

## Special Issue

# Intelligent Optimization and Digital Technologies for Energy Storage Systems in Power Grid Applications

### Message from the Guest Editors

In an era of energy transition and grid modernization, energy storage systems (ESSs) have emerged as a core component for enhancing grid flexibility, reliability, and intelligence. Especially within power grid applications, the role of ESSs has expanded from simple peak-shaving to multi-functional assets supporting frequency regulation, black start, market participation, and renewable energy integration. This Special Issue focuses on cutting-edge research and emerging technologies that support the intelligent optimization, digital modeling, life-cycle management, and market integration of ESSs under grid-oriented scenarios. Topics of interest include, but are not limited to, the following: (1) Theoretical and practical research on intelligent regulation architectures for energy storage; (2) Coordinated optimization and control methods for ESSs spanning generation, grid, and load sides; (3) Key theories for energy storage participation in diversified market mechanisms; (4) Fault diagnosis, lifetime prediction, and second-life utilization technologies for ESSs; (5) Intelligent equipment and key technologies for energy storage dispatch and control.

### Guest Editors

Prof. Dr. Zhaoxi Liu

Dr. Tong Qian

Dr. Zhengyang Hu

### Deadline for manuscript submissions

31 October 2025



## Energies

an Open Access Journal  
by MDPI

Impact Factor 3.2  
CiteScore 7.3



[mdpi.com/si/237828](https://mdpi.com/si/237828)

*Energies*  
Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
[energies@mdpi.com](mailto:energies@mdpi.com)

[mdpi.com/journal/  
energies](https://mdpi.com/journal/energies)





# Energies

---

an Open Access Journal  
by MDPI

---

Impact Factor 3.2  
CiteScore 7.3



[mdpi.com/journal/  
energies](https://mdpi.com/journal/energies)



## About the Journal

### 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.

---

### Editor-in-Chief

Prof. Dr. Enrico Sciubba

Department of Mechanical and Industrial Engineering, University  
Niccolò Cusano, 00166 Roma, Italy

---

### Author Benefits

#### Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

#### High Visibility:

indexed within Scopus, SCIE (Web of Science), Ei Compendex, RePEc, Inspec, CAPlus / SciFinder, and other databases.

#### Journal Rank:

CiteScore - Q1 (Control and Optimization)