Microgrid Multi-Objective Scheduling

To address the above problems, this paper proposes a multi-time scale optimal scheduling strategy for microgrid: in the day-ahead scheduling stage, considering the uncertainty of scenery load, a two-stage distributionally robust day-ahead optimal scheduling model is constructed with the objective of minimizing the comprehensive daily operation cost of the ...

The current research on the optimal scheduling of microgrids primarily focuses on models and algorithms. In terms of models, References [2], [3] aimed at the optimal total cost of power generation of microgrids and established a microgrid that considers the consumption of renewable energy. Ren [4] considered renewable energy and load forecast errors and ...

In order to solve the collaborative optimization scheduling of multi-microgrid under the high penetration rate of new energy, this paper considered the energy interaction between micro-grids in multi-microgrid and the relationship between new energy consumption and electricity cost, constructed a collaborative scheduling model considering both micro-grid load ...

The integration of microgrids and the combined cooling heating and power (CCHP) systems can foster a better utilization of energy. In order to achieve economic optimization and peak-load reduction of the CCHP microgrids model, this paper proposes a multi-objective optimal scheduling model for CCHP microgrids integrated with renewable energy, ...

In this regard, a multi-objective optimization scheduling model for microgrids in grid-connected mode is proposed, which comprehensively considers the operational costs and environmental protection costs of microgrid systems.

Request PDF | A Multi-Objective Approach for Microgrid Scheduling | This paper details an approach for the optimal scheduling of microgrids, including different distributed resources such as ...

Second, balancing multi-microgrid satisfaction and the profit of each MG is taken as the objective function, and the scheduling strategy of each MG is formulated. Also, an improved optimization method is applied to solve the amount of flexible load curtailment of each MG and realize the reasonable scheduling of MMG in the fault state.

Stochastic multi-objective economic-environmental energy and reserve scheduling of microgrids considering battery energy storage system Int J Electr Power Energy Syst, 106 (Mar. 2019), pp. 1 - 16

The development and research of multi-objective evolutionary algorithms with better performance is still a key technique for efficiently solving multi-objective microgrid scheduling problems. Motivated by the above

problems, a microgrid system containing EVs and considering different charging and discharging situations of EVs is constructed.

In this current research study, we implemented the single and multi-objective optimization using the proposed optimization algorithm for the optimal scheduling of the microgrid for all the case studies considered.

Multi-objective optimal scheduling of microgrid with electric vehicles. November 2022 ... To solve these problems, a multi-objective optimization model was established based on the economy and the ...

Optimization methods for a hybrid microgrid system that integrated renewable energy sources (RES) and supplies reliable power to remote areas, were considered in order to overcome the intermittent nature of RESs. The hybrid AC/DC microgrid system was constructed with a solar photovoltaic system, wind turbine, battery storage, converter, and diesel ...

A multi-objective energy scheduling problem for microgrids has been solved in [30] using the DR programs, considering the ... The proposed energy scheduling strategy is carried out on the optimally configured off-grid microgrid. A multi-objective problem is formulated in this work to minimize the operational cost of the off-grid microgrid while ...

Predictions are obtained as point estimates using a time-series LSTM prediction model. Then, a genetic algorithm is used to solve the multi-objective optimization problem of minimizing energy consumption and battery degradation costs. The scheduling of the microgrid is evaluated on a 24-h time horizon and tested on an experimental setup.

In order to solve the influence of the complex interaction relationships among subjects on the system solution accuracy and speed of the Multi-Microgrid system under the high penetration rate of ...

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 patterns with electric vehicles.

The cases are given to optimize objective functions in microgrid. These case studies will be analyzed in the next subsection to ensure optimal operation in microgrid. 6.1 Results analysis. This section confirms the superior performance of the proposed optimization method by addressing a multi-objective capacity problem related to resources.

In recent years, renewable energy has seen widespread application. However, due to its intermittent nature, there is a need to develop energy management systems for its scheduling and control. This paper introduces a multi-stage constraint-handling multi-objective optimization method tailored for resilient microgrid energy management. The microgrid ...

DOI: 10.1016/j.egyr.2022.03.131 Corpus ID: 247901455; Multi-objective optimal scheduling of microgrid with electric vehicles @article{Mei2022MultiobjectiveOS, title={Multi-objective optimal scheduling of microgrid with electric vehicles}, author={Yu Mei and Bin Li and Honglei Wang and Xiaoling Wang and Michael Negnevitsky}, journal={Energy Reports}, year={2022}, ...

Aiming at the problem of large fluctuation of microgrid output and the need for large-scale energy storage equipment to stabilize load fluctuations, this paper uses V2G technology to replace some energy storage equipment with electric vehicle batteries to realize the optimal scheduling of electric vehicles participating in the microgrid. Firstly, a bi-objective cooperative scheduling ...

(DOI: 10.3390/PR7050296) Optimal scheduling of a redundant residential microgrid (RR-microgrid) could yield economical savings and reduce the emission of pollutants while ensuring the comfort level of users. This paper proposes a novel multi-objective optimal scheduling method for a grid-connected RR-microgrid in which the heating/cooling system of ...

Microgrid optimization is one of the most promising solutions to power system issues and new city electrification. This paper presents a strategy for optimal power scheduling of a residential microgrid depending on ...

To design a multi-microgrid power system, an intelligent multi-microgrids energy management method is proposed based on the preference-based multi-objective reinforcement learning (PMORL) techniques.

Multi-objective scheduling and optimization for smart energy systems with energy hubs and microgrids Yanliang Wang a,*, Bo Wang a, Hashem Farjam b a School of Economics and Management, Yanshan University, Qinhuangdao 066004, China b EED, Sun-Life Company, Baku, Azerbaijan A R T I C L E I N F O Keywords: Multi-energy microgrids Demand side ...

The optimization of microgrid operations from a multi-objective optimization perspec- tive has been an essential part of research conducted in the field of microgrid optimization scheduling and operational strategies.

In recent years, distributed generation resources, especially renewable energies, have utilized in different situations; to solve the environmental pollution problems and lack of sufficient energies. In this regard, microgrid"s bi-objective energy scheduling and management are considered with INVELOX wind turbine, micro-turbine, boiler, CHP, ...

The goal is to optimize multi-objective scheduling for a microgrid with wind turbines, micro-turbines, fuel cells, solar photovoltaic systems, and batteries to balance power and store excess ...

In this paper, a multi-objective optimization mathematical model is established based on the comprehensive consideration of economy, environment and battery circulating power in the process of microgrid dispatching.

Aiming at the shortcomings of the traditional multi-objective particle swarm optimization (MOPSO), this paper proposes a multi-objective particle swarm ...

The research in this paper is divided into the following steps: (1) constructing a multi-microgrid model primarily based on renewable energy; (2) formulating an optimization model with the objective of minimizing economic costs while ensuring stable system operation and solving it; (3) proposing an improved differential evolution algorithm for optimizing system ...

The increasing penetration of various distributed and renewable energy resources at the consumption premises, along with the advanced metering, control and communication technologies, promotes a transition on the structure of traditional distribution systems towards cyber-physical multi-microgrids (MMGs). The networked MMG system is an interconnected ...

DOI: 10.1016/J.IJEPES.2017.06.010 Corpus ID: 113637948; Multi objective stochastic microgrid scheduling incorporating dynamic voltage restorer @article{Jirdehi2017MultiOS, title={Multi objective stochastic microgrid scheduling incorporating dynamic voltage restorer}, author={Mehdi Ahmadi Jirdehi and Vahid Sohrabi Tabar and Reza Hemmati and Pierluigi Siano}, ...

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