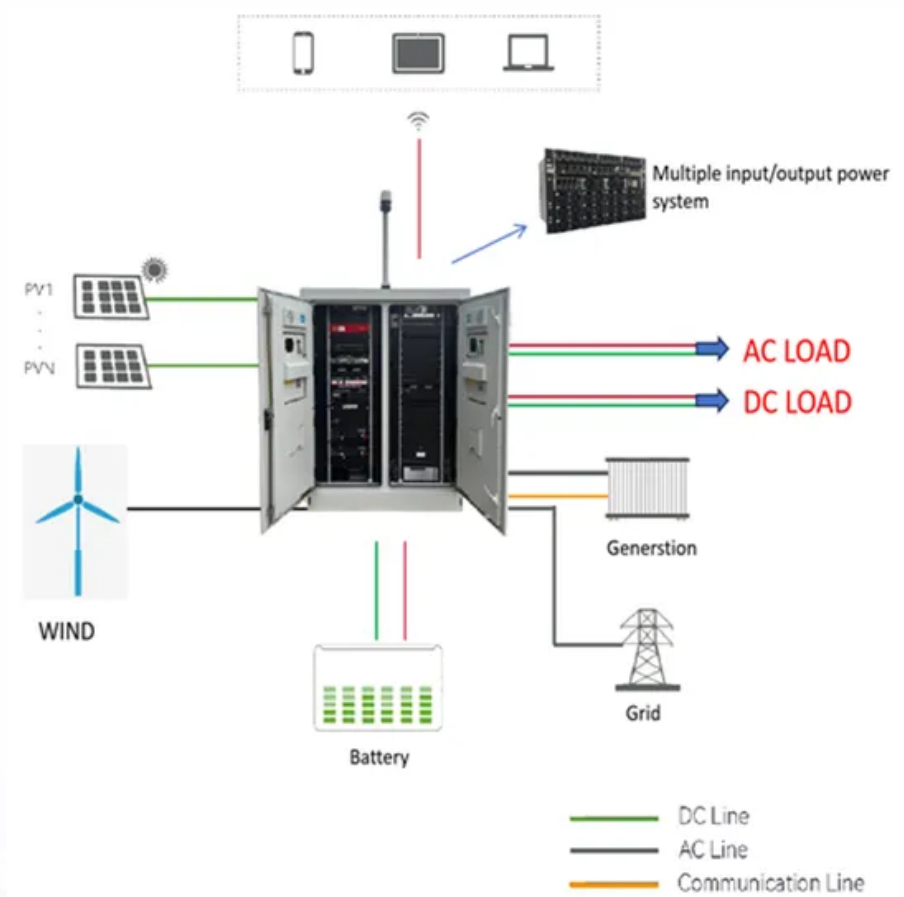


Solar Storage Container Solutions

Fire safety precautions for energy storage containers



Overview

Challenges for any large energy storage system installation, use and maintenance include training in the area of battery fire safety which includes the need to understand basic battery chemistry, safety limits, maintenance, off-nominal behavior, fire and smoke characteristics, fire fighting techniques, stranded energy, de-energizing batteries for safety, and safely disposing battery after its life or after an incident. Are battery energy storage systems safe?

Owners of energy storage need to be sure that they can deploy systems safely. Over a recent 18-month period ending in early 2020, over two dozen large-scale battery energy storage sites around the world had experienced failures that resulted in destructive fires. In total, more than 180 MWh were involved in the fires.

What is battery energy storage fire prevention & mitigation?

In 2019, EPRI began the Battery Energy Storage Fire Prevention and Mitigation – Phase I research project, convened a group of experts, and conducted a series of energy storage site surveys and industry workshops to identify critical research and development (R&D) needs regarding battery safety.

Are stationary storage applications safe?

Compared to the mobile applications that have historically driven cell-level safety improvements (such as consumer and automotive), stationary storage applications present unique opportunities for ensuring system-level safety (such as access to water supplies for fire suppression and lower risks of significant mechanical deformation).

Can deflagration be installed in a containerized system?

Actors: BESS developers, safety experts, thermal modeling experts

Description: It is suspected that properly sized deflagration protection will be challenging to install in many containerized systems due to limited availability of wall and ceiling space.

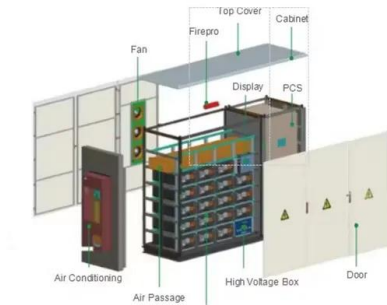
Can a safety guidance be applied to existing systems?

While this guidance is predominantly intended for future systems where there is opportunity to affect the design process, it could also be applied to existing systems, identifying presently unrecognized failure modes and incentivizing modifications to operational procedures and/or response plans that can improve safety.

Are sodium sulphur batteries a fire hazard?

The primary hazard associated with sodium-sulphur batteries is the potential for fire if the battery casing is breached. Both sodium and sulphur are highly reactive at these temperatures, and exposure to air can lead to rapid combustion.

Fire safety precautions for energy storage containers



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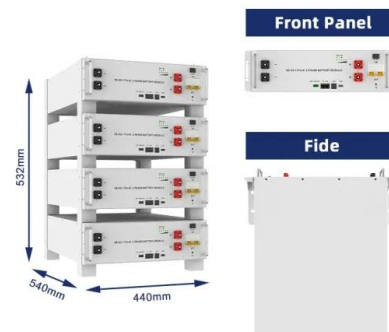


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