ORGANISED BY ELECTRICAL ENGINEERING TECHNICAL DIVISION

WEBINAR ON THE IMPACT OF DISRUPTIVE TECHNOLOGIES ON MALAYSIA'S FUTURE ENERGY SCENARIO

BEM APPROVED CPD/PDP: 2 REF. NO.: IEM21/HQ/189/T (W)

SPEAKER :

Ir. Dr Amir Basha Ismail,

ELECTRICAL ENGINEERING TECHNICAL DIVISION, IEM

WEDNESDAY, 16 JUNE 2021

5.30PM - 7.30PM

Registration Fees
(effective 1st August 2020)
Student Members : FREE
IEM Members : RM 15.00
IEM Non Members : RM 70.00
Register online I www.myiem.org.my

SYNOPSIS

This Talk will discuss at length the issues and challenges of the four (4) identified disruptive technologies that can significantly impact Malaysia's future energy scenario/outlook in terms of electricity grid infrastructure demand-supply development planning and the associated national power system grid operation security.

From the Author's viewpoint, the most impactful disruptive technology for Malaysia's future electricity/energy infrastructure is the anticipated substantial integration of renewable and distributed solar photovoltaic generation (greatly characterized by its high variability and uncertainty) into the energy mix portfolio of the generating systems. This in turn will greatly affect the national electricity/energy security in terms of demand-generation balance, both for real-time power system operation and short-term/medium-term operational planning resource dispatch. For, if it lacks rigorous power system security assessment strategic studies, there is increased probability of partial or full system collapse of the infrastructure as System Inertia is expected to decrease in tandem with increase in levels of solar photovoltaic/distributed renewable energy generation.

This Renewable Energy (RE) Solar PV disruptive technology plus the other three disruptive technologies, namely Energy Storage, Knowledge Automation Smart Grid, and Internet-of-Things (IoT) will however bring about the so-called Energy Transition period for Malaysia, as with other world economies. This Energy Transition will accelerate the decarbonization of the electricity generation supply sector, particularly phasing out coal-fired power plant projects. The LCOE of RE Solar PV plants are already competitive against gas combine-cycle plants, meaning building new RE Solar PV plants has economic imperative for energy system costs, And, by 2025-2030 RE Solar PV plus Grid-storage BESS is projected to reach grid parity with marginal cost of gas-fired power plants.

Over the much longer-term horizon, from 2035 to 2050 period, the Government is to seriously revisit and reconsider the Nuclear Power option scenario recommendation (which was temporarily shelved in 2018) as contained in the Nuclear Power Infrastructure Development Planning Feasibility Study undertaken by Malaysia Nuclear Power Corporation in 2013 - 2016. This Nuclear Power option will certainly improve further the fuel mix diversification index of the generation supply and consequently enhance the national power system grid resiliency, capability and security, and offer long-term LCOE buffer against natural gas and coal price volatility risk. In this context, both China and South Korea, which are presently heavily investing in the Energy Transition RE Green Sustainability Initiatives and pushing for coal-fired power plant phase-out decarbonization program, are very much nuclearized in their long-term energy/electricity development planning scenario outlook. Malaysia should take heed on this.

Additionally, the Energy Transition will also witness mass adoption of Electric Vehicles in the 2025-2040 period, further driving the decarbonization via electrification through Smart Grid EV Charging infrastructure. By promoting Energy Efficiency (EE) initiatives through Knowledge Automation Smart Grid and Internet-of Things technologies, there will be handsome opportunities for future electricity consumers to optimize their energy utilization and hence increase their monetary savings. Finally, there will be great opportunities for this Energy Transition to create new highly-skilled jobs and build new economic engines for Malaysia.

SPEAKER'S BIODATA

Ir. Dr Amir Basha Graduated with B.Sc. (Eng) 1st Class Hons, from University of London King 's College in 1974, and M.Sc. and Ph.D in Power Systems from University of Manchesterin 1976 and 1979 respectively. Served LLN/TNB for 33 years (1974-2007) and was one of those several local pioneer engineers who were involved in the planning, design, implementation and operation of the 500kV/275kV/132kV National Power System Grid, holding positions of Senior Engineer and Chief Engineerin the Development Planning and System Operation Divisions. He was principally involved in the setting up of UNITEN and TNB Research (full subsidiaries of TNB) in the mid-1990s, as the First (Founding) Dean College of Engineering UNITEN and Managing Director of TNB Research, respectively before his retirement in 2007. Since then, he has been with Minconsult leading/assisting teams involved in power system projects, such as power generating plants, electric traction rail projects (LRT/MRT, KTMB and High Speed Rail (HSR), Solar PV projects, Management & Engineering Audits of the ESI, and formulation of Feasibility Study Reports/MasterPlan Study Reports related to Electricity/Energy Planning. A BEM-registered Professional Engineer Practicing Certificate and ASEAN Chartered Professional Engineer, Corporate Member ofIEM andAlumniHarvard Business School Senior Management Program.