



# 2021 PSPS Readiness Brief to the Public and California Public Utilities Commission



*August 4, 2021*



**Service Area & System Overview**

**Public Education & Outreach Improvements**

**Grid Hardening Improvements**

**Mitigation of Impacts on AFN/Vulnerable Individuals**

**Support to Vulnerable Customers**

**PSPS Decision Making Framework/Process**

**Vegetation Threats**

**Community Resource Centers**

**Working Group Feedback/Survey Results**



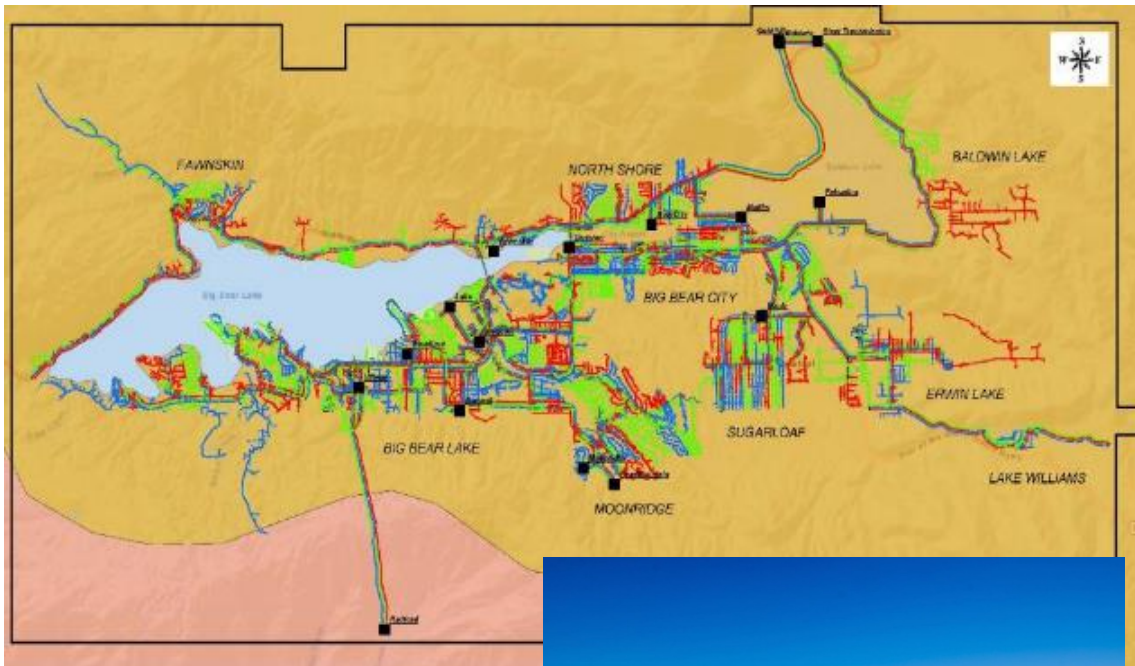


# Service Area Overview

**Location:** 32 square miles of rural and mountainous terrain at approximately 7,000 ft. in San Bernardino Mountains (80 miles East of Los Angeles). Heavy tree and vegetation density and mostly dry environment (80.5%)

**Key jurisdictions:** County of San Bernardino, City of Big Bear Lake, US Forest Service

**Customers:** 24,604 total [23,091 residential and 1,513 commercial] CARE: 2,003; Medical Device: 234; AFN: 14



- **As of July 28, 2021 BVES has been accident and injury free for 798 days.**
- **No employee contact with High Voltage systems in over 5 years.**
- **No ignitions in over 10 years.**
- **No COVID-19 workplace outbreaks.**
- **No PSPS invoked (necessary) ever.**

# System Overview

- **Electrical System:**

- *Sub-transmission (34.5 kV)*

- 23.0 circuit miles bare overhead conductor
- 5.9 circuit miles covered overhead conductor
- 0.9 circuit miles underground

- *Distribution (4 kV)*

- 174.8 circuit miles bare overhead conductor
- 6.9 circuit miles covered overhead conductor
- 53.2 circuit miles underground

