

DATA REQUEST RESPONSE
Bear Valley Electric Service, Inc.
Wildfire Mitigation Plan

Response provided by: Paul Marconi
Title: President, Treasurer & Secretary
Data Request Number: CalAdvocates-BVES-2021WMP-02
Date Received: March 26, 2021
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From Alan Wehrman (California Public Advocates Office) email to BVES dated March 26, 2021. The following questions relate to BVES's Wildfire Mitigation Plan 2021.

1. **On page (p.) 16 of BVES's 2021 WMP, in Table 3.1.1-1, there are several significant differences between planned and actual 2020 expenditures.**
 - a. **Situational Awareness: Planned 2020 expenditures were \$337,000; actual 2020 expenditures were \$66,218. Please explain this difference.**
 - b. **Grid Operations: Planned 2020 expenditures were \$42,000; actual 2020 expenditures were \$0. Please explain this difference.**
 - c. **Emergency Planning: Planned 2020 expenditures were \$200,000; actual 2020 expenditures were \$50,676. Please explain this difference.**

Response:

1.a. Situational Awareness variance between actual expense and budgeted expense was due to the significant uncertainty in the installation of the HD Alert Cameras. The situational awareness budget included \$127,000 for weather stations and \$250,000 for the HD Alert Cameras. University of California San Diego provided the cameras and technical support at no cost. BVES crews installed one camera on a pole so BVES's expense was minimal. BVES has two additional camera installs left to complete the project. The costs reflected are due to weather station installations.

1.b. Grid Operations variance between actual expense and budgeted expense was due to BVES not experiencing any PSPS events. The budget was to cover overtime (incremental) expenses during PSPS events.

1.c. Emergency Planning variance between actual expense and budgeted expense was due to BVES not properly budgeting establishing of the capability to provide Community Resource Centers during PSPS events and outreach on emergency response.

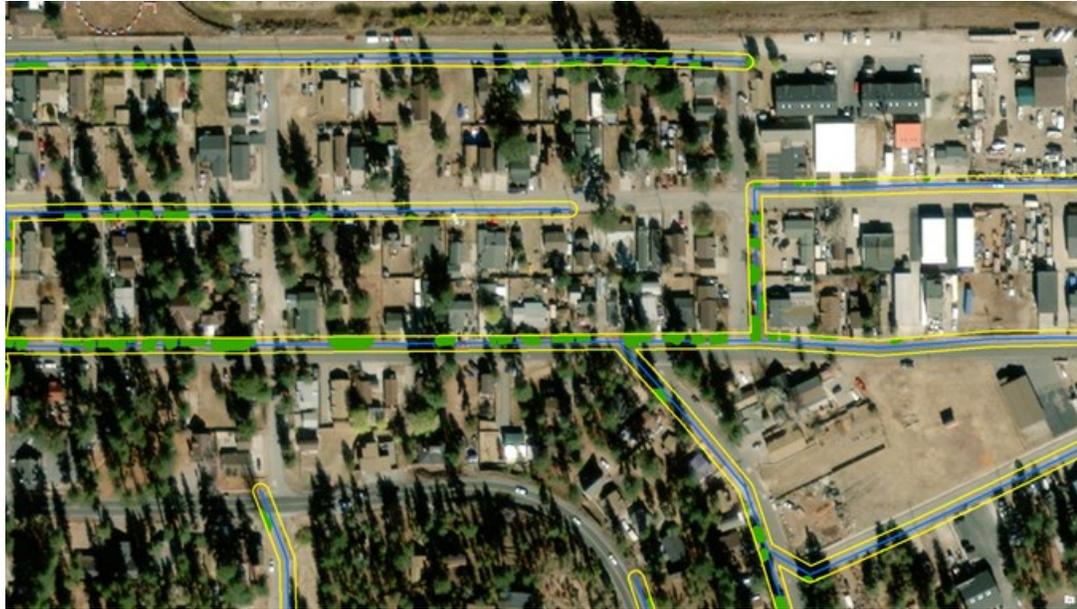
2. **On p.22, Supporting Table 4.2-1 includes columns for “Vegetation Density” and “Wind Intensity.”**
- a. **What are BVES’s criteria for high, medium, and low Vegetation Density?**
 - b. **What are BVES’s criteria for high, medium, and low Wind Intensity?**
 - c. **How were the criteria described in parts (a) and (b) developed?**

Response:

2.a-c. The determination of Vegetation Density and Wind Intensity has been evolutionary with a push to be as objective as possible and move away from SME evaluations on these criteria. BVES is making progress in achieving this goal.

