



Bear Valley
Electric Service, Inc.
A Subsidiary of American States Water Company

Interagency Public Briefing on Safety Culture & Public Safety Power Shutoffs (PSPS)

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Outline



Bear Valley
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- **System Overview**
- **Grid Safety: Risk, Technology & Repairs**
 - Risk Model Update
 - Grid Hardening Progress Update
 - New Safety Technologies
 - Inspections – Assets and Vegetation
- **Safety Culture & Governance**
- **Public Safety Power Shutoff (PSPS)**
 - Overview Comparison of Prior Year Performance and Execution of PSPS in 2025
 - Pre-Season Planning & Preparations for 2026
 - Overview of Lessons Learned in 2025



Service Area Overview

Location: 32-sq. miles of rural and mountainous terrain at approximately 7,000 ft. in San Bernardino Mountains (80 miles East of Los Angeles).

- Entire Service Area is > 3,000 ft. elevation requiring more resilient construction standards.
- Entire Service Area is in the High Fire Threat District Tier 2 and Tier 3

Key jurisdictions: County of San Bernardino, City of Big Bear Lake, U.S. Forest Service, CALTRANS.

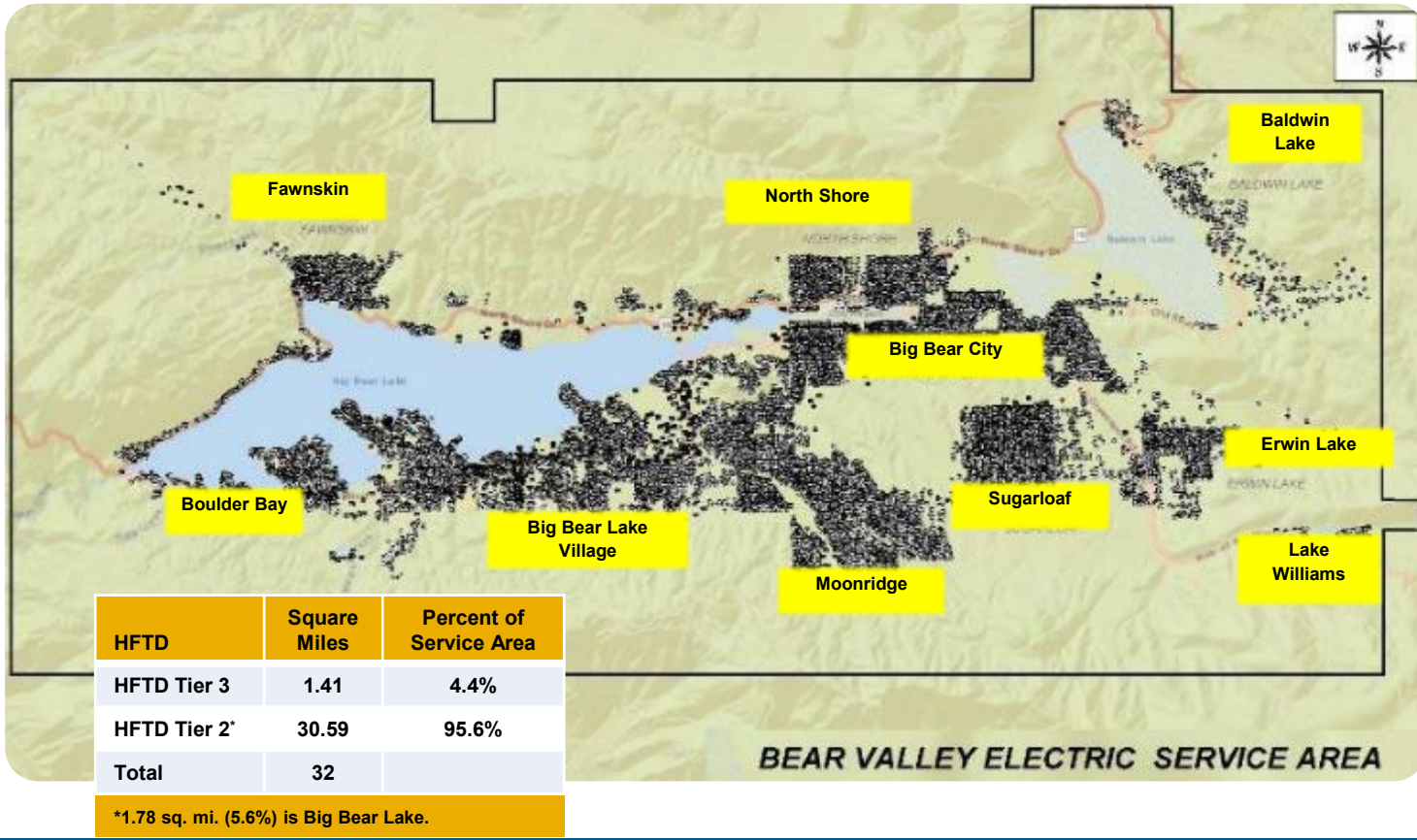
Customer Meters: 24,813 total (Residential: 23,324; Commercial: 1,489; CARE: 1,648; AFN: 1,548; MBL: 217).

