Title: Technical and environmental impact of integrating distributed generation with electric grid and Microgrid

Speaker: Anurag K Srivastava, Assistant Professor, Washington State University

Location: More 230, UW campus


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Abstract:

As social, economic, and political pressures drive new renewable generation technologies with changing policies and standards onto the power grid, the system must continue to operate with a high level of stability, security and reliability. Distributed Generators (DGs) are generally based on renewable technologies like solar, wind and biomass and range from few kW to MW. This talk will present impact of integrating distributed generations into electric grid and microgrid. Specific work funded by Department of Energy (DoE) related to optimal siting and sizing of DGs and developing a comprehensive model for a biomass based power generation system as well as analyzing the technical, economical, and environmental impacts will be presented. Real Time Digital Simulator (RTDS), MATLAB/ Simulink and LINGO optimization software tools were used for technical analysis and the economical and environmental impacts have been analyzed using HOMER. A concept of Microgrids consisting of distributed generators, energy storage elements and local loads will be presented. This talk will also summarize efforts going on at Washington State University related to smart grid operation and control.

Anurag K. Srivastava is working as Assistant Professor in School of Electrical Engineering and Computer Science at Washington State University since 2010. He received his Ph.D. degree from Illinois Institute of Technology (IIT), Chicago, in 2005, M. Tech. from Institute of Technology, India in 1999 and B. Tech. from Harcourt Butler Technological Institute, India in 1997. He was working as Assistant Research Professor in Electrical and Computer Engineering Department at Mississippi State University during 2005-2010. Before that, he worked as Senior Research Associate in Electrical Engineering Department at the Indian Institute of Technology, Kanpur, India as well as Research Fellow at Asian Institute of Technology, Bangkok, Thailand. His research interests include smart grid, power system operation and control including stability and security, real time modeling and simulation, distributed generation, electricity market as well as engineering education. Dr. Srivastava is a member of IET, ASEE, Sigma Xi, Eta Kappa Nu and a senior member of IEEE. He is the vice-chair of IEEE PES career promotion subcommittee, secretary of IEEE PES student activities, and voting member of Smart Grid Interoperability Panel (SGIP). He is author of more than 75 technical publications including a book.