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Special Issue Reprint

New Insights into Hybrid Renewable Energy Systems in Buildings

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This Reprint collects high-quality contributions addressing research advances in hybrid renewable energy systems in buildings, focusing on innovative solutions and supporting the energy transition towards a more sustainable built environment. As buildings account for a significant share of energy consumption and environmental impact, sustainability in buildings is crucial. Hybrid configurations combining multiple energy sources, storage technologies, and control systems are emerging as key elements to enable progress in energy efficiency and flexibility towards the mitigation of environmental impact and resource depletion. The collected papers explore innovations in renewable energy generation systems at the building level; heating, ventilation and air conditioning systems; and building design. Dedicated attention is paid to the design, modeling, control, and optimization of systems, as well as considering how they interact with users and the environment, taking advantage of advanced design and control methods. By presenting novel methodologies, case studies, and quantitative outcomes and findings, this Reprint presents new insights in the design, integration, and operation of hybrid renewable energy systems in the built environment to contribute to the design, operation, or refurbishment of buildings.

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