Special Issue

Challenges and Prospects of Grid Support in Grid-Forming Inverters

Message from the Guest Editors

Grid-forming converters are controlled to exhibit a voltage source-like behavior, similarly to synchronous generators, and to rapidly support the grid voltage during faults by reactive current injection. However, due to the voltage source-like behavior, grid-forming converters are subject to overcurrent during faults and loss of synchronism with the grid. Therefore, effective control strategies for grid-forming converters to properly support the power grid during large disturbances are highly requested. The topics of interest for this Special Issue include the following:

- Transient stability of grid-forming converters: analysis and enhancement strategies;
- Current limitation strategies in grid-forming converters;
- Synchronization of grid-forming converters during grid faults and loss of synchronization problems;
- Modeling of grid-forming converters for stability analysis;
- Small-signal stability and control interactions in grid-forming converters;
- Interactions between grid-forming and grid-following converters;
- Inertia emulation in power converters.

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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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