

All the above studies are single energy storage-assisted thermal power units participating in frequency modulation, for actual thermal power units, the use of a single energy ...

Finally, a provincial power grid in northeast China is taken as an example to verify that hydrogen energy storage equipment assisting thermal power unit flexibility transformation can better support load ...

Building latent cooling and humidification loads are difficult to shift with conventional sensible thermal storage, which limits demand-side flexibility in humid climates. To address this challenge, this study ...

Electric heat storage technology has broad prospects in terms of in-depth peak shaving of power grids, improving new energy utilization rates and ...

With the increasing grid-connected capacity of renewable energy, the challenges of peak-load regulation for cogeneration units have intensified. To address the aforementioned issues, a ...

Second, the peak-load regulation characteristics of the TC-DRH-IC S-CO₂ cycle are analyzed. A comprehensive evaluation method of dynamic control performance considering load ...

Thermal power and energy storage for peak load regulation A two-layer scheduling method of energy storage that considers the uncertainty of both source and load is proposed to coordinate thermal ...

The SOC of the hot and chilled water storage tanks represents the energy storage status, and monitoring and controlling it maintains thermal energy supply-demand balance, ensuring ...

The simulation example shows that the virtual power plant and its day-ahead and intra-day optimal peak regulation strategy can reduce the peak ...

According to the energy flow direction, the CSP plant has two operating modes: load mode of peak regulation and power source of peak regulation. During the low-demand period, EH can convert the ...

New energy storage methods based on electrochemistry can not only participate in peak shaving of the power grid but also provide inertia and ...

A concentrating solar power (CSP) plant with a high-capacity thermal storage system (TES) is a utilization form of solar energy (Zhang et al., 2022). TES can store heat energy efficiently. ...

Abstract As the installed capacity of new energy generation and the proportion of grid-connected generation continues to increase, the deep peaking of thermal power units becomes more ...

With the increase in the amount of new energy in new power systems, the response speed of power demand changes in combined cycle gas ...

Accordingly, the proportion of electricity generated by local thermal power units has declined to 40% in Shanghai. Referring to the peak load regulation capacity defined in, the decline of local thermal ...

The results indicate that, to achieve efficient load regulation from 0% to 100% for a 1000 MWe S-CO₂ CFPP, the priority configuration for thermal energy storage is CO₂ TES, followed by ...

The application of energy storage unit is a measure to reduce the peak load regulation pressure of thermal power units. In this paper, a joint optimal scheduling model of photovoltaic, energy storage ...

With the increasing peak-valley difference of power grid and the increasing proportion of nuclear power supply structure, it is imperative for nuclear power to participate in Peak load ...

Thermal power generation is a reliable and adaptable method for producing electric power, effectively compensating for the inherent fluctuations associated with renewable energy sources [.,]. To explore ...

To balance the peak-valley (off-peak) difference of the load in the system, the power system peak load regulation is utilized through adjustment of the output power and operating states ...

A two-layer scheduling method of energy storage that considers the uncertainty of both source and load is proposed to coordinate thermal power with composite energy storage to participate in the peak ...

The molten salt solar power tower station equipped with thermal energy storage can effectively compensate for the instability and periodic fluctuation of solar energy, and a reasonable ...

On this basis, an optimal energy storage allocation model in a thermal power plant is proposed, which aims to maximize the total economic profits obtained from peak regulation and ...

The simulation example shows that the virtual power plant and its day-ahead and intra-day optimal peak regulation strategy can reduce the peak regulation cost of the power system, as compared with the ...

With the rapid development of new energy in recent years, its proportion in the power grid is increasing. The impact of its randomness, intermittence and negative peak regulation ...

In the context of constructing new power systems, the intermittency and volatility of high-penetration

renewable generation pose new ...

The peak load regulation problem causes challenges to the power system, and countermeasures are studied on the demand side and the generation side. On the demand side, demand response ...

This application is required to be submitted to the Chinese Patent Office on March 07, 2017, the application number is 201710132312.1, and the Chinese patent application titled "A system of peak ...

A two-stage stochastic optimization approach is then utilized for day-ahead pre-dispatch of thermal power and storage units, and intraday dispatch adjustments are made to ...

???: ????, ??, ????, ?????, ?????, ??? Abstract: The integration of thermal power plants with heat storage technology can enhance the decoupling capability of the units, ...

The nuclear power plant is arranged to participate in peak load regulation of the system only when the peak load regulating capacity is insufficient after considering the capacity of ...

The load variation rate of the coal-fired power unit in China is generally around 2%, and the new technology is needed to further improve the load variation rate and to increase the peak regulation ...

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