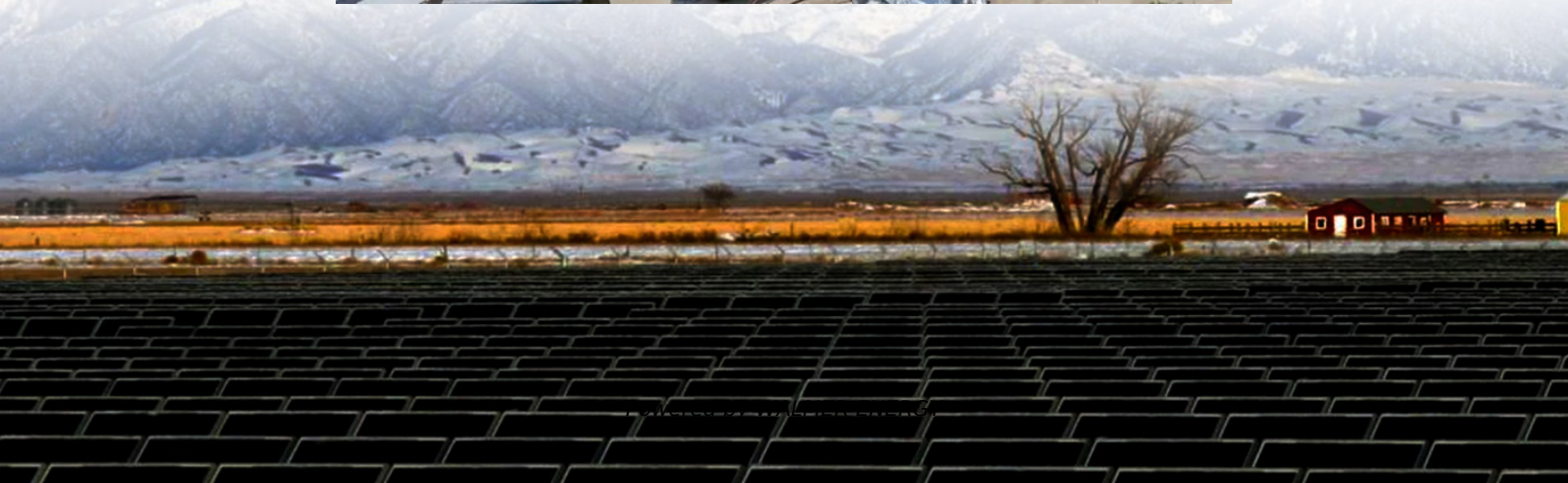


Pros and cons of self-built energy storage for peak load regulation on the power grid





Overview

What is the difference between self-built and leased energy storage?

In the self-built mode, the new energy power plants themselves are both the owner and the user of the energy storage, meaning the storage system is constructed and operated by the power plants. In the leased mode, the energy storage is owned by an energy storage company, while the new energy power plant acts as the user.

Should energy storage be self-built or shared?

In the self-built mode, since new energy power plants construct their own storage stations, the cost per kWh is lower, encouraging them to build larger-scale energy storage to meet operational needs. Using the shared mode as an example, an analysis of energy storage operation is conducted.

Why is peak-regulation important in power grids?

Peak-regulation in power grids needs to follow the fluctuation of renewable energy generation in addition to the variable load demands. Moreover, the wind power curve usually shows opposite increasing trend to the load curve, which requires more peak-regulation supply to guarantee the secure operation of power grids.

What constraints are met by the energy storage configuration in self-built mode?

The constraints met by the energy storage configuration in the self-built mode include the planning layer constraints and the operation layer constraints. The planning period constraints are the power and capacity constraints of energy storage for energy storage configuration. The specific constraints are provided as follows.



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