



California Battery Energy Storage Safety Recommendations

July 2025

The energy storage industry is committed to working with state and local agencies to promote safety at all battery energy storage system (BESS) facilities. The California Energy Storage Alliance (CESA) and American Clean Power-California (ACP-CA), with input from numerous member companies, have collaborated to develop this set of recommendations for state and local policymakers to advance the safety of BESS design and operations. Safety is the first and foremost priority for our community of energy storage manufacturers, developers, and operators. BESS facilities currently comply with numerous federal and state regulations, but the adoption of our recommendations will further improve oversight of BESS resources in California. These recommendations will minimize both the likelihood and magnitude of future incidents and the risks to communities and first responders if incidents do occur. We will continue to work together, in consultation with nationwide BESS safety experts, to provide education on BESS safety to state and local authorities.

ENSURING SAFETY AT ALL NEW BESS FACILITIES

The energy storage industry actively promotes the adoption and enforcement of the latest national fire safety standards. A request from CESA to the National Fire Protection Association (NFPA) in 2016 led to the development of the first Standard for the Installation of Stationary Energy Storage Systems (NFPA 855) in 2020. California's building and fire codes incorporate NFPA 855, but CESA and ACP-CA recommend that the state expedite the adoption of the most recent standard and impose certain requirements beyond those included in the 2026 edition of NFPA 855 currently under consideration by the NFPA 855 Committee.

1. Enforce the Latest and Most Rigorous Safety Standards for All New Energy Storage Facilities

CESA and ACP-CA recommend that the California Fire Code (CFC) be updated and require all future BESS facilities to comply with the most recently published version of NFPA 855 within one year of the publication of the final adopted new edition. This can be achieved by minimizing the lag between the finalization of new NFPA 855 standards and their incorporation into the CFC. The NFPA 855 Committee publishes a new edition every three years, which is incorporated into the International Fire Code (IFC) the following year. The Office of the State Fire Marshall then incorporates NFPA 855 into Chapter 12 of the CFC indirectly via the IFC the year after. Updates to the CFC and updates to NFPA 855 are happening concurrently this year, but due to the mismatch in adoption cycles, the 2025 CFC will be based on the 2023 edition of NFPA 855. Better coordination of these update cycles could substantially reduce the gap between publication of the latest NFPA 855 standard and its incorporation into the CFC, ensuring that all new BESS facilities adhere to updated codes and standards.

2. Prohibit Indoor Configurations for Certain BESS Facilities

CESA and ACP-CA recommend that all future BESS facilities over 4 megawatt hours (alternating current) using chemistries susceptible to thermal runaway be developed in modular outdoor enclosures, which limits the risk of fire propagation.

3. Use Consistent Methodologies and Credible Inputs for Safety Analysis

All future BESS facilities should conduct a Hazard Mitigation Analysis (HMA). Data from this analysis can inform the permitting process, including design studies and site configurations. These analyses also inform emergency response and evacuation plans, among other topics. We recommend that the Office of the State Fire Marshall, in coordination with other relevant state agencies, provide guidance to local jurisdictions to ensure the use of consistent methodologies. Additionally, we recommend that any plume analysis use reputable tools with inputs that represent credible scenarios.

ADVANCING SAFETY ACROSS CALIFORNIA'S OPERATING BESS FLEET

The energy storage industry is committed to working with state and local officials to review the existing fleet of BESS facilities across California for potential safety risks and to take necessary corrective actions.

4. Ongoing Support of California Public Utilities Commission Inspection Authority

CESA and ACP-CA support the recently adopted General Order (GO) 167-C by the California Public Utilities Commission (CPUC), giving the CPUC authority to review the operation and maintenance of BESS facilities and the facilities' compliance with emergency response plan requirements. It is critical that all storage systems comply with GO 167-C requirements to submit an emergency response and emergency action plan to the Authority Having Jurisdiction (AHJ).

5. Require Comprehensive Hazard Mitigation Analyses for Certain Operating BESS Facilities

CESA and ACP-CA recommend that all active BESS facilities have updated HMAs. Facilities that pre-date NFPA 855 should review their HMAs to consider any missing hazards and update the HMAs, as necessary. The CPUC should provide compliance guidelines in the GO 167-C program regarding the completion of HMAs by all active BESS facilities.

6. Standardize Emergency Response Plans

CESA and ACP-CA recommend that the Office of the State Fire Marshal, in coordinated with the CPUC, provide guidance to local authorities on the information included in emergency response plans to promote consistent safety response practices across jurisdictions.

IMPROVING COLLABORATION AMONG INDUSTRY, STATE AGENCIES, COMMUNITIES, AND SAFETY EXPERTS

In addition to promoting the use of best practices and the latest safety features and strategies, the energy storage industry is committed to engaging with local communities and fire officials to address their specific safety concerns. The industry welcomes collaboration with state agencies and fire safety experts to continuously improve safety practices, develop emergency response

plans, improve siting and permitting practices, and provide educational support and training to state and local personnel.

7. Create a Safety Consortium of State and Local Officials and Industry Experts

CESA and ACP-CA support the creation of a statewide BESS safety consortium made up of representatives from the energy storage industry, third-party BESS design and safety experts, first responders, and local, regional, and state officials to discuss safety concerns, pool resources, and develop recommendations on statewide BESS safety improvements. We suggest that the consortium consider recommendations regarding training standards for first responders; BESS fire response protocols, including the scope and duration of exclusion zones; and guidelines for state and local agencies on the reporting of environmental and public health data. This consortium should meet periodically and be supported by existing staff at the California Energy Commission (CEC), CAL FIRE and the Governor's Office of Economic and Business Development (Go-Biz), who are already facilitating similar workstreams.

8. Establish State Agency Responsible for Oversight of Federal, Regional, or Local Agencies' Environmental Monitoring Plans and Findings

The California Office of Emergency Services should determine which federal, state, and local agencies will have responsibility for thermal, air, water, and soil monitoring in the event of an incident. The responsible agencies should ensure access to real-time air monitoring equipment is readily available across the state to ensure the safety of personnel, first responders, and the community in the vicinity of an incident.

9. Update the Statewide BESS Best Practices and Permitting Guide and Create a Statewide Model Ordinance

CESA and ACP-CA suggest that the Governor's Office of Land Use and Climate Innovation update its BESS Permitting Guidebook (published in 2023) by October 1, 2026, to include best practices for front-of-meter BESS facilities. The Office should also maintain a qualified list of companies that can provide technical assistance to local AHJs for reviewing building permit applications to ensure adherence to the California Fire Code and NFPA 855. CESA and ACP-CA also support Go-Biz's efforts to develop a model ordinance and incentivize AHJs to use it to standardize local land-use permitting processes. These efforts will improve permitting consistency and BESS safety statewide.

10. Encourage Coordination between BESS Operators, First Responders, and Local Officials

CESA and ACP-CA support the implementation of owner-sponsored training, including tabletop incident drills, for first responders and other local officials on battery storage safety. The most recent edition of NFPA 855 requires training, following the procedures in the Emergency Response Plan, to be provided to facility personnel and emergency responders prior to commissioning the facility. Additionally, the CPUC should include in its compliance guidelines a recommendation that all BESS operators offer refresher training to emergency responders on an annual basis and extend the training opportunity to other staff in the jurisdiction where the facility is located.