



Achieving Carbon Neutrality in Urban Infrastructure Development

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Message from the Guest Editors

Dear Colleagues,

Modern urban development often comes with considerable environmental costs, including significant energy consumption and greenhouse gas emissions.

To address these issues, there is a pressing need to transition from traditional modes of infrastructure development to a sustainable, green, and low-carbon approach. Various target research areas have emerged in this context, including the estimation of infrastructure carbon emissions, the examination of contributing factors, the impact of these emissions on regional development, and strategies for carbon reduction and efficiency improvement.

In this Special Issue, we are particularly interested in the following topics, although this list is not exhaustive:

- The development and refinement of infrastructure carbon emission monitoring systems.
- The synergistic effects and influencing mechanisms of infrastructure carbon emission reduction.
- Evaluations of policy effectiveness concerning infrastructure carbon emission reduction.
- Pathways for enhancing the quality of green, low-carbon development.
- Strategies and policies for green and low-carbon transformation in infrastructure development.



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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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