Microgrid optimization considering uncertainty

Firstly, a microgrid framework incorporating wind-photovoltaic systems and a method for the characterization of wind-photovoltaic uncertainty are proposed.

Finally, a robust optimization method considering source-load uncertainties is developed. Case studies demonstrate that the proposed approach reduces prediction errors by 21.15%, ...

In this paper, single and multi-objective robust optimization of a microgrid (MG) including photovoltaic (PV) and wind turbine (WT) sources with battery storage has been performed in a radial...

Recent studies have explored a variety of optimization strategies for microgrid operations, especially under uncertainty due to renewable energy variability, price fluctuations and load dynamics. ...

Guided by the "carbon peak" and "carbon neutrality" policies, clean energy will rapidly develop. In microgrid systems (MGs) with renewable sources, the variabil.

Abstract: Aiming at the challenges brought by the uncertainty of photovoltaic, wind turbine and load to the capacity configuration of microgrid, this paper proposes a bi-level robust optimization configuration method ...

In order to optimize the sizing of the microgrid that comprises wind and photovoltaic generation as well as energy storage, diesel generator and electric vehicles, this paper proposes a two-stage stochastic ...

Abstract Hybrid renewable energy sources and microgrids will determine future electricity generation and supply. Therefore, evaluating the uncertain intermittent output power is essential to building ...

In addition, the MG optimization problem with the robust approach with the information gap decision theory (IGDT) with risk-averse strategy is implemented to achieve the maximum radius of uncertainty (MRU) of ...

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