As of August 5, 2026, BVES's safety record:

- **No employee fatalities in over 20 years.**
- **No ignitions in over 20 years.**
- **No wildfires ever.**

Electrical System:

- Sub-transmission (34.5 kV)
 - 28.0 circuit miles covered OH conductor (88.9%)
 - 3.5 circuit miles underground (UG) (11.1%)
 - **No bare conductors in sub-transmission system**
- Substations: 14
- Supply Lines: 39 MW total
- Bear Valley Power Plant: 8.4 MW
- Service Area Renewable Generation: 7.15 MW
- Distribution (4 kV)
 - 121.3 circuit miles bare OH conductor (51.7%)
 - 54.7 circuit miles covered OH conductor (23.3%)
 - 58.7 circuit miles UG (25.0%)
- Load is winter & evening peaking
 - Peak load: 44 MW (2021)
 - Load delivered:137,226 MWh (2025)
 - 49.0% Renewable Portfolio Standards





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Grid Safety: Risk, Technology & Repairs

Risk Model Update

New Model Development and Progress

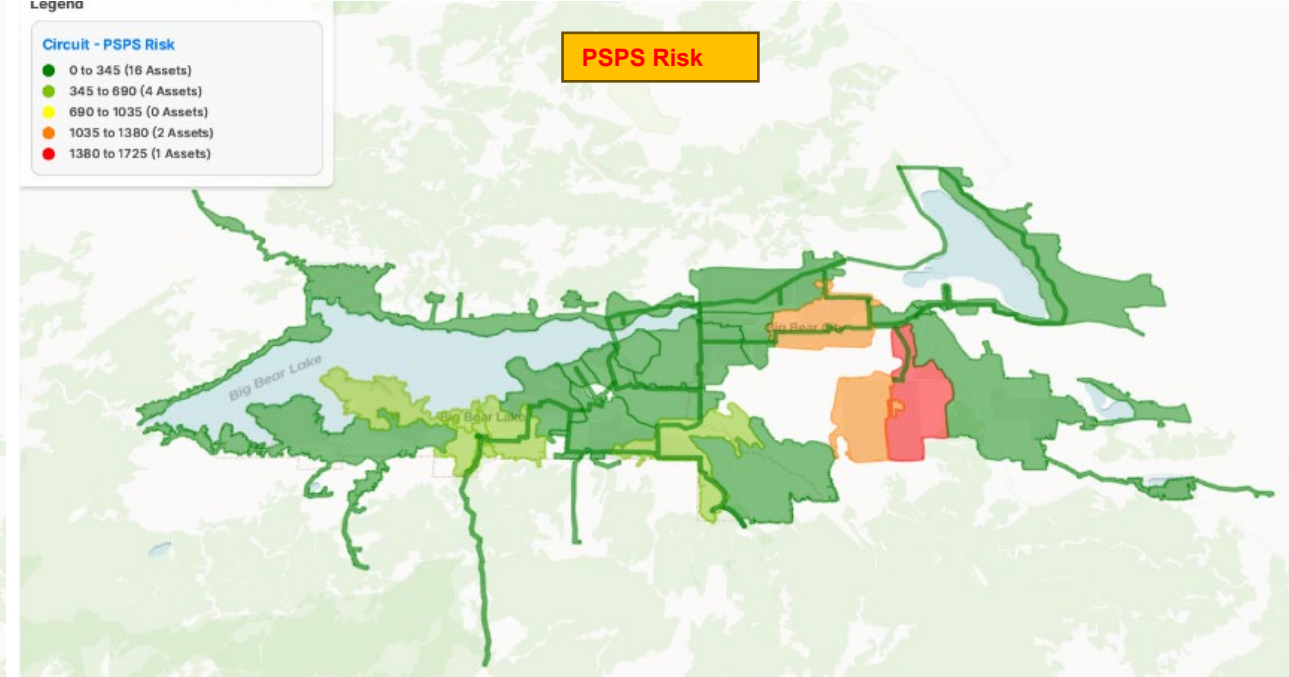
- BVES has continued to engage with its contractor (Direxyon) to **finalize an integrated risk model** to calculate **utility risk**, which includes both wildfire risk (wildfire likelihood and wildfire consequence) and outage program risk (PSPS risk and PEDS risk).
 - Finalizing **process** that allows combining risk components by utilizing like units for each risk component, which will enable **calculating utility risk**.
 - Have begun the process of **verification and validation** of the new model, at which point it will be ready for use (estimate Q4 2026).
 - The new risk model will improve BVES's ability to **generate risk tables**, including by circuit and initiative.

