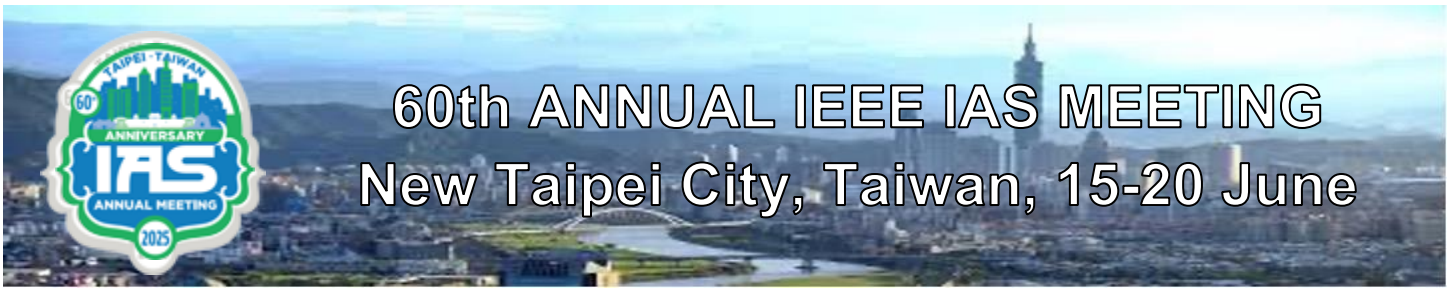

Special Panel Session on

Frontiers in Future Power Systems: Intelligent Technologies, Smart Energy Systems, and Grid Modernization

Moderator, **Prof. Kuo Lung Lian**, National Taiwan University of Science and Technology, Taiwan (ryanlian@gapps.ntust.edu.tw)

First speaker: Dr. Chin-Chung Wu, Taiwan Power Company, Taiwan (u850899@taipower.com.tw)
Second speaker: Prof. Zhenyuan Zhang, University of Electronic Science and Technology of China, China (zhangzhenyuan@uestc.edu.cn)
Third speaker: Prof. Gary Chang, National Chung Cheng University, Taiwan (ieegwc@ccu.edu.tw)
Fourth speaker: Prof. Wei-Jen Lee, University of Texas at Arlington, USA (wjlee@ieee.org)

Moderator Short Bio

Prof. Kuo Lung Lian obtained his Ph.D. degrees in electrical engineering from the University of Toronto in 2007. From October 2007 to January 2009, he was a Visiting Research Scientist with the Central Research Institute of Electric Power Industry, Japan. He is currently a Professor with the National Taiwan University of Science and Technology. He was a recipient of the 2023 Delta Young Technology Scholar Award and 2024 IEEE PES Chapter Outstanding Engineer Award. He served as the Chairperson for the IAS at Taipei Chapter, from 2019 to 2021. He is an Associate Editor of IEEE Access and IEEE Transactions on Power Delivery.

Speakers' Short Bios

Dr. Chin-Chung Wu is currently the Vice President of Taiwan Power Company, he has a comprehensive academic and professional background, with extensive practical experience in power operations. He actively supports energy transformation by integrating demand response and energy storage systems through innovative models, participating in the provision of ancillary services, assisting in the integration of renewable energy into the grid, and ensuring a stable power supply. Additionally, he is responsible for planning and establishing a power trading platform, expanding private sector participation, and promoting domestic energy technology innovation and the development of the energy storage industry. He has been invited multiple times as a distinguished APEC expert on power and energy to participate in grid and energy transition forums, achieving remarkable performance and outstanding results.

Prof. Zhengyuan Zhang is a Professor in the School of Mechanical and Electrical Engineering at the University of Electronic Science and Technology of China (UESTC), Chengdu, China. His focus lies in smart grids and arc flash research, but he has also been involved in power system analysis, renewable energy, electrical safety analysis, and power market research. He has published over 90 technical papers, with more than 40 SCI journal papers. He has participated in more than 20 research projects as Principal Investigator or Co-Principal Investigator from many sources of funding. He served as the Chair of the IEEE IAS ESC/DER Committee, Associate Editor of IEEE Transactions on Industry Applications, Associate Editor of the International Journal of Numerical Modelling: Electronic Networks, Devices, and Field, and Editor of Protection and Control

of Modern Power Systems. He has been invited to deliver keynote speeches and invited talks at major international conferences and universities. He was the General Chair of 2021 AEEES, Secretary in General of 2019 IEEE ISGT ASIA and 2021 IEEE I&CPS ASIA. He is of receipt of several IEEE awards including IEEE ESW Young Professional Achievement Award, Prize Paper Award of IEEE Transactions on Industry Applications, IEEE IAS Ralph Lee Award, IEEE PES-China Outstanding Volunteer Award, IEEE IAS Electrical Safety Prevention through Design Engineering Education Initiative, etc.

Prof. Gary Chang obtained his PhD from the University of Texas at Austin in 1994. He was with Siemens Power Transmission & Distribution, LLC., Minnesota, USA, from 1995 to 1998, in EMS/SCADA products development. He joined the Department of Electrical Engineering at National Chung Cheng University, Taiwan, in August 1998 and became Chair Professor in 2020. He was the past Chair of IEEE PES Power Quality Subcommittee (2016-17) and IEEE PES Transmission and Distribution Committee (2019-20). Presently, he serves as the President of Taiwan Smart Grid Industry Association (2023-2025). Prof. Chang is a Senior Editor of IEEE Transactions on Power Delivery. His areas of research interest include power quality, renewable energy, microgrid control, and smart grid. He is an IEEE Fellow and a registered Professional Engineer in the State of Minnesota.

Prof. 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.

Abstract of the Presentation:

The future of power systems is being redefined by the convergence of intelligent technologies, innovative energy solutions, and transformative approaches to grid modernization. This panel session will explore cutting-edge advancements driving the evolution of modern power systems, addressing challenges and opportunities in a rapidly changing energy landscape. Key topics will include the integration of artificial intelligence and machine learning for enhanced grid reliability, real-time monitoring, and predictive maintenance. Experts will also discuss the role of smart energy systems, including microgrids, energy storage innovations, and the proliferation of renewable energy sources. The session will delve into the critical aspects of grid modernization, focusing on digitalization, decentralized energy resources, and ensuring resilience in the face of climate change and cyber threats. Join us for a dynamic discussion with renowned academics and industry leaders. This session offers valuable insights into the technologies and strategies shaping a sustainable, intelligent, and efficient power system for the future.

Topics for Discussion:

- Applications and Practices of Smart Grid in the Taiwan Power System.
- Data-Driven Time Varying Equivalent Modeling of Active Distribution Networks.
- Key Focuses of Power Grid Modernization and Net Zero Transformation.
- Energy Transition for Low Carbon Future.