Special Issue

Optimisation and Management of Energy Systems Through Artificial Intelligence

Message from the Guest Editor

Energy systems face growing challenges due to increasing loads, electrification, and large-scale integration of renewables. Distributed generation, smart grids, electric vehicles, and real-time operational needs make traditional methods insufficient for efficiency, reliability, and resilience. Artificial Intelligence (AI), combined with system data, enables pattern recognition, predictive analysis, and improved decision-making. Advances in machine learning, deep learning, optimisation, and intelligent control provide solutions for energy forecasting, load management, fault detection, predictive maintenance, resource allocation, and system planning. These methods enhance operational flexibility, reduce costs, improve efficiency, and support sustainable energy infrastructures. Topics include AI-based forecasting, smart grid optimisation, energy management, renewable integration, distributed resource control, grid resilience, data-driven planning, reinforcement learning, digital twins, cybersecurity, and AI-supported life cycle assessment.

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Message from the Editor-in-Chief

Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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