DATA REQUEST RESPONSE
Bear Valley Electric Service
BVES R.18-10-007

Response provided by:	Paul Marconi
Title:	Director, Bear Valley Electric Service
Data Request Number:	Data Request No. CalPA-BV-R1810007-002
Data Request Originator:	Shelby Chase
Date Received:	February 21, 2019
Date Due:	February 27, 2019
Date Provided:	February 27, 2019

Data Request No. CalPA-BV-R1810007-002. Received via email from Shelby Case (CalPA) on February 21, 2019: *Unless otherwise stated, all page and section references refer to BVES' 2019 Wildfire Mitigation Plan.*

1. **Does BVES propose any cost- or efficiency-based metrics to track or indicate progress on any of its proposed programs in the Wildfire Mitigation Plan (for example: cost per mile reconductored, person-hours per device installed, cost per tree removed, etc.)? If so, please provide. If not, please explain why.**

Response: At the time of this Data Request BVES has not developed any cost-based metrics to track or indicate progress on any of its proposed programs in the Wildfire Mitigation Plan (WMP). BVES does have metrics that measure the progress of programs. These are identified in the WMP, Table 6-1 Proposed Wildfire Prevention Plan Metrics. The specific metrics are identified below:

Metric	Rationale
Number of Tree Attachments Removed Annually	Determine if plan is on schedule
Length of Bare Wire Covered Annually	Determine if plan is on schedule
Number of conventional fuses replaced by current limiting fuses	Determine if plan is on schedule
Number of conventional fuses replaced by fused trip savers (vacuum style)	Determine if plan is on schedule

BVES has not developed specific cost based metrics because the WMP programs and projects will be tracked using standard project management techniques. Each project is

assigned a budget and weekly work progress meetings are conducted in order to assess expenses to date, and projected expenses relative to the budget.

2. **On page 21, 4.1.2.1 Fusing states:**

"BVES plans on replacing approximately 457 conventional fuses with electronic fuses and approximately 2,327 conventional fuses with ELF."

a. **What percentage of the total number of conventional fuses in BVES' service territory is being replaced?**

Response: 100% over a 2-year period per following table:

Year	Electronic Fuses	Current Limiting ELF
June 2019 to May 2020	230	1,163
June 2020 to May 2021	227	1,164

b. **Please explain the reasoning behind replacing only approximately 457 conventional fuses with electronic fuses, but approximately 2,327 conventional fuses with ELF.**

Response: BVES' strategy is to replace conventional fuses at branch lines with electronic fuses and to replace conventional fuses at transformers with ELF. The electronic fuses can be programed to limit the duration of a fault on the system (similar to a conventional fuse) thereby providing protection to the system. ELF fuses are current limiting (limit the magnitude of the fault current) and are best suited to be close to the equipment they are protecting, such as transformers.

457 conventional fuses represent the number of "Branch Line Fusing-Fuses" that BVES presently has in its overhead infrastructure. "Branch Line Fusing" roll out is to install "Tripsaver-2 Cutout Mounted Recloser" that limit any arcs, sparks or hot material sufficiently to prevent the ignition of flammable vegetation.

The noted 2,327 conventional fuses represent the number of fuses that are installed on overhead transformers in the BVES system to date.
Roll out plans to replace conventional fusing with "ELF-LR".
ELF-LR fuses meet the exemption requirements listed specifically in the California Code of regulations, Title 14, Section 1255 (10)

c. Will priority installation be given to assets in a Tier 3 HFTD over those in Tier 2 zones?

Response: Yes.

d. What are the determining factors of where electronic fuses will be placed compared to ELF.

Response: Please refer to BVES response to Question 2.b.

e. Why is BVES waiting until June 2019 to begin replacement of fuses?

