WMP target category. BVES performance is governed primarily by summary-level spreadsheets and weekly forecast records where yearly initiative specific progress is tracked and recorded. S&L finds that this documentation, coupled with management direction, provides sufficient guidance for staff to fulfill the relevant initiative requirements; however, more formalized and written QA/QC programs and processes for WMP compliance would be beneficial. Quality records, design packages, work orders, and similar documentation was not readily available, and complete detailed documentation was often unavailable.

3.3.3. Category #3: Grid Design and System Hardening

BVES does not have a formal QA/QC program for "Grid Design and System Hardening." Per the WMP initiative activity assessments discussed in Section 3.1, an operation maintenance plan[223] was provided for S&L's review. The plan provides policy and procedures for the operation and maintenance of capacitors in the BVES transmission and distribution system and highlights key individuals and their responsibilities, as well as procedures to ensure quality of assets are properly maintained.

Initiatives in Sections 3.1.5.1.10, 3.1.5.1.11, 3.1.5.1.12, 3.1.5.1.13, and 3.1.5.1.16 are all part of BVES's ongoing maintenance plan for their sub-transmission and distribution facilities. The protocols for this maintenance were discussed with the BVES SME,[224] who indicated that these assets, which include capacitors, circuit breakers, covered conductors, crossarms, connectors and transformers, are assessed using their standard inspections program. Repairs and maintenance of these assets are addressed as

[221] 2021-12-15 Reax BVES fire risk modeling Rev 0.pdf
[222] BVES – Task Order – Ignition Probability Wildfire Consequences Mapping.pdf
[223] BVES INC Capacitor Operation Maintenance Plan Rev0.pdf
[224] Tom Chou, June 6, 2022

issues arise during regular patrol and detailed inspections and are typically handled within days by the appropriately qualified personnel.

Initiatives in Sections 3.1.6.1.3, 3.1.6.1.4, and 3.1.6.1.5 are not applicable to BVES's WMP; therefore, a QA/QC program does not apply. The remainder of the initiatives were mostly field verifiable. Feedback from S&L field inspectors indicated that BVES assets are generally well maintained.

3.3.4. Category #4: Asset Management and Inspections

In 2021, BVES did not have a formal written program for "Asset Management & Inspection." The BVES quality management plan[225] was published in late December 2021 and will be implemented in 2022. The implementation of "Asset Management & Inspections" was discussed with SMEs Jared Hennen[226] and Tom Chou.[227] They explained how results from the inspection sources—including LiDAR, UAV, and third-party ground inspection—are received and validated by their own inspections. BVES compares the results of LiDAR, UAV, and third-party ground patrol against their own patrols and inspections. Any encroachment, clearance, or other issues are field verified during regular patrol and detailed inspections, then corrective actions are performed as needed. In late 2021, BVES began using a software program, iRestore, which is a repository for all of the inspection results with the (current) exception of the LiDAR results.

3.3.5. Category #5: Vegetation Management and Inspections

BVES has a formal QA/QC program for vegetation management initiatives. This program, "Vegetation Management and Vegetation QA/QC Programs Policy and Procedures,"[228] provides requirements for vegetation management as it applies to the WMP. This main QA/QC program is supported by the "BVES GO 165 Compliance Plan"[229] and the contract requirements for the third-party vegetation management[230] and forestry[231] work. The QA/QC program covers aspects of vegetation management such as vegetation clearance standards and requirements for discrepancies, roles and responsibilities for vegetation management, customer outreach requirements, and QA/QC activities and their frequencies. Various documentation records that support the vegetation management QA/QC program were reviewed, including the vegetation inspection records[232] and the QA/QC records.[233] This documentation supports the assertion that BVES implemented the defined activities as required by its QA/QC program in 2021. The programs

[225] BVES INC Quality Management Plan
[226] Jared Hennen, June 6, 2022
[227] Tom Chou, June 6, 2022
[228] BVES INC Vegetation Management and Vegetation Management QC Programs Policy and Procedures Rev1.pdf
[229] BVES GO 165 Compliance Plan.pdf
[230] C#3095-000 Vegetation Management.pdf
[231] C#3090-000 Forester Contract.pdf
[232] 2021 vegetation complete record.xlsx
[233] 2021 QA&QC Vegetation Management.xlsx

and supporting documentation described here—along with BVES management engagement—provide sufficient instruction for BVES personnel to meet the WMP initiatives.

3.3.6. Category #6: Grid Operations and Protocols

BVES has no formal written QA/QC programs or processes for WMP compliance of this category. Their performance is governed by the emergency response plan[234] and the PSPS procedure.[235] The emergency response plan outlines the responsibilities, organization, preparations, emergency response procedures, communications plan, and customer support plan. The PSPS procedure identifies the chain of responsibility, the fire protection procedures, the PSPS procedures, and the PSPS outreach plan. The plan and procedure, along with management direction, provide sufficient guidance for staff to fulfill the relevant initiative requirements.

3.3.7. Category #7: Data Governance

As indicated in the introduction to this section, BVES has no formal written QA/QC programs or processes for WMP compliance of this category. For two of the initiatives in this category, Initiatives 7.3.7.2 and 7.3.7.3, no goal was set and no work was performed, so an informal QA/QC program also does not apply.

Initiative 7.3.7.1 ("Centralized Repository for Data") refers to the GIS which BVES is developing. BVES has hired a dedicated GIS specialist to create and improve the existing GIS,[236] but there is no QA/QC program defining the standards of the GIS. Supporting documentation includes the GIS gap analysis,[237] which defines areas of the current BVES GIS that could be improved. This analysis has guided the GIS specialist as work is done to improve the GIS, but it does not qualify as QA/QC documentation.

A SME discussed how the tracking and analysis of near-miss data was controlled for Initiative 7.3.7.4. BVES used the same outage log for several years, which includes indication of near-miss events.[238] There was no mention of any QA/QC program or other guidelines that dictate the process for tracking near-miss events.

[234] BVERS INC EmergencyResponsePlan Rev2.pdf
[235] BVES INC PSPS Procedure Rev1.pdf
[236] 2021 Geo Database.zip
[237] BVES GIS Gap Analysis Recommendations FINAL 11-30-20.pdf
[238] 2021 Outage Log.xlsx

3.3.8. Category #8: Resource Allocation Methodology

The BVES-provided risk management program manual[239] describes the requirements, roles, and responsibilities for risk management. It provides directions to BVES for implementing the company's risk management framework. In general, BVES's risk management process consists of six high-level processes:

- Risk identification
- Risk analysis
- Risk evaluation and scoring
- Risk mitigation
- Risk-informed investment decisions (annual and periodic)
- Risk monitoring

The descriptions and intended goals of these six processes are detailed within the program manual. The overall goal of the BVES risk management program is for employees to become "risk managers" who are encouraged to identify and ultimately help mitigate risks.

Resource allocation covers all activities related to risk mitigation and the spending of limited resourced to best mitigate those risks. In a request for clarification, BVES stated that they use the fire safety circuit matrix[240] and the risk assessment maps[241] to determine the budget for each mitigation activity. Additional supporting documents include the BVES RSE analysis.[242] The risk management program manual defines the methodology behind the calculation of risk scores, including using a 7x7 matrix of impact and frequency, which is claimed to be consistent with leading practices in the utility industry. This program follows ISO-31000, "Risk Management – Principles and Guidelines," which is intended to help organizations more effectively allocate resources for the reduction of risks.

Through this program, BVES has an acceptable QA/QC program in place for the WMP category of resource allocation methodology.

3.3.9. Category #9: Emergency Planning and Preparedness

BVES has no formal written QA/QC programs or processes for WMP compliance of this category. Their performance is governed by the emergency response plan[243] and the PSPS procedure.[244] The emergency

[239] RM Program Manual Final 06-2017.pdf
[240] FireSafetyCircuitMatrix 2022-1-26 Update.xlsx
[241] 2021-12-15 Reax BVES fire risk modeling Rev 0.pdf
[242] BVES Risk Register 2021-2-18 WMP Input.xlsx
[243] BVERS INC EmergencyResponsePlan Rev2.pdf
[244] BVES INC PSPS Procedure Rev1.pdf

response plan outlines the responsibilities, organization, preparations, emergency response procedures, communications plan, and customer support plan. The PSPS procedure identifies the chain of responsibility, the fire protection procedures, the PSPS procedures, and the PSPS outreach plan. The plan and procedure, along with management direction, provide sufficient guidance for staff to fulfill the relevant initiative requirements. BVES performance in this target category is governed primarily by these plan and procedure documents as well as summary level spreadsheets, PSPS scripts, and similar documentation where yearly initiative specific progress is tracked and recorded. This documentation, coupled with management direction, provides sufficient guidance for staff to fulfill the relevant initiative requirements.

3.3.10. Category #10: Stakeholder Cooperation and Community Engagement

There are two relevant formal written QA/QC documents for the initiatives contained in this WMP target category: the BVES emergency response plan[245] and PSPS procedures.[246] Both provide relatively detailed methodology for public outreach, engagement, and communication with respect to PSPS and emergency response. BVES performance in this target category is governed primarily by these plan and procedure documents as well as a summary-level Word file where yearly initiative specific progress (e.g., outreach communication methods) is tracked and recorded. This documentation, coupled with management direction, provides sufficient guidance for staff to fulfill the relevant initiative requirements.

[245] BVERS INC EmergencyResponsePlan Rev2.pdf
[246] BVES INC PSPS Procedure Rev1.pdf

4. CONCLUSION

In general, S&L found BVES to be cooperative, responsive, transparent, and knowledgeable during the WMP compliance assessment. BVES did not hesitate to have one or several SMEs attend virtual interviews and respond to clarifications with short notice. The most common obstacle encountered by S&L evaluators during the BVES assessment was documentation availability and turnaround times, especially for more granular quality records and inspection reports; however, considering that the annual WMP compliance assessment is only in its second year—coupled with BVES being a smaller utility with less staff and resource availability—much of the delay was expected. Overall, the S&L assessment team found that BVES genuinely supported the S&L WMP review efforts to the best of their ability.

With respect to the WMP activity completion, of the 94 total initiatives, 69 initiatives had goals / relevant 2021 activity not related to transmission lines and S&L found that BVES complied with their plan and met the indicated target goals for all but 4 of those WMP initiatives. Even in instances where BVES did not meet the WMP initiative goal, the intent of the initiative was often achieved. The most common reasons initiative objectives were not met were that: (i) quantitative goals were overestimated (often due to a lack prior experience or unanticipated delays); (ii) there were unforeseen schedule delays (e.g., due to equipment lead times, third-party labor availability, or permitting delays); and (iii) modifications were made to the initiative activity or target goal during the course of the year. Additionally, BVES—due to its size, assets, and resources—did not have specific target goals or relevant activity for 11 of the 94 2021 initiatives, and an additional 14 initiatives were not applicable to BVES, as the utility does not have any transmission line assets or has determined no need for the relevant 2021 initiative activity. Assessment of the no-goal initiatives was somewhat challenging, as determining WMP compliance was subjective. A general lack of more granular documentation and quality records was also identified across many of the WMP initiatives; therefore, a review of the S&L-selected sample records was often limited or impossible. Overall, the S&L assessment team found that BVES strove to comply with each of the WMP initiative goals to the best of their ability and appears to be proactive in the process of improving compliance-related documentation, record controls, staffing, and expanding capabilities for future WMP activities.

