

## Guest editorial: special issue on generation and integration technologies for renewable energy

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Renewable energy generations, especially wind power and solar PV generations, are, at this stage, among the most effective technologies in generating electricity from renewable energy resources. There are already large number of wind farms and solar PV farms connected to the high voltage transmission grid worldwide. Distributed generation based on renewable energy resources provides another feasible solution in promoting emission reductions at distribution level. Given all these increasing penetrations of renewable energy based generation sources, however, the renewable sources are intermittent in nature and have introduced various challenges to power system operations and planning. As such many of the large scale renewable energy farms are running at low capacity factors. This special issue provides a timely overview of methodologies of handling the renewable generation grid connection issues aiming at enabling more renewable energy utilization as well as Greenhouse Gas (GHG) emission reductions.

This special issue accepted 11 papers covering the recent research findings in renewable energy grid connection related areas. These papers covered a comprehensive range from primary energy to policy studies. The papers included in this special issue are summarized below.

Zhongfu Tan, H.W. Ngan et al. gave an overview on potential and policy issues for sustainable development of wind power in China. Zhao Xu summarized recent advancements on technical requirements for grid integration of wind power. Robert Smith, Ke Meng et al. studied demand response of air conditioning loads and its impact

on peak demand reductions. Yang Zhang, Fang Yao et al. contributed to this special issue through a particle swarm optimization (PSO) based framework for wind power systems operations. Ping He, Fushuan Wen et al. presented their research on power system small signal stability analysis considering wind power impacts. Cheng Wan, Meng Huang et al. presented stability analysis of grid-connected power converters. Yingying Chen, Z.Y. Dong et al. reported their work on optimal electrical layout design of offshore wind farms. Ning Lu, Maziar Vanouni reported their research on passive energy storage capabilities through distributed loads with thermal storage. The paper by Shengqi Zhang, Yateendra Mishra et al. described their research on operations scheduling for battery energy storage service providers in an electricity market. Fei Yang, Liang Guo described wind power converter thermal design methodologies.

The authors of these papers are acknowledged here for their contributions.

A handwritten signature in black ink, appearing to be 'Z.Y. Dong'.

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