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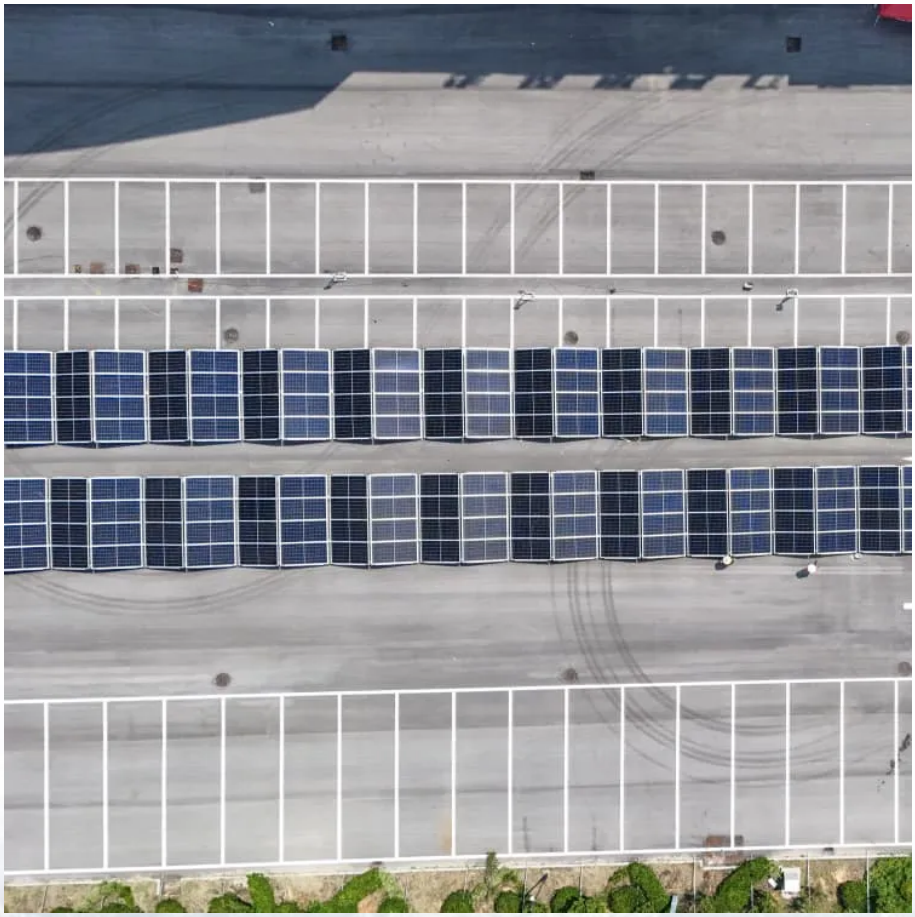
User-side energy storage system scheduling and operation



Overview

In order to reduce the impact of load power fluctuations on the power system and ensure the economic benefits of user-side energy storage operation, an optimization strategy of configuration and scheduling based on model predictive control for user-side energy storage is proposed in this study.What is a user-side small energy storage device?

With the new round of power system reform, energy storage, as a part of power system frequency regulation and peaking, is an indispensable part of the reform. Among them, user-side small energy storage devices have the advantages of small size, flexible use and convenient application, but present decentralized characteristics in space.

What is energy storage scheduling model?

Energy Storage Scheduling Model The energy storage scheduling model includes a pre-month optimization model and a daily optimization model. The pre-month optimization model is used to determine the monthly maximum demand value of energy storage, and the daily optimization model is used to determine the daily scheduling situation of energy storage.

What is operational mechanism of user-side energy storage in cloud energy storage mode?

Operational mechanism of user-side energy storage in cloud energy storage mode: the operational mechanism of user-side energy storage in cloud energy storage mode determines how to optimize the management, storage, and release of energy storage resources to reduce user costs, enhance sustainability, and maintain grid stability.

What is energy storage intra-day optimization scheduling strategy?

Energy storage intra-day optimization scheduling strategy includes energy storage day-ahead optimization operation and MPC-based intra-day rolling optimization operation. Figure 2 is a flow chart of energy storage intra-day optimization scheduling strategy. The steps are as follows. Figure 2.

What is the optimal scheduling strategy for energy storage optimization?

The proposed optimal scheduling strategy, from full-time offline optimization to partial real-time optimization, not only ensures the economic benefits of users, but also improves the accuracy of energy storage optimization scheduling. It is robust in an uncertain load forecasting environment.

What is rolling optimization strategy of energy storage intra-day operation?

The rolling optimization strategy of energy storage intra-day operation updates the system status to the latest after each system operation, and performs feedback correction on the system, which can smooth power fluctuations and improve the robustness and accuracy of system operation optimization scheduling.

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