Response: BVES is not waiting until June 2019 to commence this work. BVES has already installed some electronic fuses in its system and is in the process of procuring more electronic and ELF fuses in order to move ahead with this project.

f. **Please provide a chart showing, and explaining, the differences between conventional, electric, and ELF fuses.**

Response:

Fuse Type	Conventional Fuse	Electronic Fuse	ELF
Technical Description	Expulsion fuses in fuse holders vent either out the bottom of single-venting fuse holders, or out both the top and bottom of double-venting fuse holders. When clearing occurs,	TripSaver II is a single phase cutout mounted recloser used to eliminate unnecessary outages. It supports up to three reclosing operations before dropping from the cutout and each	ELF™ fuse is a full range, current-limiting dropout fuse with a self-contained design that eliminates noise and expulsive showers associated with expulsion fuse operation, making it

	exhaust gases, molten metal and fuse link fragments are expelled from the vent end of the fuse holder. This venting/clearing operation is also extremely loud. An expulsion fuse is not current limiting and, as a result, limits the duration of a fault on the electrical system, not the magnitude.	operation can be programmed to trip using a variety of time-current characteristic (TCC) curves with a configurable open interval between tripping operations. During a transient fault, the TripSaver II will open momentarily based on the TCC curve then reclose restoring power. During a permanent fault, the TripSaver II will go through its tripping sequence based on the TCC curves and drop open from the cutout on the last operation. However, if the mode selector lever is down with the hidden red label visible, the TripSaver II will be in non-reclose mode or "one shot to lockout". The purpose of this test is to prove the TripSaver II is designed to limit any such arcs, sparks or hot materials sufficiently to prevent the ignition of flammable vegetation.	suitable for use in areas where a high fire hazard exists. The ELF-LR fuse has been granted permanent exemption by the California Department of Forestry and Fire Protection (CAL FIRE) from pole clearance requirements when the fuse is installed in the field according to manufacturer's specifications. The ELF fuse is designed to be used to protect pole-type transformers, singlephase and three-phase laterals and underground taps. The full-range current-limiting rating ensures reliable operation of all over-loads and fault currents.

3. On page 33, Chapter 4.4 Situational & Conditional Awareness states:

"Weather Forecasting: BVES does not have a dedicated meteorologist on staff. Therefore, BVES relies on its Field Operations staff to interpret web-based weather feeds along with the raw data from its weather stations. Given BVES' small size, BVES does not consider it practical to hire fulltime meteorology staff. BVES believes it would be very beneficial to contract out for weekly part-time forecasting services tailored to BVES' service area and to have the ability to obtain analysis of weather data during, before, and after certain extreme weather events. BVES believes this would be achieved by sending the weather data to a local university or consulting meteorologist for detailed analyses on a weekly basis."

a. Does BVES have a list of sources they plan to contact to move forward with this proposal? If so, please provide the list of organizations. If not, please explain why this has not yet been addressed.

Response: BVES has been developing a list of sources to move forward with this proposal. The following is a preliminary list of sources and will be finalized by March 29, 2019 before BVES issues a request for proposal for weather forecasting consulting services:

- The Weather Company
- DTN
- National Weather Forecasting, LLC
- Precision Weather Service
- Schneider Electric
- Edwin X Berry & Associates
- Weather Consultants Incorporated
- Weathernews, Inc.
- Fox Weather
- Surface Systems, Inc.
- Bensweather

BVES' relatively small staff is engaged in many high priority efforts. In order to meet day-to-day customer needs, normal operations and maintenance, currently planned capital improvement projects, response to storms during this particularly active winter period, and devote adequate resources to this proceeding as well as several other concurrent high priority proceedings that include A.17-05-004 (General Rate Case), R.15-06-009, R.17-05-010, I17-06-027, R. 18-03-011, R-18-04-018, R18-07-005, R18-12-005, and R19-01-006, BVES must balance its limited resources. To properly balance commitments, BVES has projected the following timeline for the effort to engage a weather forecasting consultant:

Action	**Projected Target Completion Date**
Develop specific scope of work	3/22/2019
Develop list of bidders (sources)	3/27/2019
Issue RFP for Weather Forecasting Consulting Services	3/29/2019
Bids due to BVES	4/19/2019
Award Weather Forecasting Consulting Services Contract	5/10/2019

b. Has BVES been in contact with any of these sources yet? If so, please explain which organization and what has been negotiated so far. If not, please explain the circumstances BVES is waiting for.

Response: BVES has reached out to a local weather forecaster (Bensweather) and scheduled a meeting March 12, 2019 to begin discussions. BVES will reach out to potential sources and develop its final source list before issuing an RFP on March 29, 2019.

c. Has BVES talked with the National Weather Service or any other governmental or non-governmental organizations about the needs for more granular weather data? Please explain.

