

Special Issue

Optimization of Renewable Energy Systems in Competitive Electricity Markets

Message from the Guest Editors

The accelerated integration of variable renewable energy sources is increasingly challenging competitive electricity markets. Meeting this challenge requires optimisation methods that integrate operational uncertainty, settlement timing, and flexibility valuation into market-participation models. This Special Issue seeks concise, high-quality contributions on optimisation methods that enable reliable, efficient renewable participation across short-term electricity market segments—day-ahead markets (DAMs), intraday adjustments, and real-time balancing markets (RTBM). The topics of interest for publication include, but are not limited to,

- market-aware unit commitment strategies,
- co-optimization of energy/reserves/flexibility,
- stochastic and robust formulations for DAM-RTBM decision making,
- bilevel/equilibrium models of strategic bidding,
- distributed or privacy-preserving algorithms for aggregators, VPPs, and energy communities.

Papers evaluating the optimal sizing and scheduling of flexibility technologies (battery storage, demand response, V2G, power-to-X/hydrogen) are especially encouraged, as are studies on network-constrained market clearing and local flexibility markets.

Guest Editors

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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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