

Environmental safety of energy storage systems



Overview

This report compiles and compares information on the environmental, health and safety (EH&S) aspects of six types of utility-scale energy storage systems: lithium ion batteries, vanadium redox flow batteries, sodium sulfur batteries, flywheels, compressed air energy.

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[Environmental Aspects of Utility-Scale Energy Storage Systems](#)

This project was intended to provide a high-level comparison of environmental, health and safety impacts associated with building, operating and decommissioning different types of utility-scale

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



Energy Storage Safety Strategic Plan

At the end, we identify general gaps and outstanding questions for energy storage safety, focusing on the three pillars of energy storage safety previously mentioned: 1) science-based safety





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

Environmental Impact: Proper cleanup and disposal of damaged batteries requires specialized procedures. EPA has developed comprehensive guidance to help communities safely

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

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



[The safety and environmental impacts of battery storage systems in](#)

The safety and environmental impacts of battery storage systems in renewable energy demand comprehensive evaluation and management strategies to maximize benefits while minimizing risks.

[All You Should Know About Energy Storage Safety](#)

Learn essential energy storage safety practices. Understand risks, certifications, safe installation, daily use, and emergency steps to keep systems reliable.



[Energy storage systems: Comparisons, environmental impacts,](#)



In this paper, various ESSs are discussed in detail in terms of their operating principles, maturity levels, policies, advantages, and disadvantages, as well as the associated environmental

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