Vegetation density is currently based on SME evaluation of the vegetation around the circuit. BVES is exploring several methods to establish vegetation density. The first method is to take the number of trees that are trimmed along a circuit and divide it by the number of spans. BVES is considering using the following criteria: Low Density is less than 2 trees per span; Medium Density is 2.1 – 4.9 trees per span. High Density is greater than 5 trees per span. Because our vegetation management contractor has placed most trees in the GIS, we will be able to be more quantitative in the coming year. Another promising method is to utilize LiDAR results as follows:

- Encroachment Zone Acres (yellow boundary) - when we apply a 12-ft distance on each side of the conductor, we create a zone in polygon format, meaning that we are looking at the area around the centerline. We use this to determine the entire extent in acres for the encroachment zone that trees could occupy.
- Tree Acres (green polygons representing trees) - these are the approximate acres of trees within the Encroachment Zone that are occupying space on either side of the conductors.
- Tree Percent - this is a standard formula for a percentage that we use to determine what percentage of the circuit is covered by trees (Tree Acres / Encroachment Acres * 100). This is one measure of density because it tells you how much vegetation is impacting the tree/wire interface.
- From the picture below, we summarize all tree canopy polygons within the yellow boundary and get an acreage total. Then, we divide that total by the acreage of the encroachment zone to get the percentage. As mentioned before, this is the quickest way to get a good estimation on which feeders have the most vegetation currently on them, which could signify a higher priority.



We are currently evaluating both methods and expect to apply objective criteria by the end of Q2 in 2021 to determine vegetation density.

Wind intensity is currently based on SME evaluation of the wind intensity around the circuit during dry periods (National Fire Danger Rating System (NFDRS) Yellow, Brown, Orange and Red conditions). Low intensity is less than 20 mph sustained. Medium Intensity is 20 - 40 mph sustained. High intensity is greater than 40 mph sustained. Now that most of the BVES (18 of 20) weather stations have been in place over 1 year (and in some cases over 2 years), we expect to refine our evaluation of wind intensity even further with actual wind measurements in a more quantifiable manner. BVES will be working with its weather consultant on this enhancement to the model and intends to have it in place by the end of Q2 in 2021.

3. **On p. 34, Supporting Table 4.3-2 shows the 10 year fire risk reduction outlook for each of BVES's circuits. Many cells have negative numbers for "Wildfire Risk Group" and "Overall Risk Weighting":**
 - a. **Please explain in detail how "Wildfire Risk Group" is calculated or determined.**
 - b. **Please explain in detail how "Overall Risk Weighting" is calculated or determined.**
 - c. **What does a negative number represent in "Wildfire Risk Group"?**
 - d. **What does a negative number represent in "Overall Risk Weighting"?**

Response:

3.a. A detailed explanation of the Fire Safety Matrix is provided on pages 44 to 47 of BVES 2021 WMP Update. The Wild Fire Risk Group is calculated for each circuit by using the following algorithm:

