

Special Issue

Enhancing Flexibility and Security in Net-Zero Integrated Energy Systems Through Emerging Technologies

Message from the Guest Editors

Climate change is one of the most pressing challenges that humanity is facing today, and the construction of a net-zero integrated energy system has become a key goal in the global energy transition. In this situation, rapid advancements in AI, IoT, and digital twin technology have provided unprecedented opportunities for innovation in integrated energy systems. However, key issues need to be addressed, such as how to achieve efficient coordination among multiple energy forms, and how to enhance the resilience of integrated energy systems. This Special Issue will explore these opportunities and challenges to create more flexible and secure integrated energy systems.

- planning, integration, collaborative optimization, and control of multi-energy forms;
- carbon emission assessment, monitoring, and decarbonization pathway optimization for urban integrated energy systems;
- modeling, scheduling, and control of flexible resources in urban integrated energy systems;
- security assessment, risk identification, and resilience enhancement for urban integrated energy systems;
- applications of emerging technologies such as AI, IoT in urban integrated energy systems

Guest Editors

Dr. Shaohua Yang

Prof. Dr. Jianwei Li

Dr. Tao Chen

Dr. Sheng Wang

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Electricity
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
electricity@mdpi.com

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Editor-in-Chief

Prof. Dr. Andreas Sumper
CITCEA-UPC, Department of Electrical Engineering, Universitat
Politecnica de Catalunya, 08028 Barcelona, Spain

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