Special Issue

AI-Driven Sustainable Energy Systems: Smart Grids, Homeostatic Control, and Distributed Resource Optimization

Message from the Guest Editor

This Special Issue seeks high-quality theoretical, methodological, and applied contributions that explore AI-based solutions for sustainable, intelligent, and resilient energy systems. Particular emphasis is placed on energy homeostasis and homeostatic control mechanisms, distributed intelligence, and scalable optimization frameworks capable of supporting the energy transition while ensuring reliability, affordability, and environmental sustainability.sustainability. Topics include, but are not limited to, the following:

- AI-based control and optimization in smart grids;
- Machine learning for anomaly detection and fault diagnosis;
- Homeostatic and self-healing grid architectures;
- Virtual Power Plants (VPPs) and distributed resource coordination;
- Reinforcement learning for energy dispatch and demand response;
- Cyber–physical systems and grid resilience;
- AI-driven forecasting for renewable integration;
- Edge computing and distributed intelligence in power systems;
- Multi-agent systems for energy management;
- Sustainable energy market design supported by AI.

Guest Editor

Prof. Dr. Franco F. Yanine
Facultad de Ingeniería, Universidad Finis Terrae, Providencia 7501014, Chile

Deadline for manuscript submissions

30 October 2026

Processes

an Open Access Journal by MDPI

Impact Factor 2.8
CiteScore 5.5

mdpi.com/si/275934

Processes
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
processes@mdpi.com

mdpi.com/journal/processes

Processes

an Open Access Journal by MDPI

Impact Factor 2.8
CiteScore 5.5

mdpi.com/journal/processes

About the Journal

Message from the Editor-in-Chief

You are invited to contribute either a research article or a comprehensive review for consideration and publication in *Processes* (ISSN 2227-9717). *Processes* is published in open access format – research articles, reviews, and other content are released on the internet immediately after acceptance. The scientific community and the general public have unlimited, free access to the content. As an open access journal, *Processes* is supported by the authors and their institutes through the payment of article processing charges (APCs) for accepted papers. We would be pleased to welcome you as one of our authors.

Editor-in-Chief

Prof. Dr. Giancarlo Cravotto
Department of Drug Science and Technology, University of Turin, Via P. Giuria 9, 10125 Turin, 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, Inspec, AGRIS, and other databases.

Journal Rank:

CiteScore - Q2 (Chemical Engineering (miscellaneous))