Wild Fire Risk Group = [If the line is 34.5 kV, then 500*Bare Wire Circuit Miles and if the line is 4 kV, then 500*Bare Wire Circuit Miles] + [If the circuit is in the HFTD Tier 3, then 10,000* Bare Wire Circuit Miles and if the circuit is in the HFTD Tier 2, then 50* Bare Wire Circuit Miles] + [200*Bare Wire Circuit Miles] + [For Vegetation Density High 100*Bare Wire Circuit Miles; For Vegetation Density Medium 25*Bare Wire Circuit Miles; and For Vegetation Density Low 5*Bare Wire Circuit Miles] + [For Wind Intensity High 100*Bare Wire Circuit Miles; For Wind Intensity Medium 25*Bare Wire Circuit Miles; and For Wind Intensity Low 5*Bare Wire Circuit Miles] + [Number of Expulsion Fuses*2] + [Number of Tree Attachments*4] + [Number of Level 1 Deficiencies to be Corrected*1000] + [Number of Level 2 Deficiencies to be Corrected*100] + [if ranking on Worst Performing Circuit List is: 1=1,000; 2=900; 3=800; 4=700; 5=600; 6=500; 7=400; 8=300; 9=200; and 10=100] – [Pole Loading Project Percent Complete*Number of Wood Poles*5] – [Fault Indicator Installation Percent Complete*100] – [If Circuit Meters Installed On All Phases Remotely Monitored, then 2*Bare Wire Circuit Miles] – [If Enhanced Vegetation Management on Cycle Per Schedule, then 2* Bare Wire Circuit Miles] – [If GO-165 Ground Patrol on Schedule, then 2* Bare Wire Circuit Miles] – [If GO-165 5-Year Inspections on Schedule, then 2* Bare Wire Circuit Miles] – [If GO-165 Intrusive Inspections on Schedule, then 2* Bare Wire Circuit Miles] – [If Annual LiDAR Survey on Schedule, then 2* Bare Wire Circuit Miles] – [If 3rd Party Annual Ground Patrol on Schedule, then 2* Bare Wire Circuit Miles] – [If GO-174 Substation Inspections on Schedule, then 2* Bare Wire Circuit Miles]

BVES is continuing to make refinements and enhancements to the algorithm to make it as quantitative as possible based on actual performance metrics.

3.b. The “Overall Risk Weighting” is calculated by dividing the risk score for the particular circuit by the total of the sum of the risk scores for the entire system.

3.c. The negative number should be “0” – this will be refined in our next update to the fire safety matrix algorithm.

3.d. Same response as in 3.c. above.

4. On p. 96, under section 7.2 B “Identifying and Correcting Deficiencies in the Plan,” BVES mentions internal audits.

a. Please describe BVES’s process for performing an internal audit. If this varies by topic or program area, please describe each audit process that BVES currently employs.

- b. How often are internal audits performed? If this varies by topic or program area, please describe the frequency for each type of audit.**
- c. Please provide a list of all audits of WMP processes that BVES conducted in 2019 and 2020. For each audit, summarize any findings and any corrective actions BVES took to remediate those findings.**

Response:

4.a.-c. To date, BVES has not had the opportunity to perform any internal audits. BVES expects to get this program on track during the latter half of this year (2021) now that it has filled several supervisory vacancies that developed in 2020.

It is BVES's intent to conduct internal audits by the following topics:

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

5. P. 100 states, "During 2021, BVES will engage a consulting firm to begin the development of a series of risk maps that will show the overall ignition probability and estimated wildfire consequence along electric lines and equipment."

- a. Has BVES identified a consultant (or consultants) to develop these models?**
- b. If the answer to part (a) is yes, please list the consultants.**
- c. Please provide a copy, if existing, of an RFP or other set of requirements BVES produced in regards to these risk maps.**

Response:

5.a. Yes.

5.b. Guidehouse.

5.c. Attached RFP (file name: CalAdvocates-BVES-2021WMP-02 BVES RFP for WMP Support Services 2020-11) was used to solicit bids on a number of WMP tasks including: Section 4.3.11 in the Scope of Work, which reads: "Developing models and evaluating internal and external industry data to assist in determining ignition probability, drivers of ignition probability, and wildfire risk exposure in accordance with CPUC proceedings and WSD guidance."

