



Clearway

BESS Safety

Safety is a fundamental component of battery energy storage.

As the long-term BESS owner and operator, Clearway prioritizes safety from the very first project design through decades of battery facility operations. Battery storage is a highly regulated technology that enables clean energy to be dispatched when it's needed most, contributing to a reliable and resilient electric grid.

At Clearway, battery safety is incorporated every step of the way.

How is safety incorporated every step of the way?

Starts with Battery Design

Battery modules are housed in individual metallic enclosures, which serve as a firewall, and each enclosure is equipped with temperature conditioning to maintain the inside temperature within an optimum range. Enclosure walls typically have a 60-minute fire rating (IE60). Battery cells and modules are designed with thermal management systems, including ventilation, heating, and cooling equipment to maintain safe operating temperatures.

All projects are equipped with sensors that track battery and enclosure temperatures. The operator is alerted through the EMS if abnormal conditions are detected. EMS will isolate the enclosure from the rest of the system in case of critical failures. Isolation of any thermal event and the modular nature of project design keeps thermal events contained. Our systems are designed for safety and meet or exceed requirements in the latest codes and standards. All battery storage projects must meet rigorous codes and standards before being permitted to operate.

Clearway's projects use LFP battery cells, which have enhanced reliability and safety features, which significantly reduce risks at every step. Cells, modules, and racks are tested for UL 9540A compliance.

Clearway's battery suppliers must adhere to rigorous codes and standards, industry best practices, and quality and performance guarantees.

Continues during Project Development

When choosing a location for an energy storage project, Clearway considers several factors, including:

- Existing site features
- Surrounding land uses
- Nearby wildlife and protected habitat
- Access to the electrical grid

We actively engage with community members to understand and address concerns.

Clearway works with local, state, and federal agencies to ensure projects comply with regional plans, zoning laws, and all applicable codes and standards.

Clearway works closely with local officials to review detailed engineering and construction plans, including project fire suppression system and emergency response plans. This engagement typically starts more than 12 months before construction starts, during the local permitting process. Before construction, local officials review and approve final detailed engineering plans.

Equipment and construction services are provided by carefully selected partners.

Remains during Operating Facility Lifespan

Every energy storage project is required to comply with national fire protection standards, which are frequently updated to incorporate the best practices for hazard mitigation tools and strategies.

Multiple layers of Operating Parameters and Restrictions, such as acceptable operating temperature range, number of operating cycles, and down time between cycles, are established to ensure battery projects operate in a safe operating range with high safety margins.

Clearway coordinates with local officials, including fire departments, to provide training at battery storage projects. 24/7 monitoring allows for immediate response in case any abnormality arises.

Operators work directly with local authorities to develop and maintain emergency response plans in the rare event of an operational emergency. Any thermal events that do occur are contained within the affected unit.

Core Components of Battery Safety



Design Codes & Standards



System and Component Certification



Internal Systems Monitoring



Proper Temperature Management



Pre-Operational Testing



24/7 Monitoring by Trained Personnel



Emergency Response Plans

Emergency Response Plan & Safety During Operations

Emergency response plans are developed for all energy storage projects to ensure the safety of personnel, nearby communities, and the environment.



Risk Assessment

We conduct a thorough risk assessment to identify potential hazards and risks associated with the BESS facility. This includes assessing the types of BESS installed, its placement on the site, and the potential hazards associated with systems.



Regulatory Compliance

We guarantee compliance with all related regulations and standards governing the operation of the site BESS facilities, including safety codes, environmental regulations, and emergency response requirements.



Emergency Response Plan

We develop detailed site-specific emergency response plans outlining steps to be taken in the event of various emergencies, including thermal events. Plans include protocols for notification of emergency services, containment, mitigation of hazards, and communication.



Emergency Services Training

We establish partnerships, training, and communication channels with local emergency services, including fire departments, police departments, and hazardous materials response teams. They are always provided information about the facility, including the BESS details, location, hazards, and emergency contact information.



Continuous Improvement

We regularly review and update the emergency response plan based on lessons learned from drills, incidents, and changes in technology or regulations. Continuously strive to improve emergency preparedness and response capabilities.