- Substations: 13

- Bear Valley Power Plant: 8.4 MW

- 446 NEM customers: 3.39 MW

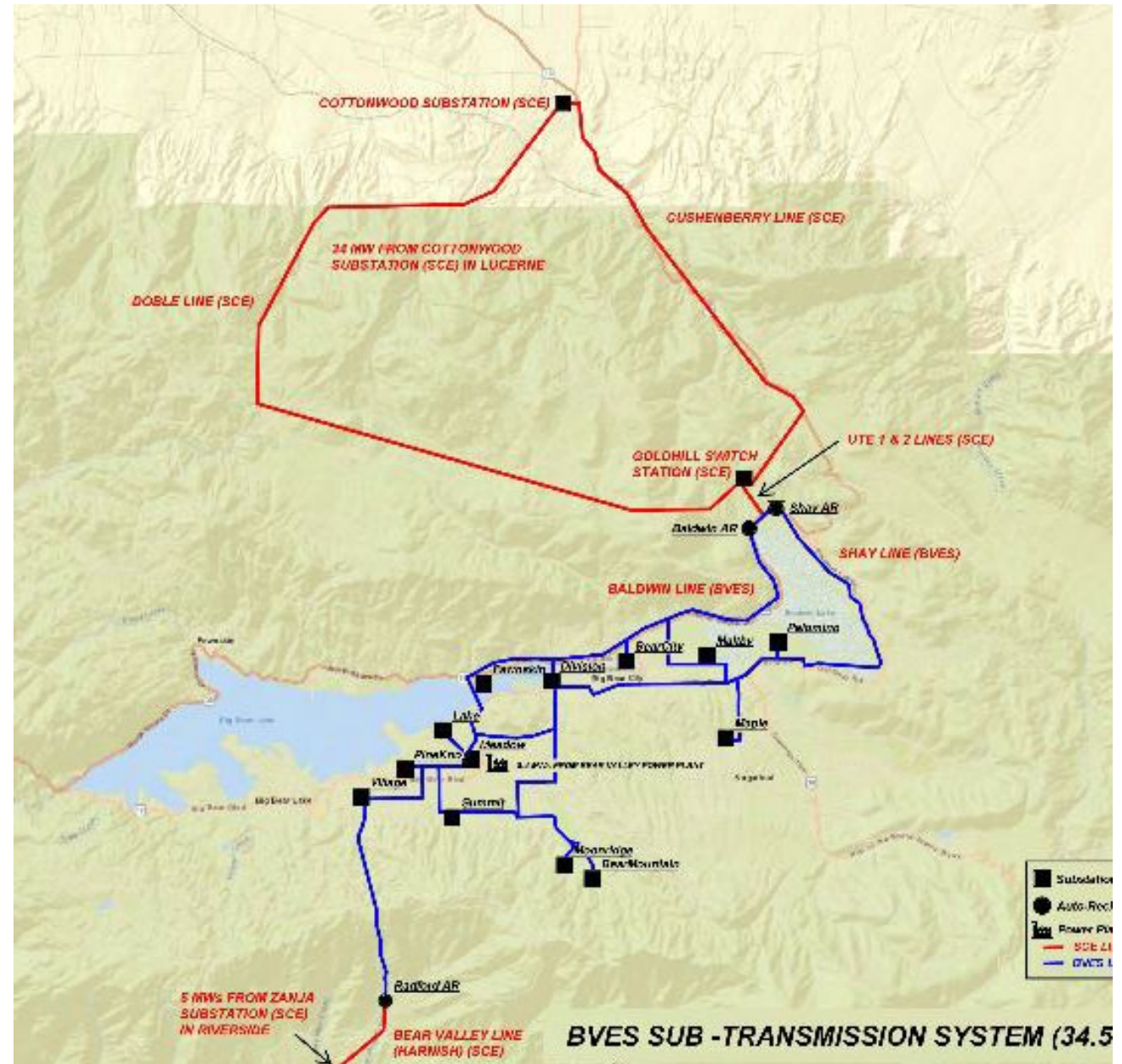
- 21 DG customers: 0.13 MW

- Southern California Edison Supply Lines: 39 MW total

- Load delivered (2020): 133,269 MWh (33% RPS)