Regarding verification of funding for each WMP activity, S&L was able to obtain and compare budgets and actuals, including percentage variance, for each initiative activity defined by Energy Safety, considering CAPEX spending separate from OPEX spending. S&L identified 7 tasks for which actual CAPEX spending was less than what had been budgeted and 28 tasks for which actual OPEX spending was less than had been budgeted. This report documents the explanations provided by BVES for each instance of CAPEX or OPEX underspending relative to budget.

The greatest driver for the CAPEX underspending was under the "Distribution Pole Replacement & Reinforcement" initiative, which intends to replace the Radford line with covered power lines and poles that are resistant to fire. The budget for this initiative was not used during 2021 since the project is awaiting U.S. Forestry Service permit approval. BVES informed S&L that it anticipates obtaining the required permitting mid-2022.

With respect to OPEX, the largest underspending variance from the forecasted budget, -71%, was for spending on the "Situational Awareness & Forecasting" category. The initiatives under this WMP category are associated with the monitoring of areas with elevated fire risk conditions, weather forecasting, and estimations of impacts on electric lines and equipment, among others. BVES informed S&L that, during 2021, it did not experience any elevated risk events, which significantly reduced the spending required under this initiative.

With respect to the QA/QC programs for WMP compliance, early in this assessment, BVES informed S&L that they typically do not have formal written QA/QC procedures, processes, or programs for controlling most of their WMP activities. S&L's SME interviews and review of available documentation confirmed that—with the exceptions of the vegetation management, risk management, and emergency preparedness programs—the lack of written programs was prevalent throughout all 10 target categories. Despite this, S&L also found that BVES's utilization of informal procedures and team communication to govern and control the majority of their WMP compliance activities was relatively effective; however, it was also clear that detailed written programs and processes would provide enhanced quality controls as well as a more granular understanding of how WMP initiative-specific documents and records are generated, maintained, and updated as well as what specific quality records (or lower-tier documents) may be used to populate them. BVES indicated that significant improvements and additions for QA/QC programs for WMP activities are planned for future years with implementation beginning in 2022.

Based on the S&L compliance assessment of the WMP initiative activities discussed in Section 3, the relevant deficiencies are summarized in Table 4-1:

Table 4-1 — Findings Summary

No.	2021 Initiative Number	SOW Category	Initiative Name	Finding	Detail on Finding
1	7.3.3.3	WMP Activity Completion	Covered Conductor Replacement Program	Initiative goal not met.	S&L's field verification team confirmed inspected spans of covered conductor installation along 84 different segments, noting no issues with regards to the covered conductor installation. However, the 2021 quantitative target goal of 12.9 miles of installed covered conductor was not met (12.3 achieved).
2	7.3.3.3	WMP Activity Completion	Covered Conductor Replacement Program – Radford	Initiative goal not met.	There have been delays in getting permitting from US Forest Service and therefore this initiative has not made any progress in 2021.
3	7.3.3.6	WMP Activity Completion	Covered Conductor Project - Radford Line	Initiative goal not met.	There have been delays in getting permitting from US Forest Service and therefore this initiative has not made any progress in 2021.
4	7.3.4.3	WMP Activity Completion	Improvement of Inspections	Initiative goal not met.	BVES's asset and inspection quality management plan addresses inspection improvement. However, based on the revision date, this plan was unable to be implemented in 2021, and improvement activities were not documented in other initiatives.
5	7.3.5.20	WMP Activity Completion	Vegetation management to achieve clearances around electric lines and equipment	Some instances of vegetation overgrowth were noted during site inspection.	During the site inspections, field personnel noted no vegetation issues in the majority of their reviews; however, in some instances, the field personnel noted vegetation not meeting typical industry best practices for clearances, although still met the GO 95 requirements.
6	--	WMP Activity Completion	--	Many of the BVES qualitative initiative goals/targets were not well defined or measurable with clearly scheduled milestone dates.	--
7	--	Funding Verification	--	7 tasks actual spending was below the budget projections for CAPEX	The details for the spend below the budget is provided in Table 3-6.

No.	2021 Initiative Number	SOW Category	Initiative Name	Finding	Detail on Finding
8	--	Funding Verification	--	28 tasks actual spending was below the budget projections for OPEX	The details for the spend below the budget is provided in Table 3-8.
9	--	Verification of QA/QC Program	--	With few exceptions, BVES does not have formal written QA/QC programs for controlling WMP activities.	While not having formal written programs and procedures is not necessarily a problem by itself, this can introduce quality risks where there is employee turnover, new employees, larger work forces, and more complex initiatives.
10	--	Verification of QA/QC Program	--	For most initiatives, BVES did not appear to have a formal written process to control and maintain quality records and other documentation.	The general lack of a formal document control system meant summary-level spreadsheets and similar high-level documents were often used to manage initiative activities while granular documentation (e.g., regular inspection) was unavailable.

APPENDIX A. LIST OF WMP MEETINGS, SME INTERVIEWS, AND ATTENDEES

Date	Subject	BVES Attendees
4/13/2022	BVES and S&L – Independent Evaluation WMP Compliance Assessment Kick-Off Meeting	Paul Marconi, Jon Pecchia, Tom Chou, Jared Hennen, Jeff Barber
4/19/2022	S&L WMP Compliance Meeting – Initial Request for Information / Documentation	Paul Marconi, Jon Pecchia, Tom Chou, Jared Hennen, Jeff Barber
4/26/2022	WMP Request for Information Status and S&L Questions	Paul Marconi, Jon Pecchia, Tom Chou, Jared Hennen, Jeff Barber
5/3/2022	WMP Request for Information Status and S&L Questions	Paul Marconi, Jon Pecchia, Tom Chou, Jared Hennen, Jeff Barber
5/10/2022	WMP Request for Information Status and S&L Questions	Paul Marconi, Jon Pecchia, Tom Chou, Jared Hennen, Jeff Barber
5/17/2022	WMP Request for Information Status and S&L Questions	Paul Marconi, Jon Pecchia, Tom Chou, Jared Hennen, Jeff Barber
5/18/2022	WMP Compliance Assessment - Discussion Regarding Field Samples and GIS Data	Tom Chou
5/19/2022	WMP Compliance Assessment - Field Sample Check-In / Discussion	Tom Chou, Jared Hennen, Eduardo Torres
5/24/2022	WMP Request for Information Status and S&L Questions	Paul Marconi, Jon Pecchia, Tom Chou, Jared Hennen, Jeff Barber
5/31/2022	WMP Request for Information Status and S&L Questions	Paul Marconi, Jon Pecchia, Tom Chou, Jared Hennen, Jeff Barber
6/1/2022	WMP Compliance Assessment - Work Orders / Quality Records Meeting	Tom Chou
6/2/2022	WMP Compliance Assessment - SME Interview (Jeff Barber)	Jeff Barber
6/2/2022	WMP Compliance Assessment - SME Interview (Paul Marconi)	Paul Marconi
6/3/2022	WMP Compliance Assessment - SME Interview (Jon Pecchia)	Jon Pecchia
6/3/2022	WMP Compliance Assessment - SME Interview (Sean Matlock)	Sean Matlock
6/6/2022	WMP Compliance Assessment - SME Interview (Jared Hennen)	Jared Hennen
6/6/2022	WMP Compliance Assessment - SME Interview (Tom Chou)	Tom Chou

Date	Subject	BVES Attendees
6/7/2022	WMP Compliance Assessment - SME Follow-up Questions / Final WMP Clarifications	Paul Marconi, Jon Pecchia, Tom Chou, Jared Hennen, Jeff Barber

APPENDIX B. LIST OF BVES 2021 WMP INITIATIVES

Large Volume Quantifiable Goal/Target –- Field Verifiable

- 7.3.3.3. Covered Conductor Replacement Program
- 7.3.3.3. Covered Conductor Replacement Program - Radford
- 7.3.3.6. Pole Loading & Replacement Program
- 7.3.3.6. Covered Conductor Project - Radford Line
- 7.3.3.6. Evacuation Route Hardening Program
- 7.3.3.7. Fuse Replacement Program
- 7.3.3.9. Grid Automation Program [Primary]
- 7.3.3.12. Tree Attachment Removal Program

Large Volume Quantifiable Goal/Target –- Not Field Verifiable

- 7.3.3.13. Pole Loading & Replacement Program [Primary]
- 7.3.4.1. Detailed Inspection Program [Primary]
- 7.3.4.3. BVES does not have a unique WMP initiative for this activity at this time.
- 7.3.4.4. UAV Thermography Program
- 7.3.4.6. Intrusive Pole Inspection Program
- 7.3.4.7. LiDAR Inspection Program [Primary]
- 7.3.4.9. Third Party Ground Patrol
- 7.3.4.9. UAV Thermography Program
- 7.3.4.11. Patrol Inspection Program [Primary]
- 7.3.5.2. Detailed Inspection Program
- 7.3.5.7. LiDAR Inspection Program
- 7.3.5.9. UAV & Ground Patrol
- 7.3.5.11. Patrol Inspection Program
- 7.3.9.2. Community Outreach Program [Primary]
- 7.3.10.1. Community Outreach Program

Small (less than 100 items) Volume Quantifiable Goal/Target

- 7.3.2.1. Situational Awareness Hardware Program [Primary]

- 7.3.2.2. Situational Awareness Hardware Program
- 7.3.3.3. Covered Conductor Pilot
- 7.3.3.6. Evacuation Route Hardening Program - Pilot
- 7.3.4.14. Quality Control of Inspections [Primary]
- 7.3.4.15. GO-174 Substation Inspection Program [Primary]
- 7.3.5.13. Quality Control of Inspections
- 7.3.5.17. GO-174 Substation Inspection Program