Response: BVES did reach out to NSW (NOAA San Diego) in the summer of 2018 regarding weather products. BVES intends to reach out to NWS and see if sharing data from its weather stations would result in better publically available weather forecasting services for the BVES service area.

4. On page 33, Chapter 4.4 Situational & Conditional Awareness states:

"Remote Monitoring (via Camera): BVES would also like to install cameras to monitor its system in remote areas that are difficult to patrol on foot, such as the Radford Area. BVES plans to issue a Request for Proposals (RFP) for cost and equipment-specification information to further analyze the feasibility and cost-effectiveness of installing HD cameras. BVES does not have the staffing resources to monitor such cameras continuously. Therefore, BVES will explore other monitoring options, such as partnering with San Bernardino County Office of Emergency Services (OES) before implementing this program."

a. Has BVES Response:? If not, please explain why not and when BVES expects to start this process, as well as how long it is expected to take.

Response: BVES has not started the process to issue an RFP for installing HD cameras. HD cameras require high bandwidth data transfer. BVES' service area is rural, mountainous and does not have data network owned by BVES or accessible to BVES. Therefore, before procuring and installing HD cameras, BVES must resolve the issue of transferring the video data stream to monitoring facilities.

BVES' relatively small staff is engaged in many high priority efforts, thus BVES must balance its limited resources. To properly balance commitments, BVES has projected the following timeline for the effort to evaluate the HD camera project:

Action	**Projected Target Completion Date**
Determine areas where HD cameras would provide benefit	6/14/2019
Source HD cameras	7/19/2019
Determine data network requirements	8/23/2019
Determine cost of data network and if network can be part of BVES' grid automation project	9/20/2019
Obtain lessons learned and best practices from other electric utilities that have proceeded with HD cameras	9/20/2019
Develop monitoring plan	9/20/2019
Develop preliminary scope of work	10/18/2019
Develop preliminary project costs	11/22/2019
Include project in next WMP if determined to be viable	1/17/2019

b. What other monitoring options have been considered?

Response: BVES intends to discuss monitoring opportunities with San Bernardino County Office of Emergency Services (OES), U.S. Forestry Service, and the Fire Department. BVES also intended to explore automated monitoring systems that, for example, might detect flare ups on the video stream.

c. What will be the deciding factors as to if this program will be implemented?

Response: Several factors will be used to determine if the project will be implemented. Some are:

- Feasibility of installing the HD cameras in locations that provide benefit to wildfire mitigation.
- Feasibility to collecting HD camera data in real time within BVES' service area, which is rural and mountainous.
- Feasibility of installing a data network and/or leveraging other potential data networks.
- Ability to effectively monitor the HD cameras.
- Lessons learned from other utilities that have installed HD cameras in their system.
- Cost benefit evaluation.

5. On page 33, *Chapter 4.4 Situational & Conditional Awareness* states:

"Grid Automation: In the coming years, BVES plans to continue to implement grid automation into its system. Grid automation would enhance operational efficiency, safety, and wildfire prevention tactics by allowing remote monitoring and fault detection in real-time."

a. Please explain what is meant by "grid automation."

Response: BVES Grid Automation project is described in BVES General Rate Case Application (A. 17-05-004), Volume 2, Direct Testimony, Results of Operations, Chapter 9, Part B. The Grid Automation project is a 4-year project that is designed to fully automate and integrate BVES grid into SCADA in order to allow remote real-time monitoring and control. Project elements consist of installing service area network, substation automation, remote fault indicators, and remote switching equipment. The project involves the following elements:

- Service Area Network: Installing a robust and secure Internet Protocol (IP) network throughout the BVES service area and implementing a comprehensive Supervisory Control and Data Acquisition (SCADA) to

provide remote real-time monitoring and control of distribution system devices and instruments;

- Substation Automation: Includes installing SCADA enabled control equipment, enhancing telemetry, and creating the capability to collect and modify relay settings and operate circuit breakers remotely;
- Remote Fault Indicators: Provide dual benefits of remotely providing two-way power flow data and remote indication of system failure locations, resulting in decreased time to respond to abnormal conditions. The new remote fault indicators will monitor current along the distribution line and remotely communicate this information to the SCADA system used by operators. This is especially important for locating faults along underground lines; and
- Remote Switching Equipment: Vastly increase the flexibility available to grid operators to maintain grid reliability and in many cases introduces "self-healing" architecture to system faults.