New Model Enhancements

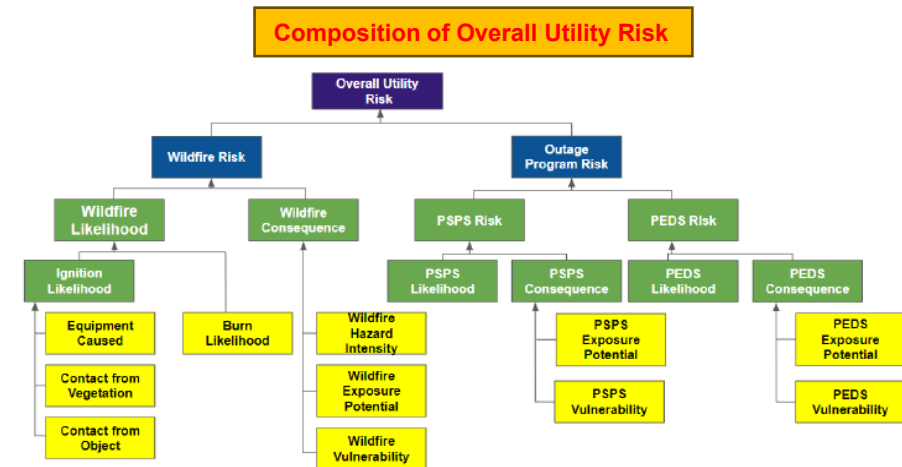
- The new risk model differs from previous risk models in that its **output is in unitized values**, rather than dimensionless numbers as was the case of previous models.
- Combined with continual system wildfire hardening updates and updates to fuel components, which are incorporated in the new model, BVES is expecting some differences in model output.
 - Each difference will be evaluated and action will be implemented as applicable.
 - Preliminary model results, indicate that in general, **risk rankings remain similar** between models, which we would expect.



Risk Model Update - Sample Risk Maps



- Risk maps above provide sample preliminary model results.

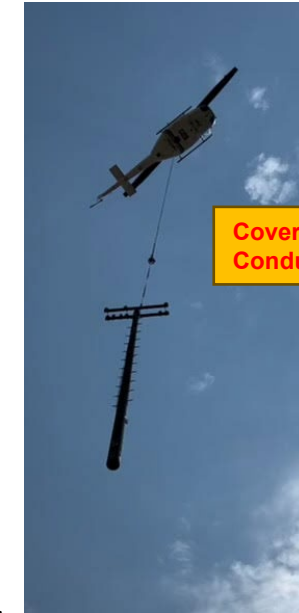


Grid Safety – Hardening Implementation Progress



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- **Covered Conductors Project:** Replaced 28.0 circuit miles of 34.5 kV bare conductors with covered conductors. Overall, 34.5 kV system is 88.9% covered conductors, and 11.1% underground. Replaced 54.7 circuit miles of 4 kV bare conductors with covered conductors. Overall, 4 kV system is 51.7% of bare conductors, 23.3% covered conductors, and 25.0% underground. **BVES no longer has any facilities with bare conductors in the HFTD Tier 3 area.**
- **Pole Loading & Assessment:** Assessed 4,961 poles and replaced or remediated 2,509 poles. Project is now combined with Covered Conductors Project due to synergy of the work.
- **Evacuation Route Hardening Project:** All primary evacuation routes have been hardened. BVES is now focused on secondary routes. Installed 4,375 wire mesh wrap on wood poles and replaced 760 wood poles with 479 LWS poles, 208 fire resistant composite poles, and 73 ductile iron poles. 5,135 poles (61.3%% of poles) have been hardened for evacuation route purpose.
- **Tree Attachment Removal Project (removes 100 per year):** Overall removed 1,034 tree attachments since 2018. 173 tree attachments remain in the distribution system and are programmed for removal by 2028.
- **Switch and Field Device Automation:** Connects and automates field switches to the SCADA network. To date 39 switches have been connected to SCADA.
- **Capacitor Bank Upgrade Project:** Replaces 24 capacitor banks with automated capacitor banks connected to SCADA network over 4 years. To date 18 capacitor banks have been installed and connected to SCADA. Project to be completed by end of 2026.
- **Fuse TripSaver Automation:** Connects and automates Fuse TripSaver devices (electronic fuses) to SCADA network. To date 116 Fuse TripSavers have been connected to SCADA.
- **Install Fault Indicators:** This project installs fault indicators (FIs) in the distribution system and connects them to SCADA. To date 134 FIs have been installed and 45 of the FIs have been connected to SCADA.
- **Substation Upgrade Projects:** Completed updates to Pineknot Substation (2020), Palomino Substation (2021), and Maltby Substation (2025). Additionally, in 2025, Snow Summit Substation was replaced and a new substation, Ridge Substation, was commissioned both as customer financed projects. Lake Substation upgrades are in progress.
- **Public Resources Code 4292 non-exempt equipment:** All non-exempt arrestors will be out by 2026.



