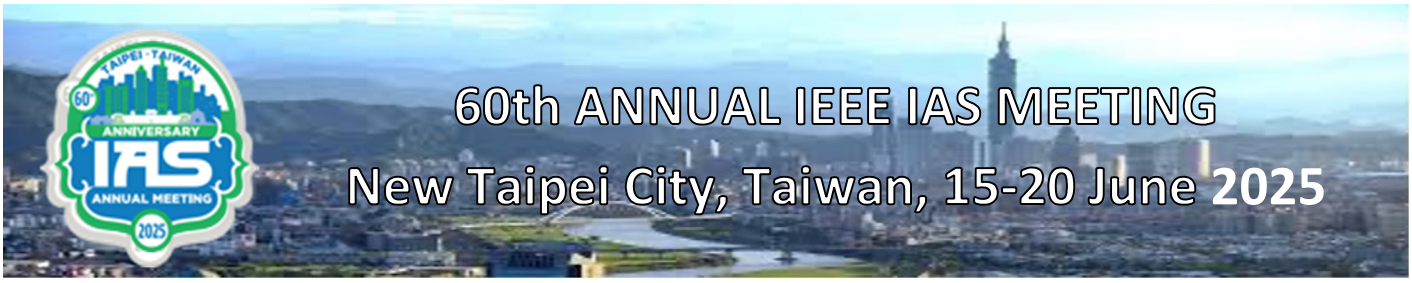

Special Panel Session on

Electrical Grid and Transportation in Smart Cities

Moderator, Wei-Jen Lee, ESRC, University of Texas at Arlington, Arlington TX, USA (wlee@uta.edu)
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Moderator Short Bio

Wei-Jen Lee received the B.S. and M.S. degrees from National Taiwan University, Taipei, Taiwan, in 1978 and 1980, respectively, and the Ph.D. degree from the University of Texas at Arlington, Arlington, TX, USA, in 1985, all in electrical engineering.

In 1986, he joined the University of Texas at Arlington, where he is currently a Professor with the Chair of the Electrical Engineering Department. His research interests include utility deregulation, renewable energy, smart grid, microgrid, arc flash hazards and electrical safety, load forecasting, power quality, distribution automation and demand side management, power systems analysis, online real-time equipment diagnostic and prognostic system, and microcomputer-based instrument for power systems monitoring, measurement, control, and protection.

Dr. Lee has been the Primary Investigator (PI) or Co-PI of more than 120 funded research projects. He has authored or coauthored more than 500 journal papers and conference proceedings. He has provided on-site training courses for power engineers in Panama, China, Taiwan, Korea, Saudi Arabia, Thailand, and Singapore. He has refereed numerous technical papers for IEEE, IET, and other professional organizations. He is a registered Professional Engineer in the State of Texas.

Speakers' Short Bios

Chiu-Liang Liu received an M.S. in electrical engineering from the National Taiwan University of Science and Technology, Taipei, Taiwan, in 1986. In 1994, he joined the Department of Rapid Transit Systems, Taipei City Government, where he was a Senior Technical Specialist, Chief Engineer, Deputy Director, and Director of the System-wide Engineering Division. He was a Director of the Railway Technology Research and Certification Center. His interests include the large-scale project management practices of the rapid transit systems, system assurance practice, and system integration of rail transport in smart cities.

Kun-Chung Lee is the CEO of Controlnet International Inc., a professional power system service provider established 35 years ago. Currently, the company is the main system integrator of Taipower's smart grid system. He has rich experience in Smart grid, Power distribution dispatching automation, SCADA EMS, Regional grid Energy Storage Systems, ESG in deep energy saving, renewable energy, green energy EV charging, Island Microgrid, Carbon neutral solutions, etc., with actual cases and research.

Lawrence Wang is the director of the new energy engineering division of Fortune Electric. He is responsible for constructing various engineering projects, such as MRT AC/ DC power supply systems, renewable energy system engineering, high and low-voltage mechanical and electrical engineering, etc. In particular, he has more than 15 years of design and engineering experience in the MRT electromechanical engineering industry. He also served as the 9th director and the 10th supervisor of the Rail Engineering Society of Taiwan. He spared no effort in promoting new technologies and intelligent electric stations and relays in the field of rail engineering. His collaborations with academic and industrial partners have significantly contributed to the localization of MRT DC power supply system equipment and technology.

Hwa-Dong Liu received his Ph.D. degree from National Taiwan University of Science and Technology, Taipei, Taiwan, in 2020. From April 2008 to July 2021, he served as a group chief at Metro Taipei. Since August 2021, he has been with the Undergraduate Program of Vehicle and Energy Engineering at National Taiwan Normal University, Taipei, where he is currently an associate professor. His primary research interests include electric and control systems for MRT (Mass Rapid Transit) vehicles.

Abstract of the Presentation:

Integrating "Smart Grid" and "Rail Transit Electromechanical Systems" is a critical area of discussion in smart cities. The linkages between the two include energy management, power supply stability, renewable energy integration, and intelligent transportation management.

This panel aims to highlight energy optimization and load balancing, resilience and reliability, integration with renewable energy, smart electrification and wireless charging, cybersecurity and data-driven intelligence, and policy and economic considerations to accelerate advancements in smart grid and rail transit electromechanical systems.

Topics for Discussion:

- Integration of smart grid and MRT electromechanical systems.
- Energy efficiency and intelligent control of MRT electromechanical systems.
- Security and resilience of smart grid and MRT infrastructure.
- The future of MRT and the grid in smart cities.

Other information

Any additional information (optional)