

Solar Energy South Africa

Microgrid optimization dispatch formula



Overview

The basic optimal dispatch problem can be formulated by: $(P0) \min \sum_{t=1}^T \{x_t\} = 1$
 $T \sum_{t=1}^T f_t Ope(x_t, \xi_t) + f_t Mtn(x_t, z_t, \xi_t) - R_t DR - \lambda util u_t(x_t)$ s. t. $x_t \in X_t(z_t, \xi_t), z_t \in \cdot$. What is optimal dispatching of a microgrid?

As a core technology of microgrid, optimal dispatching of the microgrid is an important support to deal with the uncertainty of renewable energy and load and ensure the economic and reliable operation of the microgrid [5, 6]. Regarding the optimal dispatch of microgrids, a large number of references have been studied.

What is a multi-objective interval optimization dispatch model for microgrids?

First, a multi-objective interval optimization dispatch (MIOD) model for microgrids is constructed, in which the uncertain power output of wind and photovoltaic (PV) is represented by interval variables. The economic cost, network loss, and branch stability index for microgrids are also optimized.

What is the optimization dispatch method of microgrid?

According to the optimization method, the optimization dispatch method of microgrid can be divided into deterministic method and uncertainty method. The deterministic method takes the predicted value of renewable distributed power as an accurate known quantity and then optimizes the dispatch of the microgrid.

How can a microgrid adaptive robust optimal dispatch model be improved?

By increasing the lower bound of the loop, the upper and lower bounds of the Benders algorithm can reach the same value faster, and the final optimization result can be obtained faster. This paper proposes a microgrid adaptive robust optimal dispatch model with different robust adjustment parameters.

How to optimize a microgrid?

The economic cost, network loss, and branch stability index for microgrids are

also optimized. The interval optimization is modeled as a Markov decision process (MDP). Then, an improved DRL algorithm called triplet-critics comprehensive experience replay soft actor-critic (TCSAC) is proposed to solve it.

How to minimize the operating cost of a microgrid?

A two-stage robust optimization model is established to minimize the operating cost of the microgrid under the premise of ensuring the robustness of the microgrid. An improved Benders algorithm is proposed to solve the established optimization model.

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Multi-objective economic dispatch of a microgrid considering ...

Request PDF , On Mar 1, 2020, Hui Hou and others published Multi-objective economic dispatch of a microgrid considering electric vehicle and transferable load , Find, read and cite all the

Adaptive robust optimal dispatch of microgrid based ...

This paper proposes a microgrid adaptive robust optimal dispatch model with different robust adjustment parameters. The robust equivalent characterization method is used to convert uncertain parameters ...



Optimal dispatching of microgrid based on improved ...

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Literature (Kong et al., Citation 2021) established a multi-objective microgrid operation optimization model based on the optimization goals of microgrid economy, reliability, energy efficiency, equivalent load peak-valley difference ...

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