



# Multi-regional microgrids

What are the different types of microgrids?

These microgrids include distributed energy sources such as renewable energy (wind turbine or photovoltaic), a microturbine, gas boilers, P2G, and electric energy storage. Each microgrid has the ability to independently control internal devices and interact with the upper distribution networks for power exchange.

Why is multi-energy microgrid integration important?

With the increasing integration of multi-energy microgrid (MEM) and shared energy storage station (SESS), the coordinated operation between MEM and energy storage systems becomes critical. To solve the problems of high operating costs in independent configuration of microgrid and high influence of renewable energy output uncertainty.

What is a multi-energy microgrid system with shared energy storage station?

A multi-energy microgrid system with shared energy storage station is constructed. A multi-stage robust optimal scheduling model is proposed. The column and constraint generation algorithm with an alternating iteration strategy is proposed.

What is the operation status of a microgrid?

The operation status of the devices during the current time period is of particular importance, as the devices in the microgrid are affected by the upper and lower bounds constraints specified as (47) The agent takes actions based on the current state to interact with the environment.

What is the optimal scheduling strategy for a multi-microgrid integrated energy system?

Literature 21 proposed an optimal scheduling strategy based on integrated DR and master-slave game for the multi-microgrid integrated energy system containing power interactions. Literature 22 proposed an integrated DR model that considers power, heat and gas loads by exploring their flexible characteristics and dispatchable values.

What is a multi-microgrid distribution network?

Distribution networks with multi-microgrids have both discrete action devices and continuous action devices, which operate on different time scales. Capacitor agents are usually controlled on an hourly basis, based on adjusting the number of capacitor banks based on network voltage and losses; these may remain unchanged over a long period of time.

????????????????(regional integrated energy system,RIES)?????,????????????,????RIES????????????????

DOI: 10.1016/j.energy.2023.127729 Corpus ID: 258477100; Multi-stage distributionally robust optimization for hybrid energy storage in regional integrated energy system considering ...

The test results show that the outputs of inner micro-sources of microgrids would be influenced in the case that the interactive power among microgrids is under consideration, and the ...

A collaborative multi-energy multi-microgrid optimization model based on hierarchical multi-agent deep reinforcement learning is established. Incorporate the collaborative strategies between ...

Equation 2 shows that in the Stackelberg equilibrium solution, it is impossible for any participant to obtain a smaller cost by unilaterally changing its strategy.. 2.2 Multi ...

This article is part of the Research Topic Demand Side Management in Microgrids View all 10 articles. Low-carbon dispatch of multi-regional integrated energy systems considering integrated demand side ...

With the rapid development of microgrids, dynamic regional multi-microgrid networks are emerging as an efficient and flexible solution in smart distribution networks. To ...

In order to face the challenges of high proportion of wind and photovoltaic in regional multi-microgrids, a coordinated interval optimization scheduling method considering ...

management of active distribution systems with interconnected microgrids. In particular, the emerging SOP technology is used for the flexible connection of the multi-microgrids (MMGs). ...

SOP technology is introduced for flexible interconnection between multi-regional microgrids to actively improve system power flow and achieve security regulation of voltage and economic ...

However, Distribution networks with multi-microgrids exhibit the characteristics of being multi-regional and having multiple stakeholders. Each autonomous entity also has ...

