

Frequency regulation energy storage device at the power plant side





Overview

In view of the frequency fluctuation of the new power system caused by large-scale new energy grid connection, a secondary frequency modulation control strategy for grid-side energy storage devices is proposed, which takes the grid frequency modulation demand and batteries' frequency modulation capability into account. Do energy storage systems participate in frequency regulation?

Current research on energy storage control strategies primarily focuses on whether energy storage systems participate in frequency regulation independently or in coordination with wind farms and photovoltaic power plants .

Can large-scale battery energy storage systems participate in system frequency regulation?

In the end, a control framework for large-scale battery energy storage systems jointly with thermal power units to participate in system frequency regulation is constructed, and the proposed frequency regulation strategy is studied and analyzed in the EPRI-36 node model.

How does frequency regulation affect the discharge power of energy storage system?

Under the condition of frequency regulation, the discharge power of the energy storage system will gradually decrease when the SOC is at low boundary value, and finally it will not be able to discharge when it reaches the critical value of SOC. When the value of K_{pa} is 10, λ When the value of is 20, it is shown in Fig. 6.

Are battery frequency regulation strategies effective?

The results of the study show that the proposed battery frequency regulation control strategies can quickly respond to system frequency changes at the beginning of grid system frequency fluctuations, which improves the stability of the new power system frequency including battery energy storage.



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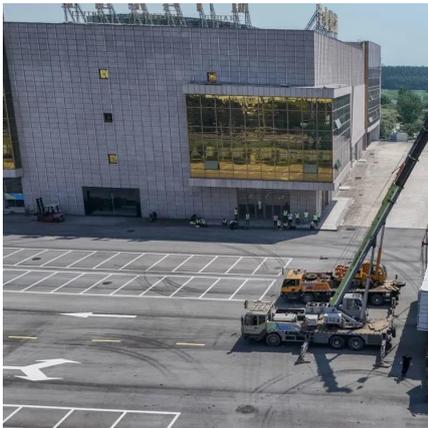
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