Special Issue

Advances in Supercritical Carbon Dioxide Cycle

Message from the Guest Editors

Supercritical carbon dioxide (sCO2) cycles have attracted significant attention in energy conversion due to high efficiency, compactness, and wide applicability. Compared with traditional steam power cycles, sCO2 cycles offer higher thermal efficiency and smaller equipment size, making them applicable in nuclear power, solar energy, gas turbines, high-grade heating, and waste heat recovery. Future development trends include enhancing cycle efficiency, optimizing system integration, expanding application areas, and optimizing control strategies to drive the commercialization of sCO2 cycles and support the transition to low-carbon energy solutions. Topics of interest for publication include, but are not limited to, the following:

- Thermodynamic optimization of sCO2 cycles
- Development of key components (high-efficiency compressors and expanders, compact and high-performance heat exchangers, cooling and sealing technologies for critical components)
- Control strategies and operational stability
- Expansion of application areas.
- Economic and engineering feasibility analysis.
- Composite utilization of renewable energy.

Guest Editors

Dr. Xiang Qin

Dr. Xu Peng

Dr. Jiaheng Chen

Deadline for manuscript submissions

25 August 2025

Energies

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 7.3

mdpi.com/si/232662

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

mdpi.com/journal/energies

Energies

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 7.3

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)

MDPI