

Resilient Networked Microgrids Energy Management System

Abstract

As technologies advances, the Networked Microgrids (NMG) is widely envisioned to be the future form of the smart grid, for its autonomy, distributed energy resources hosting capability, enhancements in reliability and resilience, etc. This presentation will dissect the NMG vision into several key technologies in the cyber (communication network) and physical (power system) layers, e.g. the needs of network/information technology to enable the resilience, reliability, and cost-effective operation of the NMG. This presentation will also highlight two of the fundamental technologies: resilient Collaborative Distributed Energy Management System (CoDEMS) and the Smart Battery Gauge (SBG) technology that have been developed in ADAC lab and FREEDM Center at NC State University and their applications for economical, reliable, resilient, and flexible energy systems.

Biography



Mo-Yuen Chow earned his degree in Electrical and Computer Engineering from the University of Wisconsin-Madison (B.S., 1982); and Cornell University (M. Eng., 1983; Ph.D., 1987). Dr. Chow is a Professor in the Department of Electrical and Computer Engineering at North Carolina State University. He was a Visiting Changjiang Scholar.

Dr. Chow is the founding director of the Advanced Diagnosis, Automation, and Control (ADAC) Laboratory. He is the founding chair of Industrial Electronics Society (IES) Energy Storage Technical Committee and the past chair of IES Resilience and Security for Industrial Applications Technical Committee. Dr. Chow has published over 350 articles and is holding 8 patents related to his research works.

Dr. Chow's recent research focuses on distributed control and management on smart grids, batteries, and mechatronics systems. He is an IEEE Fellow, Co-Editor-in-Chief of IEEE Trans. on

Industrial Informatics (2014 - 2018), Editor-in-Chief of *IEEE Transactions on Industrial Electronics* (2010 - 2012). He has received the IEEE IES Dr.-Ing. Eugene Mittelmann Achievement Award, the IEEE Industrial Electronics Society Anthony J Hornfeck Service Award, the IEEE Region-3 Joseph M. Biedenbach Outstanding Engineering Educator Award, the IEEE Eastern North Carolina Section (ENCS) Outstanding Engineering Educator Award, the IEEE ENCS Service Award. He is a Distinguished Lecturer of IEEE Industrial Electronics Society.