

IEEE Transactions on Consumer Electronics

Call for Papers

Special Section on “Power Converters and Generation Systems for Sustainable Energy”

Theme:

Over the past few decades, the penetration of renewable energy has increased, and there has been a growing concern over the control problem due to uncertainties, environmental factors, and other electrical systems constraints regarding reliability. On the other hand, increasingly extreme events such as natural disasters and cyber-attacks significantly impact the power system infrastructure on account of resilience. To deal with these critical problems and achieve better reliability and resilience, various advanced technology solutions need to be introduced, such as energy storage deployments, advanced power electronics, active load management, demand-side management, smart devices, microgrid, ancillary supports, security, etc.

Furthermore, the importance of power electronics in the modern power system is vital, which could drive the energy transition in a better way. In addition, the power converter can play a critical role in consumer electronics by making it more efficient and compact. To achieve this objective, a more advanced power electronic technology solution in the form of components, devices, and a complete-system-integration module is needed. This special issue of sustainability calls for novel frameworks and techniques to improve the reliability and resiliency of the modern power system (i.e., technical and review papers) from experts in academia as well as industry. In addition, it aims to provide a forum for the latest research on the design, control, and applications of power converters for sustainable energy and consumer electronics applications.

Topics of interest in this Special Section include (but are not limited to):

- Renewable energy and microgrid.
- Advanced modeling of power electronics-controlled sustainable grids.
- Power converters used to convert the DC to AC in consumer electronics.
- Converters used to enhance the efficiency of batteries in consumer electronics, such as laptops and smartphones.
- Generation systems, such as fuel cells, can provide backup power for consumer electronics, considering power outage conditions.
- Power quality enhancement using ancillary support.
- Resilience quantification and enhancement of sustainable grids.
- Wireless power transfer technology
- EV technology in sustainable grids.
- Cyber-resilient framework for sustainable grids.
- Application of AI in sustainable grids for reliability/resilience enhancement.
- Integration of solid-state devices into sustainable grids, such as solid-state batteries, solid-state transformers, solid-state power substations, and solid-state converters.
- Emerging Industry 4.0 technologies, including IoT, and Blockchain.

Important dates:

- End of submission of Manuscripts: April 30, 2024
- Expected publication date (tentative): 1st quarter, 2025

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Instructions for authors:

Manuscripts should be prepared following guidelines at: <https://ctsoc.ieee.org/publications/ieee-transactions-on-consumer-electronics.html> and must be submitted online following the IEEE Transactions on Consumer Electronics instructions: <https://ctsoc.ieee.org/publications/ieee-transactions-on-consumer-electronics.html>. During submission, the Special Section on “Power Converters and Generation Systems for Sustainable Energy” should be selected.