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.

Guest Editors

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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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