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Multifunctional energy storage emergency power supply

Overview

Whether it's deploying emergency power to a hospital after a natural disaster or supporting off-grid operations in remote locations, modular energy storage systems provide a versatile, scalable solution to keep essential services online when the grid goes down.What is a mobile energy storage system?

A mobile energy storage system is composed of a mobile vehicle, battery system and power conversion system . Relying on its spatial–temporal flexibility, it can be moved to different charging stations to exchange energy with the power system.

What is a mobile energy storage system (mess)?

During emergencies via a shift in the produced energy, mobile energy storage systems (MESSs) can store excess energy on an island, and then use it in another location without sufficient energy supply and at another time , which provides high flexibility for distribution system operators to make disaster recovery decisions .

How do different resource types affect mobile energy storage systems?

When different resource types are applied, the routing and scheduling of mobile energy storage systems change. (2) The scheduling strategies of various flexible resources and repair teams can reduce the voltage offset of power supply buses under to minimize load curtailment of the power distribution system.

Can mobile energy storage systems improve resilience of distribution systems?

According to the motivation in Section 1.1, the mobile energy storage system as an important flexible resource, cooperates with distributed generations, interconnection lines, reactive compensation equipment and repair teams to optimize dispatching to improve the resilience of distribution systems in this paper.

What is the optimal scheduling model of mobile energy storage systems?

The optimal scheduling model of mobile energy storage systems is established. Mobile energy storage systems work coordination with other resources. Regulation and control methods of resources generate a bilevel optimization model. Resilience of distribution network is enhanced through bilevel optimization.

Does a mobile energy storage system meet transportation time requirements?

Moreover, from the simulation results shown in Fig. 6(h) and (i), the movement of the mobile energy storage system between different charging station nodes meets the transportation time requirements, which verifies the effectiveness of the MESS’s spatial–temporal movement model proposed in this paper.

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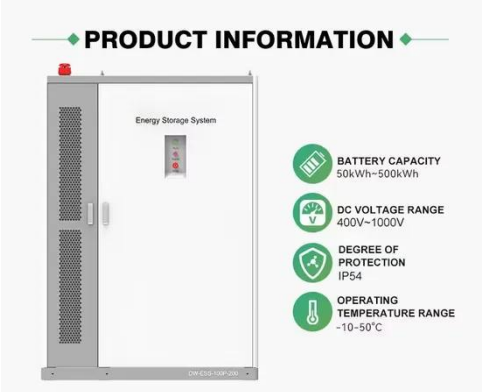

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