

# Energy storage system safety incidents



## Overview

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Explore battery energy storage systems (BESS) failure causes and trends from EPRI's BESS Failure Incident Database, incident reports, and expert analyses by TWAICE and PNNL.

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### **BESS Failure Insights: Causes and Trends Unveiled**

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### **Battery Energy Storage System Safety**

Battery Energy Storage Systems (BESS) are among the most thoroughly tested and code-governed energy infrastructure deployed, and their safety record is improving dramatically as the



### [Safety Aspects of Stationary Battery Energy Storage Systems](#)

An in-depth analysis of these incidents provides valuable lessons for improving the safety of BESS. This paper discusses multiple safety layers at the cell, module, and rack levels to elucidate

### **BESS Incidents**

Throughout this series, it has been our intention to educate and inform the reader about the hazards and risks of Lithium-ion battery energy storage schemes based on current knowledge.



### **Failures and Fires in BESS Systems**

The number of fires in Battery Energy Storage Systems (BESS) is decreasing . Between 2017



### [States and counties weigh safety risks of much-needed energy storage](#)

Data from the Electric Power Research Institute (EPRI) has shown that, as the number of battery storage installations increases exponentially, the number of accidents has stayed the same,



### [Battery plant explosions in California raise public health concerns](#)

The more floating offshore wind turbines that are installed, the more onshore battery energy storage plants will be needed, exposing nearby communities to the heightened risk of future



and 2022, U.S. energy storage deployments increased by more than 18 times, from 645 MWh



### [Lithium ion battery energy storage systems \(BESS\) hazards](#)

As a result, a number of the recent incidents resulted in significant consequences highlighting the difficulties on how to safely deal with the hazard. This paper identifies fire and



### [Battery Energy Storage Systems: Main Considerations for Safe](#)

This webpage includes information from first responder and industry guidance as well as background information on battery energy storage systems (challenges & fires), BESS installation

### [First Responders Guide to Lithium-Ion Battery Energy Storage](#)

This document provides guidance to first responders for incidents involving energy storage systems (ESS). The guidance is specific to ESS with lithium-ion (Li-ion) batteries, but some elements may



### **BESS Failure Incident Database**

This table tracks utility and C&I scale energy storage failure incidents with publicly available information. [Click here](#) to download a csv version of the data in this table.

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