



## Optimal Integration of Energy Storage and Conversion in Smart Grids

Guest Editors:

**Dr. Irfan Ahmad Khan**

Clean and Resilient Energy  
Systems (CARES) Lab, Electrical  
and Computer Engineering  
Department, Texas A & M  
University, Galveston, TX 77553,  
USA

**Prof. Dr. Ghulam Abbas**

Department of Electrical  
Engineering, The University of  
Lahore, 1-KM Defence Road,  
Lahore 54000, Pakistan

Deadline for manuscript  
submissions:

**15 June 2024**

### 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.





an Open Access Journal by MDPI

## Editor-in-Chief

### Prof. Dr. Flavio Canavero

Department of Electronics and  
Telecommunications,  
Politecnico di Torino, 10129  
Torino, Italy

## Message from the Editor-in-Chief

*Electronics* is a multidisciplinary journal designed to appeal to a diverse audience of research scientists, practitioners, and developers in academia and industry. The journal is devoted to fast publication of latest technological breakthroughs, cutting-edge developments, and timely reviews of current and emerging technologies related to the broad field of electronics. Experimental and theoretical results are published as regular peer-reviewed articles or as articles within Special Issues guest-edited by leading experts in selected topics of interest.

## Author Benefits

**Open Access:** free for readers, with article processing charges (APC) paid by authors or their institutions.

**High Visibility:** indexed within Scopus, SCIE (Web of Science), CAPlus / SciFinder, Inspec, and other databases.

**Journal Rank:** JCR - Q2 (*Electrical and Electronic Engineering*) CiteScore - Q2 (*Electrical and Electronic Engineering*)

## Contact Us

*Electronics* Editorial Office  
MDPI, St. Alban-Anlage 66  
4052 Basel, Switzerland

Tel: +41 61 683 77 34  
[www.mdpi.com](http://www.mdpi.com)

[mdpi.com/journal/electronics](http://mdpi.com/journal/electronics)  
[electronics@mdpi.com](mailto:electronics@mdpi.com)  
[X@electronicsMDPI](https://twitter.com/electronicsMDPI)