Special Issue

Applications of Smart Microgrids in Renewable Energy Development

Message from the Guest Editors

The global pursuit of carbon neutrality has accelerated energy transitions and the development of renewable energy sources within modern power systems. As a complementary solution to centralized power supply, smart microgrids facilitate renewable energy integration due to their flexible, efficient, and modular nature. Additionally, these decentralized systems contribute significantly to grid enhancement in areas such as frequency stabilization, voltage regulation, demand-side management, etc., which have become more pronounced with the increasing penetration of renewable energy resources. Despite the growing application scenarios for smart microgrids, advancements in microgrid allocation, energy management, and transaction mechanisms are required to adapt to these evolving trends in renewable energy. Addressing these aspects is essential for optimizing the performance of smart microgrids and supporting the development of renewable power systems.

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