Call for Papers
IEEE Transactions on Power Systems

Special Section on
Enabling very high penetration renewable energy integration into future power systems

Renewable energy techniques such as wind power, photovoltaic and concentrated solar power are regarded as the main solution to achieve power system sustainability and energy supply security. Recent years, renewable energy is experiencing a rapid growth, large number of renewable generations have been invested to power systems. In addition to the large centralized renewable generations connected to transmission grids, many distributed renewable generations are operated as distributed generators in distribution systems. Countries around the world set aggressive goal for the very high penetration of renewables in future power systems. However, uncertainty and variability of very high penetration renewables will fundamentally changes the way that the power system balances the generation and load, in terms of both planning in long time scale and operation in short time scale, and in both transmission and distribution networks. Furthermore, new enablers such as storage, demand response and FACT devices are introducing into power systems to facilitate the integration of very high penetration renewables. Such huge transition of power system calls for innovative methodologies for planning and operation of transmission and distribution networks.

This Special Section in IEEE Transactions on Power Systems will address this promising and dynamic area of research and development, while focusing on the new theoretical insights, innovative modeling technique and novel optimizing methodologies. Submitted papers should have original contributions to the studies of significant amount of renewables integration into transmission systems and/or distribution systems. Survey/review papers are also welcome. Topics of interest include, but are not limited to:

- Energy forecasting and its impact on renewable energy accommodation.
- Analysis on the structure of future power system with very high share renewables.
- Power system analysis methods and tools for significant amount of renewable integration
- Methodologies of modeling and analyzing the special-temporal uncertainty and correlation of large scale renewable energy.
- Power system planning methods and tools with high renewable penetration
- Transmission system operation methods and industry case studies with very high renewable penetration
- Distribution system operation methods and industry case studies with very high renewable penetration
- Planning and operation methods and tools for hybrid energy systems to increase renewable integration level in the future energy systems
- Coordinative planning and operation methodology of power system towards very high penetration renewables, including generation-network-load coordination, transmission-distribution coordination, AC and DC interconnection.
- Novel mathematical methods for power system planning and operation optimization with very high penetration renewables.
- Flexibility resources, including Demand response, Distributed energy storage, and multiple energy for power system operation with very high renewables penetration.
- Design and application of power system control methods for better integration of renewables
- Power system stability issues and improvement methods with significant amount of renewable integration
- Situational awareness technique for power system with significant uncertainty.
- Design and application of competitive electricity market structures for very high renewable integration

This Special Section solicits original work that is not under consideration for publication in other venues. Extended abstracts of up to two pages are requested for the first round of reviews. Authors of selected extended abstracts will be invited to submit full papers, of up to eight pages, in a second round of reviews. Prospective authors should refer to http://www.ieee-pes.org/publications/information-for-authors for guidelines on content and formatting of submissions. Please submit a PDF version of the extended abstract, including a cover letter with the authors' contact information to the Guest Editor-in-Chief of this Special Section via e-mail:

Guest Editorial Board:

Chongqing Kang (Guest Editor-in-Chief), Tsinghua University, China (cqkang@tsinghua.edu.cn)
Zhe Chen (Guest Editor-in-Chief), Aalborg University, Denmark (zch@et.aau.dk)
Ning Zhang, Tsinghua University, China (ningzhang@tsinghua.edu.cn)
Oriol Gomis-Bellmunt, Polytechnic University of Catalonia, Spain (ogomis@irec.cat)
Kai Sun, University of Tennessee, USA (kaisun@utk.edu)
Mike Barnes, Manchester University, UK (mike.barnes@manchester.ac.uk)
Jie Yan, North China Electric Power University, China (yanjie@ncepu.edu.cn)
Weihao Hu, Aalborg University, Denmark (whu@et.aau.dk)

Important Dates:

March 31st, 2017: Deadline for extended abstract submission
April 30th, 2017: Decision notification for inviting full paper submissions
August 1st, 2017: Deadline for full paper submission
October 1st, 2017: Notification of final decisions
December 1st, 2017: Publication materials due

Editor-in-Chief of IEEE Transactions on Power Systems:
Nikos Hatziargyriou, National Technical University of Athens, Greece