Special Issue

Data-Driven Approaches for Sustainable Energy Systems: Forecasting, Storage, and Market Optimization

Message from the Guest Editors

The global energy transition requires innovative, data-driven methodologies to enhance the efficiency, resilience, and sustainability of renewable energy systems. This Special Issue focuses on advanced statistical learning, forecasting, and optimization techniques for the operation and planning of power systems, with particular attention to electricity and gas markets, as well as sustainable energy storage technologies. We invite contributions that leverage time series analysis, game theory, and hierarchical optimization to model complex energy systems under uncertainty, evaluate pricing mechanisms, assess storage deployment strategies, and support policy development. This Issue aims to bridge the gap between modern statistical and optimization tools and their applications in sustainable energy systems, including the growing need for scalable and cost-effective storage solutions. It will complement the existing literature by emphasizing interdisciplinary approaches to support regulatory design, infrastructure planning, and the economic viability of renewable integration.

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I encourage you to contribute a research or comprehensive review article for consideration for publication in Sustainability, an international open access journal which provides an advanced forum for research findings in areas related to sustainability and sustainable development. The journal publishes original research articles, reviews, conference proceedings (peer reviewed full articles) and communications. I am confident you will find the journal contributes to enhancing understanding of sustainability and fostering initiatives and applications of sustainability-based measures and activities.

Editor-in-Chief

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