



Qinglai Guo

Associate Professor with the Department of Electrical Engineering at Tsinghua University

Seminar Speaker

Monday, July 24th
10:00-11:30am
WEB 236C

A Combined Analysis Method for EMSs Considering Cyber-Physical Interactions

Abstract: The introduction of information and communications technology (ICT) helps traditional power grids evolve into cyber-physical smart grids, in which energy management systems (EMSs) play an important role. However, their cyber vulnerabilities may lead to inappropriate feedback control actions, thus disrupting power system operation. To describe the coupling mechanism between physical-side power grids and cyber-side EMSs, this talk will introduce our recent works on a combined cyber-physical analysis theory for EMSs, answering two generally concerned questions: how to quantitatively evaluate the degree to which cyber-side contingencies influence the power system operation; and how to optimize the information routings inside an EMS's communication network to improve the operating security of physical-side power systems.

Bio Sketch: Dr. Guo has been appointed Associate Professor of Electrical Engineering Department of Tsinghua University since 2009. He was awarded the National Science Fund for Excellent Young Scholars and the Mao-Yisheng Beijing Youth Technology Award. He is now an IEEE senior member and a CIGRE member, and is involved in 5 workgroups of these two organizations. He is also the co-chair of IEEE PES Task Force on Smart Grid Voltage Control. He is an editorial member of "IEEE Transactions on Smart Grid", "IET Cyber-Physical Systems: Theory & Applications", "IET Renewable Power Generation" and "Journal of Modern Power Systems and Clean Energy". To date he has published more than 150 peer-reviewed papers, including 30+ IEEE journal papers. One paper he supervised was awarded as 2016 IEEE PES Student Prize Paper. His two papers were selected as best conference papers of IEEE PES General Meeting. To date he has been rewarded 1 national award and 10 provincial awards for his research contribution.