The project will automate and integrate the BVES distribution system (34.4 kV and 4.16 kV) into a SCADA environment and provide remote real-time monitoring and control of the distribution system.

b. How does BVES plan to implement grid automation into its system?

Response: The Grid Automation project will be completed in 4 phases over 4 years (2019 through 2022). In the first year, the project will establish a robust and secure IP communications network across the distribution system to fully enable monitoring and control of critical equipment at the substations and critical switches throughout the distribution system. Critical switches at substations and throughout the distribution system will be automated and connected to SCADA in a phased and prioritized approach.

c. When will the grid automation process begin?

Response: BVES has already begun phase 1 of the Grid Automation project and is on track to complete phase 1 of this project.

6. **On page 37, 4.5.1 Public Safety Power Shut-Off (PSPS) or De-Energization states:**

   "When de-energization is deemed necessary, BVES crews will manually shut off at risk circuits, lines, and other infrastructure. In the future, as it implements SCADA and other technologies, BVES will consider remote shut-off implementation, where cost-effective."

   a. **Has BVES considered the procedures for circumstances when a wildfire has already been ignited but it has been judged as critical to shut-off power in other locations? Please outline the steps BVES will take to ensure worker and public safety to maintain safe conditions.**

      Response: Yes. Section 4.3.1 of the BVES' WMP provides a detailed description of its PSPS procedures and the areas that are most like to be affected (see Figure 4-2 of WMP). BVES has coordinated with local government and agencies on its PSPS program and it is not likely that any traffic lights or critical infrastructure would be impacted by the likely areas that would be subject to possible PSPS. BVES would carefully coordinate with the Incident Commander (IC) and determine what resources (for example, which circuits should be energized/de-energized, crew support, power sources, etc.) the IC requires to effectively conduct his/her mission. BVES would have a representative embedded with the IC and would order employee evacuations when it is deemed appropriate. BVES has already identified which employees are considered critical. Non-critical employees are to evacuate per directives by the applicable authorities. Critical employees are to be deployed as needed by the IC.

   b. **Please provide a copy of BVES's policy on disabling automatic reclosers. If BVES does not have such a policy, please explain why not. If BVES does not have automatic reclosers, please state so.**

      Response: Section 4.3.1 of the BVES WMP provides a detailed description of its policy on disabling automatic reclosers.

7. **On page 53, 6.2 Description of Metrics states:**

"Upon plan approval, BVES will create targets for each of the metrics."

Please prepare and provide an end-of-year target of what BVES will use to evaluate their success in mitigating wildfire risk for each activity BVES has proposed. Is it possible for BVES to incorporate targets into its final plan so that it can be effectively examined for prudency and compliance?

Response: The following table provides preliminary end-of-plan targets where applicable to have a target:

Metric Category	Metric	Rationale	End of Plan Target
Overall Plan	Number of utility caused fires	Assess overall electiveness of the plan	0
Infrastructure	Number of bare line contact with vegetation	Assess if plan has reduced risk events	<10
	Number of live wire down events	Assess if plan has reduced risk events	<2
	Number of conventional blown fuse events	Assess if plan has reduced risk events	<20
	Number of poles failing assessment replaced or remediated	Determine if plan is on schedule	180
	Number of Tree Attachments Removed Annually	Determine if plan is on schedule	150
	Length of Bare Wire Covered Annually	Determine if plan is on schedule	3 circuit miles
	Number of conventional fuses replaced by current limiting fuses	Determine if plan is on schedule	1,000
	Number of conventional fuses replaced by fused trip savers (vacuum style)	Determine if plan is on schedule	200
Operations	Average Time for Clearance Permissions from Local Agencies	Assess mitigation plan constraints and timelines	NA

Customer Service	Number of Customer Service Calls about Tree Trimming	Assess if communications plan has reduced customer concerns and risk events	<30
	SAIDI due to PSPS	Assess outage impact on customers as a result of PSPS	NA
Weather Conditions	Number of NFDRS “Very Dry” and “Dry” Days	Monitor changing climatic and weather patterns	NA
PSPS	Number of PSPS Events	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	NA
	Maximum recorded sustained winds and wind gusts	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	NA
	Frequency of high sustained high winds and wind gusts	Monitor the need for PSPS events over time as an indicator of changing climatic and weather patterns	NA