

## Special Issue

# Next-Generation Electric Vehicles: Advances in Powertrains and Charging Systems

### Message from the Guest Editors

Key areas of interest include, but are not limited to, the following:

- Advanced control strategies for EV integration into renewable-rich power systems;
- Dynamic stability analysis of power electronic converters in EV-connected networks;
- Coordinated energy and power management in EV fleets with renewable sources;
- Vehicle-to-grid (V2G), grid-to-vehicle (G2V), and vehicle-to-everything (V2X) control systems;
- Modelling and real-time simulation (HIL) of EV-grid interaction under varying operating conditions;
- Development and application of advanced control methods—including but not limited to predictive and adaptive strategies—for grid-connected inverters and charging systems;
- Fault ride-through and resilience enhancement for EV-interfaced systems;
- Hierarchical and distributed control architectures for EV and renewable energy integration;
- Integration of battery management systems (BMS) and charging infrastructure with smart grids;
- Power hardware-in-the-loop (PHIL) and digital twin applications for system validation.

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### Guest Editors

Dr. Muhammad Talib Faiz

Prof. Dr. Omar Hegazy

Prof. Dr. Mohamed El Baghdadi

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### Deadline for manuscript submissions

15 July 2026



## Energies

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*Energies*  
Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
[energies@mdpi.com](mailto:energies@mdpi.com)

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## About the Journal

### Message from the Editor-in-Chief

*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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### Editor-in-Chief

Prof. Dr. Enrico Sciubba

Department of Mechanical and Industrial Engineering, University  
Niccolò Cusano, 00166 Roma, Italy

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