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TNB Smart Grid Initiatives

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Abstract

TNB is embarking on Smart Grid (SG) initiatives to enhance reliability, operation efficiency, increase customer service options and participation as well as supporting the government target for CO₂ reduction. This paper will describe some of the key initiatives undertaken by TNB as well R&D initiatives by TNB Research to support the operational needs and future expansion of smart grid. The presentation will describe what are the key challenges and drivers for smart grid deployment in Malaysia.

The Smart Grid initiative is overseen by TNB SG Steering Committee and is divided into three phases between now up to 2015. A smart grid pilot project has been planned to demonstrate AMI (Advanced Metering Infrastructure) effectiveness for 1000 customers. The objective is to obtain valuable experience prior to widespread application throughout the system. The pilot project is also to get stakeholders buy-in and as a platform for proof of concept. Partial funding support has been obtained from the government through Malaysian Electricity Supply Industry Trust Account.

In order to understand the current overall smart grid landscape, Smart Grid Maturity Model (SGMM) assessment was initially undertaken to benchmark and guide towards Smart Grid aspirations in line with TNB objectives and business cases. SGMM helps to identify gaps that need to be filled to achieve a smart grid vision. The smart grid maturity model helps to define the steps toward a smart grid transformation.

TNB Research has been working closely with TNB Transmission division to undertake several Smart Grid related projects. R&D program on Wide Area Intelligent System has been conducted to enhance the grid system protection and stability. The IEC61850 Simulation & Verification System Lab was setup at TNBR to provide a platform and facility for verifying, enhancing, managing, testing and training in the area of IEC 61850 based substation automation system.

The presentation will also share TNBR plan in developing a Smart Grid Information & Communication Infrastructure Test-Bed. The smart grid test-bed will allow technical capability development and to gather local deployment issues as a way to ease the future implementation of any smart grid technologies. Communication system is an important infrastructure when it comes to implementing smart applications in a smart grid network. Therefore, study on the quality and deployment strategy of communication system is critical.