



## Rooftop Solar PV system

The Rajkot Municipal Corporation has taken several initiatives to set an example to the local community about incorporating clean energy and efficient mechanisms within city operations. Adding to other solar photo voltaic systems already installed in the corporation's other offices, an 8kWp SPV power plant in the Krishnanagar City Civic Centre of Rajkot Municipal Corporation was installed in early 2011.



### Background and purpose

Several government and private buildings in Indian cities use diesel generators to serve as a stand by power supply during the frequent hours of load shedding and power shortage. The hazardous effects of this: pollution, noise, excess costs are gradually paving the way for more efficient stand by power sources to be explored. A solar powered back up system generates electricity at a substantially lower cost than DG sets and use of Solar PV power plant can replace diesel sets completely or reduce fuel consumption.

The purpose of the project is:

- To serve as a model for Renewable Energy power generating systems to cater the electrical energy demand for the office.
- To set example and encourage entrepreneurs to invest in such projects

### About the activity

Rajkot Municipal Corporation had earlier installed a solar photo voltaic system on the roof top of their west zone headquarters. Encouraged by the performance of the system, the RMC decided to undertake the installation of an 8kWp SPV power plant in the Krishnanagar City Civic Centre of Rajkot Municipal Corporation to provide power back up during load shedding hours to cater to the electrical energy demand for the office and simultaneously to set an example and encourage entrepreneurs to invest on such projects. The Krishna Nagar city civic centre of Rajkot Municipal Corporation is located in the heart of the city. The centre has sufficient space on its roof for installation of 8kWp PV system and an average annual solar radiation of 5.34 kWh / m<sup>2</sup> / day. The proposed 8kWp PV power plant will generate about 12000 kWh of clean electrical energy per year and will reduce 9.6 tons of GHG per year. Trained manpower will be deployed to explain about the system and benefits to the interested visitors. Rajkot Municipal Corporation (RMC) will be the direct beneficiary of the project. RMC is responsible for providing the basic services infrastructure to city dwellers.



Individual/ Pilot application as per project				Potential for Citywide Application			
Annual energy reduction	Annual CO <sub>2</sub> emission reduction	Cost of electricity	Annual cost savings	Annual energy reduction	Annual CO <sub>2</sub> emission reduction	Cost of electricity	Annual cost savings
12 MWh	9.6 Tonnes	₹4.5/kWh	₹ 54,000	1200 MWh	960 Tonnes	₹4.5/kWh	₹ 5.4 million

## Outcomes, lessons learnt and replication

The solar photovoltaic system was designed and commissioned in early 2011, with partial financial assistance from the Urban Climate project.

Some of the benefits of the project activity are:

- The proposed 8kWp PV power plant will generate about 12000 kWh of clean electrical energy per year and reduce 9.6 tons of GHG emissions per year
- Use of Solar PV power plant can replace diesel gensets

completely or reduce fuel consumption.

- Use of Solar PV power plant also reduces peak load, air-conditioner load in particular.

Thus given the factors of space and adequate solar radiation, the project has high potential to be replicated and scaled up to the city level.

The capital investment for the project is estimated to be ₹ 2.22 million. The project will be co-funded by the RMC, MNRE and ICLEI SA through the Urban Climate project.