

# Energy Storage System Safety Introduction



## Overview

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This whitepaper provides a technical overview of energy storage system safety, focusing on how the International Fire Code (IFC) and NFPA 855, Standard for the Installation of Stationary Energy Storage Systems, approach regulation, hazard mitigation, and enforcement. An ESS is a device or group of devices assembled together, capable of storing energy in order to supply electrical energy at a later time. Battery ESS are the most common type of new installation and are the focus of this fact sheet. DID YOU KNOW?

Battery storage capacity in the United States is. NFPA is keeping pace with the surge in energy storage and solar technology by undertaking initiatives including training, standards development, and research so that various stakeholders can safely embrace renewable energy sources and respond if potential new hazards arise. While BESS technology is designed to bolster grid reliability, lithium battery fires at some. Lithium-ion batteries are used in most applications ranging from consumer electronics to electric vehicles and grid energy storage systems as well as marine and space applications. These safety standards and performance tests help to ensure that the technologies deployed in energy storage facilities uniformly comply with.

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### Energy Storage & Safety

Energy storage facilities use established safety equipment and strategies to ensure that risks associated with the installation and operation of the battery systems are appropriately mitigated.

### [ENERGY STORAGE SYSTEMS SAFETY FACT SHEET](#)

This material contains some basic information about energy storage systems (ESS). It identifies some of the requirements in NFPA 855, Standard for the Installation of Energy Storage Systems, 2023 edition ...



### [Large-scale energy storage system: safety and risk assessment](#)

This work describes an improved risk assessment approach for analyzing safety designs in the battery energy storage system incorporated in large-scale solar to improve accident prevention ...



### [Safety Risks and Risk Mitigation](#)

Apart from Li-ion battery chemistry, there are several potential chemistries that can be used for stationary grid energy storage applications. A discussion on the chemistry and potential risks will be ...



### [White Paper Ensuring the Safety of Energy Storage Systems](#)

The potential safety issues associated with ESS and lithium-ion batteries may be best understood by examining a case involving a major explosion and fire at an energy storage facility in Arizona in April ...



### [Energy Storage Systems \(ESS\) and Solar Safety](#)

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### **Storage Safety**

All energy storage systems have hazards. Some hazards are easily mitigated to reduce risk, and others require more dedicated planning and execution to maintain safety. This page ...



### [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 ...



### [Energy Storage System Safety Whitepaper , IFC vs NFPA 855 , FPCG](#)

Why Energy Storage System Safety Matters  
Energy storage technologies introduce hazards that differ from traditional electrical and fuel-based systems, including thermal runaway, off-gassing, fire ...



### [Energy Storage Safety Strategic Plan](#)

The Department of Energy Office of Electricity Delivery and Energy Reliability Energy Storage Program would like to acknowledge the external advisory board that contributed to the topic identification, ...



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