

What is a regional multi-energy system?

Fig. 4. Regional multi-energy system. Among them, the electric energy flowing into the system is distributed to the transformer, electric gas-to-gas, electric refrigerator and electric boiler respectively at a 1, a 2, a 3, a 4 to meet the requirements of load electric energy, gas energy, cold energy and heat energy.

What is energy storage power station?

As a flexible energy peak shaving method, energy storage power station can store excess energy during peak hours, and then release energy during peak demand, thereby alleviating the pressure of the power system, ensuring the stable operation of the power system and reducing the cost of energy supply.

Can joint demand response and shared energy storage optimize multi-regional energy systems?

Finally, the simulation analysis is carried out. The simulation results show that the addition of joint demand response and shared energy storage can guide the scheduling optimization of multiple energy sources in each region in time and space, and realize the energy complementarity and mutual assistance of multi-regional energy systems.

How does the shared energy storage dispatching center work?

The shared energy storage dispatching center calls part of the electric energy charged by the regional systems 1 and 3 to the regional system 2 to meet the electric energy demand of the regional system 2 from 6: 00 to 9: 00.

Is energy storage a viable resource for future power grids?

With declining technology costs and increasing renewable deployment, energy storage is poised to be a valuable resource on future power grids--but what is the total market potential for storage technologies, and what are the key drivers of cost-optimal deployment?

Do multi-area energy systems have a demand-side response capability?

Therefore, in order to enhance the demand-side response capability in multi-energy systems and give full play to the function of energy storage power stations, this paper proposes an optimal scheduling model for multi-area energy systems that considers joint demand response and shared energy storage.

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