Special Issue

Heat and Cold Storage for a Net-Zero Future

Message from the Guest Editors

In a net-zero future, most energy should be supplied by renewable energies such as solar and wind energy to reduce the emission of greenhouse gases and related climate problems. However, these sources are strongly volatile and intermittent. Thus, energy storage is required in the future energy system to bridge the gap between energy supply and energy demand. Thermal energy storage (TES, i.e., heat and cold storage) stores thermal energy in materials via temperature change (e.g., molten salt), phase change (e.g., water/ice slurry), or reversible reactions (e.g., CaCO3/CaO). TES technologies have the advantages of a more flexible location and lower investment compared to pumped hydrostorage, lower storage cost, larger storage capacity (GWhel scale), higher safety, and more environmental friendliness than batteries due to the simple, affordable materials used. TES technologies have been widely applied in the field of energies, e.g., power generation, grid storage for stabilization, and heat and cold energy management.

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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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