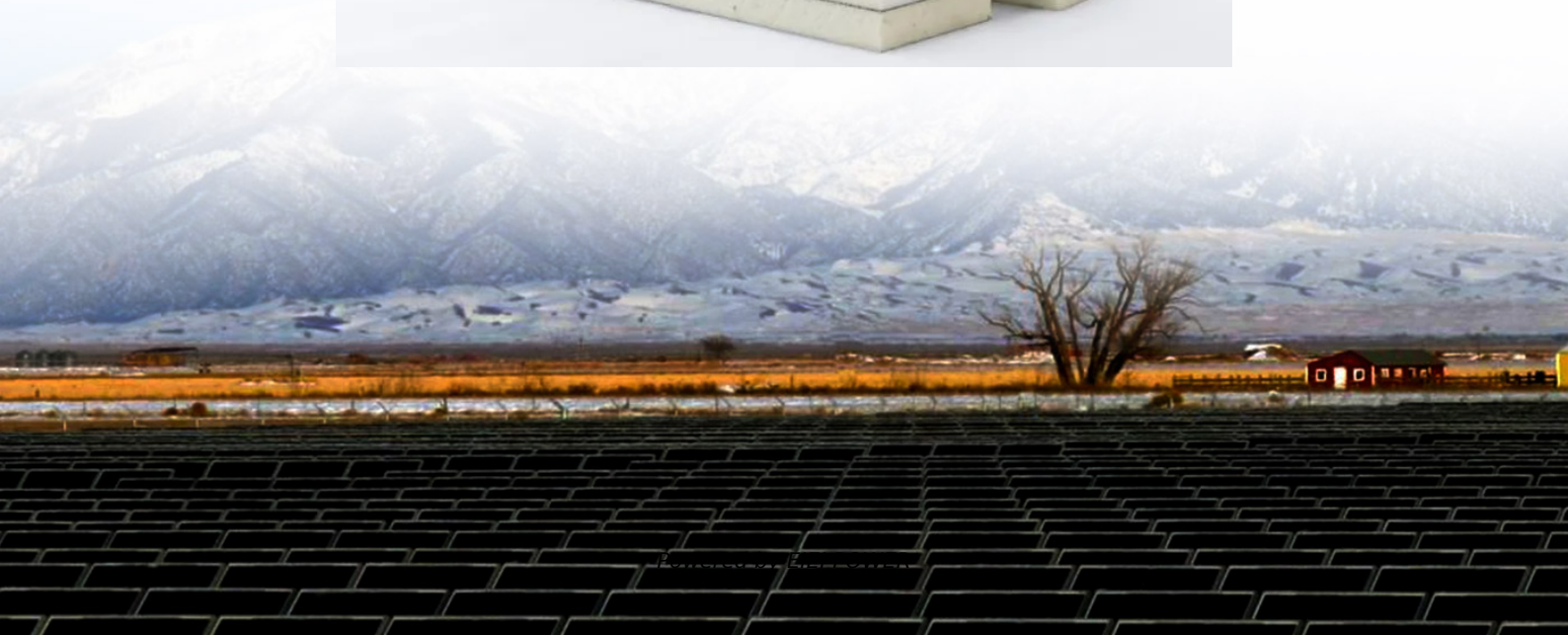


Power system energy storage planning





Overview

Can energy storage facilities achieve a multi-time-scale supply and demand imbalance?

As the proportion of renewable energy in power system continues to increase, that power system will face the risk of a multi-time-scale supply and demand imbalance. The rational planning of energy storage facilities can achieve a dynamic time-delay balance between power system supply and demand.

How are energy storage and power system operation strategies optimized?

The location and capacity of short-term energy storage and long-term energy storage are optimized in the first stage; power system operation strategies are optimized in the second stage. The model is tested on the modified IEEE-39 bus system.

Can grid-forming energy storage systems improve system strength?

It is commonly acknowledged that grid-forming (GFM) converter-based energy storage systems (ESSs) enjoy the merits of flexibility and effectiveness in enhancing system strength, but how to simultaneously consider the economic efficiency and system-strength support capability in the planning stage remains unexplored.

Can energy storage technology be used in power systems?

With the advancement of new energy storage technologies, e.g. chemical batteries and flywheels, in recent years, they have been applied in power systems and their total installed capacity is increasing very fast. The large-scale development of REG and the application of new ESSs in power system are the two backgrounds of this book.



Power system energy storage planning



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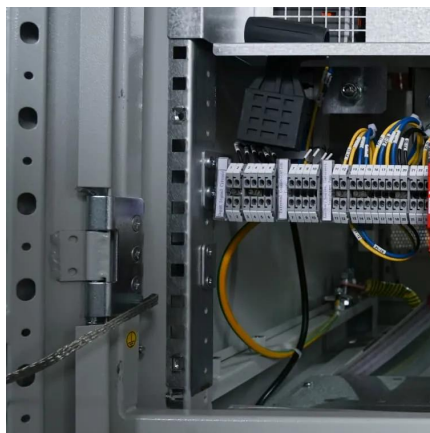


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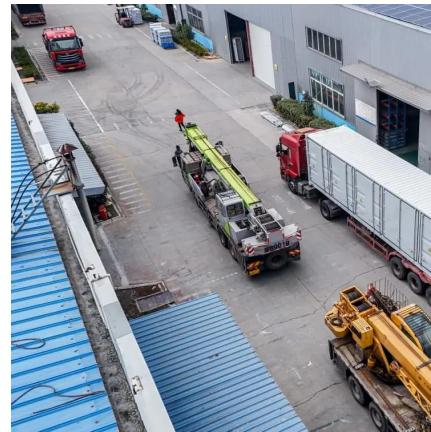
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