Qualitative Goal/Target

- 7.3.1.1. Ignition Probability & Wildfire Consequence Mapping [Primary]
- 7.3.1.2. Climate-driven risk map and modelling based on various relevant weather scenarios
- 7.3.1.3. Ignition probability mapping showing the probability of ignition along the electric lines and equipment
- 7.3.1.4. Initiative mapping and estimation of wildfire and PSPS risk-reduction impact
- 7.3.1.5. Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment
- 7.3.2.4. Weather Consultant
- 7.3.2.5. Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions
- 7.3.2.6. Weather Consultant [Primary]
- 7.3.3.1. Capacitor maintenance and replacement
- 7.3.3.2. Circuit breaker maintenance and installation to de-energize lines upon detecting a fault
- 7.3.3.4. Covered conductor maintenance
- 7.3.3.5. Crossarm maintenance, repair, and replacement
- 7.3.3.10. Maintenance, repair, and replacement of connectors, including hotline clamps
- 7.3.3.11. Mitigation of impact on customers and other residents affected during PSPS event (Energy Storage Project)
- 7.3.3.12. Other corrective action - Safety & Technical Upgrades of Substations
- 7.3.3.14. Transformers maintenance and replacement
- 7.3.3.16. Undergrounding of electric lines and/or equipment
- 7.3.4.13. Pole loading assessment program to determine safety factor
- 7.3.5.1. Additional efforts to manage community and environmental impacts

- 7.3.5.4. Emergency response vegetation management due to red flag warning or other urgent conditions
- 7.3.5.5. Fuel management and reduction of “slash” from vegetation management activities (Enhanced Vegetation Management Program)
- 7.3.5.6. Improvement of inspections
- 7.3.5.14. Recruiting and training of vegetation management personnel (Vegetation Management Program Staffing)
- 7.3.5.15. Remediation of at-risk species
- 7.3.5.16. Removal and remediation of trees with strike potential to electric lines and equipment (Enhanced Vegetation Management Program [Primary])
- 7.3.5.18. Substation vegetation management
- 7.3.5.19. Vegetation inventory system (GIS Data Collection & Sharing)
- 7.3.5.20. Vegetation management to achieve clearances around electric lines and equipment
- 7.3.6.1. Automatic recloser operations
- 7.3.6.2. Crew-accompanying ignition prevention and suppression resources and services
- 7.3.6.3. Personnel work procedures and training in conditions of elevated fire risk
- 7.3.6.4. Protocols for PSPS re-energization
- 7.3.6.5. PSPS events and mitigation of PSPS impacts
- 7.3.6.6. Stationed and on-call ignition prevention and suppression resources and services
- 7.3.7.1. Centralized repository for data (GIS Data Collection & Sharing [Primary])
- 7.3.7.2. Collaborative research on utility ignition and/or wildfire
- 7.3.7.3. Documentation and disclosure of wildfire-related data and algorithms
- 7.3.7.4. Tracking and analysis of near miss data (WMP Metrics Tracking)
- 7.3.8.1. Allocation methodology development and application
- 7.3.8.2. Risk reduction scenario development and analysis
- 7.3.8.3. Risk spend efficiency analysis (Ignition Probability & Wildfire Consequence Mapping)
- 7.3.9.1. Adequate and trained workforce for service restoration
- 7.3.9.3. Customer support in emergencies
- 7.3.9.4. Disaster and emergency preparedness
- 7.3.9.5. Preparedness and planning for service restoration
- 7.3.9.6. Protocols in place to learn from wildfire events
- 7.3.10.2. Cooperation and best practice sharing with agencies outside CA

- 7.3.10.3. Cooperation with suppression agencies
- 7.3.10.4. Forest service and fuel reduction cooperation and joint roadmap

“Not Applicable” or No Goal/Target

- 7.3.2.2. Continuous monitoring sensors
- 7.3.2.3. Fault indicators for detecting faults on electric lines and equipment
- 7.3.3.8. Grid topology improvements to mitigate or reduce PSPS events
- 7.3.3.15. Transmission tower maintenance and replacement
- 7.3.3.17. Updates to grid topology to minimize risk of ignition in HFTDs
- 7.3.4.2. Detailed inspections of transmission electric lines and equipment
- 7.3.4.5. Infrared inspections of transmission electric lines and equipment
- 7.3.4.8. LiDAR inspections of transmission electric lines and equipment
- 7.3.4.10. Other discretionary inspection of transmission electric lines and
- 7.3.4.12. Patrol inspections of transmission electric lines and equipment
- 7.3.5.3. Detailed inspections of vegetation around transmission electric lines and equipment
- 7.3.5.8. LiDAR inspections of vegetation around transmission electric lines and equipment
- 7.3.5.10. Other discretionary inspection of transmission electric lines and
- 7.3.5.12. Patrol inspections of vegetation around transmission electric lines and equipment

APPENDIX C. SAMPLE SIZES BY INITIATIVE ACTIVITY

WMP Initiative #	WMP Initiative Activity	BVES 2021 Qty Target Units	BVES 2021 Annual Qty Target	BVES 2021 Qty Actual Progress (Q1-4)	Field Sample Size	Actual Samples Verified	Desktop Review Samples	Sample Percent
7.3.2.1	Situational Awareness Hardware Program [Primary]	Number of Weather Stations Installed	2	2	2	2	-	100%
7.3.2.2	Situational Awareness Hardware Program	Number of HD Cameras Installed	2	2	2	2	-	100%
7.3.3.12	Tree Attachment Removal Program	Tree Attachment Removal	70	74	59	44	-	59%
7.3.3.13	Pole Loading & Replacement Program [Primary]	Number of Poles Assessed	550	557	-	-	28	5%
7.3.3.3	Covered Conductor Replacement Program	Circuit Miles Hardened	12.9	12.3	166 of 433 pole to pole spans	~80% or more of pole to pole spans	-	80%
7.3.3.6	Pole Loading & Replacement Program	Number of poles replaced or remediated as a result of failed assessments	200	216	120	54	-	25%
7.3.3.6	Evacuation Route Hardening Program - Pilot	Poles Hardened	5	5	5	0	-	0%
7.3.3.6	Evacuation Route Hardening Program	Poles Hardened	400	400	161	135	-	34%

WMP Initiative #	WMP Initiative Activity	BVES 2021 Qty Target Units	BVES 2021 Annual Qty Target	BVES 2021 Qty Actual Progress (Q1-4)	Field Sample Size	Actual Samples Verified	Desktop Review Samples	Sample Percent
7.3.3.7	Fuse Replacement Program	Number of Fuses Replaced	800	862	205	90	-	10%
7.3.3.9	Grid Automation Program [Primary]	Yearly Percent of Overall Program Target	10	10	175 of 500 pole to pole spans	0	-	0%
7.3.4.1	Detailed Inspection Program [Primary]	Circuit Miles Inspected	50	54.9	-	-	14 WOs	N/A
7.3.4.11	Patrol Inspection Program [Primary]	Circuit Miles Inspected	255	460.11	-	-	18 WOs	N/A
7.3.4.13	Pole Loading & Replacement Program	Number of Poles Assessed	550	557	-	-	28	5%
7.3.4.15	GO-174 Substation Inspection Program [Primary]	Number of Monthly Substations Inspected	144	144	-	-	26	18%
7.3.4.4	UAV Thermography Program	Circuit Miles Inspected	211	211	-	-	70 WOs	N/A
7.3.4.6	Intrusive Pole Inspection Program	Number of Poles Assessed	850	876	-	-	17 WOs	N/A
7.3.4.7	LiDAR Inspection Program [Primary]	Circuit Miles Surveyed	211	289.56	-	-	15 WOs	N/A
7.3.4.9	Third Party Ground Patrol	Circuit Miles Inspected	211	211	-	-	70 WOs	N/A
7.3.4.9	UAV Thermography Program	Circuit Miles Inspected	211	211	-	-	70 WOs	N/A
7.3.5.11	Patrol Inspection Program	Circuit Miles Inspected	255	460.11	-	-	6 WOs	N/A

WMP Initiative #	WMP Initiative Activity	BVES 2021 Qty Target Units	BVES 2021 Annual Qty Target	BVES 2021 Qty Actual Progress (Q1-4)	Field Sample Size	Actual Samples Verified	Desktop Review Samples	Sample Percent
7.3.5.13	Quality Control of Inspections	Number of Quality Control Reviews Conducted	72	112	-	-	15 WOs	N/A
7.3.5.17	GO-174 Substation Inspection Program	Number of Substations Inspected	144	144	-	-	36	25%
7.3.5.2	Detailed Inspection Program	Circuit Miles Inspected	50	54.9	-	-	14 WOs	N/A
7.3.5.7	LiDAR Inspection Program	Circuit Miles Surveyed	211	289.56	-	-	35 WOs	N/A
7.3.5.9	UAV & Ground Patrol	Circuit Miles Inspected	211	211	-	-	15 WOs	N/A
7.3.9.2	Community Outreach Program [Primary]	Number of Engagements (Radio, Newspaper, Online, Mail)	360	602	-	-	61	10%
7.3.10.1	Community Outreach Program	Number of Engagements (Radio, Newspaper, Online, Mail)	360	602	-	-	61	10%

APPENDIX D. S&L RFI AND CLARIFICATIONS

Sargent Lundy Request For Information
BVES Wildfire Mitigation Plan Compliance Review

					Funding Review		Examples - Supporting Evidence To Be Determined and Furnished by BVES				
Tgt#	Category / Subject / Program	WMP Program Target / Intitiative	BVES Contact	Approach	2021 Budget ($000)	2021 Actual Spend ($000)	Plan, Procedure and/or Standard	List of Projects and/or Assets and Status	Example Reports or Designs[1]	Review of Initiative Tool	Information on Training Plans and Records
7.3.1.1	Risk Assessment & Mapping	A summarized risk map that shows the overall ignition probability and estimated wildfire consequence along the electric lines and equipment	Jon	Qualitative	18.30	19.82	BVES - Task Order - Ignition Probability Wildfire Consequence Mapping	NA	2021-12-15 Reax BVES fire risk modeling Rev 0	BVES Risk Register 2021-2-18 WMP Input and FireSafetyCircuit Matrix 2022-1-26 Update	NA
7.3.1.2	Risk Assessment & Mapping	Climate-driven risk map and modelling based on various relevant weather scenarios	Jon	Qualitative	18.30	19.38	BVES - Task Order - Ignition Probability Wildfire Consequence Mapping	NA	2021-12-15 Reax BVES fire risk modeling Rev 0	BVES Risk Register 2021-2-18 WMP Input and FireSafetyCircuit Matrix 2022-1-26 Update	NA
7.3.1.3	Risk Assessment & Mapping	Ignition probability mapping showing the probability of ignition along the electric lines and equipment	Jon	Qualitative	18.30	18.05	BVES - Task Order - Ignition Probability Wildfire Consequence Mapping	NA	2021-12-15 Reax BVES fire risk modeling Rev 0	BVES Risk Register 2021-2-18 WMP Input and FireSafetyCircuit Matrix 2022-1-26 Update	NA
7.3.1.4	Risk Assessment & Mapping	Initiative mapping and estimation of wildfire and PSPS risk-reduction impact	Jon	Qualitative	18.30	17.39	BVES - Task Order - Ignition Probability Wildfire Consequence Mapping	NA	2021-12-15 Reax BVES fire risk modeling Rev 0	BVES Risk Register 2021-2-18 WMP Input and FireSafetyCircuit Matrix 2022-1-26 Update	NA
7.3.1.5	Risk Assessment & Mapping	Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment	Jon	Qualitative	18.30	17.61	BVES - Task Order - Ignition Probability Wildfire Consequence Mapping	NA	2021-12-15 Reax BVES fire risk modeling Rev 0	BVES Risk Register 2021-2-18 WMP Input and FireSafetyCircuit Matrix 2022-1-26 Update	NA
7.3.2.1	Situational Awareness & Forecasting	Advanced weather monitoring and weather stations	Tom	Small Volume	20.00	82.16	BVES Weather Station Locations Map.pdf	Intalled 2 weather stations	BVES Weather Station 2021.pdf		
7.3.2.2	Situational Awareness & Forecasting	Continuous monitoring sensors	Tom	Small Volume	20.00	53.72		Installed 2 cameras	2021 Camera location.xlsx		
7.3.2.2	Situational Awareness & Forecasting	Continuous monitoring sensors	Tom	NA	0.00	0.00	NA	NA	NA	NA	NA
7.3.2.3	Situational Awareness & Forecasting	Fault indicators for detecting faults on electric lines and equipment	Tom	NA	0.00	0.00	NA	NA	NA	NA	NA

