100Kwp Roof Top on Grid solar Power Plant at Science Center

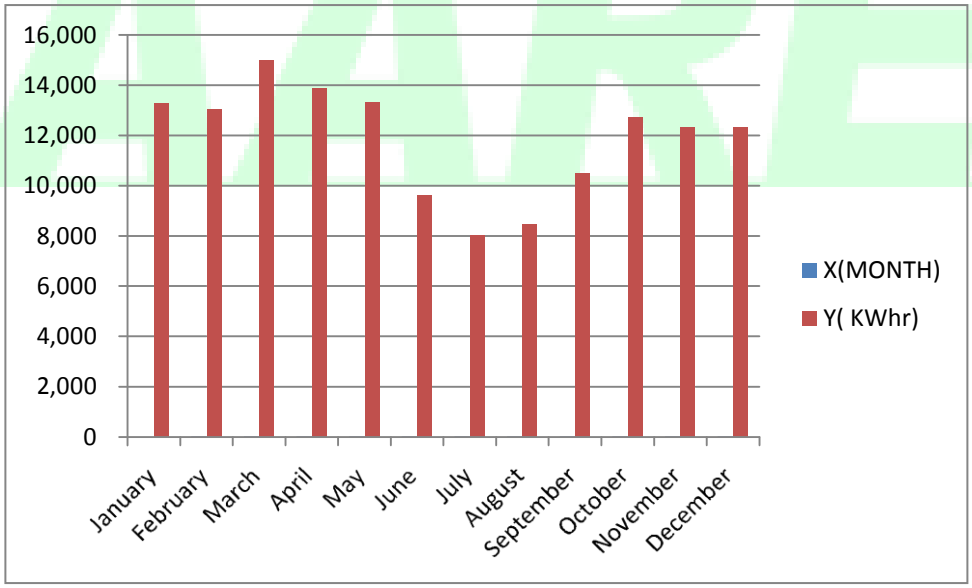
Project Description

This is the first Ever on Grid 100KWp Roof Top Solar power Plant at Science Center in Surat City, which is installed & commissioned by WAAREE Energies Ltd. This Solar Power Plant was inaugurated by honourable Chief Minister of Gujarat Mr. Narendra Modi at 18th January 2013. This power plant will generate 100KW of Electricity.

In this Plant a total 440 nos. of Polycrystalline Solar modules are used and each module contains 230Wp of power. These modules are segregated in series and parallel to achieve required power. There are 20 nos. of modules connected in series and total 22 nos. of series are connected in Parallel. These series & parallel combination of modules are combined in a small junction box, which is called String Combiner Box (SCB) and generates 580 Voltage DC & 176 Amp DC Current.

Power generated in SCB goes to 110KWp Solar Inverter via DC cables. In this Inverter, generated DC power is converted into AC power (415V, 140Amp). From the Inverter, generated power will be fed to the existing LT Panel, where this power is synchronized with the grid.

This New Solar power Plant will generate 1.40 million of electricity units during entire year. Here is the graph which shows the generation of electricity with respect to months.



Benefits:

Although the initial cost for setting up a photovoltaic system is quite on the higher side when compared to other forms of generating electric energy, but on the long run solar power electricity generation is better for several reasons. Firstly, fossil fuel which we use presently in electricity generation has been discovered to be diminishing (that is its availability).
Secondly, if we compare the cost of running a solar system and the home electricity generator (which runs on petrol or diesel) for a span of five years, the cost on that of the petrol or diesel generator is higher than that of the solar electricity generator.

This 100KWp solar power plant, will ensure a 105.57 ton/year CO_2 reduction. By generating 1.40 million units of electricity SMC will generate electricity worth 17.5 lacs per year. Payback period of this power plant will be 5.5-6 years. Apart from this we have many more advantages of using non – conventional source of energy over the conventional source of energy such as:-

- Clean and Free: Although there are costs associated with solar panel production, once a solar panel array is in place, it generates electricity at no financial cost and without generating waste. Because sunlight is available free during the day, there is no external fuel source to be purchased.
- No Reliance on Limited Resources: Unlike fossil fuels and the uranium used in fission power plants, the supply of fuel for solar panels will be unlimited for as long as the sun shines. When the availability of other fuel sources dwindles, and their cost goes up accordingly, sunlight will still be readily available. Since sunlight cannot be withheld the way oil, coal or uranium supplies can, its use diminishes the potential for energy-related conflicts or disputes.
- Comparatively Low Maintenance : A solar power system contains few or no moving parts, so there is very little that can go wrong with it once it is in place. Maintenance costs are low because parts do not wear out and require replacement at the rate that turbine-based power generators parts do. Because of their low maintenance and repair requirements, solar energy systems spare their users both the time and the money required in upkeep.
- Emergency or Remote Power Source: In area where the electrical infrastructure is damaged by disasters, such as hurricanes or earthquakes, a solar power system can provide backup emergency power for essential buildings and structures until they are reconnected to the power grid. Solar energy can also provide electricity to remote areas where running power lines from an existing grid may be cost prohibitive and virtually impossible.

WAAREE