6. **P. 105 states, “BVES plans to continue to implement grid automation into its system which includes the installation of a fiber optic network throughout the service area...”**
- a. **Why did BVES select fiber optic cable over other methods such as wireless communications?**
 - b. **How will the fiber optic network be installed? For example, will the fiber optic be buried, or run from pole to pole in conjunction with conductor, or some other method?**
 - c. **What are BVES’s projected expenditures related to installing this fiber optic network across its service area?**
 - d. **What is BVES’s projected timeline for installing this fiber optic network across its service area?**

Response:

6.a. This project is part of the BVES Grid Automation Project discussed in BVES’s most recent General Rate Case Application A.17-05-004) and approved in Decision D.19-08-027 of August 15, 2019. BVES is a mountainous territory making line of sight very challenging; therefore, fiber network is the preferred solution. BVES’s network will include some wireless network communications where appropriate. BVES had an engineering consulting firm develop an optimal plan for the BVES grid automation network.

6.b. The fiber network is mostly installed on existing electric utility poles. Some of the fiber is being pulled through existing underground communications conduit.

6.c. Approximately \$2,300,000.

6.d. BVES intends to complete the fiber installation by August 2021.

7. **On p. 115, BVES states that it plans to install approximately 4.3 miles per year of covered conductor on 34.5 kV sub-transmission.**
- a. **Please clarify whether these 4.3 miles refer to line miles or circuit miles (as defined in the glossary on pages 1 and 4 of BVES’s 2021 WMP update).**
 - b. **In 2020, what were BVES’s total expenditures related to covered conductor installation on 34.5 kV sub-transmission?**
 - c. **In 2020, how many circuit miles of covered conductor did BVES install on 34.5 kV sub-transmission?**
 - d. **For 2021, what are BVES’s total projected expenditures related to covered conductor installation on 34.5 kV sub-transmission?**

e. For 2021, how many circuit miles of covered conductor does BVES project installing on 34.5 kV sub-transmission?

Response:

7.a. Circuit miles.

7.b. \$3,331,858 for 34.5 kV and 4 kV covered wire replacement. BVES executes the 34.5 kV and 4 kV programs as a single project due to 34.5 kV circuits often have 4 kV under build.

7.c. In 2020, BVES replaced 7.7 circuit miles of bare conductors with covered wire (4.2 circuit miles of 34.5 kV and 3.5 circuit miles of 4 kV).

7.d. BVES intends to spend approximately \$5,418,000 on its covered wire program for 34.5 kV and 4kV lines.

7.e. BVES intends to install approximately 4.3 circuit miles of 34.5 kV and 12.9 circuit miles of 4 kV per its Covered Wire Program. Additionally, BVES intends to replace 2.8 circuit miles of bare wire with covered wire as part of the Radford Line Replacement Project.

8. On p. 115, BVES states that it plans to install approximately 8.6 miles per year of covered conductor on 4 kV distribution.

a. Please clarify whether these 8.6 miles refer to line miles or circuit miles (as defined in the glossary on pages 1 and 4 of BVES's 2021 WMP update).

b. In 2020, what were BVES's total expenditures related to covered conductor installation on 4 kV distribution?

c. In 2020, how many circuit miles of covered conductor did BVES install on 4 kV distribution?

d. For 2021, what are BVES's total projected expenditures related to covered conductor installation on 4 kV distribution?

e. For 2021, how many circuit miles of covered conductor does BVES project installing on 4 kV distribution?

Response:

8.a. Circuit miles.

8.b. See 7.b. response

8.c. See 7.c. response

8.4. See 7.d. response

8.5. See 7.e. response

- 9. For the following programs, please provide a workplan that shows which circuits BVES plans to treat with that program in 2021, and the amount of work to be conducted on each circuit.**
- a. Covered conductor installation.**
 - b. Tree attachment removal.**
 - c. Pole loading assessment and remediation.**

Response:

9.a. The covered conductor installation work plan for 2021 is to replace bare conductors on portions of the following circuits: Shay 34kV – 4.04 cm; Baldwin 34kV – 0.46 cm; Pioneer 4kV – 3.01cm; Erwin 4kV – 1.53cm; Sunrise 4kV – 1.05cm; Sunset 4kV – 0.38cm; Paradise 4kV – 1.21cm; and Holcomb 4kV – 0.17cm. Additionally, another 1.25 cm of 4 kV will be replaced but has not been identified yet.