					Funding Review		Examples - Supporting Evidence To Be Determined and Furnished by BVES				
Tgt#	Category / Subject / Program	WMP Program Target / Intitiative	BVES Contact	Approach	2021 Budget ($000)	2021 Actual Spend ($000)	Plan, Procedure and/or Standard	List of Projects and/or Assets and Status	Example Reports or Designs[1]	Review of Initiative Tool	Information on Training Plans and Records
7.3.2.4	Situational Awareness & Forecasting	Forecast of a fire risk index, fire potential index, or similar	Jon	Qualitative	22.50	12.70	C#3000-000-Weather Consulting -Fully Executed	NA	Sample reports uploaded: 081821BVESForecast, 120321BVESForecast, BBWindReport14-21, Nov21WindSummary, Sept21WindSummary	NA	NA
7.3.2.5	Situational Awareness & Forecasting	Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions	Jeff	Qualitative	42.84	0.00	BVES INC PSPS Procedures Rev1	NA	NA	NA	NA
7.3.2.6	Situational Awareness & Forecasting	Weather forecasting and estimating impacts on electric lines and equipment	Jon	Qualitative	22.50	12.70	C#3000-000-Weather Consulting -Fully Executed	NA	Sample reports uploaded: 081821BVESForecast, 120321BVESForecast, BBWindReport14-21, Nov21WindSummary, Sept21WindSummary	NA	NA
7.3.3.1	Grid Design & System Hardening	Capacitor maintenance and replacement program	Tom	Qualitative	7.81	8.77	Uploaded: BVES INC Capacitor Operation Maintenance Plan Rev0	NA	NA	NA	Uploaded: BVES INC Capacitor Operation Maintenance Plan Rev0 Training
7.3.3.2	Grid Design & System Hardening	Circuit breaker maintenance and installation to de-energize lines upon detecting a fault	Tom	Qualitative	41.16	59.68			2021 Substation Equipment testing & Contract.zip		
7.3.3.3	Grid Design & System Hardening	Covered conductor installation	Tom	L. Volume Field	5438.10	6156.72			2021 Cover conductor Map.zip		
7.3.3.3	Grid Design & System Hardening	Covered conductor installation	Tom	L. Volume Field	1197.63	139.97			Radford 40412088.xlsb		
7.3.3.3	Grid Design & System Hardening	Covered conductor installation	Tom	Small Volume	0.00	0.00	NA	NA	NA	NA	NA

Sargent Lundy Request For Information
BVES Wildfire Mitigation Plan Compliance Review

					Funding Review		Examples - Supporting Evidence To Be Determined and Furnished by BVES				
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7.3.3.4	Grid Design & System Hardening	Covered conductor maintenance	Tom	Qualitative	34.74	29.40	NA	NA	NA	NA	NA
7.3.3.5	Grid Design & System Hardening	Crossarm maintenance, repair, and replacement	Tom	Qualitative	57.90	51.44	NA	NA	NA	NA	NA
7.3.3.6	Grid Design & System Hardening	Distribution pole replacement and reinforcement, including with composite poles	Tom	L. Volume Field	925.00	569.41			2021 Remediated Poles.zip and 2021 Replacemnt Poles .zip		
7.3.3.6	Grid Design & System Hardening	Distribution pole replacement and reinforcement, including with composite poles	Tom	L. Volume Field	4246.14	39.48			Radford 40412088.xlsb	NA	NA
7.3.3.6	Grid Design & System Hardening	Distribution pole replacement and reinforcement, including with composite poles	Tom	Small Volume	0.00	16.08			2021 Replacement Poles LWS.zip		
7.3.3.6	Grid Design & System Hardening	Distribution pole replacement and reinforcement, including with composite poles	Tom	L. Volume Field	390.00	560.07			2021 Fire Wrap Log.xlsx		
7.3.3.7	Grid Design & System Hardening	Expulsion fuse replacement	Tom	L. Volume Field	741.85	1486.59			ELF Logs.zip and Trip Savers.xlsx		
7.3.3.8	Grid Design & System Hardening	Grid topology improvements to mitigate or reduce PSPS events	Tom	NA	0.00	0.00	NA	NA	NA	NA	NA
7.3.3.9	Grid Design & System Hardening	Installation of system automation equipment	Tom	L. Volume Field	1315.93	3129.95			Grid Automation 2021.zip		
7.3.3.10	Grid Design & System Hardening	Maintenance, repair, and replacement of connectors, including hotline clamps	Tom	Qualitative	11.71	12.43	NA	NA	NA	NA	NA

Sargent Lundy Request For Information
BVES Wildfire Mitigation Plan Compliance Review

					Funding Review		Examples - Supporting Evidence To Be Determined and Furnished by BVES				
Tgt#	Category / Subject / Program	WMP Program Target / Intitiative	BVES Contact	Approach	2021 Budget ($000)	2021 Actual Spend ($000)	Plan, Procedure and/or Standard	List of Projects and/or Assets and Status	Example Reports or Designs[1]	Review of Initiative Tool	Information on Training Plans and Records
7.3.3.11	Grid Design & System Hardening	Mitigation of impact on customers and other residents affected during PSPS event	Tom	Qualitative	0.00	0.00	Uploaded Draft Purchase & Sales Agreement: RED - Bear Valley - BESS EPC Agreement (2022 04 01) DWT Edits 4887-9165-6727 v.1 4857-4093-0330 v.1	NA	NA	NA	NA
7.3.3.12	Grid Design & System Hardening	Other corrective action	Tom	L. Volume Field	524.98	274.19			2021 TARP.xlsx		
7.3.3.12	Grid Design & System Hardening	Other corrective action	Tom	Qualitative	1894.77	1769.89			Palomino Rebuild Wo 40412088.xlsb		
7.3.3.13	Grid Design & System Hardening	Pole loading infrastructure hardening and replacement program based on pole loading assessment program	Tom	L. Volume - No Field	1475.42	1727.52			2021 Poles Assets.zip		
7.3.3.14	Grid Design & System Hardening	Transformers maintenance and replacement	Tom	Qualitative	329.47	12.83	NA	NA	2021 Substation Equipment testing & Contract.zip	NA	NA
7.3.3.15	Grid Design & System Hardening	Transmission tower maintenance and replacement	NA	NA	0.00	0.00	NA	NA	NA	NA	NA
7.3.3.16	Grid Design & System Hardening	Undergrounding of electric lines and/or equipment	Tom	Qualitative	105.00	508.65			Undergrounding of electric lines andor equipment.zip		NA
7.3.3.17	Grid Design & System Hardening	Updates to grid topology to minimize risk of ignition in HFTDs	Tom	NA	0.00	0.00	NA	NA	NA	NA	NA
7.3.4.1	Asset Management & Inspections	Detailed inspections of distribution electric lines and equipment	Jared	L. Volume - No Field	15.41	8.18	BVES GO 165 Compliance Plan		2021 Detailed and Patrol Inspections.xlsx		
7.3.4.2	Asset Management & Inspections	Detailed inspections of transmission electric lines and equipment	NA	NA	0.00	0.00	NA	NA	NA	NA	NA

					Funding Review		Examples - Supporting Evidence To Be Determined and Furnished by BVES				
Tgt#	Category / Subject / Program	WMP Program Target / Intitiative	BVES Contact	Approach	2021 Budget ($000)	2021 Actual Spend ($000)	Plan, Procedure and/or Standard	List of Projects and/or Assets and Status	Example Reports or Designs[1]	Review of Initiative Tool	Information on Training Plans and Records
7.3.4.3	Asset Management & Inspections	Improvement of inspections	Jared	L. Volume - No Field	17.18	19.87	Uploaded: BVES INC Quality Management Plan Rev0	NA	NA	NA	NA
7.3.4.4	Asset Management & Inspections	Infrared inspections of distribution electric lines and equipment	Jared	L. Volume - No Field	60.00	53.38	C#3152-000 UAV Inspection	NA	2021 UAV and Therography.xlsx	NA	NA
7.3.4.5	Asset Management & Inspections	Infrared inspections of transmission electric lines and equipment	NA	NA	0.00	0.00	NA	NA	NA	NA	NA
7.3.4.6	Asset Management & Inspections	Intrusive pole inspections	Jared	L. Volume - No Field	150.00	30.51	C#3157-000 Instrusive Poles Inspection	NA	2021 Intrustive Poles.zip	NA	NA
7.3.4.7	Asset Management & Inspections	LiDAR inspections of distribution electric lines and equipment	Jared	L. Volume - No Field	120.00	59.56	LiDAR Inspection Contract-C#3003-000		2021 LiDAR Records.xlsx		
7.3.4.8	Asset Management & Inspections	LiDAR inspections of transmission electric lines and equipment	NA	NA	0.00	0.00	NA	NA	NA	NA	NA
7.3.4.9	Asset Management & Inspections	Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations	Jared	L. Volume - No Field	45.00	15.93	Ground Patrol Contract-C#3004-000	NA	3rd Party Ground patrol.xlsx	NA	NA
7.3.4.9	Asset Management & Inspections	Other discretionary inspection of distribution electric lines and equipment, beyond inspections mandated by rules and regulations	Jared	L. Volume - No Field	60.00	53.38	C#3152-000 UAV Inspection	NA	2021 UAV and Therography.xlsx	NA	NA
7.3.4.10	Asset Management & Inspections	Other discretionary inspection of transmission electric lines and	NA	NA	0.00	0.00	NA	NA	NA	NA	NA
7.3.4.11	Asset Management & Inspections	Patrol inspections of distribution electric lines and equipment	Jared	L. Volume - No Field	35.95	19.08	BVES GO 165 Compliance Plan	NA	2021 Detailed and Patrol Inspections.xlsx	NA	NA
7.3.4.12	Asset Management & Inspections	Patrol inspections of transmission electric lines and equipment	NA	NA	0.00	0.00	NA	NA	NA	NA	NA
7.3.4.13	Asset Management & Inspections	Pole loading assessment program to determine safety factor	Tom	Qualitative	77.66	90.92			2021 Poles Assets.zip		
7.3.4.14	Asset Management & Inspections	Quality assurance / quality control of inspections	Jared	Small Volume	17.18	19.87	Uploaded: BVES INC Quality Management Plan Rev0	NA	NA	NA	NA
7.3.4.15	Asset Management & Inspections	Substation inspections	Jared	Small Volume(should be large)	167.99	100.81	OpsPlanningPolicyProcedures-15 & OpsPlanningPolicyProcedures-15AttachmentA	NA	BVES Substation Inspection Records 2021.zip	NA	NA

