**Renewable Energy and Smart Systems: Research and Development opportunities in Bangladesh**

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The remarkable growth of renewable energy technologies in recent decades has been observed all over the world. The main motivation for this comes from the global commitment to combat climate change and for the future of energy security. If we consider the global market, we will see that from the year 2015, more than half of the new capacity increase in the power sector is from renewable energy. In the year 2017, renewable energy accounted for an estimated 70% of net addition to global power capacity. World primary energy demand is increasing at a rate of 1.7% per year (last 10 year’s average) whereas the growth of renewable energy utilization is 5.4% in recent years. This remarkable growth has been driven by various factors, especially, electricity costs from renewable power generation have been showing a continuous and remarkable downward trend over the last decade. RE is going to be the mainstream energy supply of the world in the near future. Some of the renewable energy sources that are suitable for Bangladesh are variable in nature. On the other hand, the renewable energy generation can be decentralized and it is also going to be a popular system. The previous consumers are becoming prosumers. So the grid will experience bidirectional power flow instead of the previous single directional power flow (from generation to consumers). The variability and bi-directional power flow has opened up the opportunities for research and development. Smart systems are integrated into the power grid to stabilize it. The government is planning to phase out the diesel driven irrigation pumps with solar PV irrigation pumps and also planning to use the unutilized energy that is generated from solar PV systems that is not used during the off season. The techno-financial solution for such systems also needs research. Government is also keen to provide electricity to all by 2021. There are islands and sandbars where national grid extension are difficult to realize. Affordable and reliable electricity of those pocket areas are possible by utilizing RE technologies.

This presentation highlights the scope and opportunities in the field of Renewable Energy and smart systems in Bangladesh.