



BUHLE POWER

Peak shaving and valley filling user-side battery energy storage





Overview

Can a parking lot shave & valley fill the power consumption?

A model is developed to schedule electric vehicle (dis)charging in a parking lot. The aim is to peak shave and valley fill the power consumption of a university building. The study is based on real-world data power consumption and parking lot occupancy. The proposed approach can effectively flatten the power consumption during daytime.

Can MATLAB shave and valley fill a university building's power consumption profile?

In this paper, a mathematical model is implemented in MATLAB to peak-shave and valley-fill the power consumption profile of a university building by scheduling the charging/discharging process in an electric vehicle parking lot, using real-world data of power consumption and parking lot occupancy.

How do battery energy storage systems improve battery performance?

Battery Energy Storage Systems (BESS) are essential for peak shaving, balancing power supply and demand while enhancing grid efficiency. This study proposes a cycle-based control strategy for charging and discharging, which optimizes capture rate (CR), release rate (RR), and capacity utilization rate (CUR), improving BESS performance.

What is peak shaving & valley filling?

In addition, the general concept of peak shaving and valley filling aims at flattening a given load curve by shifting the load throughout a selected time horizon using ancillary power sources.



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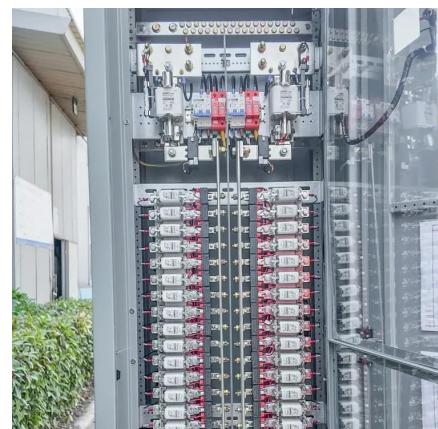
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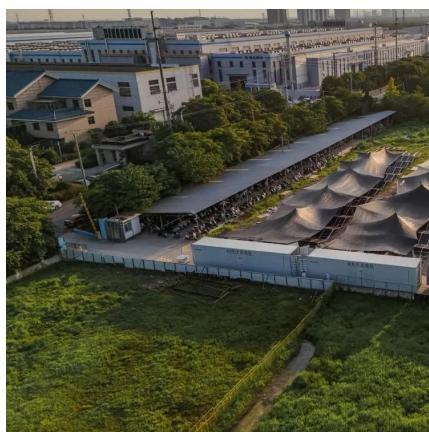
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[User-side Peak Shaving and Valley Filling Applications](#)

Program Overview User-side Peak Shaving and Valley Filling Applications Users can manage their electricity consumption by storing energy during off-peak periods and using it during peak

...



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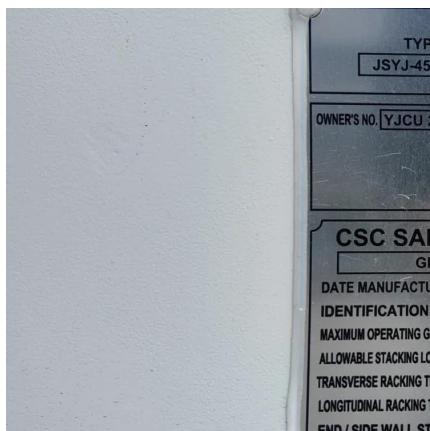
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Peak shaving and valley filling energy storage

of energy storage is limited by the rated power. If the power exceeds the limit, the energy storage charge and discharge power will be sacrificed, and there is a problem of waste of capacity ...



Robust Optimization Scheduling Strategy for User Side Peak Shaving ...

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