					Funding Review		Examples - Supporting Evidence To Be Determined and Furnished by BVES				
Tgt#	Category / Subject / Program	WMP Program Target / Intitiative	BVES Contact	Approach	2021 Budget ($000)	2021 Actual Spend ($000)	Plan, Procedure and/or Standard	List of Projects and/or Assets and Status	Example Reports or Designs[1]	Review of Initiative Tool	Information on Training Plans and Records
7.3.5.1	Vegetation Management & Inspections	Additional efforts to manage community and environmental impacts	Jared	Qualitative	39.37	35.82	C#3090-000 Forester Contract		BVES Inc WMP City Council Briefing Slides 2021-4-14		
7.3.5.2	Vegetation Management & Inspections	Detailed inspections of vegetation around distribution electric lines and equipment	Jared	L. Volume - No Field	15.41	8.18	BVES GO 165 Compliance Plan		2021 Detailed and Patrol Inspections.xlsx		
7.3.5.3	Vegetation Management & Inspections	Detailed inspections of vegetation around transmission electric lines and equipment	Jared	NA	0.00	0.00	NA	NA	NA	NA	NA
7.3.5.4	Vegetation Management & Inspections	Emergency response vegetation management due to red flag warning or other urgent conditions	Jared	Qualitative	111.40	117.63	C#3090-000 Forester Contract & C#3095-000 Vegetation Management	NA	NA	NA	NA
7.3.5.5	Vegetation Management & Inspections	Fuel management and reduction of “slash” from vegetation management activities	Jared	Qualitative	130.00	141.31	C#3095-000 Vegetation Management	NA	NA	NA	NA
7.3.5.6	Vegetation Management & Inspections	Improvement of inspections	Jared	Qualitative	39.37	38.57	BVES INC Vegetation Management and Vegetation Management QC Programs Policy and Procedures Rev1	NA	NA	NA	BVES INC Vegetation Management and Vegetation Management QC Programs Policy and Procedures Rev1 Training
7.3.5.7	Vegetation Management & Inspections	LiDAR inspections of vegetation around distribution electric lines and equipment	Jared	L. Volume - No Field	120.00	59.56	LiDAR Inspection Contract-C#3003-000	NA	2021 LiDAR Records.xlsx	NA	NA
7.3.5.8	Vegetation Management & Inspections	LiDAR inspections of vegetation around transmission electric lines and equipment	Jared	NA	0.00	0.00	NA	NA	NA	NA	NA
7.3.5.9	Vegetation Management & Inspections	Other discretionary inspections of vegetation around distribution electric lines and equipment	Jared	L. Volume - No Field	105.00	69.31	C#3152-000 UAV Inspection	NA	2021 UV and Thernography.xlsx	NA	NA
7.3.5.10	Vegetation Management & Inspections	Other discretionary inspection of transmission electric lines and	Jared	NA	0.00	0.00	NA	NA	NA	NA	NA
7.3.5.11	Vegetation Management & Inspections	Patrol inspections of vegetation around distribution electric lines and equipment	Jared	L. Volume - No Field	35.95	19.08	BVES GO 165 Compliance Plan	NA	2021 Detailed and Patrol Inspections.xlsx	NA	NA
7.3.5.12	Vegetation Management & Inspections	Patrol inspections of vegetation around transmission electric lines and equipment	Jared	NA	0.00	0.00	NA	NA	NA	NA	NA

Sargent Lundy Request For Information
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					Funding Review		Examples - Supporting Evidence To Be Determined and Furnished by BVES				
Tgt#	Category / Subject / Program	WMP Program Target / Intitiative	BVES Contact	Approach	2021 Budget ($000)	2021 Actual Spend ($000)	Plan, Procedure and/or Standard	List of Projects and/or Assets and Status	Example Reports or Designs[1]	Review of Initiative Tool	Information on Training Plans and Records
7.3.5.13	Vegetation Management & Inspections	Quality assurance / quality control of vegetation inspections	Jared	Small Volume	54.16	56.02	BVES INC Vegetation Management and Vegetation Management QC Programs Policy and Procedures Rev1	NA	2021 QA&QC Vegetation Management.xlsx	NA	BVES INC Vegetation Management and Vegetation Management QC Programs Policy and Procedures Rev1 Training
7.3.5.14	Vegetation Management & Inspections	Recruiting and training of vegetation management personnel	Jared	Qualitative	29.06	29.20	Management/ Supervisory effort.	NA	NA	NA	NA
7.3.5.15	Vegetation Management & Inspections	Remediation of at-risk species	Jared	Qualitative	144.79	150.47	C#3090-000 Forester Contract	NA	2021 Tree Removals.xlsx	NA	NA
7.3.5.16	Vegetation Management & Inspections	Removal and remediation of trees with strike potential to electric lines and equipment	Jared	Qualitative	144.79	164.60	C#3095-000 Vegetation Management	NA	2021 Tree Removals.xlsx	NA	NA
7.3.5.17	Vegetation Management & Inspections	Substation inspection	Jared	Small Volume(should be large)	6.75	5.05	OpsPlanningPolicyProcedures-15 & OpsPlanningPolicyProcedures-15AttachmentA	NA	BVES Substation Inspection Records 2021.zip	NA	NA
7.3.5.18	Vegetation Management & Inspections	Substation vegetation management	Jared	Qualitative	12.00	17.34			2021 Substation Weed Abatement invocies.zip	NA	NA
7.3.5.19	Vegetation Management & Inspections	Vegetation inventory system	Jared	Qualitative	144.79	207.00	NA	NA	2021 Geo Database.zip	NA	NA
7.3.5.20	Vegetation Management & Inspections	Vegetation management to achieve clearances around electric lines and equipment	Jared	Qualitative	2054.00	2119.66	C#3095-000 Vegetation Management		2021 Vegatation complete record.xlsx		
7.3.6.1	Grid Operations & Operating Protocols	Automatic recloser operations	Tom	Qualitative	17.18	19.87	BVES INC PSPS Procedures Rev1	NA	NA	NA	NA
7.3.6.2	Grid Operations & Operating Protocols	Crew-accompanying ignition prevention and suppression resources and services	Paul	Qualitative	0.00	0.00	NA	NA	NA	NA	NA
7.3.6.3	Grid Operations & Operating Protocols	Personnel work procedures and training in conditions of elevated fire risk	Paul	Qualitative	0.00	0.00	BVES INC PSPS Procedures Rev1	NA	NA	NA	NA
7.3.6.4	Grid Operations & Operating Protocols	Protocols for PSPS re-energization	Paul	Qualitative	6.87	7.73		NA	NA	NA	BVES Emergency Response and Disaster Plan Brief Training Rev 2 2022-3

Sargent Lundy Request For Information
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					Funding Review		Examples - Supporting Evidence To Be Determined and Furnished by BVES				
Tgt#	Category / Subject / Program	WMP Program Target / Intitiative	BVES Contact	Approach	2021 Budget ($000)	2021 Actual Spend ($000)	Plan, Procedure and/or Standard	List of Projects and/or Assets and Status	Example Reports or Designs[1]	Review of Initiative Tool	Information on Training Plans and Records
7.3.6.5	Grid Operations & Operating Protocols	PSPS events and mitigation of PSPS impacts	Paul	Qualitative	6.87	7.95	BVES INC PSPS Procedures Rev1 & BVERS INC EmergencyResponseAndDisasterPlan Rev2	NA	NA		BVES PSPS Metting and TTX 030422 and 041422.doc
7.3.6.6	Grid Operations & Operating Protocols	Stationed and on-call ignition prevention and suppression resources and services	Paul	Qualitative	6.87	7.59	BVES INC PSPS Procedures Rev1	NA	NA	NA	NA
7.3.7.1	Data Governance	Centralized repository for data	Tom	Qualitative	0.00	0.00	BVES_WMP_Change Request 02 from Guidehouse	NA	2021 Geo Database.zip	NA	NA
7.3.7.2	Data Governance	Collaborative research on utility ignition and/or wildfire	Jon	Qualitative	0.00	0.00	NA	NA	NA	NA	NA
7.3.7.3	Data Governance	Documentation and disclosure of wildfire-related data and algorithms	Jon	Qualitative	6.87	8.17	NA	NA	NA	NA	NA
7.3.7.4	Data Governance	Tracking and analysis of near miss data	Jared	Qualitative	6.87	7.06	NA	NA	2021 Outage Log.xlsx		NA
7.3.8.1	Resource Allocation Methodology	Allocation methodology development and application	Jon	Qualitative	6.87	7.73	NA	NA	NA	NA	NA
7.3.8.2	Resource Allocation Methodology	Risk reduction scenario development and analysis	Jon	Qualitative	18.30	19.60	BVES - Task Order - Ignition Probability Wildfire Consequence Mapping	NA	2021-12-15 Reax BVES fire risk modeling Rev 0	BVES Risk Register 2021-2-18 WMP Input and FireSafetyCircuit Matrix 2022-1-26 Update	NA
7.3.8.3	Resource Allocation Methodology	Risk spend efficiency analysis	Jon	Qualitative	18.30	19.60	BVES - Task Order - Ignition Probability Wildfire Consequence Mapping	NA	2021-12-15 Reax BVES fire risk modeling Rev 0	BVES Risk Register 2021-2-18 WMP Input and FireSafetyCircuit Matrix 2022-1-26 Update	NA
7.3.9.1	Emergency Planning & Preparedness	Adequate and trained workforce for service restoration	Paul	Qualitative	6.87	7.85	2015CUEAMutualAssistanceAgreement 116	NA	NA	NA	NA

