Fall 2014 Seminar Series
Presented by the ECE Division

AN INTELLIGENT RESTORATION SYSTEM FOR A SELF-HEALING SMART GRID

FRIDAY DECEMBER 5, 2014
1:00 PM – HEC 450

Self-healing is one of the key features for a smart grid. Electric power systems are expected to be restored from major outages efficiently and safely. The current power system restoration practices are based on using guidelines developed offline. As such, the power system restoration remains a great concern in the evolving smart grid. The lack of online adaptive restoration tools leads to an incredibly long time of system recovery after a major blackout. In this research, a new decision support tool has been developed to assist system restoration planners and operators to restore generation and transmission systems in an on-line environment. The efficiency of this tool has been demonstrated in power systems of EPRI members, including PJM and ISO-New England. This talk will also discuss the challenges of using renewables and PHEVs for a faster restoration process. The current research activities in self-healing microgrid and data center resiliency will also be presented.

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Wei Sun is an Assistant Professor of Electrical Engineering at South Dakota State University (SDSU). He received his B.S and M.S. degree from Tianjin University, China, and Ph.D. degree from Iowa State University, all in electrical engineering. During his Ph.D. years, he worked as a Regional Transmission Planning Engineer at California Independent System Operator, and a Visiting Scholar at The University of Hong Kong. Before he joined SDSU, he worked at Alstom Grid in Redmond WA for two years, as a Power System Engineer to develop software product of Energy Management System and provide support to nationwide power utilities. He received Microsoft Software Engineering Innovation Foundation Award in 2014 to develop reliable and resilient microgrid-based data centers. He is a member of IEEE, and he is leading the Task Force of Restoration from Cascading Failures in IEEE PES CAMS Working Group.