

*Holcombe Department of Electrical and Computer Engineering  
Seminar Series*

**Toward A More Resilient and Flexible Power Grid**

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**Abstract**

Today's quality of life depends on the continuous functioning of the electric power grid, as an underlying enabler for other critical infrastructure sectors. Over the last decade, the focus from governmental, industrial and academic organizations have been to make this aging infrastructure more reliable, efficient and resilient by construction of a more modern grid to accommodate high levels of renewables, distributed energy resources, and new technologies and meet consumer demand for higher quality power. This talk will cover some of my past and ongoing research projects toward these goals. Particularly I will talk about testing and evaluating utility scale battery energy storage systems and solar inverters with advanced grid support functions. The talk will also detail some of research collaborations with utilities, universities and other organizations including transformers failure study due to zero sequence saturation with SCE&G, the distribution network restoration due to high impact low frequency events with Savannah River National Laboratory, experimental model Validation with IREQ (Hydro-Québec's research institute), customer-oriented distribution planning with Duke Energy and North Carolina State university. I also describe some of my work for power system stability enhancement utilizing wide area measurements.

**Biography of Speaker**

Ramtin Hadidi received his Ph.D. Degree in Electrical Engineering from Memorial University of Newfoundland, St. John's, Canada in 2012. He is currently a research scientist at the Duke Energy eGRID Center and a research professor in the Department of Electrical and Computer Engineering at Clemson University. Prior to that, he was a Research Assistant Professor and Visiting Lecturer in the Holcombe Department of Electrical and Computer Engineering at Clemson University, Clemson, SC, USA. He received his B.S. degree from K.N.Toosi University of Technology, Tehran, Iran, in 2004 and his M.S. degree from Iran University of Science and Technology, Tehran, Iran, in 2007 both in Electrical Engineering. His research focuses on power system simulation and modelling, distribution systems planning and automation, power system stability studies, integration, testing and standardization of distributed renewable generation sources and energy storage technologies, test software and hardware development and implementation, and hardware-in-the-loop testing. He has received several awards including Khwarizmi International Award (KIA), the best student paper award in 22nd Canadian Conference on Electrical and Computer Engineering (CCECE2009) and the title of Fellow of the School of Graduate Studies at Memorial University. He has authored/co-authored over 40 journal and conference papers. He is an active member of IEEE and IEEE Power & Energy Society and has been an active reviewer of leading journals and conferences such as the IEEE Transactions on Power Systems, IEEE Transactions on Smart Grid and IEEE Transactions on Sustainable Energy.