



Call for Papers

CMP Chinese Journal of Electrical Engineering

Special Issue on Operation and Control of Power Electronics Dominated Power Systems

Scheduled Publication Time: December 2021

Power electronic converters have been commonly found in renewable energy sources, energy storage systems, flexible AC or DC transmission systems, and the electrifications of different sectors. With the ever-higher penetration of power electronic-based generators, transmission systems and loads, power electronics becomes a foundational technology for modernizing power grids, and power electronics dominated power systems are being built in the near future. Power electronic converters are radically different from electric machines in respect to their physical characteristics and control dynamics. These differences bring new challenges to the operation and control of power electronics dominated power systems. First, the wide-timescale dynamics of power converters bring in stability and power quality issues across a wide frequency range. Second, the limited overloading capability of power semiconductor devices imposes a series of constraints to the transient dynamics of converters, which can deteriorate the resilience of power systems under adverse conditions. The power disruptions caused by unstable interactions in power electronics dominated power systems have been increasingly reported, such as renewable-energy power plants, high-voltage direct-current (HVDC) transmission systems, hyperscale datacenters, and electric railway systems.

This special issue will serve as a forum for reporting the technical challenges and recent advances in the operation and control of power electronics dominated power systems. Topics of interest include, but are not limited to:

- System integration of grid-forming resources in power distribution and transmission grids
- Interoperability of multi-vendor converter-based resources and HVDC systems
- Coordinated control and protection of multi-terminal DC transmission systems and DC power grids
- Stability and power quality issues in networked microgrids and AC/DC/hybrid microgrids
- Sub-synchronous oscillations analysis and risk mitigation
- Harmonic instability analysis and mitigation in converter-based power plants, load centers and transmission systems
- Frequency stability and dynamic analysis in hybrid power systems with synchronous machines and converters
- Transient stability of power electronic dominated power systems
- Data-driven modeling and dynamic analysis for converter-based resources and HVDC systems
- Dynamic representation and aggregation of converter-based resources for power system dynamic studies
- Grid-edge power electronic technologies, e.g. solid-state transformers, active dampers, and smart loads
- Modeling and control of power converters for renewable energy integration into power systems

All manuscripts must be submitted through Manuscript Central at <https://mc03.manuscriptcentral.com/cjee>. Submissions must be clearly marked “**For Special Issue on Operation and Control of Power Electronics Dominated Power Systems**” on the cover page. When uploading your paper, please select your manuscript type “Special Issue.” The information about manuscript preparation and requirements is provided on <http://www.cjeeccmp.com/EN/column/column334.shtml>. Manuscripts submitted for the special issue will be reviewed separately and will be handled by the guest editorial board noted below.

Deadline for Submission of Manuscript: July 31, 2021

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Proposed Timeline:

- Jul. 31, 2021 – Manuscripts Submission Deadline
- Sep. 15, 2021 – Final Acceptance Notification
- Oct. 15, 2021 – Manuscripts Forwarded to CJEE for Publication
- Dec. 31, 2021 – Special Issue Appears in CJEE