



12th GCOE ENERGY SEMINAR

Special Lecture

Smart Grid; Opportunities & Challenges for Power Industry to manage their Grid more efficiently

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ROOM: 201 (Engineering build. No.2)

Abstract

The electricity grid is undergoing a major transformation towards a modern and smarter grid. Unlike information and telecommunication industries, the electric power industry has been largely bypassed by technological innovation until recently. Historically, the power industry has been heavily regulated and modelled to keep the costs low. Therefore, its modernization in the past has always been of low priority. For the digital world of 21 century, however, it is essential to have a smarter grid that is able to facilitate a healthy economy, to enhance energy security, to provide more efficient and more environmentally friendly service.

The idea of smart grid has been around for more than 6 years, with growing attention to it around the world. However, there are differences in understanding of concept of smart grid and in how this concept should be implemented. Moreover, there is no clear agreement, worldwide, on what a power grid must include in order to be considered as smart grid. The fact is that with a growing demand for reliable and sustainable power supply, there is a need for smarter grid applying new technologies and tools to work more efficiently, more reliable with affordable maintenance, with ability to accommodate more renewable energy sources, to reduce consumers carbon footprint and etc.

The objective of this lecture is firstly to review the characteristics and associated weaknesses of traditional grids and secondly, to review the opportunities and challenges that smart grid technologies can provide to make grid capable of working far more efficiently, and finally, to discuss about a proposed smart grid system model that will be able to incorporate interactions between the electric power system (generation, transmission, and distribution), customers, markets, operation, and the service provided.