

Call for Papers

## IEEE Transactions on Industry Applications

### Special Issue on

### Advanced and innovative control technologies for grid-resilience-enhancing energy storage systems

Along with the higher penetration of renewables, more frequent natural disasters/disturbing events, and increased level of interconnection between different industrial processes, higher-level flexibility and adaptability are demanded to address the intermittence, rising costs, and high uncertainty and vulnerability in energy supply and utilization. Energy storage systems are bound to play an ever-growing crucial role in future smart grid systems with high power quality and resilience requirements. As the key drivers of a carbon-neutral and smart society, they are also essential to electrified transportation, industrial cyber-physical-social systems, and residential communities. This dispensability has been witnessed by the rapid growth of global energy storage deployments and emerging business paradigms, especially with the proliferation of high-density power batteries and high-efficient power electronics over the past years.

This operational vision for enhancing grid resilience motivates the in-depth investigation of advanced and innovative control technologies for energy storage. The microscopic, component- and system-level optimization and management of energy storage systems and their interplay with other industrial systems are critical to the security and longevity of system deployment. This endeavor on control system development can also be further promoted by incorporating the emerging advancements in data science and artificial intelligence (AI), which have received increasingly explored in the existing body of knowledge.

Prospective authors are invited to submit original works for review and publication in this special issue. Topics of interest include, but are not limited to:

- Advanced control and management for residential and community batteries
- Cooperative control and scheduling of transport-power systems with energy storage
- Novel control of bidirectional power electronic converters for the energy storage applications
- Cyber resilience for cyber-security issues of large-scale energy storage systems
- Risk-preventive charging/discharging control technologies for EV batteries (V2X)
- Data-driven and AI-based control for intelligent energy storage management
- Fast frequency regulation for grid resilience enhancement
- Advanced diagnostic and control of fuel cell/hydrogen systems
- Safety and life management of energy storage systems
- Second-life battery management and utilization

## Submission Guidelines

Authors who wish to submit a paper for consideration must submit an extended abstract (2 pages, free format, PDF version) to Mahinda Vilathgamuwa at mahinda.vilathgamuwa@qut.edu.au. Authors who submit an accepted abstract will receive a formal invitation with detailed instructions for submission of the complete manuscript to the IAS ScholarOne Manuscripts (S1M) site. Refer to <http://www.ias.org> for general information about electronic submission through S1M. Manuscripts submitted for this Special Issue will be reviewed separately and will be handled by a Guest Editorial Board.

## Important Dates

- October 1, 2023: Call for papers announcement
- May 1, 2024: Deadline for extended abstract submission
- June 1, 2024: Decision notification for inviting full paper submissions
- July 1, 2024: Deadline for full paper submission for review in S1M
- January 15, 2025: Notification of final decisions
- February 15, 2025: Due date for submission of final files
- March 1, 2025: Due date for submission of Guest Editorial
- May/June 2025: Publication date

## Guest Editorial Board:

- Mahinda Vilathgamuwa, Queensland University of Technology, Australia
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