Covered
Conductors



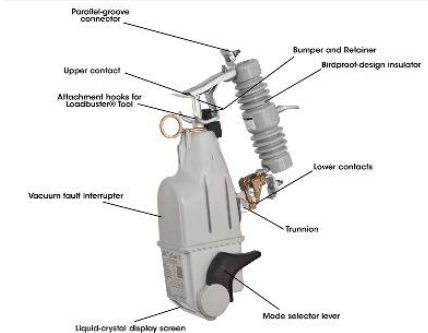
Grid Safety – Hardening Implementation Progress Completed Projects

- **Radford Line Replacement Project:** Installed 2.84 circuit miles of covered conductors on 72 fire resistant poles installed in HFTD Tier 3.
- **Substation Automation:** Connected and automated 9 substations to SCADA network.
- **Expulsion Fuse Replacement Project:** Replaced all expulsion fuses (a total of 3,114) with 2,578 current limiting fuses and 536 electronic fuses. There are no expulsion fuses in system.
- **FLISR:** Installed 10 IntelliRupter Switches on sub-transmission system loop to establish a Fault Localization Isolation and Service Restoration (FLISR) self-healing system.
- **Grid Automation Project (Network):** Installed fiber optic network throughout service area (mimics sub-transmission system) and fully automated three substations.
- **Weather Stations:** Installed 20 weather stations providing continuous complete and overlapping weather monitoring and weather data recording in a historian with outputs available to BVES staff, BVES's weather consultant, Technosylva's WFA-E models, and to open-source forecasting (NOAA).
- **ALERTCalifornia Cameras:** Installed 15 Cameras in 7 locations in the ALERTCalifornia High-Definition Camera system providing complete and overlapping coverage of the entire BVES service area and surrounding boundary areas.

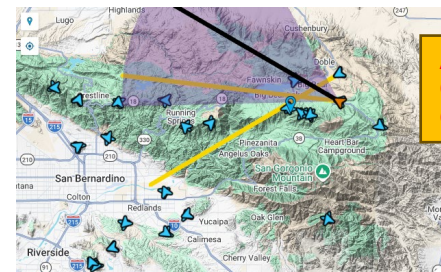
Conventional (Expulsion) Fuse



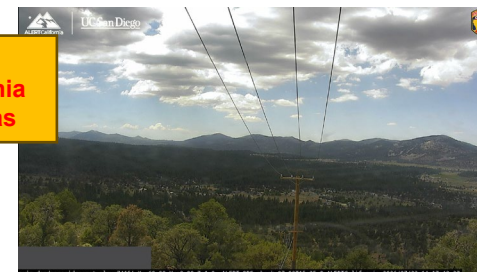
Electronic Fuse (S&C TripSaver II)



Current Limiting Fuse (ELF)



**ALERT
California
Cameras**



New Safety Technologies

Enhanced Power Line Safety Settings

- BVES's Enhanced Powerline Safety Settings (EPSS) program (also referred to as Protective Equipment and Device Settings (PEDS)) is designed to implement protective settings on designated circuits to detect hazards on powerlines and shut off power quickly to reduce the likelihood of an ignition developing.
- There are 34 devices that have been selected to be in the EPSS program. 8 devices already have EPSS implemented. The remaining 26 devices will have EPSS implemented by end of 2026 (17 devices by end of Q3 and 9 devices by end of Q4).
- Due to significant variance in winter and summer loading, two sets of EPSS settings are designated for each device in the program.
 - **Summer Settings:** Device will be set to non-reclosing and to trip within 6 cycles (0.1 seconds) of a fault detection. The phase and ground trip current values shall be set to 125% of the maximum 3-year historic current peak average through the device during standard operational conditions. The 3-year historic current peak average will be determined based on the period of April 1 to October 31.
 - **Winter Settings:** Device will be set to non-reclosing and to trip within 6 cycles (0.1 seconds) of a fault detection. The phase and ground trip current values shall be set to 125% of the maximum 3-year historic current peak average through the device during standard operational conditions. The 3-year historic current peak average will be determined based on the period of November 1 to March 31.
 - BVES has implemented a process that triggers re-evaluating the maximum 3-year historic current peak average for summer and winter settings.
- EPSS is implemented on devices designated for the EPSS program when the following conditions exist:
 - Fire Potential Index Composite (FPIC) is Elevated or higher, and
 - Fire Potential Wind Index (FPWI) is Elevated or higher.
- BVES Radford Line device protective settings are coordinated with Southern California Edison's Zanja Substation protective settings.

Value of EPSS: Other utilities that have implemented EPSS, report that in high fire-risk areas, EPSS technology decreases ignitions by up to 65%. Following a trip ground crews are required to manually inspect de-energized lines before restoring power.

