SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
COLLEGE OF DESIGN AND ENGINEERING
Website: https://cde.nus.edu.sg/ece

Area: Power & Energy Systems

Host: Associate Professor Panda, Sanjib Kumar

Research Seminar

TOPIC	:	**Enhancing and Coordinating Flexibility Utilization for Energy Efficiency and Resilience of Power Grids**
SPEAKER	:	**Dr Shunbo Lei** **Assistant Professor, The Chinese University of Hong Kong, Shenzhen**
DATE	:	**Monday, 7 November 2022**
TIME	:	**3.00PM to 4.00PM**
VENUE	:	**Join Zoom Meeting** **https://nus-sg.zoom.us/j/4156763801?pwd=NUwzUWhwdlZlcGt3cmhyTzFld1V0QT09** **Meeting ID: 415 676 3801** **Passcode: 662108**

ABSTRACT

Energy efficiency and resilience are essential building blocks of sustainable electric power and energy systems. Achieving one of them boosts the chance to fulfill the other. In particular, more energy-efficient grids are less vulnerable to and have increased capacities to cope with hazards, and resilience-enhancing strategies strengthen energy efficiency and economics of the system. More importantly, flexibility resources primarily integrated for energy efficiency also present new opportunities for resilience improvement, and vice versa. This talk presents strategies, experiments and algorithms for enhancing and coordinating the utilization of flexibility resources to attain energy efficiency and resilience of power grids. Specifically, it focuses on: 1) Uncertainty management and environmental benefits realization in integrating renewables; 2) Grid resilience improvement by coordinated utilization of flexibility resources including distributed renewables, microgrids, automation systems, and interdependent infrastructures; and 3) Experiments, modeling and data analytics on demand response and energy efficiency of commercial buildings. As the framework for future research, a hierarchy of networked multi-energy microgrids and grid-interactive buildings will also be specifically discussed.

BIOGRAPHY

Dr. Shunbo Lei received his B.E. degree from Huazhong University of Science and Technology in 2013, and Ph.D. degree from The University of Hong Kong in 2017. He was a visiting scholar with Argonne National Laboratory from 2015 to 2017, a postdoctoral researcher with The University of Hong Kong from 2017 to 2019, and a research fellow with the University of Michigan-Ann Arbor from 2019 to 2021. He is currently an assistant professor at The Chinese University of Hong Kong, Shenzhen. His research interests lie broadly in power and energy, optimization and learning.

He has published over 50 research articles, including 2 ESI Top 1% Highly Cited Papers and 1 Wiley Top Downloaded Paper. He is currently serving as an associate editor for IEEE Transactions on Smart Grid, a lead guest editor for IET Renewable Power Generation, the secretary for IEEE PES Loads Subcommittee, the chair for IEEE PES Task Force on FlexGEB to Enhance Electric Service Resilience, and an advisor for IEEE PES Task Force on Datasets for BTM DERs.

He received the IEEE Transactions on Smart Grid Top 5 Outstanding Papers Award (2019-2021), IEEE PES General Meeting Best Conference Papers Award (2022), IEEE Transactions on Smart Grid Best Reviewers Award (2018, 2019 and 2021), and the Netherlands' 4TU Centre for Resilience Engineering-Young Resilience Fellowship (2021).