

## Research Centre for Green Energy, Transport and Building (RCGETB)

### Research Seminar

#### Emerging Research and Implementation Challenges of Green Infrastructure for Electric Vehicles and Smart Transportation

DATE: 4 June 2021 (Friday)

TIME: 2:30 pm – 4:45 pm

(Reception Starting at 2:15 pm)

VENUE: UG06, PolyU Hung Hom Bay Campus (Hybrid via Zoom)

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# Registration!



#### Speaker: Professor Z.Y. DONG

Professor (SHARP) in Energy Systems  
Director - UNSW Digital Grid Futures Institute  
Director - Australian Research Council (ARC) Research Hub for Integrated Energy Storage Solutions

#### Organization

The University of New South Wales, Sydney, Australia (UNSW Sydney)

#### Topic

**Electrical Vehicle Grid Impact and Charging Optimization Planning**

Professor Z.Y. DONG is a (SHARP) Professor in Energy Systems at UNSW and also Director of UNSW Digital Grid Futures Institute, and Director of Australian Research Council Research Hub for Integrated Energy Storage Solutions. His research expertise includes power system planning, smart grid, renewable energy grid connection, electricity market, computational methods for energy systems, etc. He served in both academic and industrial aspects and lead various power engineering projects in Australia, Asia, Europe and America. His previous roles include Ausgrid Chair Professor and Director for Ausgrid Centre for Intelligent Electricity Networks providing R&D support for the Smart Grid, Smart City national demonstration project in Australia. He has been serving as editor for several IEEE transactions and IET journals. He is a Fellow of IEEE.



#### Speaker: Professor Zhao XU

Professor, Department of Electrical Engineering  
The Hong Kong Polytechnic University

#### Topic

**AI for Smart Grids**



Professor Zhao XU received B.Eng, M.Eng and Ph.D from Zhejiang University (China), National University of Singapore, and The University of Queensland in 1996, 2002 and 2006 respectively. He was with Department of Electrical Engineering, Technical University of Denmark (DTU) since 2006. In Feb 2010, He joined Department of Electrical Engineering, The Hong Kong Polytechnic University, where he is now a Professor and Leader of smart grid and smart city research. He has edited 1 book, and published over 150 technical papers in international top journals, and conferences. He has led and participated in several large scale research and consulting projects in Europe, China, and Australia, concerning renewable energy, electric vehicles, and electricity market etc., using AI and data mining techniques. He was Co-PIs for Hong Kong Research General Council Theme Based Research Projects on Smart Solar Energy harvesting, Storage and Utilization and Sustainable Power Delivery Structures for High Renewables. Professor Zhao XU is currently serving as Chairman of IEEE HK PES/IES/IELS/IAS Chapter. He received various awards including 2017 1st Class State Nature Science Award by MOE PRC, 2018 Best Paper Award in IEEE ISGT Asia Conference, and the Top Five Best Algorithm Award in IEEE Competition on 'Application of Modern Heuristic Optimization Methods for Solving Optimal Power Flow Problems' in 2014 etc. This talk will give an overview over the latest development of artificial intelligence and its applications to smart grids, and specific topics such as AI applications to renewable energy prognosis and system topology identification will be covered.

#### Speaker: Ir Mr Wai-kin LEUNG

Head of Customer Business Development  
The Hongkong Electric Company Limited (HK Electric)

#### Topic

**Beyond Electric Vehicles –  
A Visionary Picture of an Energy Platform**



Ir. (Engineer) LEUNG joined HK Electric after graduation from the University of Hong Kong. He has over 25 years in the power industry with solid experiences in power plant and electric vehicle charging infrastructure projects, formulation and implementation of local electricity market and regulatory regime. He is now the Head of Customer Business Development of HK Electric who oversees the funding and services schemes helping customers and the community in decarbonisation. His responsible areas include renewable energy, renewable energy certificates, building energy efficiency, electric mobility, smart and low-carbon living and other decarbonisation and sustainability solutions. HK Electric first introduced EVs for its operation as early as 1980's and deployed today over 50% EVs in its corporate fleet. HK Electric also established its first-ever public EV charging infrastructure in 2009 to promote wider adoption of EVs. The advent of technologies has led to swift changes of EVs. To support future mobility needs, power utilities shall ensure "refuelling" of e-vehicles can be made in the way users require while maintaining the lights on for other electricity users amid the undergoing power industry disruptive changes. The presentation will highlight the EV development and roadmap in Hong Kong, and discuss the associated challenges and opportunities faced by power utilities amid the power industry revolution.