

Smart Grid Applications on Industrial and Commercial Power Systems

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ABSTRACT

As one of the largest special interest societies within the Institute of Electrical and Electronics Engineers (IEEE), the Industry Application Society (IAS) focuses specifically on the unique needs of industry and commerce. IAS is a source of professional power to its nearly 10,000 worldwide members. Through a network of over 100 chapters globally, regional events and national and international conferences, the society keeps members abreast of current developments in the area of technology in electricity and electronics. IAS enriches both its individual members and the industry as a whole through the sharing of specific industry-related solutions.

Industrial and Commercial Power System Department (I&CPS) is one of the most important components among IAS. It is a group of Power Engineers Serving Industry and Commerce. These engineers write IEEE Standards, the Color Book series (Now the Dot 3000 series), used by Industrial and Commercial customers of the Power companies. They hold an annual Technical Conference every May and join IAS annual conference in October. They also write and present Technical Papers and Tutorials of interest to engineers in this field. The thirteen Color Books, recommended practice Standards are now being revised and re-published as the IEEE Standards Series 3000. Series 3000 is intended for the applications of power system engineering in the Industrial and Commercial establishments. They are most helpful to young engineers as guiding references and also they assist the veteran engineers as backup references. They are widely utilized all around the world. The standards include Recommended Practice for: Grounding, Protection, System Design, Reliability, Power System Studies, Emergency Supply, Maintenance and operation, low Voltage Circuit Breaker Applications, Powering and Grounding Electronic Equipment, and Short Circuit Calculations.

This presentation gives brief introduction of IAS and focuses on applying smart grid technologies to the Industrial and Commercial Power System.



Biography: Professor Lee received the B.S. and M.S. degrees from National Taiwan University, Taipei, Taiwan, R.O.C., and the Ph.D. degree from the University of Texas, Arlington, in 1978, 1980, and 1985, respectively, all in Electrical Engineering.

In 1986, he joined the University of Texas at Arlington, where he is currently a professor of the Electrical Engineering Department and the director of the Energy Systems Research Center.

He has been involved in the revision of IEEE Std. 141, 339, 551, 739, 1584, and dot 3000 series development. He is the Vice President of IEEE Industry Application Society. He is an editor of IEEE Transactions on Industry Applications and IAS Magazine, editorial board member of Journal of Modern Power Systems and Clean Energy (MPCE) and CSEE Journal of Power and Energy Systems, and guest editor of IEEE Transactions on Smart Grid. He has been inducted as a member of Academy of Distinguished Scholar at the University of Texas at Arlington since 2012. He is the project manager of IEEE/NFPA Collaboration on Arc Flash Phenomena Research

Project.

Prof. Lee has been involved in research on utility deregulation, renewable energy, smart grid, microgrid, energy internet and virtual power plants (VPP), arc flash hazards and electrical safety, load and wind capacity 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. He has served as the primary investigator (PI) or Co-PI of over one hundred funded research projects with the total amount exceed US\$12 million dollars. He has published more than one hundred and thirty journal papers and two hundred and forty 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.

Prof. Lee is a Fellow of IEEE and registered Professional Engineer in the State of Texas.