IEEE Power and Energy Society (PES), Malaysia Chapter
Malaysian National Committee of CIGRE, TNB Research Sdn. Bhd & IEEE WIE

invite all Electrical Engineering Professionals to a
Distinguished Lecturer Program (DLP) on

THE CHANGING ELECTRIC POWER GENERATION PORTFOLIO AND THE ROLE OF SMART GRID

Saifur Rahman, PhD
Joseph Loring Professor of Elect & Comp Engg
Director of the Advanced Research Institute
Virginia Tech, Virginia, USA

Date: 6 December 2012
Time: 9:00 am – 1:30 pm
Venue: Teratai Suite 1 & 2, PJ Hilton, Petaling Jaya, Selangor, Darul Ehsan, Malaysia.

BACKGROUND

Dr. Saifur Rahman is the Joseph R. Loring professor of electrical and computer engineering and the founding director of the Advanced Research Institute at Virginia Tech. He is a Fellow of the IEEE, the Editor-in-Chief of the IEEE Transactions on Sustainable Energy, and a distinguished lecturer of the Power & Energy Society. He is the chair of the National Science Foundation (NSF) Advisory Committee on International Science and Engineering. He holds a BS degree in electrical engineering from Bangladesh University of Engineering and Technology. He received an MS in electrical sciences from State University of New York at Stony Brook and a Ph.D. in electrical engineering from Virginia Tech. Saifur Rahman directs the Center for Energy and the Global Environment and the Consortium for Intelligent Grid Research, Analysis and Education from Virginia Tech. He served for three years as a program director in the Engineering Directorate at NSF. He was a research scientist at the Tokyo Electric Power Company, Japan for one year. He has also worked as an electrical engineer with Progress Energy in North Carolina and the Brookhaven National Laboratory in New York. He has consulted for the World Bank, the Asian Development Bank, the United Nations

Development Program and the US Agency for International Development. He has served as the chair of the IEEE Publications Board, the Lifelong Learning Committee, Periodicals Committee and the Products and Services Committee. He is currently serving as the vice president for Publications for the IEEE Power & Energy Society, and a member of the IEEE-USA Energy Policy Committee. His research interests include: Power System Planning, Power System Reliability, Power System Quality, Large Scale Power System Operation and Control Renewable Energy and Distributed Generation Resources (RE& DGE), Smart Grid System, and many others.

DLP ABSTRACT

As many developing countries begin to industrialize to provide jobs and better living conditions to its citizens, the requirements for reliable, secure and environmentally sustainable supply of electricity becomes paramount. While fossil fuels have been the primary sources of electricity for the last one hundred years, their cost, uneven global distribution and global warming potential are raising questions about their long-term sustainability. In some countries hydroelectricity and nuclear power have been promoted as intermediate-term alternatives while the solar and wind energy technology are further developed. But the Fukushima nuclear accident in March 2011 has caused a rethinking of this strategy. Both Germany and Japan are now committed to phase out nuclear power by the 2030's. And neither of them have significant hydro resources. This leaves solar and wind to be the mainstay of their source of electricity in the long run. But these distributed generation sources have their own challenges - primarily intermittency. Many believe that the smart grid – due to its inherent communication, sensing and control capabilities – will have the ability to manage the load, storage and generation assets in the power grid to enable a large scale integration of distributed generation.

Since the smart grid will allow real-time monitoring and control of the electrical power network and its components, it will facilitate the grid integration of wind, solar, off-shore electricity, etc. for smoother system operation. But in order for this to be possible, the electric utility will have to evolve and change their ways of operation to become an intelligent provider of these services. This lecture introduces the operational characteristics of renewable energy sources, and various aspects of the smart grid - technology, standards, regulations and data security – which are needed to effectively integrate these sources of electricity into the grid.

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