

Solar power generation peak regulation problem

What causes peak-regulation problems of wind power integrated power systems?

The peak-regulation problems of wind power integrated power systems were reviewed in Yuan et al. (2011). Moreover, some measurements for reducing the peak load were studied. Administrative factors and market barriers were regarded as the main causes of renewable energy curtailment.

How does peak load regulation affect the power system?

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 programs encourage consumers to reduce and/or shift their electricity usage during peak hours.

Why is peak-regulation important in power grids?

Peak-regulation in power grids needs to follow the fluctuation of renewable energy generation in addition to the variable load demands. Moreover, the wind power curve usually shows opposite increasing trend to the load curve, which requires more peak-regulation supply to guarantee the secure operation of power grids.

Does nuclear power have peak-regulation capacity?

In this paper, nuclear power is assumed to have no peak-regulation capacity. For renewable energy, the Renewable Energy Act of People's Republic of China stipulates that renewable energy generation can be scheduled in priority during the power grid operation.

What is peak-regulation capability?

Also, the peak-regulation capability determines the renewable energy consumption and power loads of cities by mitigating power output fluctuation in the regulation process of power grid.

Can a concentrated solar power plant with an electric heater join peak regulation?

Therefore, a concentrated solar power (CSP) plant equipped with an electric heater (EH) is implemented to join the peak regulation, and the joint peak regulation strategy between thermal power units (TPUs) and a CSP plant is proposed. Firstly, the peak regulation principle of a CSP plant with EH is analyzed in detail.

Power system flexibility can be improved effectively, if the advantages of the peak shaving ability of molten salt solar tower power (STP) plant can be developed and ...

In the past two decades, clean energy such as hydro, wind, and solar power has achieved significant development under the "green recovery" global goal, and it may ...

Conceptualization of the photovoltaic (PV) power plant. This research also takes into account photovoltaic (PV) power plants, which generate electricity from solar energy ...

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The research on hydro-thermal-wind-solar power generation is roughly classified and summarized in Table 7. The original problem of hydro-thermal-wind-solar power ...

In this paper, a wind-solar combined power generation system is proposed in order to solve the absorption problem of new energy power generation. Based on the existing ...

The results show that the model can effectively improve the system node voltage, promote the accommodation of wind and solar power, and alleviate the peak shaving of thermal power units under the premise of optimal ...

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 ...

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

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Renewable energy sources, mainly wind and solar power are growing rapidly globally in recent decades to decarbonize the economy while meeting rapidly expanding ...

actual peak regulation capacity of gas-fired power plants. In order to make profits, gas-fired power plants build cogeneration units, which are based on heat load to determine the amount of ...

This paper reveals automatic generation control (AGC) strategies of power systems including diverse power generating sources, and comprehensive literature review is ...

Key words: coal-fired power plant /; peak load regulation /; status quo; Abstract: With the development of "Global Energy Internet", wind power, the installation of solar power ...

Therefore, a concentrated solar power (CSP) plant equipped with an electric heater (EH) is implemented to join the peak regulation, and the joint peak regulation strategy ...

The daytime peak loads during solar photovoltaic generation hours were determined by measuring the solar load correlation coefficients between each load profile and ...

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 ...

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