Special Issue

Energy-Sharing Mechanisms and Renewable Energy Communities: State of Development, Technologies, Challenges and Opportunities

Message from the Guest Editors

Energy-sharing mechanisms and renewable energy communities (RECs) have changed the paradigm of energy production, distribution, and consumption. The increasing number of decentralized renewable energy systems allows communities to reduce their dependence on traditional grid systems and share surplus energy using digital platforms and smart grids. From a technological point of view, the success of RECs depends on advancements in energy storage systems, blockchain for peer-to-peer trading, and evolving energy management systems. Despite the huge impacts, many challenges remain. A fundamental aspect to ensure the success of these new energy paradigms encompasses community engagement, as well as the formation and information of populations regarding personal and social opportunities, such as increased energy independence, lower carbon emissions, and economic benefits for participating households. Energy-sharing mechanisms also support the transition to more resilient and sustainable energy systems, aligned with the climate action goals and the democratization of energy.

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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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