					Funding Review		Examples - Supporting Evidence To Be Determined and Furnished by BVES				
Tgt#	Category / Subject / Program	WMP Program Target / Intitiative	BVES Contact	Approach	2021 Budget ($000)	2021 Actual Spend ($000)	Plan, Procedure and/or Standard	List of Projects and/or Assets and Status	Example Reports or Designs[1]	Review of Initiative Tool	Information on Training Plans and Records
7.3.9.2	Emergency Planning & Preparedness	Community outreach, public awareness, and communications efforts	Sean	L. Volume - No Field	15.00	79.20	NA	NA	WMP PSPS.docX	NA	2020 BVES Inc. PSPS - Spanish, 2021 BVES Inc. PSPS 6-21-2021, 2021 BVES Inc. PSPS 6-28-21 Stakeholders, 2021 BVES Inc. PSPS 9-7-21 Community Brief, 2021 BVES Inc. PSPS 9-7-21 Stakeholders, BVES PSPS Community Brief - Press Release V4 FINAL
7.3.9.3	Emergency Planning & Preparedness	Customer support in emergencies	Sean	Qualitative	59.50	60.18	BVERS INC EmergencyResponsePlan Rev1	NA	NA	NA	BVES Emergency Response and Disaster Plan Brief Training Rev 2 2022-3
7.3.9.4	Emergency Planning & Preparedness	Disaster and emergency preparedness plan	Paul	Qualitative	6.87	7.11	BVERS INC EmergencyResponsePlan Rev1	NA	NA	NA	BVES Emergency Response and Disaster Plan Brief Training Rev 2 2022-3
7.3.9.5	Emergency Planning & Preparedness	Preparedness and planning for service restoration	Sean	Qualitative	6.87	6.80	BVERS INC EmergencyResponsePlan Rev1 & BVES INC PSPS Procedures Rev1	NA	NA	NA	NA
7.3.9.6	Emergency Planning & Preparedness	Protocols in place to learn from wildfire events	Paul	Qualitative	6.87	6.71	BVES INC PSPS Procedures Rev1		Participation in workshops, meetings, proceedings.		Script-GO-166-PSPS 2022.docx

					Funding Review		Examples - Supporting Evidence To Be Determined and Furnished by BVES				
Tgt#	Category / Subject / Program	WMP Program Target / Intitiative	BVES Contact	Approach	2021 Budget ($000)	2021 Actual Spend ($000)	Plan, Procedure and/or Standard	List of Projects and/or Assets and Status	Example Reports or Designs[1]	Review of Initiative Tool	Information on Training Plans and Records
7.3.10.1	Stakeholder Cooperation & Community Engagement	Community engagement	Sean	L. Volume - No Field	27.07	29.91	NA	NA	WMP PSPS.docx	NA	2020 BVES Inc. PSPS - Spanish, 2021 BVES Inc. PSPS 6-21-2021, 2021 BVES Inc. PSPS 6-28-21 Stakeholders, 2021 BVES Inc. PSPS 9-7-21 Community Brief, 2021 BVES Inc. PSPS 9-7-21 Stakeholders, BVES PSPS Community Brief - Press Release V4 FINAL
7.3.10.2	Stakeholder Cooperation & Community Engagement	Cooperation and best practice sharing with agencies outside CA	Paul	Qualitative	15.00	16.78	Management/ Supervisory effort.	NA	NA	NA	NA
7.3.10.3	Stakeholder Cooperation & Community Engagement	Cooperation with suppression agencies	Paul	Qualitative	6.87	7.06	Management/ Supervisory effort.	NA	NA	NA	NA
7.3.10.4	Stakeholder Cooperation & Community Engagement	Forest service and fuel reduction cooperation and joint roadmap	Jared	Qualitative	14.79	11.91	Management/ Supervisory effort & C#3090-000 Forester Contract	NA	NA	NA	NA

Bear Valley Electric Service - Wildfire Mitigation Plan - Compliance Review
Sargent & Lundy Document / Data Request Tracking Log
Update: June 2, 2022

No.	Document	File Name	FileType	Date Requested	Date Due	Date Received	Status
1	Wildfire Mitigation Plan Memorandum Account (WMPMA)	BVE fire mitagation 68552 thru 12-31-201 revised 1.20.22 and 352-E authorization	xlsx and pdf	5/9/2022	5/12/2022	5/10/2022	Closed
2	Fire Risk Mitigation Memorandum Account (FRMMA)	BVE fire mitagation 68552 thru 12-31-201 revised 1.20.22 and 352-E authorization	xlsx and pdf	5/9/2022	5/12/2022	5/10/2022	Closed
3	Fire Hazard Prevention Memorandum Account (FHPMA)	BVE Fire prevention 1670.41	xlsx	5/9/2022	5/12/2022	5/10/2022	Closed
4	Catastrophic Event Memorandum Account (CEMA)	CEMA Application A. 20-04-011.PDF	pdf	5/9/2022	5/12/2022	5/10/2022	Closed
5	Photos of ELF and TripSaver Fuses	Photo of Elf and TripSaer Fuse.zip	zip	5/13/2022	5/17/2022	5/16/2022	Closed
6	Excel Spreadsheet for ELF Fuses	Elf Fuse Spreadsheet.zip	zip	5/13/2022	5/17/2022	5/16/2022	Closed
7	7.3.9.1 Emergency Planning & Preparedness	7.3.9.1 Emergency Planning & Preparedness	zip	6/1/2022	6/3/2022	6/2/2022	Closed
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Bear Valley Electric Service - Wildfire Mitigation Plan - Compliance Review
Sargent & Lundy Request for Information
Update: June 9, 2022

#	Subject	Clarification/Request	Status	Date Requested	Date Due	Date Closed	BVES Comments	S&L Follow-Up Comments (As Needed)	BVES Follow-Up Comments
1	Financial	Column M of the document BVES_2021 ARC_20220331_vF.xlsx (Tab ARC 2021 Spend FINAL) checks if the variance between projected and actual budget is within (or more than) a 20% threshold. For variances within the 20% threshold there is no explanation on the cause of the over/underrun. Please provide an explanation and any supporting documentation for the cause of the over/underruns that are listed as "Within 20%" in Column M.	Closed	5/9/2022	5/12/2022	5/13/2022	Please see attached BVES_2021 ARC_20220331_vF - Underspend Info.xlsx		
2	7.3.3.1 Grid Design & System Hardening	Please provide supporting documentation that the Capacitor maintenance and replacement program training was conducted.	Closed	5/12/2022	5/17/2022	5/13/2022	Please see attached Capacitor Traning Doc 2021.zip		
3	7.3.1.4 Risk Assessment & Mapping	"Initiative mapping and estimation of wildfire and PSPS risk-reduction impact" the PSPS risk reduction model has not been developed but may be considered at a future date contingent on PSPS activation. Please clarify why the model has not yet been developed for PSPS events.	Closed	5/12/2022	5/17/2022	5/13/2022	In 2021 BVES engaged REAX Engineering to develop static maps that provide: • 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 modelling 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 - this is a static map that allows BVES to make generalized assumptions on areas at risk; therefore, not as effective for real-time PSPS forecasting • Match drop simulations showing the potential wildfire consequence of ignitions that occur along the electric lines and equipment In 2022, BVES has engaged Technosylva to provide real-time fire threat risk forecasts using their advance prediction models.		
4	7.3.3.6 Evacuation Route Pilot Program	Per the meeting discussion on 5/17/2022, please provide the relevant GPS coordinates for the 5 new poles installed in 2021 per "2021 Replacement Poles LWS.zip"	Closed	5/17/2022	5/20/2022	5/19/2022	Please see attached updated files "2021 Replacement Poles LWS Updated GPS 051822.xlsx"		
5	7.3.3.6 Pole Loading and Replacement Program	Per the meeting discussion on 5/17/2022, please provide the relevant GPS coordinates for the 2021 replaced and remediated poles per "2021 Remediated Poles.zip" and "2021 Replacemnt Poles .zip."	Closed	5/17/2022	5/20/2022	5/20/2022	Please see attached updated files "2021 Replacement_ Remediated poles Updated GPS.zip"		
6	7.3.3.7 Fuse Replacement Program	Per the meeting discussion on 5/17/2022, please provide the relevant GPS coordinates for the 2021 expulsion fuses replaced with ELF or Trip Saver fuses per "Elf Fuse Spreadsheet.zip" and "Trip Savers.xlsx."	Closed	5/17/2022	5/20/2022	5/19/2022	Please see attached files "2021 Elf & Trip Saver updated GPS.zip"		
7	7.3.3.12 TARP	Per the meeting discussion on 5/17/2022, please provide the relevant GPS coordinates for the 2021 tree attachments removed per "2021 TARP.xlsx."	Closed	5/17/2022	5/20/2022	5/19/2022	Please see attached updated files "2021 TARP KMZ & GPS.zip"		
8	7.3.2.1 Advanced Weather Monitoring and Weather Stations 7.3.2.2 Continuous Monitoring Sensors	Please verify the accessibility of the Lakeview weather station and 2 HD cameras installed in 2021.	Closed	5/17/2022	5/20/2022	5/19/2022	Please see attached files "Viewable GPS coordinates Lakeview weather station and 2 HD cameras.pdf"		
9	7.3.3.6 Evacuation Route Hardening Program	Fire Wrap pole KMZ	Closed	5/17/2022	5/20/2022	5/19/2022	Please see attached files "2021 FireWrappedPoles.KMZ"		
10	7.3.3.9 Grid Automation Program	Fiber location map highlight location of work	Closed	5/17/2022	5/20/2022	5/19/2022	Please see attached files "2021 Fiber Location Map (Highlighted)"		
11	7.3.7.1 Data Governance	BVES_WMP_Change Request 02 from Guidehouse.pdf states that BVES was to receive a GIS gap analysis report. Has this report been received and is it relevant to this initiative goal of continued development and storage of GIS data? Please provide the gap analysis if it is available and relevant to the initiative, as well as any other supporting documentation that demonstrates refinement of the GIS resources.	Closed	5/19/2022	5/23/2022	5/20/2022	Please see attached files "BVES GIS Gap Analysis Recommendations FINAL 11-30-20.PDF"		
12	7.3.7.4 Data Governance	Is there QA documentation which specifically defines the program in place to track and analyze near miss data? Near miss data is stored in 2021 Outage Log.xlsx, is there any further analysis or trending of wildfire near misses done outside of this log?	Closed	5/19/2022	5/23/2022	5/20/2022	The outage log is the only documentation we have that collects outage and if we had near miss.		
13	7.3.7.1 Data Governance	1. The three geo database files provided in "2021 Geo Database.zip" contain apparent errors and clarification is needed: a. Fuse assets (and some others) are located in the Arabian Sea or otherwise erroneous locations. b. It is unclear what the difference between the Q2, Q3, and Q4 geo database files are. There seems to be a slight offset in locations and different information appears to be contained in each database.	Closed	5/19/2022	5/23/2022	5/19/2022	Per our meeting: 5/19 @ 3PM PST please see below response. a. This error pertains to the projection of the Fuses (and others). A line of code in the python script resulted in the incorrect projection. b. The differences in the Q2, Q3, and Q4 geodatabase files are outlined in the accompanying excel documents. The slight offset was caused by moving all circuit elements, when moving one element in our GIS.		

