

Does modified particle swarm algorithm improve microgrid optimization?

The simulation of the optimization effect of the conventional particle swarm algorithm and the modified particle swarm algorithm on the microgrid were carried out, respectively, in MATLAB, which verifies the advantage of the modified particle swarm algorithm on the optimization of microgrids.

What is particle swarm optimization (PSO) for AC/DC Hybrid microgrids?

Last but not least, Rivadulla et al. utilized particle swarm optimization (PSO) to develop a model for AC/DC hybrid microgrids. The optimization of microgrid operations from a multi-objective optimization perspective has been an essential part of research conducted in the field of microgrid optimization scheduling and operational strategies.

Does particle swarm algorithm reduce electricity costs?

Simulation results demonstrate that this model can effectively reduce electricity costs for users and environmental pollution, promoting optimized operation of the microgrid. Moreover, compared to the traditional particle swarm algorithm, the improved particle swarm algorithm offers higher optimization precision. Table 8.

How can particle velocity transformation improve microgrid optimization scheduling?

To enhance the algorithm's performance in microgrid optimization scheduling, this paper improves the particle velocity transformation in the particle swarm algorithm based on improved particle swarm parameters. Specifically, this involves improving the process of particle velocity changes during the PSO process.

How does the modified particle swarm algorithm work?

The modified particle swarm algorithm sets up an external repository in order to filter and store the particles that meet the requirements. The particles in the repository determine the particle swarm moving state, and the addition and deletion of particles in the repository are accomplished by the adaptive grid method.

How can particle swarm optimization improve convergence speed and accuracy?

Secondly, in terms of solving the algorithm, the inertia coefficient and learning factor in the particle swarm optimization algorithm were modified to change the particle velocity in the algorithm, and two sets of functions were used to test the performance of the algorithm, thereby improving convergence speed and accuracy.

In this study, the Pareto optimal solution theory is adopted to solve the multi-objective optimal scheduling problem of microgrids; the traditional particle swarm and improved particle swarm algorithms are used as the

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Keywords: multi-objective particle swarm algorithm, household microgrid optimization, distributed energy,

economic, effectiveness. Citation: Huang Y, He G, Pu Z, Zhang Y, Luo Q and Ding C (2024) Multi-objective particle swarm ...

With the vigorous development of renewable energy, multitude distributed generators have been connected to the microgrid system. This will lead to instability and volatility of microgrid, which ...

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Particle swarm optimization (PSO) is a non-gradient-based evolutionary algorithm used for cost optimization due to its high performance and ease of implementation. Regarding microgrid ...

To offer an optimal solution for managing microgrids with hybrid renewable energy sources (HRESs) while taking microgrid reserve margins into account, the particle swarm optimisation (PSO) method is suggested.

To enhance the algorithm's performance in microgrid optimization scheduling, this paper improves the particle velocity transformation in the particle swarm algorithm based on improved particle swarm parameters. Specifically, ...

fault location. Gush et al. [13] proposed fault detection and location in a microgrid using mathematical morphology and recursive least-square methods to detect and classify the faults ...

Controlling the microgrid is all about the energy flow control, voltage regulation, maintaining stability and making sure the equipment is secure. In the article, you will find the examples on ...

It is of great significance to study how to use intelligent algorithm to optimize the scheduling of microgrid, so as to improve the operation efficiency of microgrid. In this paper, ...

The Particle Swarm Optimization Algorithm is used for determining the optimal operation of the solar, geothermal and biomass units of the microgrid, the purpose being cost ...

In this study, we propose a multi-objective particle swarm algorithm-based optimal scheduling method for household microgrids. A household microgrid optimization model is formulated, taking into account time-sharing tariffs and users' travel ...

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