Special Issue

Integrated Energy Storage System for Decarbonization

Message from the Guest Editor

This Special Issue aims to gather the latest scientific and technological advancements in integrated energy storage systems that facilitate deep decarbonization across electricity, heating, transportation, and industrial sectors. Contributions exploring thermodynamic innovation, system integration, sector coupling, techno-economic evaluation, experimental validation, and policy frameworks are all encouraged. Topics of interest include, but are not limited to, the following:

- Power-to-X (PtX) pathways, including Power-to-Gas (PtG) and Power-to-Liquid (PtL), among others.
- Power-to-Gas-to-Power (PtGtP) systems for long-duration storage.
- Integration of renewable energy with advanced conversion cycles.
- Integrated biomass, waste-to-energy, and carbon-capture-based storage systems.
- Hybrid energy storage cycles combining chemical, thermal, and electrical storage.
- Waste heat recovery, cogeneration, and multi-product energy hubs.
- Seasonal storage solutions using hydrogen, methane, ammonia, or synthetic fuels.
- High-pressure oxygen and hydrogen storage for advanced cycle integration.
- Thermodynamic, exergy, and system integration analyses.

Guest Editor

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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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