

Special Issue

Advances in Thermal Energy Storage Systems: Methods and Applications

Message from the Guest Editors

This Special Issue aims to explore innovative developments in thermal energy storage systems, including but not limited to advanced storage materials, system modeling and optimization, technoeconomic assessments, and integration into industrial and residential applications. We invite contributions

addressing experimental, numerical, and theoretical advancements in the field, as well as studies on the role of TES in smart grids, district heating, and industrial process integration. Topics of interest include:

- Design and optimization of thermal energy storage systems
- Rock bed and packed bed thermal storage solutions
- Heat transfer in porous media for TES applications
- Seasonal thermal energy storage and long-term energy resilience
- Phase change materials and sorption-based thermal storage
- Integration of TES with heat pumps and renewable energy systems
- Technoeconomic and life cycle assessment of TES technologies
- Computational fluid dynamics (CFD) and machine learning in TES modeling
- Experimental validation and case studies of TES applications

Guest Editors

Prof. Dr. Leyla Amiri

Prof. Dr. Mostafa Safdari Shadloo

Dr. Jaap Hoffmann

Deadline for manuscript submissions

closed (24 April 2026)



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

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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

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