New Safety Technologies

Robotically-deployed Lightweight Insulation

- BVES has been in contact with a company (Witching Hour) that is developing a cutting-edge robotic system, which has the potential to both reduce the costs and accelerate ignition risk reduction.
- Technology utilizes robotically-deployed lightweight insulation onto existing energized bare conductors.
 - The robot is deployed on the powerline by a line crew using a hot stick.
 - Then the robot travels along the power line several times to clean the line and then deploy insulating coatings and protective layers on the power line.
 - While traditional covered conductors typically increase conductor weight by 50%, Witching Hour's insulation is projected to increase a pole's loading by only 5%.
 - Not only would this process cost-effectively insulate the wires, but it would also dramatically reduce the number of poles that would need replacement or reinforcement.
 - An additional benefit of this technology is that the insulation can also be installed on conductors without powering off lines or closing roads, meaning less service disruption for customers.
 - Robotic installation of insulation on power lines is particularly well-suited for #4 and #6 copper distribution power lines in remote, mountainous areas where accessing and servicing of power lines is especially costly and time-consuming.
 - Preliminary cost estimates indicate this cutting-edge technology could substantially reduce capital costs per circuit mile of covered conductor wire by as much as 80 percent.
 - BVES is conducting a pilot project to deploy on 1 circuit mile of 4,160 V #4 and #6 copper distribution powerlines.

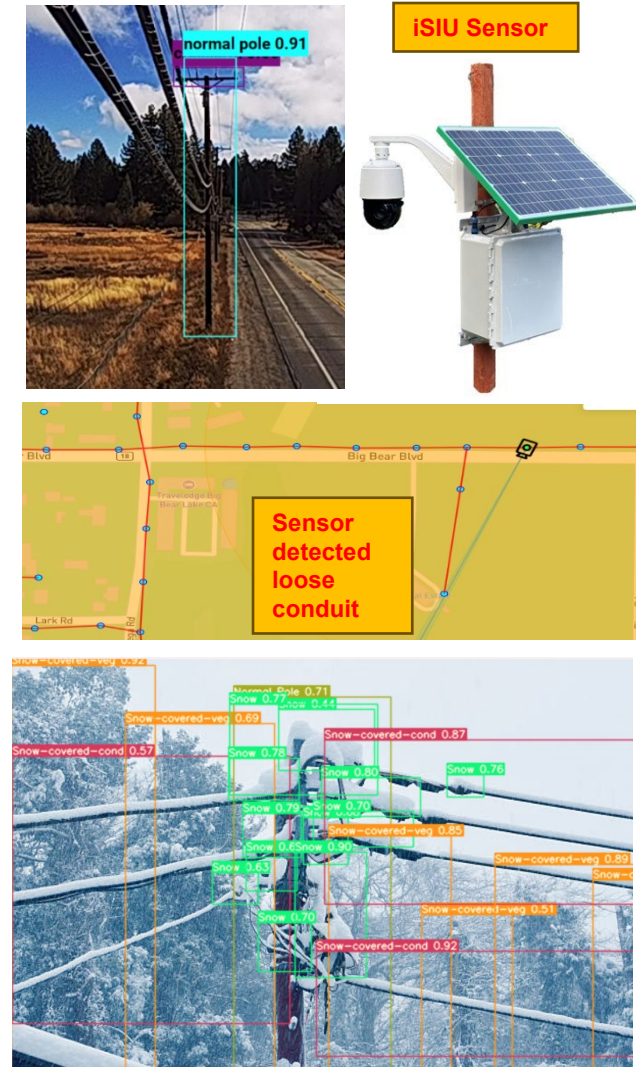


New Safety Technologies

Autonomous Monitoring of Power Line Infrastructure

BVES has installed Instant Situational Insights® for Utilities (iSIU®) sensors developed by Green Grind Inc. on parts of its system.

- System is an AI-powered software and sensor platform designed to help electric utilities prevent wildfires and monitor grid infrastructure in real time. Think of it as a continuous inspection system.
- System automates monitoring of vegetation growth, condition and encroachment, certain assets' physical conditions and ignitions monitoring at the grid level.
 - Each camera sensor has an optical sensor, communication module, processor and power supply modules integrated into a single weatherproof package termed as a node.
 - The camera nodes are strategically installed on power line poles or auxiliary poles to autonomously monitor the power line infrastructures and advise the remote maintenance, inspections or operations crews on potentially hazardous events automatically, thus reducing risks to the humans and environment.
 - Contractor's proprietary artificial intelligence (computer vision, machine learning and deep learning) algorithms make ordinary cameras smart to generate and communicate actionable asset, vegetation and ignition management intelligence.
 - In addition, this system is utilized for BVES's pole management and maintenance, extreme weather event recovery, and PSPS power restoration operations.
- Pilot Project completed at 2 locations in 2023
- Current deployment of 15 additional sensors provides full coverage on a remote power line in the forest where there is limited access and is uninhabited or sparsely inhabited. Without this system, if an ignition occurs without the circuit relaying, the ignition under the right weather conditions will likely develop into a fast-growing fire before being detected, which is long enough to pose a serious wildfire risk.
- Current strategy is to continue to deploy system in high-risk areas (heavy vegetation) that are sparsely populated (have very low probability ignitions of being detected without sensors).



