

Energy storage bidding method

What is the bidding strategy for energy storage capacity?

Velazquez et al. base their bidding strategy on the study of the residual demand curve. The bidding of energy storage capacity on the electricity market adds a layer of complexity. The battery has a limited capacity and accumulates revenue by scheduling efficiently generation and load modes. J. Arteaga et al. develop price-taker.

Should price endogeneity be considered in storage bidding strategies?

Nevertheless, price endogeneity is rarely considered in storage bidding strategies and modeling the electricity market is a challenging task. Meanwhile, model-free reinforcement learning such as the Actor-Critic are becoming increasingly popular for designing energy system controllers.

What are RL-based bidding methods?

However, current RL-based bidding methods mostly employ low-dimensional bids (LDBs), which significantly diverge from the N price-power pairs commonly used in current electricity markets. The N -pair bid format is denoted as high-dimensional bid (HDB) format, which has not been fully integrated into the existing RL-based bidding methods.

Can HDBs be used in RL-based bidding methods?

The loss of flexibility of current RL-based bidding methods could greatly limit the bidding profits and make it difficult to address the increasing uncertainties caused by renewable energy generation. In this paper, we propose a framework for fully utilizing HDBs in RL-based bidding methods.

How does the bidding process work?

One step of the bidding process is represented in Fig. 1, where the demand is the vertical black line. At the point where the cumulative bid capacity reaches the demand, the market clears at this bid price, represented by the green line on the figure. This price is the so-called clearing price.

What is the bidding strategy of Bess in the frequency regulation market?

Aiming at the multi time scale clearing mechanism in the frequency regulation market, this paper divides the bidding strategy of the BESS participating in the frequency regulation market into two stages: the day ahead market (DAM) and the real time market (RTM).



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Web: <https://www.solarcomplete.co.za/contact-us/>

Email: energystorage2000@gmail.com

WhatsApp: 8613816583346