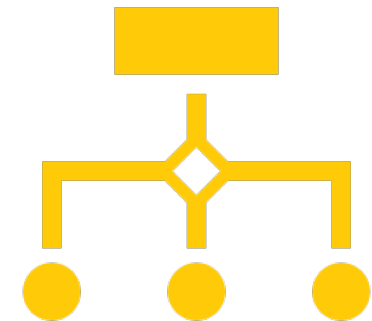
- Load is winter & evening peaking

- Historical peak: 47 MW (2018)



# Public Education and Outreach Improvements

- All critical PSPS information and notifications will continue to be made available in both English and Spanish on the following platforms:
  - Social Media | Website | Radio & Newspaper Advertisements | E-mail | Print
- Working on providing real time updates in other languages (Tagalog, Vietnamese, Chinese, French, Mixteco and Zapoteco)
- Recently implemented **two-way emergency text communications and IVR** for emergency notifications including PSPS warnings and events.
- Actions to further improve communications and outreach:
  - Working with the County and City to develop a shared list of access and functional needs persons.
  - Updating & distributing critical customer list to Field Operations bi-weekly.
  - Updating critical care/medical baseline customer's email addresses.
  - Mailing information in multiple languages with details of BVES's WMP and PSPS plans.
  - Following PSPS proceedings and preparations taken by other utilities.



# Lessons Learned/Past Failings

- BVES has not executed a PSPS event ever.
- Lessons learned derived from:
  - Two PSPS drills (June 2020 and June 2021).
  - Following PSPS proceedings.
  - Following PSPS related briefs and workshops.
  - Public surveys.
  - Feedback and community & stakeholder meetings.
- Lessons learned included in BVES PSPS Policy and Procedures Manual updates.



# Notification to Telecommunications Providers

- Continually updating points of contacts for key stakeholders including telecommunications companies.
- Scheduling a specific PSPS brief for telecommunications companies in August/September 2021.

Company	Primary POC	Secondary POC	Tertiary POC
Verizon	Annette Ohgren – 909-201-1897 <a href="mailto:annette.ohgren@verizonwireless.com">annette.ohgren@verizonwireless.com</a>	Marco Murrillo – 949-286-8776 e-mail: <a href="mailto:Lynn.Prescott@cableeeng.com">Lynn.Prescott@cableeeng.com</a>	Pedro Luis Carmona Store Manager Big Bear City 909-366-5115
Frontier	Bret Plaskey (909) 748-7880 <a href="mailto:bret.p.plaskey@ftr.com">bret.p.plaskey@ftr.com</a>	Glenn Leckie 714-375-0415 <a href="mailto:Glenn.leckie@ftr.com">Glenn.leckie@ftr.com</a>	Bin Liang 951-723-0736 <a href="mailto:bin.liang@ftr.com">bin.liang@ftr.com</a>
Spectrum	Edgar Loza 760-596-4374	Rey Lopez <a href="mailto:Rey.Lopez@Charter.com">Rey.Lopez@Charter.com</a>	Yesenia Delgado (951) 406-1695 <a href="mailto:Yesenia.Delgado@Charter.com">Yesenia.Delgado@Charter.com</a>
AT&T	Kevin Quinn 818-731-4000 <a href="mailto:kq8185@att.com">kq8185@att.com</a>	Doug Burchett 805-320-0088 <a href="mailto:DB1806@att.com">DB1806@att.com</a>	Agnes Luster 619-610-8641 <a href="mailto:AT2563@att.com">AT2563@att.com</a>

