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Journal of Modern Power Systems and Clean Energy

Special Section on Integrating Ultra-High Levels of Variable Renewable Energy

There is great interest around the world in integrating higher levels of variable renewable energy such as wind and solar photovoltaic into electric power systems from small village power systems to large-scale bulk power grids. This special section of the Journal of Modern Power Systems and Clean Energy will explore ultra-high levels of variable renewable energy (VRE) and their impact on planning and operation of electric power grids. At these levels, the grid becomes dominated by power electronic inverter-based generation, which have significantly different operational characteristics from the synchronous generators used in conventional power plants. Synchronous generators have mechanical inertial that allows them to ride-through system disturbances to maintain grid voltage and frequency levels. Inverter dominated grids will need to develop techniques that provide grid stability during system disturbances. Inverter-based VRE also have different characteristics regarding fault current contributions and black-start capability. In addition, the variable and uncertain nature will require grid operators to think about the best ways to provide operating reserves and in the case where there is organized market, they will need to understand the impacts of providing economic incentives for a variety of market products.

The special section is aimed at discussing the current state and future evolution integrating ultra-high levels of VRE into electric power grids.

The topics of interests include, but are not limited to:

- Advanced power electronics interfaces and controls that allow integration of higher levels of VRE without compromising system stability and reliability
- Modeling and simulation results of power grids with ultra-high levels of VRE
- Operational controls and experience with power grids with ultra-high levels of VRE
- Protection schemes and considerations for integrating ultra-high levels of VRE
- Electrical market and market products that may help power grids with organized markets deal with ultra-high levels of VRE

Submission Guidelines

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**Important Dates**

- **Paper Submission Deadline**: April 30, 2017 extended to May 15, 2017
- **Acceptance Notification**: September 30, 2017
- **Date of Publication**: November 2017

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MPCE sponsored by State Grid Electric Power Research Institute (SGEPRI) is Golden Open Access, peer-reviewed and bimonthly published journal in English. It is published by SGEPRI Press and Springer-Verlag GmbH Berlin Heidelberg commencing from June, 2013. It is indexed in SCIE, Scopus, Google Scholar, CSAD, DOAJ, CSA, OCLC, SCImago, ProQuest, etc. It is the first international power engineering journal originated in mainland China. MPCE publishes original papers, short letters and review articles in the field of modern power systems with focus on smart grid technology and renewable energy integration, etc. MPCE is dedicated to presenting top-level academic achievements in the fields of modern power systems and clean energy by international researchers and engineers, and endeavors to serve as a bridge between Chinese and global researchers in the power industry.
Journal of Modern Power Systems and Clean Energy
Editor-in-Chief: Xue, Y.
ISSN: 2196-5625 (print version)
ISSN: 2196-5420 (electronic version)
Journal no. 40565