

Consortium project

Jointly by **Dept of Applied Physics, University of Calcutta** and **Dept. of Electrical Engineering , Jadavpur University**

Name of The project: **“Development of Smart Grid-Interactive SPV Systems”**

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Total Cost of The project

94.30L : (60.73L.(JU)+33.57L(CU))

Duration of the Project (2016-2019): 3 years

Scholar:

1. Dipak Kumar Mandal (CU)
2. Koustuv Sarakar(JU)

Objective of the Project:

For the last few decades tapping the energy from the Sun for general use has shown great potential but large scale utilization has faced many bottle-necks. Amongst the many hurdles, the important are lowering the cost of technology, overall efficiency increase, energy storage, distribution of solar power to rural people at justified cost, delivering the harvested energy to remote locations, grid interactive power generation etc. These challenges are addressed in this proposed research work.

Objective of this proposed project “Development of SMART Grid-Interactive SPV Systems” is to provide an **upgradation** of such system from the existing technology. Such systems comprise of several elements like SPV array, battery, MPPT controller, inverter with bidirectional power flow capability through the grid, monitoring of different system parameters. There are numerous application aspects in both urban and rural areas where various **upgradation** can be envisaged to bring out the maximum efficiency and reliability of such systems. In this proposal, the research focus can be categorized into the following two application areas:

- **APPLICATION-I : Development of a high efficiency two-stage grid tied inverter, high efficiency reduced-stage SPV inverter, both with in-built MPPT control and an efficient SPV based inverter for pump motor system.**

APPLICATION-II : A smart, cost effective supervisory system with remote (RS 485)/ wireless (Zigbee) communication along with control and energy scheduling.

