



Prof. Z. Y. Dong (IEEE Fellow)  
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**Biography.** Prof Z.Y. Dong (M'99-SM'06-F'17) is currently Singapore Power Group (SPG) Endowed Professor of Power Engineering, and Co-Director of SPG-NTU Joint Lab at Nanyang Technological University, Singapore. His previous roles include SHARP Professor with the University of New South Wales (UNSW), Australia. He was the inaugural Director of UNSW Digital Grid Futures Institute, Director of ARC Research Hub for Integrated Energy Storage Solutions; and Ausgrid Chair Professor and Director of Ausgrid Centre for Intelligent Electricity Networks providing R&D support for the AU\$500m Smart Grid, Smart City national demonstration project. His research interest includes power system planning, load modelling, smart grid, smart cities, energy market, renewable energy and its grid connection, and computational methods and their application in power system analysis. He has been serving as editor/associate editor of several IEEE transactions and IET journals. He is a Fellow of IEEE.

**Title of Speech:** A federated learning and multilabel learning for non-intrusive load monitoring

**Abstract.** Nonintrusive load monitoring (NILM) provides an effective approach for smart meter data analytics in provision of load demand profile and demand side management options in a smart grid. The main challenge of NILM include computational efficiency with respect to sampling rates, data privacy and reliable feature extraction. The presentation will provide a framework for NILM studies with federated learning and multi-label learning with low resolution smart meter data analytics. Case studies and potential applications will also be discussed.