Large Scale Solar Farms in Energy Sufficiency Roadmap

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Abstract: Needless to say that many developed nations are aligning themselves to alternatives to fossil fuels in their energy roadmap owing to the tremendous growth of renewable energy resources in recent times. Even though, the so-called first generation solar cells that are mainly crystalline or multi-crystalline silicon based ones are still dominating, the quest for other options presented many other potential candidates such as amorphous silicon, cadmium telluride, copper-indium-sulphide, dye-sensitized, organic, perovskite etc. since early 70s. Ever since the second generation solar cells came into the scenario, the cutting edge technologies in layer deposition or device fabrication have led to successful commercialization of the 2nd generation solar cells like CIS or CdTe, both show a total of nearly 2 GWp of yearly production in recent years with the implementation of multi-mega-Wp level solar farms. This presentation will include recent trends in solar photovoltaic energy options for large scale power production, which are capable of being incorporated to a sovereign nation's energy-sufficiency roadmap.
Keywords: Alternative Energy, Solar Photovoltaics ; Large scale solar (LSS), Energy Roadmap

Biography: Dr. Nowshad Amin is currently serving as a Professor at the Institute of Sustainable Energy of The National Energy University (@Universiti Tenaga Nasional) of Malaysia. Previously, he worked at the Dept. of Electrical, Electronic & Systems Engineering of The National University of Malaysia (@ Universiti Kebangsaan Malaysia) from Nov. 2006 till Jan. 2018, where he led the Solar Photovoltaic Research Group under the Solar Energy Research Institute (SERI).After the higher secondary education with distinctions from his native country, *Bangladesh*, he received the Japanese Ministry of Education (MONBUSHO) scholarship in 1990. Accomplishing Japanese Language diploma in 1991, he achieved a diploma in Electrical Engineering (1994) from Gunma National College of Technology, Bachelor (1996) in Electrical & Electronic Engineering from Toyohashi University of Technology, Masters (1998) and PhD (2001) on solar photovoltaic technology (Thin Film Solar Cell) from Tokyo Institute of Technology (Tokyo, Japan). Later, he pursued Postdoctoral fellowship in the USA and briefly worked at Motorola Japan Ltd. His areas of expertise include Microelectronics, Renewable Energy, Solar Photovoltaic Applications and Thin Film Solar PV Development. Additionally, his research focuses on the commercialization of Solar Photovoltaic Products from his patented entities, as such he also served as the CTO cum director of a University Spin-off company financed by the Malaysian Technology Development Center (MTDC). He served as a visiting professor to the King Saud University (KSU) in Saudi Arabia from 2010 till 2016. He has been involved as the project-leader as well as co-researcher of many government (Malaysia) and international (Saudi National Grant, Qatar Foundation etc.) funded projects. He has authored numerous peer-reviewed publications, a few books and book chapters. He is actively involved in promoting Renewable Energy to the developing countries in South and South East Asia, working as an enthusiastic promoter for the affordable solar photovoltaic technologies. **Professor Dr. Nowshad Amin (nowshadamin.webs.com)**