# Engagement & Coordination with Local Tribes, County, & City

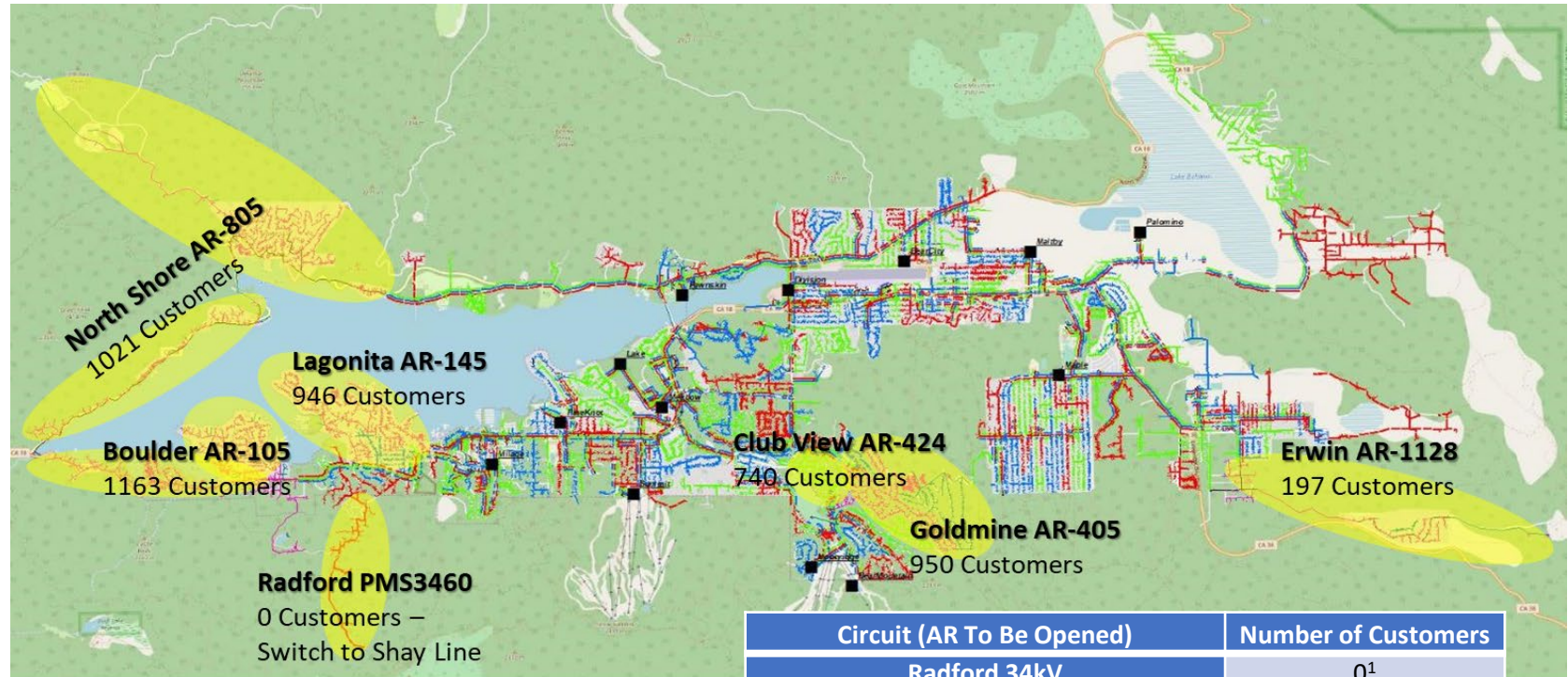
- Stakeholders:
  - BVES does not have any tribal entities in its service area.
  - Main stakeholders are San Bernardino County, City of Big Bear Lake, & U.S. Forest Service.
- Annual PSPS meetings for stakeholders conducted in June 2021.
  - Outreach and coordination with local government and stakeholders is conducted within guidance for pandemic.
  - Additional session planned for August/September 2021.
- Notification channels, plans, POCs identified, processes tested.
- Communications protocols in place to work closely with communications providers and other state agencies to ensure they have the most up to date information as early as possible.
- Briefed City of Big Bear Lake City Council and District County Supervisor representative.
- Closely working with Mountain Mutual Aid Association.
- Establishing Fire Safe Big Bear council.





# PSPS Mapping Improvements

- Customer premises tracked in Customer Care & Billing and GIS.
- Now have ability to identify specific customers impacted by PSPS and to contact them.
  - IVR messaging.
  - Text message.