Furthermore, the Radford Line Replacement Project replaces 2.82 cm of bare conductor with covered wire.

9.b. The tree attachment removal work plan for 2021 will start on the Goldmine 4 kV circuit with 76 tree attachments and then shift to removing approximately 24 tree attachments on the Clubview 4 kV circuit.

9.c. The pole loading assessment and remediation work plan for 2021 will focus on the Erwin 4 kV circuit.

- 10. On p. 125, in regard to its vegetation management contractor, BVES states, “The contractor’s work is subject to BVES Quality Control checks.”**
- a. Please describe BVES’s process for Quality Control checks as it applies to its vegetation management contractor(s), including whether it includes inspecting the contractor’s tree trimming work after completion.**
 - b. List the three most common findings BVES’s Quality Control checks found with its VM contractor in 2019.**
 - c. List the three most common findings BVES’s Quality Control checks found with its VM contractor in 2020.**
 - d. Who performs these Quality Control checks?**
 - e. How often are these Quality Control checks implemented?**

f. Does BVES have a regular schedule for Quality Control checks or are they conducted on an as-needed basis?

Response:

10.a. BVES performs approximately one VM QC check per week. These are performed by the BVES President, Utility Manager, Field Operations Supervisor, Utility Engineer and Wildfire Mitigation Supervisor and Field Inspector. In 2021, the Wildfire Mitigation and Safety Engineer, the Project Compliance Engineer and the contracted Forester have been added to the list of staff performing QCs. Attach file (file name: CalAdvocates-BVES-2021WMP-02 VM QC Form) provides the QC guidelines. Each person assigned a QC is provided the form and a map of the area to be QC'd.

10.b. 2019 Top findings were:

- Mature trunks and major limbs within 18" of energized conductors
- All vegetation trimmed to a minimum of within 12'/144" from energized conductors

10.c. 2020 Top findings: No findings of significance noted for 2020. Note that due to BVES's contract execution practices, the number of infractions is significantly reduced because any potential infractions are identified and corrected before work reaches the completed status and ready for VM QC.

10.d. See 10.a.

10.e. See 10.e.

10.f. They are assigned each week.

11. On p. 63, in Table 5.3-1, in regards to quality assurance / quality control (QA/QC) of inspections, BVES lists a projected target of 100% by the end of 2022, and states, "BVES is able to implement Inspection QC program in 2022."

- a. Does BVES currently have any QA/QC processes in place for asset inspections?**
- b. If the answer to part (a) is yes, please describe these processes, including who performs them and how frequently.**
- c. Does BVES currently plan to implement any QA/QC processes for asset inspections in 2021 (aside from those described in your responses to parts (a) and (b) of this question)?**
- d. If the answer to part (c) is yes, please describe these processes, including who will perform them and how frequently.**

- e. **Please describe the processes that BVES plans to have in place by the end of 2022 to perform QA/QC per Table 5.3-1, quoted above.**

Response:

11.a. No.

11.b. N/A.

11.c. No.

11.d. N/A.

11.e. BVES has not defined nor selected the QA/QC processes that will be implemented by the end of 2022; therefore, BVES cannot describe these.

- 12. In its Reply Comments to Cal Advocates Comments on Bear Valley Electric Service, Inc. 2020 Wildfire Mitigation Plan, submitted on October 26, 2020, BVES stated, “BVES agrees to include its Radford Line re-energization inspection plan in its 2021 WMP update.” Cal Advocates was not able to locate this plan in the 2021 WMP update. Please provide the appropriate page numbers in the 2021 WMP update, or a copy of the Radford Line re-energization inspection plan.**

Response:

BVES unfortunately did not include the statement in its 2021 WMP Update. BVES does not have a formal written procedure for Radford Line re-energization. BVES has inspected the line by foot patrol every year prior to energization for at least the last 6 years.

BVES will update its operations procedures to specifically call out the foot patrol requirement prior to re-energization.