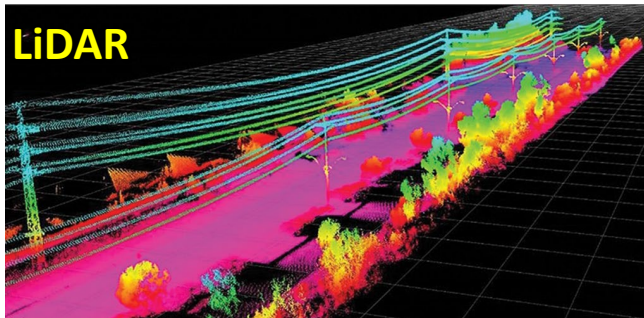
Inspections – Assets and Vegetation

- **Work Backlog:** BVES does not have a backlog of required asset repairs and maintenance beyond time limits listed in GO-95.
 - Findings are documented and tracked to resolution.
 - BVES has worked with its LiDAR and UAV inspection contractor to report findings in a more distributed manner as they are analyzed and recorded and in a prioritized manner.
 - ❑ Inspection findings are being delivered in batches as soon as the data becomes available rather than all at once.
 - ❑ This reduces lag time of data analysis of the entire data set and lets crews begin remediations as soon as possible.
- **Circuit Patrols:** Higher risk circuits (bare conductors) patrolled first.
 - Per GO-165, BVES's Field Inspector patrols every circuit annually.
 - Additionally, BVES contracts a 3rd party to independently perform a second patrol of the entire overhead system annually (exceeds requirements).
- **Detailed Inspection:** Conducted per GO-165. Risk –based inspection scheduling applied to inspect higher risk circuits (bare conductors) more frequently.
- **Light Detection and Ranging (LiDAR)** is a remote sensing method that uses light in the form of a pulsed laser to accurately measure clearance between vegetation and power lines. Annual survey conducted using drone and vehicle mounted LIDAR equipment.
- **UAV aerial HD photography/videography and thermography imaging surveys:** Annual survey using drone mounted HD video/photography cameras and thermographic sensors to identify facility discrepancies and hot spots.
- **Intrusive Pole Inspection:** Inspect approximately 850 wood poles per year for internal rot.
- **Satellite Imaging** is used to monitor vegetation encroachment to power lines. Annual survey provides a quick gross assessment of areas to visit for vegetation management and compliments other inspections. Identifies encroachments and projected vegetation growth rates.

Ground Patrol



Intrusive Pole Inspection



LiDAR



UAV Thermography



Satellite Imagery



**UAV HD
Photography
& Videography**



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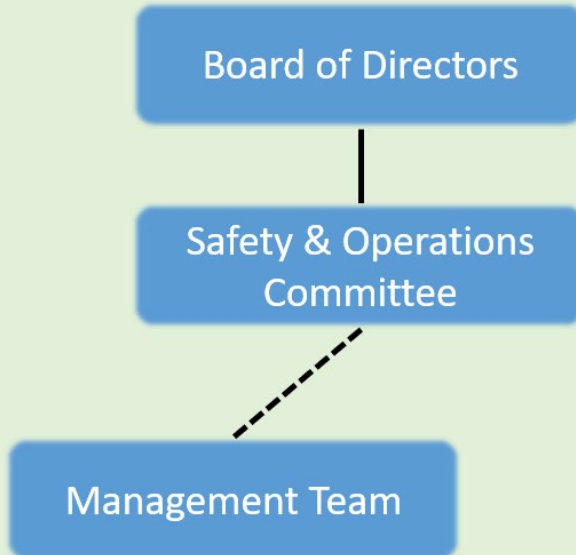
Safety Culture & Governance

Safety Culture & Governance



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Bear Valley Electric Service, Inc.



Safety & Operations Committee is responsible for overseeing:

- Preparation of BVES's wildfire mitigation plan and the assessment of BVES's compliance with the plan,
- Other activities intended to identify wildfire risks and other safety risks related to the operation and maintenance of the BVES electric utility system,
- Steps taken to reduce such risks and to respond to safety events, and
- Such other matters as set forth in the charter or delegated to the Committee from time to time by the Board.



