

<div class="df_qntext">What is the optimal scheduling model for power system peak load regulation?

Conclusion This paper presented an optimal scheduling model for power system peak load regulation considering the short-time startup and shutdown operations of a thermal power unit. As the main resource on the generation side, the intrinsic capacity of the thermal units in the system peak load regulation was studied in this paper.

<div class="df_qntext">What is peak load regulation?

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 of power generator units in both peak and off-peak hours.

<div class="df_qntext">Can peak load regulation cost be integrated into the optimal scheduling model?

To the best of our knowledge, this study is the first to integrate different modes' peak load regulation cost of thermal units into the optimal scheduling model. The proposed method was verified in a real prefecture-level urban power system in southwest China, and its modified test systems.

<div class="df_qntext">What is the peak load demand of a solar system?

It can be observed from Fig. 4 that the peak load demand of the system is 1500 MW at 12th hour. The next subsequent peak of 1400 MW is observed at 20th hour of the next day. In this case study, load uncertainty is introduced on the maximum side, with the upper bound established as mentioned in Eq. (18), in the absence of PV-ES.

<div class="df_qntext">Can thermal units be used in peak load regulation?

The proposed method was verified in a real prefecture-level urban power system in southwest China, and its modified test systems. The case studies demonstrated the intrinsic capacity of the thermal units in the system peak load regulation.

<div class="df_qntext">Can a prefecture-level urban power system regulate peak load?

An integrated optimal scheduling model for power system peak load regulation with a suitable rolling optimization strategy is proposed. A real prefecture-level urban power system in southwest China and its modified test systems are used to test and verify the validity and effectiveness of the proposed methodology.

1. Introduction

According to the mechanism of peak load regulation auxiliary service in Northeast China, this paper puts forward the strategy model of participating in peak load regulation auxiliary service of ...

With the advancement of the "dual carbon" strategy, the installed capacity of clean energy such as

photovoltaics and wind power continues to increase. Due to their instability in power ...

After quantitatively analysing the peak load regulation cost of nuclear power, the optimal objective is set to minimise the total operation cost including the fuel cost, the start-stop cost, and the peak load ...

In this study, with different peak load regulation modes, thermal power units are considered for peak load regulation in power systems. An optimal scheduling model integrating the ...

Peak-regulation refers to the planned regulation of generation to follow the load variation pattern either in peak load or valley load periods. Sufficient peak-regulation capability is necessary for ...

In this paper, the heat transport and load response characteristics of the molten salt STP plant in the regulation process are studied, aiming at serving the development of the regulation ...

Concentrating solar power (CSP) is a new way to make large-scale use of solar energy, and the heat storage system can improve the output characteristics of the CSP, and then mitigate the peak load ...

Abstract Increasing proportion of nuclear power plants (NPPs) and prominent disparity of peak load and valley load in electric power industry has ...

In response to this challenge, this paper introduces an optimal scheduling methodology grounded in a two-stage stochastic model tailored for power systems, which incorporates thermal ...

The multi-timescale regulation capability of the power system (peak and frequency regulation, etc.) is supported by flexible resources, whose capacity requirements depend on ...

Abstract The peak regulation capacity of gas-fired power plants has always been an important flexibility resource of the power grid. Under the guidance of carbon emission reduction, the ...

Request PDF | Control strategy of molten salt solar power tower plant function as peak load regulation in grid | Due to its inherent intermittency and fluctuation, renewable energy ...

Abstract: Utilizing the power maximization model of short-term peak-load regulation, this paper analyzes the hydro-thermal joint peak-load regulation of power system based on multiple ...

This work provides the comprehensive framework for coordinated planning and operation of CSP-PV hybrid plants in peak regulation ancillary service markets, offering both theoretical advancements and ...

Addressing renewable energy (RE) curtailment in power systems necessitates a comprehensive strategy leveraging peak regulation resources from both the power and load sides. ...

The example simulation verifies that the proposed model significantly optimizes nuclear power peak regulation mode, promotes photovoltaic power consumption, alleviates peak regulation ...

Comprehensively considering the operation cost and safety constraints of nuclear power, an optimal operation scheme of large-scale nuclear power plant participating in peak load ...

Based on extensive research, introduced the peak load regulation characteristics and capacity of different nuclear power plant (NPP) in this paper. The running ...

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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 ...

Under the framework of multi-agent communication, a capacity allocation strategy that can ensure system flexibility and peak-load regulating units' cost recovery is proposed in this paper. ...

Nowadays, quantity of coal-fired power plant and its single unit capacity are greatly improved in China, and power grid's frequency and peak ...

VPPS participating in the peak regulation ancillary service market adjust their power load curve after receiving a dispatch order [6], and it can be effective both as peak-shaving and as valley-filling.

In this paper, the peak-load regulation characteristics of a tri-compressions double-reheating intercooling (TC-DRH-IC) S-CO₂ CFPP (coal-fired power plant) under five control methods ...

Retrofitting Coal-fired Power Plants (CFPPs) with carbon capture equipment not only reduce carbon emissions but also provide a deeper peaking depth to...

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

Although the willingness of thermal power units to participate in peak regulation auxiliary services is low, we propose a peak regulation cost ...

To balance the peak-valley difference of the system load in electrical power systems, the peak load regulation problem has become a major barrier, resulting in challenges to unit commitment (UC). In ...

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This work provides a reference for the flexible peak-load regulation of the S-CO₂ CFPP and evaluation of dynamic performance of different power cycles under different control methods.

Due to the randomness and uncertainty of renewable energy output and the increasing capacity of its access to power system, the deep peak load regulation of power system has been ...

A vehicle-to-grid (V2G) technology enables bidirectional power exchange between electric vehicles (EVs) and the power grid, presenting enhanced grid stability and load management ...

Among them, the molten salt heat storage technology is widely utilized in renewable energy, finding applications in large-scale energy storage of solar and thermal power generation, ...

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