

## Best practice I

Title of Practice: 100% Renewable Energy (ON-Grid Solar Power Plant)

### Objective:

To implement efficient and effective use of renewable energy

To install solar power plant and generate solar

To utilize the power generated for institutional purpose

To explore and optimally develop renewable energy resources in the state so as to meet the electricity demand in future and to save electrical energy through energy efficiency measures and Demand Side Management.

### The Context

Renewable energy solutions are becoming cheaper, more reliable and more efficient every day. Our current reliance on fossil fuels is unsustainable and harmful to the planet, which is why we have to change the way we produce and consume energy. Implementing these new energy solutions as fast as possible is essential to counter climate change, one of the biggest threats to our own survival. This hints at the **Goal 7** of **SDGs (Sustainable Development Goals)** adopted in Rio+20 United Nations Conference on Sustainable Development. In the light of this goal, that is to “*ensure access to affordable, reliable, sustainable and modern energy for all*”, the college has installed a 50kW on grid solar system.

### The Practice

Al Ameen College is very much concerned about energy conservation and minimal wastage of the same. Minimal consumption of energy is the saving factor of energy conservation in the campus. The Energy Audits revealed the shortcomings of the energy conservation techniques in the college and also shed light on the wastage of energy. It was decided to reduce the wastage of energy with immediate effect. As a result the college increased the percent of its solar usage and took measures to increase its further. As a result the college installed a 50kW on grid solar station in the rooftop coupled to the State Electricity Board's grid thus taking a huge leap towards the goal for sustainability. This solar system generates average 6000 units per month which is more than sufficient to run the institution. All the electricity requirements of the college are met by these.

Since this is an On-grid solar system, it is directly connected to the Government grid (KSEB). The extra electricity generated using this solar system will run the load directly. When an on-grid solar panel system is producing more power than your load, then excess power can be fed into the utility grid through solar net-metering.

The energy requirements of the college is around 3000 units a month (around 100 units a day), which is solely met by using the solar station. The additional 3000 units is added to the utility grid and is used by the KSEB.

Apart from this the audit report also threw light on the importance of switching to LEDs. The light-emitting diode (LED) is one of today's most energy-efficient and

rapidly-developing lighting technologies. Quality LED light bulbs last longer, are more durable, and offer comparable or better light quality than other types of lighting. LED is a highly energy efficient lighting technology, and has the potential to fundamentally change the future of lighting. The college then switched from the traditional bulbs to LEDs. The Department of Physics played a pivotal role in replacing the bulbs. It is also to be noted that, all the replaced LEDs were made and assembled by the students of the Physics department.

### **Evidence of Success**

The success of this project could be achieved solely because of the support of the staff and students of this college along with the management. Energy conservation is given highest priority and solar energy and LED bulbs are used to minimize its consumption. Installation of the solar station has helped in cutting down the electricity bill to a great extent. Along with this, the replacement of LEDs has also contributed in reducing energy wastage. Energy conservation is given highest priority and solar energy and LED bulbs are used to minimize its consumption.

This project also helped to cultivate the habits of energy conservation among students. It also imparted the knowledge of SDGs to the student community. The unique and distinctive activities helped to inculcate the culture of social responsibility and among the students.

### **Problems Encountered and Resources Required**

One major problem with solar power is reliability. At best, a solar panel can produce electricity for 12 hours a day, and a panel will only reach peak output for a short period around midday. Tracking panels that follow the sun can extend this prime generation period somewhat, but it still means that panels spend very little of the day producing at maximum capacity.