Call for Papers

Special Section on Structured Microgrids and Flexible Electronic Large Power Transformers

Structured microgrids (SμGs) and Flexible electronic large power transformers (FeLPTs) are emerging as two essential technologies for renewable energy integration and flexible power transmission. (FeLPT is general term used to describe electronic power transformers at megawatts levels for typical grid and traction applications. Other terms used today include Smart Transformers, Power Electronic Transformer, Solid-State Transformers, etc.) A FeLPT's flexibility for processing, control, and re-configurability offers the capability for flexible transmission for effective flow control and enable SμGs connectivity while still keeping multi-scale system level control. SμGs provides the integration of renewable energy and storage to balance the energy demand and supply as needed for a given design. Challenges in FeLPTs include efficiency, reliability, size and cost parity. Challenges in SμGs include an accurate forecast for renewable availability, cost-effective integration, and efficient control. As the technologies progress, successful integration of solar and battery energy systems has proven to be technically effective and economically beneficial. Australia Hardsdale Solar Farm has reduced the operator cost by tens of millions, and solar and storage based peakers can cost less than diesel based ones.

This special issue will provide a forum for reporting the most recent progress in SμGs, FeLPTs, and related systems issues.

Prospective authors are invited to submit original contributions and survey papers. Papers with applications in nature are particularly welcome. Topics of interest include, but are not limited to the following topics:

- FeLPTs cost and size reduction
- FeLPTs reliability enhancement
- FeLPTs for FACTs applications, particularly for flow control
- FeLPTs related devices and components
- FeLPTs related packaging and system integration
- FeLPTs insertion into substation and operation experience
- SμGs energy balance techniques and algorithms
- SμGs AI for renewable forecasting methods and techniques
- SμGs system integration and operation
- SμGs control techniques for transactive energy
- FeLPTs and SμGs integration and simulation

Brief guideline for authors:

Papers styles:

1. Review articles.
2. Original research.
3. Rapid communications.

All manuscripts must be submitted through Manuscript Central at https://mc03.manuscriptcentral.com/tems. Submissions must be clearly marked "**SμGs and FeLPTs Integration**" on the cover page. When uploading your paper, please select your manuscript type "Special Issue." Refer to http://www.cestems.org for general information about electronic submission through Manuscript Central. Manuscripts submitted for the special issue will be reviewed separately and will be handled by the guest editorial board noted below.

About the journal

The CESTEMS is a quarterly journal published by the China Electrotechnical Society (CES) and the Institute of Electrical Engineering of the Chinese Academy of Sciences, with co-sponsorship of IEEE PELS, starting from March 2017.

Topics of the CESTEMS include but are not limited to electrical machine topologies and designs, field analysis, motor drives, motion control and servo systems, power electronics and power converters, EMI and EMC techniques, renewable energies, xEV and other electrified transportation techniques, applications of new materials, and many others related to the electrical machines and systems.

The CESTEMS is an open-access journal, currently with no publication charge applied to the authors. Published papers will be included in the IEEE Xplore. Inclusion in other globally recognized data base such as the Web of Science (SCI) is under arrangement.

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Joint Technical Publication of CES and IEEE

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Important Dates

Full paper submission:
20 July, 2020
Final decision notification:
20 August, 2020
Publication:
20 September, 2020
In Vol.4, No.3, 2020