#	Subject	Clarification/Request	Status	Date Requested	Date Due	Date Closed	BVES Comments	S&L Follow-Up Comments (As Needed)	BVES Follow-Up Comments
14	7.3.8.1 Resource Allocation Methodology	"Program in place and continued compliance with program" Please provide clarification on the resource allocation program and if there is any supporting documents (no documents listed in the RFI matrix)	Closed	5/24/2022	5/27/2022	5/27/2022	BVES seeks to maximize the use of its limited resources to efficiently allocate financial and human capital by establishing a methodology that would evaluate spending to achieve the most significant risk reduction per dollar spent. BVES Management uses the Fire Safety Matrix and Risk Maps developed by REAX engineering to determine the budgets for the WMP initiatives. Resource Allocation Methodology is basically		
15	7.3.5.2 Detailed Inspections Reports and 7.3.5.11 Patrol Inspections Reports	Per BVES GO 165 Compliance Plan, "Inspection results will be recorded on BVES-specified forms or reporting formats (Appendix A)." This is in reference to detailed and patrol inspections of vegetation around distribution electric lines and equipment (initiatives 7.3.5.2 and 7.3.5.11). Can you please provide the Inspection Records for Detailed Inspections and for Patrol Inspections of Vegetation around Distribution Electric Lines and Equipment for the chosen inspections on tab "7.3.5.2 & 7.3.5.11 Inspections".	Closed	5/24/2022	5/27/2022	5/27/2022	We have provided our patrol and detailed inspections records. If vegetation descripancies are found they would be documented here.		
16	7.3.5.2 Detailed Inspectors Qualifications and 7.3.5.11 Patrol Inspectors Qualifications	Per BVES GO 165 Compliance Plan, "Inspectors are to be qualified to perform each type of patrol by meeting minimum experience requirements or successfully completing training requirements established by BVES." Can you please provide the qualifications for the inspectors for Detailed Inspections and for Patrol Inspections of Vegetation around Distribution Electric Lines and Equipment for the chosen inspectors on tab "7.3.5.2 & 7.3.5.11 Inspections".	Closed	5/24/2022	5/27/2022	5/27/2022	Training Documents for Inspectors attached 7.3.5.2 and 7.3.5.11 Vegetation Managemnet Training.PDF"		
17	7.3.5.9 Other Discretionary Inspections Reports	Please provide UAV Inspection Reports from contractor (Davey Resource Group) for chosen UAV Inspections on tab "7.3.5.9 Other Veg Inspections".	Closed	5/24/2022	5/27/2022	5/27/2022	We have provided the complete report from DRG. We can provide pictures of poles if requested.		
18	7.3.5.9 Other Discretionary Inspectors' Training	If possible, please provide records of contractor training for the UAV inspections. The inspectors to provide training for are included in the "7.3.5.9 Other Veg Inspections" tab.	Closed	5/24/2022	5/27/2022	5/27/2022	Please see attached "UAV Inspector.zip"		
19	7.3.5.13 QA/QC Inspection Reports	Can you provide the Appendix C forms (referenced in "Bear Valley Electric Service, Inc. Vegetation Management and Vegetation QA/QC Programs Policy and Procedures") for the chosen inspections on tab "7.3.5.13 QA-QC Inspections"?	Closed	5/24/2022	5/27/2022	5/27/2022	QC forms attached "7.3.5.13 Vegetation Management QC.PDF"		
20	7.3.5.20 Veg Clearance Documentation	Can you please provide some documentation (e.g. inspection records, signatures of completion, pictures, etc.) to support the Vegetation Clearance Records chosen in the "7.3.5.20 Veg Clearance Records" tab?	Closed	5/24/2022	5/27/2022	5/27/2022	Attached are photos of the removals. "7.3.5.20 Removal Pictures.zip"		
21	7.3.5.4 Emergency response vegetation management	How was the emergency response vegetation management controlled? There is not a designated target, but BVES does have the Emergency Preparedness and Reponse Program Initiative.	Closed	5/24/2022	5/27/2022	5/27/2022	BVES Staff and contracted forester provide oversight of the vegetation contractor (Mowbray's Tree Service) and direct them as necessary for emergency response. Attached is the policy for emercency response for our vegetaion management contractor. "7.3.5.20 Policy for Emergency vegetation management.PDF"		
22	7.3.5.5 and 7.3.5.14 Inititatives met	Can you please provide some documentation, if possible, as to how these two initiatives were met?	Closed	5/24/2022	5/27/2022	5/27/2022	7.3.5.5 is achieved by the vegetation contractor per the contract with Mowbray's Tree Service. 7.3.5.14 this is achieved by the contracted forester reviewing the vegetation contractor's crew qualifications and by BVES staff providing oversight of the vegetation contractor. Recruiting and training of vegetation management personnel is basically encompassed in BVES's operations supervision & engineering (FERC 580) budget and spend. The budget for this initiative is already in rates. The budget is based on an estimate the level of effort as applied to the applicable FERC codes that cover this initiative (e.g., a percentage is		
23	7.3.5.7 LiDAR Inspections	The LiDAR Inspections Contract references "BVES Request for Proposal dated May 17, 2019 Section 5 (Exhibit A)". Can you provide this, or another scope of work document, to support these LiDAR records?	Closed	5/24/2022	5/27/2022	5/27/2022	Attached is the Scope of work from the RFP dated May 17, 2019. "7.3.5.7 LiDAR Scope of Work.pdf"		
24	7.3.5.16 Tree Removals	Is the second date (column J) on the "2021 Tree Removals" spreadsheet the date that the strike potential trees to be removed were removed? Is the first date (column I) the date that the strike potential trees were identified?	Closed	5/24/2022	5/27/2022	5/27/2022	The first date(column I) is start date of removal and second date(column J) is finish date of the removal.		
25	7.3.3.5 Grid Design & System Hardening	Crossarm maintenance, repair, and replacement - Please provide additional supporting documentation that this initiative was met.	Closed	5/25/2022	5/27/2022	5/27/2022	BVES seeks to maximize the use of its limited resources to efficiently allocate financial and human capital by establishing a methodology that would evaluate spending to achieve the most significant risk reduction per dollar spent. BVES Management uses the Fire Safety Matrix and Risk Maps developed by REAX engineering to determine the budgets for the WMP initiatives.		

#	Subject	Clarification/Request	Status	Date Requested	Date Due	Date Closed	BVES Comments	S&L Follow-Up Comments (As Needed)	BVES Follow-Up Comments
26	7.3.3.10 Grid Design & System Hardening	Maintenance, repair, and replacement of connectors, including hotline clamps - Please provide additional supporting documentation that this initiative was met.	Closed	5/25/2022	5/27/2022	5/27/2022	Maintenance, repair, and replacement of connectors, including hotline clamps is basically encompassed on BVES's overhead and miscellaneous maintenance (FERC 583 and 598) budget and spend. The budget for this initiative is already in rates. The budget is based on an estimate the level of effort as applied to the applicable FERC codes that cover this initiative (e.g., a percentage is applied to the budgeted FERC code(s)). The actual spend is based on the same percentage applied to the actual spend in the applicable FERC code(s). There are no specific timesheets for this initiative. BVES's accounting system is not that granular and given the low values, it would not be cost effective to have staff track and document their specific time in this initiative.		
27	7.3.3.12 Grid Design & System Hardening	Upgrade of Palomino Substation - Please provide additional documentation that this WMP was met. The work order provided does not give enough detail on what work was conducted.	Closed	5/25/2022	5/27/2022	5/27/2022	Please see attached design "Palomino 100% Correction (Final).PDF".		
28	7.3.3.14 Grid Design & System Hardening	Transformer maintenance and replacement - Please provide additional supporting documentation that this initiative was met.	Closed	5/25/2022	5/27/2022	5/27/2022	The CAPEX portion of this initiative only captures the cost of purchasing transformers. No transformers were purchased in 2021. The cost of installation is captured in the specific overhead work orders associated with pole replacements or undergrounding work. Transformers used in 2021 were drawn from inventory. Transformer maintenance and replacement is basically encompassed on BVES's overhead maintenance (FERC 583) budget and spend. The budget for this initiative is already in rates. The budget is based on an estimate the level of effort as applied to the applicable FERC codes that cover this initiative (e.g., a percentage is applied to the budgeted FERC code(s)). The actual spend is based on the same percentage applied to the actual spend in the applicable FERC code(s). There are no specific timesheets for this initiative. BVES's accounting system is not that granular and given the low values, it would not be cost effective to have staff track and document their specific time in this initiative.		
29	7.3.3.6 Grid Design & System Hardening	Distribution pole replacement and reinforcement, including with composite poles - Please advise which of the 5 poles were hardened as part of the pilot program.	Closed	5/25/2022	5/27/2022	5/27/2022	As part of grid hardened pilot BVES install five (5) light weight steel poles. Please see already submitted document file "2021 Replacement Poles LWS Updated GPS 051822.xlsx" on May 19, 2022 for their location.		
30	7.3.3.3 Grid Design & System Hardening	Covered conductor installation pilot - Please provide supporting documentation that this initiative was completed in 2020.	Closed	5/25/2022	5/27/2022	5/27/2022	Please see attached "Covered Conductor Pilot Program.zip"		
31	7.3.3.4 Grid Design & System Hardening	Covered conductor maintenance - Please provide documentation, if possible, on how this initiative is being met.	Closed	5/25/2022	5/27/2022	5/27/2022	Covered conductor maintenance is basically encompassed on BVES's overhead maintenance (FERC 583) budget and spend. The budget for this initiative is already in rates. The budget is based on an estimate the level of effort as applied to the applicable FERC codes that cover this initiative (e.g., a percentage is applied to the budgeted FERC code(s)). The actual spend is based on the same percentage applied to the actual spend in the applicable FERC code(s). There are no specific timesheets for this initiative. BVES's accounting system is not that granular and given the low values, it would not be cost effective to have staff track and document their specific time in this initiative.		
32	7.3.3.3 & 7.3.3.6 Grid Design & System Hardening	Covered conductor installation Radford - Please provide supporting documentation that this initiative is delayed due to permitting delays.	Closed	5/25/2022	5/27/2022	5/27/2022	See attached "USFS-Radford Project Timeline.pdf"		
33	7.3.4.4 & 7.3.4.9 Asset Management & Inspections	It appears that documentation for the UAV Thermography Program and Third Party Gound Patrol are the same. Please clarify if there is a distinction between the activities. Requests for additional information provided on separate tab.	Closed	5/25/2022	5/27/2022	5/27/2022	Davey provides the UAV data and the third party data. It is all put into a database under each pole location. The data is not seperated by each inspection.	It appears the same data is being used to document completion of two activities. Is there a differentiation between data was derived from UAV vs. other ground patrols? Please confirm Davey is the 3rd Party contractor that supports this activity; if not, please describe Davey's role.	Davey is the 3rd party LIDAR and UAV contractor.
34	7.3.4.7 Asset Management & Inspections	2021 LiDAR Records Excel file was reviewed. How is this data used to identify actions required? No notes on issues were found in the data. Can we set up a conversation with an SME to discuss the approach in place for this and other inspections?	Closed	5/25/2022	5/27/2022	5/27/2022	The data is currently put into a KMZ file and is given to the tree trimming contractor to address. At this time we do not have documentation of corrections made in the field.	Looking at the LiDar data, there is a "Level" and "Encroachment" For example: Clearance Level 348 - 72 inches These appear to be general, not specific to the LiDar results. Is there anything in the provided LIDAR data that shows what the identified issues are?	Lidar give a gernerallocaiton to where the vegatation maybe and all of these points are possiable violation. 48" beyond are not part of high priority violation

