

Kongres Container

Home Energy Storage Safety Guide



Overview

In this guide, you'll learn how battery chemistry, design, and real-world precautions shape the safety of systems like those from OUPES. Sources: U.S. Department of Energy, NFPA. What's new in energy storage safety?

Since the publication of the first Energy Storage Safety Strategic Plan in 2014, there have been introductions of new technologies, new use cases, and new codes, standards, regulations, and testing methods. Additionally, failures in deployed energy storage systems (ESS) have led to new emergency response best practices.

Is energy storage a hazard?

Stored energy of any kind is a hazard. In the case of abnormal operation, damage, or swelling, immediately contact a qualified technician or the manufacturer. Residential energy storage systems (ESS) using lithium-ion batteries can present safety challenges for homeowners and firefighters.

What makes a good energy storage management system?

The BMS should be resistant to any electromagnetic interference from the PCS (power conversion system) and must be able to cope with current ripple without nuisance warnings and alarms. Interoperability is achieved between the BMS, PCS controller, and energy storage management system with proper integration of communications.

What are energy storage safety gaps?

Energy storage safety gaps identified in 2014 and 2023. Several gap areas were identified for validated safety and reliability, with an emphasis on Li-ion system design and operation but a recognition that significant research is needed to identify the risks of emerging technologies.

Are lithium-ion batteries safe for residential energy storage systems?

Residential energy storage systems (ESS) using lithium-ion batteries can

present safety challenges for homeowners and firefighters. While the failure of residential ESS lithium-ion batteries is a rare event, fire and explosion hazards have already occurred. This guide provides steps homeowners and ESS installers can take to minimize these hazards.

Can energy storage be used as a temporary source of power?

However, energy storage is increasingly being used in new applications such as support for EV charging stations and home back-up systems. Additionally, many jurisdictions are seeing increasing use of EVs and mobile energy storage systems which are moved around to be used as a temporary source of power.

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