Smart Microgrid Operation Cost Control

ABSTRACT The concept of microgrids (MGs) as compact power systems, incorporating distributed energy resources, generating units, storage systems, and loads, is widely acknowledged ...

The state of the art on microgrid operation typically considers a flat and static partition of the power system into microgrids that are coordinated via either centralized or distributed control ...

Efficient and intelligent control strategies are crucial for optimizing MG operations and maximizing the utilization of distributed energy resources, storage systems, networks, and loads.

The global transition to sustainable energy demands efficient integration of renewable resources and resilient operation of microgrids (MGs). This study aims to develop a cost-effective and ...

The framework portrays the objectives of an intelligent microgrid, aiming to minimize operational costs, CO2 emissions, peak-to-average ratio (PAR), and energy consumption while ...

Leveraging the NSGA-II algorithm, coupled with renewable energy resources and optimal energy storage system scheduling, yielded significant reductions in overall expenses, PAR, CO2 ...

Smart grids" dynamic models were developed by reviewing different estimation strategies and control technologies. A Microgrid control system is made up of primary, secondary, and tertiary hierarchical ...

The aim is to consolidate the latest developments in smart microgrid management, focusing on energy storage technologies, AI-driven control strategies, and secure communication ...

Smart grid technologies possess innovative tools and frameworks to model the dynamic behaviour of microgrids regardless of their types, structures, etc. Various control and estimation ...

This study aims to minimize the operating costs of the microgrid (MG) by optimizing control variables such as real power generation, generator bus voltages, and transformer tap positions.

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