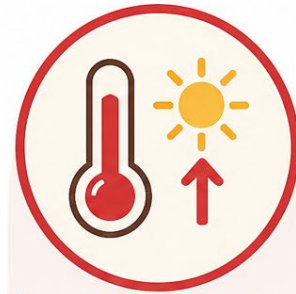
Safety Culture & Governance

- Areas that have posed challenges:
 - Working with contractors to align their safety culture with BVES' safety culture.
 - Improving safety culture of specific groups within BVES.
 - Strengthening safety-enabling systems.
 - ❑ Safety improvement opportunity reporting.
 - Establishing use of leading indicators in safety performance metrics.
 - ❑ Use of metrics aims at practices that promote positive safety outcomes.
- Benefits:
 - Improved public safety.
 - ❑ Encouragement of collaboration about decision-making across all employee levels and disciplines to seek solutions promoting public safety.
 - Highly effective work planning.
 - Very high construction and operating standards and quality resulting in improved public safety.
 - Employee ownership of the electrical system and its operation.
 - ❑ No ignitions, no wildfires.
 - ❑ High PSPS risk areas hardened to reduce PSPS risk → to date no BVES invoked PSPS events.
 - Fewer injuries.
 - ❑ Injuries that have occurred have been minor.
 - ❑ Work stoppage for any safety concern or question is encouraged – employees and supervisors shielded from perceive goal and target pressures.
 - ❑ Blame free environment for individuals reporting on errors or near misses without fear of reprimand or punishment.
 - Improved contractor safety culture.
 - ❑ Contractors better aligned with BVES standards and safety culture.
 - ❑ Improved work and safety coordination.
 - ❑ Improved construction and work quality.



Public Safety Power Shutoff (PSPS)

KEY WEATHER CONDITIONS THAT INCREASE WILDFIRE RISK



HIGH TEMPERATURE

Warmer temperatures can dry out vegetation and increase the chance of wildfires.



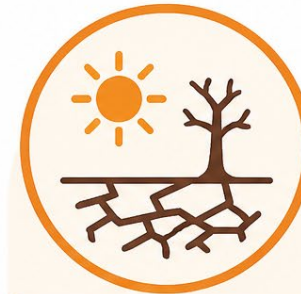
LOW HUMIDITY

Low humidity removes moisture from plants and dry materials, making them more flammable.



HIGH WINDS

Strong winds can spread fires quickly and make them harder to control.



DRY VEGETATION / DROUGHT CONDITIONS

Dry plants and ongoing drought create ideal conditions for wildfires to start and spread.



STAY INFORMED. STAY PREPARED. STAY SAFE. 

Overview Comparison of Prior Year Performance and Execution of PSPS in 2025

2019 – 2025 Performance Comparison

Year	BVES PSPS Events	Counties	Notified	De-Energized	Missed Comms	Average Outage Duration	Restoration Times
2019	No BVES PSPS events occurred	XX	XX	XX	XX	XX	XX
2020	No BVES PSPS events occurred	XX	XX	XX	XX	XX	XX
2021	No BVES PSPS events occurred	XX	XX	XX	XX	XX	XX
2022	No BVES PSPS events occurred	XX	XX	XX	XX	XX	XX
2023	No BVES PSPS events occurred	XX	XX	XX	XX	XX	XX
2024	No BVES PSPS events occurred	XX	XX	XX	XX	XX	XX
2025	No BVES PSPS events occurred	XX	XX	XX	XX	XX	XX

To date, BVES has not activated a Public Safety Power Shutoff (PSPS) event within its service territory. Nevertheless, BVES continues to maintain a high level of preparedness through regular training, planning, and program improvements to ensure it can effectively implement PSPS operations, support customers, and respond safely and efficiently should a PSPS event become necessary.



PSPS Thresholds

PSPS Decision Thresholds

BVES considers a Public Safety Power Shutoff (PSPS) when wildfire risk is elevated (Fire Potential Wind Index (FPWI) is “High” or “Extreme”) and winds reach established thresholds:

Circuit type	High FPWI	Extreme FPWI
Bare conductor	40 mph	35 mph
Bare conductor with enhanced protection (EPSS)	50 mph	45 mph
Covered conductor	65 mph	65 mph

Field conditions may require earlier action. If vegetation or debris is blowing into bare power lines, or is likely to do so, BVES may initiate a PSPS even when wind thresholds have not been reached.

When circuits are located in high or extreme fire-risk areas (as determined by FPWI), BVES:

- Evaluates system condition, weather, equipment, staffing, and operational readiness.
- Reviews customer notification procedures.
- Prepares for a possible PSPS.

Final decisions consider both real-time conditions and the operating limitations of the electric system.



Community Resource Center Plan

Community Resource Center

During a Public Safety Power Shutoff, BVES will operate a Community Resource Center at its main facility, located at 42020 Garstin Drive in Big Bear Lake, from 8:00 a.m. to 10:00 p.m.

The center will provide customers with:

- Device charging and Wi-Fi access
- Water and light refreshments
- Current PSPS information and customer assistance
- Basic emergency supplies
- Power support for essential medical equipment

BVES staff will manage the center and support all community members, including Medical Baseline and Access and Functional Needs customers. CRC locations and hours will be shared through the BVES website and emergency text notifications once confirmed.



