

SolarTech Power Solutions

The Importance of Fire Protection in Energy Storage Systems



Overview

Energy storage fire protection is a fire safety solution specifically designed for energy storage equipment, aimed at preventing fires caused by lithium battery overheating, short circuits, or thermal runaway. Are energy storage systems a fire hazard?

However, like any electrical infrastructure, energy storage systems come with their own set of risks, particularly fire hazards. This is where the National Fire Protection Association (NFPA) 855 comes in. NFPA 855 is a standard that addresses the safety of energy storage systems with a particular focus on fire protection and prevention.

Are energy storage systems safe?

Energy storage systems, while essential for grid stability and renewable energy integration, present unique challenges when it comes to fire safety. Issues like thermal runaway, short circuits, and the flammability of certain materials can result in fires that are difficult to manage due to the stored energy within the system.

How to protect battery energy storage stations from fire?

High-quality fire extinguishing agents and effective fire extinguishing strategies are the main means and necessary measures to suppress disasters in the design of battery energy storage stations. Traditional fire extinguishing methods include isolation, asphyxiation, cooling, and chemical suppression.

Why is safety important for the LFP battery energy storage industry?

A BESS made of LFP batteries exploded and caught fire in China, and several firefighters suffered death and mutilation in the blast in 2021. Therefore, safety is crucial for the high-quality development of the LFP battery energy storage industry. Fig. 2.

What happens if an energy storage station fires?

Since a large amount of energy is stored in the energy storage station in the form of chemical energy, once this energy is released in the form of heat and fire, it will cause serious damage. For example, in 2024, three LFP battery energy storage station fire accidents occurred in Germany within three months .

Are lithium-ion battery energy storage systems fire safe?

With the advantages of high energy density, short response time and low economic cost, utility-scale lithium-ion battery energy storage systems are built and installed around the world. However, due to the thermal runaway characteristics of lithium-ion batteries, much more attention is attracted to the fire safety of battery energy storage systems.

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