

## Special Issue

# Optimal Integration of Energy Storage and Conversion in Smart Grids

### Message from the Guest Editors

As smart grids continue to evolve, energy storage and conversion play an important role. Energy storage devices utilize various services, such as peak shaving, power quality improvement, network reliability, short-term energy supply, and improvements in power supply performance, to compensate for the power imbalance between the RES units and loads. Microgrids require an energy storage system to solve mismatch problems and suit the power system's requirements. The DC–DC converter associated with the battery in BESS controls the battery voltage and current by performing bucking/boosting operations. In order to coordinate the power-sharing among the heterogeneous energy storage devices spread out over the MG, various control strategies, such as centralized control methods and decentralized control approaches, have been developed for the BES units inside MGs. Novel forms of energy storage and their integration into the grid are the focus of this Special Issue. The emerging methods/techniques to compensate for frequency deviation and low power quality due to the integration of energy storage devices or microgrids into the main grid will be explored in this Issue.

### Guest Editors

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### Deadline for manuscript submissions

closed (15 July 2025)



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