Critical Facilities and Infrastructure Plan

Critical Facilities and Infrastructure

BVES maintains a Critical Facilities and Infrastructure Plan to support essential service providers before, during, and after a Public Safety Power Shutoff (PSPS). The plan covers hospitals, emergency responders, government agencies, telecommunications providers, water and wastewater systems, transportation agencies, and other essential community services.

BVES coordinates with these organizations to maintain current emergency contacts, confirm backup-generation capabilities, and support continuity planning. During a PSPS, critical partners receive:

- Advance and ongoing notifications by phone, text, and email
- A dedicated BVES contact for real-time coordination
- Current outage maps, estimated outage duration, and restoration updates
- Invitations to operational coordination calls
- Priority restoration, when operationally feasible
- Backup-power evaluation and other available support

BVES uses its Outage Management System and field assessments to communicate the location, extent, cause, and estimated restoration time for outages. Notifications continue daily from initial preparation through de-energization and full restoration.

This coordinated approach is designed to preserve essential community services, strengthen emergency response, and minimize PSPS impacts across BVES's remote, mountainous service area.



Notification Plan

PSPS Notification

BVES's PSPS Notification Plan is designed to deliver accurate, timely, and consistent information before, during, and after a Public Safety Power Shutoff. BVES retains primary responsibility for public notification while coordinating closely with local governments, emergency responders, Cal OES, CAL FIRE, critical facilities, community organizations, and other partners.

During an event, BVES will communicate the affected areas, number of customers impacted, cause of the outage, and estimated restoration time, with updates provided as conditions change. Communications will use multiple overlapping channels, including phone, text, email, website, social media, local media, community partners, and direct outreach, to reach customers despite potential service disruptions.

BVES regularly updates contact information, tests communication systems, trains staff, and measures call-center and website performance. This coordinated and resilient approach helps ensure customers, including seasonal residents and vulnerable populations, receive essential safety and restoration information throughout a PSPS event.



Education and Outreach Plan

Education and Outreach

BVES's Education and Outreach Plan prepares customers and community partners for PSPS events through year-round education, coordination, and multilingual communications.

Before wildfire season and potential emergencies, BVES works with local governments, emergency responders, critical service providers, and community organizations to:

- Educate customers about outage preparedness, safety, wildfire prevention, PSPS procedures, and restoration.
- Maintain and regularly verify stakeholder contact information.
- Provide materials in multiple languages to reach diverse populations.
- Conduct public workshops and distribute information through the website, social media, text messages, email, bill inserts, advertising, and local media.
- Develop preapproved messages and press-release templates for timely emergency communications.

During a PSPS, BVES provides frequent updates regarding affected areas, outage causes, customer impacts, safety measures, and estimated restoration times. Authorized staff coordinate media communications to ensure information is accurate and consistent.

Following an event, BVES issues a closeout update, provides customer support information, and coordinates specialized repair teams, contractors, and mutual-aid resources as needed to expedite restoration.



Lessons Learned & Actions

2025 Lessons Learned

- ✓ Multiple elevated fire weather periods required enhanced monitoring, with some conditions approaching PSPS thresholds.
- ✓ No BVES caused ignitions occurred, and no BVES directed PSPS was required.
- ✓ SCE initiated PSPS events interrupted transmission service to Bear Valley, affecting BVES customers despite no local BVES PSPS activation.
- ✓ BVES's generation plant and Radford transmission line can support only a portion of total valley demand.
- ✓ Full valley outage potential requires continued CRC readiness.
- ✓ CRC activities require consistent documentation and tracking.
- ✓ AFN and Medical Baseline notification procedures require continued testing.
- ✓ Critical facility backup-power and logistics require ongoing coordination.
- ✓ Covered conductor installation and expanded vegetation clearance reduced wildfire exposure.
- ✓ Updated Fire Potential Index models improved situational awareness and operational decision making.

2026 Actions

- ✓ Maintain readiness for both BVES directed and SCE initiated PSPS events.
- ✓ Continue covered conductor installation, vegetation management, and situational awareness improvements.
- ✓ Standardize CRC documentation, staffing, supplies, and operational tracking.
- ✓ Expand outreach and notification testing for AFN and Medical Baseline customers.
- ✓ Coordinate backup generation and planning with critical facilities.
- ✓ Evaluate battery-backup assistance when forecasts indicate increased potential for customer impacts.
- ✓ Monitor similar programs for participation results, customer feedback, and potential application within BVES's service area.
- ✓ Track corrective actions, responsibilities, schedules, and completion status through annual reporting.

In 2025, BVES experienced multiple periods of elevated fire weather, including conditions approaching PSPS thresholds. No BVES caused ignitions occurred, and BVES did not initiate a PSPS. However, Southern California Edison (SCE) PSPS events interrupted the transmission supply serving Bear Valley, resulting in customer outages and demonstrating BVES's exposure to upstream transmission disruptions. Exercises and Community Resource Center activations also identified opportunities to strengthen documentation, customer outreach, backup-power planning, and operational coordination.



Questions