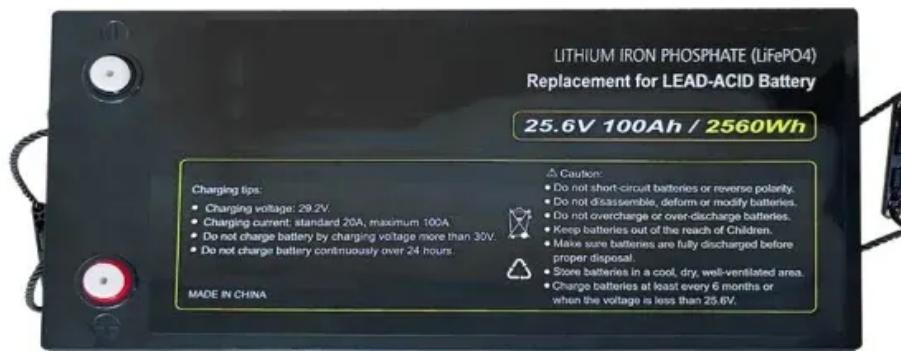


## A-Core Container

# Grid-side application of energy storage pricing mechanism



## Overview

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Therefore, based on the Vickrey-Clarke-Groves (VCG) mechanism design theory, an energy pricing mechanism is proposed for grid-side energy storage power stations to participate in the market to reduce the impact of market power and discover the greatest value of energy storage power plants. How does a capacity tariff work for grid-side energy storage stations?

However, according to the current policy of regulatory pricing, particularly the "Opinions on Further Improving the Price Formation Mechanism for Pumped Storage Energy", the capacity tariff for grid-side energy storage stations essentially functions as an equal annual payment mechanism for initial investment recovery.

Does China need a capacity tariff mechanism for grid-side energy storage?

Therefore, it is necessary to use the capacity tariff mechanism to ensure that the basic income of the energy storage power station is conducive to the operation and survival of the development of energy storage in China at this stage. The Chinese government has proposed implementing a capacity tariff for grid-side energy storage.

How does the grid-side energy storage choose to charge and discharge power?

Charge and discharge power and state of charge of the grid-side energy storage. According to Fig. 7, it can be seen that the grid-side energy storage chooses to charge at the time of low and flat electricity prices and discharge at the time of peak electricity prices.

What is a grid-side energy storage operator?

Regarding the operating model, the grid-side energy storage operator provides services to the grid, while the grid pays the energy storage plant operator for leasing the energy storage plant, which is the capacity tariff. The grid and energy storage operators often have conflicting interests as independent economic entities.

Can a capacity tariff optimization model save the energy storage system cost?

If we do not consider the Stackelberg game mechanism, the capacity tariff of the energy storage plant is calculated as 584.76 CNY/MW according to the traditional method, which shows that the capacity tariff optimization model of the grid energy storage plant proposed in this paper can save the system cost.

How do energy storage operators make decisions?

Energy storage operators act as followers, making decisions regarding storage capacity and operational strategies based on the tariffs set by the grid. Their decision-making process incorporates historical capacity tariffs, operating costs, expected returns, and market dynamics.

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