Circuit (AR To Be Opened)	Number of Customers
Radford 34kV	0 <sup>1</sup>
North Shore 4kV (Open AR) 805)	1,021
Erwin 4 kV (Open AR 1128)	197
Boulder 4kV (Open AR 105)	1,063
Lagonita 4kV (Open AR 145)	946
Club View 4kV (Open AR 424)	740
Goldmine 4kV (Open AR 405)	950

# Grid Hardening Improvements - Accomplished

## Mitigation measures accomplished to reduce need, scope, and/or impact of PSPS:

**34.5 kV Supply Line Re-closers:** All have been changed out to Pulse Conditioned IntelliRupters. (Completed in 2019)

**Sectionalized System:** PSPS high risk areas sectionalized from rest of BVES system. (Completed in 2019)

**Weather Stations:** Installed 20 weather stations throughout service area – highest density of weather stations per square mile.

**ALERTWildfire HD Cameras:** Installed to provide 100% coverage service area.

**Conventional (expulsion) fuses:** Completely eliminated from system (3,114).

**Enhanced Vegetation Management (EVM):** Implemented EVM program that invokes higher clearance standards, addresses fast growing species, and reduces overstrike risk.

**LiDAR:** Implemented annual Light Detection and Ranging (LiDAR) survey of system to identify areas where additional vegetation clearing is necessary.

**3<sup>rd</sup> Party Ground Patrol:** Implemented an annual 3<sup>rd</sup> party ground patrol of the overhead system. This is in addition to the annual GO-165 ground patrol conducted by BVES staff.

# Grid Hardening Improvements – In Progress

## Mitigation measures in progress to reduce need, scope, and/or impact of PSPS:

**Covered Wire Program:** Replaces bare wire with covered wire (4.3 circuit miles on 34 kV & 8.6 circuit miles 4 kV systems per year).

**Radford Line Replacement Project:** Replaces 34 kV line & poles with covered wire & fire resistant poles in HFTD Tier 3 area.

**Pole Loading Assessment & Remediation Program:** Assess approximately 8,000 poles and replaces/remediates deficient poles.

**Tree Attachment Removal Program:** Removes approximately 1,200 tree attachments.

**Grid Automation Project:** Installs fiber network in service area, implements SCADA software and automates substations and field switches.

**FLISR Project:** Installs 9 Fault Localization Isolation System Restoration devices on 34 kV system.

**Power Plant Upgrade Project:** Upgrades engine controls & catalyst and performs mechanical overhaul.

**UAV Surveys:** Implementing program to conduct annual UAV HD imaging and thermography inspections of system facilities.

**Solar Generation & Battery Storage Project (Planning):** 4-5 MWs generation with 4 MW/12 MWh battery.



# Mitigation of Impacts on AFN/Vulnerable Individuals

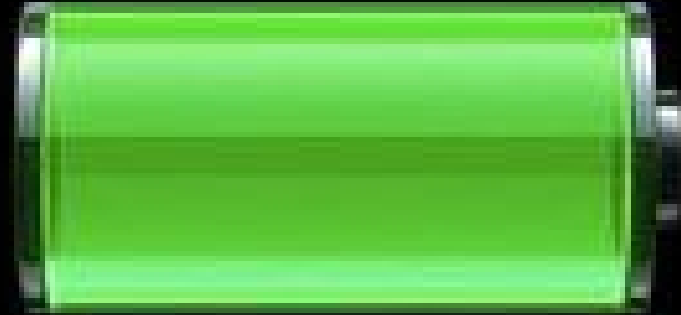
- BVES has 234 medical baseline customers and 14 AFN customers (two of these customers are also on Life-Support)
  - Maintains a list and contact information of any customers that are on our Medical Baseline Program or AFN (including beyond the meter customers).
  - BVES has the ability contact customers by IVR (Interactive Voice Response) call, text messages, door hangers.
- Proactive action to identify AFN:
  - All new customers queried about medical baseline and AFN.
  - All customer calls include medical baseline and AFN inquiry.
  - Mailer sent to all customers regarding AFN.
  - Comprehensive advertising campaign.
- Coordination with CBOs
- BVES is developing an annual AFN plan in accordance with Phase III requirements.



