Talk on "Power Conversion Systems for Battery Energy Storage and Utility-Scale Photovoltaic (PV) Generation"

by Dr Siow Chun Lim

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The Electrical Engineering Technical Division (EETD) has successfully organised a **Talk on "Power Conversion Systems for Battery Energy Storage and Utility-Scale Photovoltaic (PV) Generation"** on 28th October 2017 at Wisma IEM. The talk aims to provide an overview of PV-generation and energy-storage systems. The registration started at 8:30am. A total of 67 participants registered and attended the talk.

The speaker was Dr. Nadia Tan Mei Lin. She started her presentation by giving an overview of the global market outlook for solar power in 2017. According to Global Market Outlook for Solar Power 2017, the total PV installed capacity increased by 33% (77.5 GW) to 306.5 GW by the end of 2016 as compared to the end of 2015. She then zoomed in to the scenario in Malaysia. Malaysia is committed in minimising its CO2 emissions from fossil-fuel-based electricity generation through renewable energy generations especially upon the COP 21 Paris agreement. PV generation contribution to the nation's electricity generation mix is still minimal. Hence, in order to achieve the renewable energy target in Malaysia, utility-scale PV generation is given emphasis, with an aim to reach an aggregate capacity of 360 MW in Peninsula Malaysia and 100 MW in Sabah/Labuan between 2019 and 2020. The recent Large Scale Solar scheme was launched to achieve this goal. As the penetration of utility-scale PV generation increases, considerations of Low Voltage Ride Through (LVRT) capabilities in PV inverters and the technology for energy storage systems will become more and more pertinent.

Dr. Nadia then divided the talk into two focus areas. The first part of the talk discussed on low-voltage ride-through control of a modular multilevel single-delta bridge-cell (SDBC) inverter that is intended for utility-scale PV systems. The second focus area was concentrated on the design and improvements in performance of a bidirectional isolated dc-dc converter for a battery energy-storage system. After completion of her talk, the audience actively asked questions related to the topic of the day.

The talk ended with presentation of token of appreciation from EETD as shown below.