#	Subject	Clarification/Request	Status	Date Requested	Date Due	Date Closed	BVES Comments	S&L Follow-Up Comments (As Needed)	BVES Follow-Up Comments
35	7.3.4.13 Asset Management & Inspections	Please clarify scope of this initiative. How does it differ from 7.3.3.13? Is it standalone? Or subsumed by 7.3.3.13?	Closed	5/25/2022	5/27/2022	5/27/2022	7.3.4.13 is the pole assessment portion of the work. 7.3.3.13 is the actual pole replacements or remediation as applicable based on the assessments.	Please confirm that 7.3.4.13 assesses poles and determines safety factor, 7.3.3.13 determines which poles require replacement or remediation, and then 7.3.3.6 replaces the poles? Or clarify the actions associated with each initiative.	BVES follows CPUC GO 95 standard on safety factor (SF) . In Big Bear area, above 6000ft elevation and snow, we follow Grade A construction standard.For example a new wood pole it's SF of 4.0 and existing wood pole is 2/3 of SF 4.0 = 2.67. To determine the SF, we use a software called Spida Calc (Windloading software) where we would enter in all of the asset data and it calculates the SF. There are situation where the existing pole can pass the 2.67 SF by adding a downguy and anchoro span guy, etc. Otherwise we would replace the pole. There are other criteria like if pole is over 70 years old or from a visual inspection the pole is in bad condition then we would replace it .
36	7.3.10.1 Stakeholder Cooperation & Community Engagement	Community Outreach Program. Please provide examples of media or content for this effort.	Closed	6/2/2022	6/6/2022	6/3/2022	Invoices from all 2021 newspaper and radio PSA community outreach events sent via the "Community Outreach Program.zip" file.		
37	7.3.4.6	ID BVES Comment 4061612 - Please see attached "2021 Inspection WO's.zip" 4060986 - Please see attached "2021 Inspection WO's.zip" 4061224 - Please see attached "2021 Inspection WO's.zip" The above Work Orders were requested and the BVES response stated that they were provided; however, they do not appear to be in the zip file. Please clarify.	Closed	6/3/2022	6/8/2022	6/3/2022	ID 4061612, 4060986, 4061224 is not an work order # or pole # Please look at tab 7.3.4.6 column "I" which indicates the pole # ID 4061612 (pole # is 5154BV) ID 4060986 (pole # is 62465CTC) ID 4061224 (pole # is 8072BV) Those Poles WO information are provided "2021 Inspection WO's.zip"		
38	7.3.3.9 Grid Design & System Hardening	Grid Automation Program - The WMP states that part of the grid automation program includes install automating substations, automating key field switches,and adding sensors. S&L was only provided with evidence of fiber cable install. Please provide further information on whether the other assets were installed to determine whether this initiative was met.	Closed	6/7/2022	6/10/2022	6/8/2022	Grid Automation is a four-year project 2019-2022: In 2019, BVES completed the design. In 2020-2021, BVES completed the fiber network installation to support future grid automation. For 2022, BVES added its main Auto Re-closers and is adding three substations to the SCADA network. In 2023-2026, BVES will automate the remaining substations, 40 field switches, and 160 Fuse TripSavers.		
39	7.3.3.7 Grid Design & System Hardening	Expulsion Fuse Replacement - The WMP states that the remainder of the ELF replacements were to be completed by the end of 2021. Can you please confirm if all fuses were to be completed by the end of 2021?	Closed	6/7/2022	6/10/2022	6/8/2022	The conventional (expulsion) fuse replacement program was completed in 2021. 640 conventional fuses were replaced with ELFs and 222 conventional fuses were replaced with electronic fuses.		
40	7.3.3.12.2 Grid Design & System Hardening (Verification of Funding)	Refer to Column N of the document BVES_2021 ARC_20220331_vF.xlsx (Tab ARC 2021 Spend FINAL) for this initiative. Provide a more detailed explanation on the underspending for year 2021 even if the target for tree attachment removal was exceeded by 4.	Closed	6/8/2022	6/10/2022	6/9/2022	The budget was a best estimate of cost. While we can calcualte the average cost to remove a tree attachment, each tree attachment has a unique cost due to variances in the about of time it take to do the job (e.g., some jobs are further into the US Forest Service area and take longer and may use more wire and poles for replacement). In 2021, BVES performed tree attachment removals in the Moonridge Area. These tree attachments were generally close to the road and did not require any permitting so costs were lower than average.		
41	7.3.4.4. Asset Management & Inspections (Verification of Funding)	Refer to Column N of the document BVES_2021 ARC_20220331_vF.xlsx (Tab ARC 2021 Spend FINAL) for this initiative. It states that the entire BVES system was inspected per BVES's target using thermography. How was the actual inspection scope of work achieved at lower than projected cost.	Closed	6/8/2022	6/10/2022	6/9/2022	The budget was best estimate of cost to contract out this work. BVES was able to contract out the required scope of work for lower cost.		
42	7.3.4.11. Asset Management & Inspections (Verification of Funding)	Refer to Column N of the document BVES_2021 ARC_20220331_vF.xlsx (Tab ARC 2021 Spend FINAL) for this initiative. It states that the entire BVES system was inspected per BVES's target using Patrol Inspection per GO-166. How was the actual inspection scope of work achieved at lower than projected cost.	Closed	6/8/2022	6/10/2022	6/9/2022	The budget was based on historical costs. The BVES Inspector had been in the position for 3 years and had developed more efficient processes to conduct the patrol inspections; thereby reducing the hours dedicated to this effert.		
43	7.3.4.15. Asset Management & Inspections (Verification of Funding)	Refer to Column N of the document BVES_2021 ARC_20220331_vF.xlsx (Tab ARC 2021 Spend FINAL) for this initiative. It states that BVES achieved its target of condcuting 144 susbstation inspections. How was the actual inspection scope of work achieved at lower than projected cost.	Closed	6/8/2022	6/10/2022	6/9/2022	The budget was based on historical costs. The Substation Technician combined some of the monthly inspections with the more detailed GO-174 substation equipment inspections and other corrective maintenance work at substations resulting in lower labor costs. For example, when the substation inspector goes to a substation to conduct corrective maintenance, while there he also completes the monthly check; thus reduces labor cost.		

#	Subject	Clarification/Request	Status	Date Requested	Date Due	Date Closed	BVES Comments	S&L Follow-Up Comments (As Needed)	BVES Follow-Up Comments
44	7.3.5.2. Vegetation Management & Inspections (Verification of Funding)	Refer to Column N of the document BVES_2021 ARC_20220331_vF.xlsx (Tab ARC 2021 Spend FINAL) for this initiative. It states that BVES condcuted detailed inspection on 54.9 circuit miles in 2021 which was in excess of the target of 50 circuit miles. How was the actual inspection scope of work achieved at lower than projected cost.	Closed	6/8/2022	6/10/2022	6/9/2022	The budget was based on historical costs. The BVES Inspector had been in the position for 3 years and had developed more efficient processes to conduct the detailed inspections; thereby reducing the hours dedicated to this effert.		
45	7.3.5.11. Vegetation Management & Inspections (Verification of Funding)	Refer to Column N of the document BVES_2021 ARC_20220331_vF.xlsx (Tab ARC 2021 Spend FINAL) for this initiative. It states that the entire BVES system was inspected per BVES's target using Patrol Inspection per GO-166. How was the actual inspection scope of work achieved at lower than projected cost.	Closed	6/8/2022	6/10/2022	6/9/2022	The budget was based on historical costs. The BVES Inspector had been in the position for 3 years and had developed more efficient processes to conduct the patrol inspections; thereby reducing the hours dedicated to this effert.		
46	7.3.5.17. Vegetation Management & Inspections (Verification of Funding)	Refer to Column N of the document BVES_2021 ARC_20220331_vF.xlsx (Tab ARC 2021 Spend FINAL) for this initiative. It states that BVES achieved its target of conducting 144 susbstation inspections. How was the actual inspection scope of work achieved at lower than projected cost.	Closed	6/8/2022	6/10/2022	6/9/2022	The budget was based on historical costs. The Substation Technician combined some of the monthly inspections with the more detailed GO-174 substation equipment inspections and other corrective maintenance work at substations resulting in lower labor costs. For example, when the substation inspector goes to a substation to conduct corrective maintenance, while there he also completes the monthly check; thus reduces labor cost.		
47	7.3.3.16 Grid Design & System Hardening	The RFI matrix states this program was discontinued in 2020. However, workorders were provided for this initiative. Please clarify what these workorders were for and whether the program was, in fact, canceled. If so, is this initiative to be considered not applicable?	Closed	6/9/2022	6/10/2022	6/9/2022	The work order's that were provided are minor underground/repair and underground blanket projects that were completed in 2021. We have minor underground project and we charges it to this initiative.		
48	7.3.3.13 Grid Design & System Hardening	Please clarify pdfs provided that are labeled in the "27672-" series. Were these poles replaced? Please also clarify if there was corrective action taken on the poles that failed inspection in "2021 Poles Assets.xlsx".	Closed	6/9/2022	6/10/2022	6/9/2022	In regards to "27672-" series, those are poles that were assessed in 2021 by our contractor, if poles that fail windload, it was designed in 2021 and to be replace in 2022. In regards to "2021 Poles Asset.xlsx" is typo should be "2021 Poles Assessed.xslx" , are addition poles that were assessed in 2021. If poles that fail windloading , some of those poles have been replaced and some has not been replaced and willbe replaced in 2022.		