Special Issue

Application of Solar Energy in Climate-Neutral Buildings and Communities

Message from the Guest Editors

Many countries have announced dates by which they want to be carbon neutral, with many of them setting the year 2050 as a target. The building sector accounts for nearly 40% of the global carbon emissions. Building operations are responsible for 28% of those total emissions. Climate-neutral buildings and communities is the only option for the building sector in the near future. Solar thermal and solar electric (photovoltaic) energy can be used to reduce electricity, heating and cooling demand for the operation of the buildings. Solar energy technologies can provide a large share of low-temperature heating and cooling demand for buildings in 2050 and contribute a significant share to heat supply for the agricultural and industrial sectors. In this Special Issue, manuscripts regarding solar radiation, solar heating, solar cooling, PV, PVT, passive solar buildings and so on are very welcome. The goal of this Special Issue is to exchange the latest research and developments on solar energy. For further reading, please follow the link to the Special Issue Website at: https://www.mdpi.com/journal/buildings/special_issues/ Climate_Neutral

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About the Journal

Message from the Editor-in-Chief

Current urban environments are home to multi-modal transit systems, extensive energy grids, a building stock, and integrated services. Sprawling neighborhoods are composed of buildings that accommodate living and working quarters. However, it is expected that the cities and communities of the future will face complex and enormous challenges, including maintenance, interconnectivity, resilience, energy efficiency, and sustainability issues, to name but a few. A smart city uses advanced technologies and a digital infrastructure to improve the outcomes in every aspect of a city's operations. A smart building optimizes the experience of occupants, staff, and management by using a modern and connected environment. Innovations in technology that can bring dramatic improvements to design, planning, and policy are critical in developing the cities and buildings of the future.

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