

Research on the Application of Multi-Energy Complementary Coordination and Optimization of Distributed Renewable Energy

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Abstract:

This paper researches on the Application of Multi-Energy Complementary Coordination and Optimization of Distributed Renewable Energy. Object to the key technologies, which include scheduling architecture, scheduling technology, energy management technology and operation comprehensive evaluation technology for multi-source coordination & optimization, the principles will be described and discussed in detail. As a case study, the paper researches the optimal capacity design of independent micro-grid system for wind-solar combined cooling heating and power system with energy storage, puts forward a dispatching method based on expert time-judge for dynamic control of wind-solar direct permeability and a hierarchical design based on energy storage module. Because of the uncertainty of wind-solar system, this paper adopts fuzzy parameters to describe the system constraints and clarify the opportunity constraints, then optimizes the capacity design on fuzzy constraints and particle swarm optimization, analyses the operation results of optimal capacity allocation under dispatching method and hierarchical design of energy storage.