Intelligent transformation and smart microgrid

According to the findings and conclusions, smart transformers-based meshed hybrid microgrids operated by an optimal energy management system under uncertainty are a potentially feasible ...

This review critically examines the integration of Artificial Intelligence (AI) and Deep Reinforcement Learning (DRL) into smart microgrid platforms, focusing on their role in optimizing sustainable energy ...

Driven by the global energy transition and dual-carbon goals, the smart microgrid, as a combination of distributed energy, energy storage technology and intelligent control, plays an important role in ...

The integration of AI in microgrid control aligns seamlessly with the broader vision of smart cities. In urban environments, where energy demands are high and resources are often constrained, ...

Conducts an in-depth analysis of state-of-the-art nature-inspired and multi-agent-based centralized and decentralized approaches for optimal scheduling of energy generation sources. ...

Microgrid (MG) is the technical blessing that takes the advantages of renewable energy (RE) sources such as wind, solar, biogas, and tidal energy to produce electricity and overcome the aforementioned ...

Leveraging renewable energy sources, smart technologies, and efficient operational strategies, microgrids address challenges such as energy reliability, decarbonization, and economic...

In conclusion, this study presents a comprehensive approach to optimizing Micro Grids (MGs) by integrating advanced algorithms, specifically the Firefly algorithm, Spider Monkey ...

Current smart grids leverage AI to optimize energy management, predict faults, and seamlessly integrate electric vehicles (EVs), reducing transmission losses and improving performance. However, ...

These results confirm the potential of combining deep learning with nature-inspired optimization to support intelligent, low-emission energy management in hydrogen-integrated microgrids.

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