

ONE DAY SEMINAR ON “POWER QUALITY AND MONITORING SYSTEM”

Reported by: Ir. Lee Kok Chong, Electrical Engineering Technical Division



On 6 December 2003, a seminar on Power Quality and Monitoring System was successfully organised by the Electrical Engineering Technical Division of IEM. This seminar was jointly conducted by Schneider Electric at Bangunan Ingenieur, Petaling Jaya. The speakers are Mr. Bruce Ford and Mr. Mahendra V. Chilukuri.

Mr. Bruce Ford is the South East Asia Business Development Manager of Electrical Network Management for Schneider Electric in Singapore. He holds a Bachelor of Science Degree in Electrical Engineering from Tennessee Technological University, U.S.A. and a Masters in Business Management from Belmont University, U.S.A. He is a certified Professional Engineer and a certified Energy Manager.

During morning section, Mr. Bruce Ford explained the goals of power monitoring, what a power monitoring system is, where to monitor power, and presented several case studies. He explained that the goals of power

monitoring are to increase the reliability of electrical systems and to minimise downtime and energy cost. He also explained that a power monitoring system shall consist of metering with basic and advanced features, a communication network through Ethernet and the Internet, and software. He suggested that power quality shall be measured at all

power sources, all major feeders and all critical loads. Through case studies, he recommended a few ways to increase the reliability of electrical systems and to minimise downtime and energy cost by implementing power quality and monitoring equipment.

During afternoon section, Mr. Mahendra V. Chilukuri continued the seminar to illustrate power quality characteristics and disturbances, harmonics, analysis tools, international standards for power quality, power quality solutions and case studies. Mr. Mahendra V. Chilukuri is a lecturer at the Faculty of Engineering, Multimedia University. He has published papers in various international conferences as well as in journals.

Mr. Mahendra V. Chilukuri showed the audience the definitions of power quality using the IEEE 1159 standard. He explained the sources of power disturbances, types of power disturbances, i.e. voltage sag, voltage swell, power interruption, transient

voltage due to lightning, load switching and motor starting. He also explained that the sources of harmonics are from transformers, fluorescent lighting and non-linear loads i.e. variable speed drives, rectifiers, inverters, UPS and computers. He discussed the limit of harmonics for low voltage and high voltage allowable by the IEEE 519-1992 standard. Besides that, he also explained the requirements of IEC and ANSI standards for power quality.

There were a lot of interaction between the participants and the speakers during the Q&A sessions. The participants took the opportunity to share real engineering problems that they've experienced with the speakers. The speakers provided a few solutions for power quality problems via a demonstration of their power quality and monitoring equipment during the seminar.

The Organising Chairman, Ir. Lee Kok Chong concluded the final session by giving Mr. Bruce Ford and Mr. Mahendra V. Chilukuri a vote of thanks and Ir. Lee also presented them with tokens of appreciation. ■

