MANAGEMENT AND CONTROL OF ELECTRIC GRID WITH INVERTER-BASED RESOURCES

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OVERVIEW

This webinar focuses on the newer and feasible approaches for the management and control of the electric grid with renewables. Reliable and efficient operation of the electric grid with advanced control and management of the electric distribution system with renewable energy resources (RERs) such as distributed RER clustering/unified control, stacked control of energy storage, and optimal reconfiguration and resilient control framework for real-time photovoltaic dispatch, will be the main topic of discussion. Further, operational methods including newer management and control tools are presented with a special emphasis on utility-scale functions. Finally, evolving techniques and pathways of electric grid management that integrate data sets generated from sensors and meters are also discussed with a special emphasis on the overall reliability and resiliency of the electric grid with renewable energy resources.

BIO

Dr. Sukumar Kamalasadan is a Professor and Distinguished Scholar of electric power engineering at the University of North Carolina at Charlotte (UNCC) and the Director of power energy and intelligent systems lab (PEISL) within the Energy Production and Infrastructure Center (EPIC) at UNCC. He received his Ph.D. degree in electrical engineering from the University of Toledo, OH in 2004. His research interests include inverter-based resources modeling and integration, data-driven approaches to power grid modernization, smart grid, microgrid, power system operation and optimization, and power system dynamics, stability, and control. Prof. Kamalasadan's research for the last 20 years has resulted in tools and methods that have a high-level impact on electric utility modernization with a fleet-wide deployment of his tools that enabled modern grid management and control towards 100% integration of renewable energy. His research work has secured more than $13M in grants and contracts notably from the US Department of Energy, National Science Foundation (NSF), Siemens Energy, Duke Energy Corporation, Schweitzer Engineering Lab, and several other industries. He is the chief architect of Duke Energy Smart Grid Laboratory at UNCC, a $5M facility. Prof. Kamalasadan has co-authored more than 250 refereed journal and conference articles and has received numerous awards and recognitions including the National Science Foundation CAREER award and distinguished professorship from UNC Charlotte. He has delivered more than 100 talks in the form of tutorials, keynotes, panels, and webinars/workshops at various international IEEE conferences.