# Support to Vulnerable Customers

---

- Collaboration with County, City, Sheriff Department, and Fire Department.
  - Fire Department/Sheriff work with BVES to assist vulnerable customers.
- Mountain Mutual Aid Association to provide for transportation, shelter, and other services.
- Coordination with area CBOs.
- Community Resource Center.
- Portable batteries available to deploy for medical devices.



# Decision-making Criteria & Modeling

Criteria based on many factors including system design limits, system condition, fuel availability, and likelihood of wildfire spread.

BVES risk models are at the circuit level. In process of developing ignition probability model to better localize wildfire risk at various points along circuits. Model to be operational by the end of 2021.

BVES would invoke PSPS if actual sustained wind or 3-second wind gusts exceed 55 mph and conditions are High Risk for wildfire threat.

**PSPS is measure of last resort  
in a progression of  
operational actions.  
Gain must outweigh cost.**

BVES did not have any PSPS events in 2019 or 2020.

Based on analysis of weather in last 5 years BVES has not met criteria to invoke PSPS.

Highest Daily Wind Gust on High Risk Days						
Wind Gusts	2015	2016	2017	2018	2019	2020
>55	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0
40 to 49	1	0	0	0	1	1
30 to 39	7	7	5	6	1	5
20 to 29	43	78	39	64	27	65
<20	56	66	74	59	58	90

Highest Daily Sustained Wind on High Risk Days						
Wind Gusts	2015	2016	2017	2018	2019	2020
>55	0	0	0	0	0	0
50 to 54	0	0	0	0	0	0
40 to 49	0	0	0	0	0	0
30 to 39	0	0	0	0	0	0
20 to 29	7	2	6	5	3	7
<20	100	149	112	124	84	154



# Vegetation Threats

- Wildfires are now a year-round threat for California communities like Big Bear, which is designated a 'High-Fire Threat District.' Mitigating the threat of vegetation threats remains a top priority for BVES and safety precautions are taken daily throughout the service area.

Enhanced Vegetation Management Impact.	
Year	Vegetation Contacting Lines
2021 <sup>1</sup>	0
2020 <sup>2</sup>	5
2019	5
2018 <sup>3</sup>	9
2017	16
2016	47

<sup>1</sup>As of June 30, 2021.

<sup>2</sup>EVM fully implemented.

<sup>3</sup>Started to Implement EVM.

Number of Trees of Concern	13,412
Number of trees removed due to strike risk	334
Status of tree trimming program	On track (in 3rd year of its 3 year cycle).

Trees of Concern By Species		
Species	Number	Percent
Pine	8,354	62.3%
Oak	1,795	13.4%
Cedar	1,383	10.3%
Juniper	576	4.3%
Poplar	480	3.6%
Other	824	6.1%

Wind Speed	Outage Damage from Flying Debris, Tree Limb Failures, Fall-in Trees in 2020
20-39 mph	1 (Low risk of fire due to snow storm.)
≥40 mph	None.

# Community Resource Center

## Planned locations and number of standing contracts

BVES has one CRC Located at its Main Facility at: 42020 Garstin Dr., Big Bear Lake, CA 92315

## Services provided

Water | Chairs | PSPS information  
Representatives | Restrooms | Small first aid kits  
Nonperishable Food | EZ up tents for shade  
Generators for power | Portable Batteries |  
Internet and Phone Access

## Coordination and Identification

Due to having a relatively small service area (approximately 10 miles end-to-end) and a small staff, BVES opted to locate a CRC at its headquarters, allowing greater use of shared responsibility and resources. First responders, CBOs, local utilities, and critical contacts have been informed that the CRC will be made available during an emergency/PSPS event.

CRC is mobile so it can be relocated in the event access to the Main Facility is not available.

# Working Group feedback – MDC Research



Continue to promote BVES's efforts to reduce the risk of wildfire, focusing especially on systems hardening, including inspections, covered conductors, wood pole alternatives, additional control devices, and weather monitoring points

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

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

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

In order to increase awareness of whether customers live/work in a PSPS area, consider adding a link to the PSPS map to the homepage and the wildfire mitigation page (in addition to the PSPS page) on the BVES website for wider access



Questions?



*Powering The Mountain Since 1929*