

ECOLOGIC

Harder the Sun, More Solar Power to Stay Cool

Instead of complaining about harsh summer, we can set up rooftop PV units to power airconditioners for comfortable living

With all the complaints about the summer sun and the long hot days, it seems as if we are all looking right now for ways to hide, stay cool and hydrated. While the sun is at its peak in summer, it travels a path through the sky and is at its highest angle on the summer solstice on June 21.

The summer solstice is also popularly known as the longest day of the year as the sun travels the farthest path from sunrise to sunset. As we gear up towards the long summer days to come, let's see how we can gain from the sun's glory than be afraid!

The sun is a great source of energy and this is further confirmed by studying the efficiencies of solar power generation. As obvious as it may seem — the longer the sun's exposure, more is the energy created that can be directly connected to power loads or stored in batteries for later use.

In my office building, we generate 268kW of electricity every month and this is used to power the air handling units of the air conditioning plant that cool the building. In homes, refrigerators can be run on solar energy. So in a way, the harder the sun shines, the more energy we gain to stay cool!

The recorded numbers in the summer months (April-June) is between 338-348kW. The almost 25-30% increase over the average monthly solar power generation proves that an investment in even a small scale renewable energy unit at a home or private office is worth it — government mandate or not!

Solar energy can power streetlights and other lamps. They are especially useful in remote areas where grid power is not available in most places. Such lights use the energy stored in batteries, which get re-charged by sunlight during the day. Solar lights do not require extensive cabling and are especially good for use in gardens



A rooftop photovoltaic system offering both shade and electricity • Express

and for soft lighting. While considering a retrofit of solar cells on rooftops, the roof slope and orientation have to be studied. Solar energy output depends on the latitude of the location and availability of sunlight.

Flat roofs allow panels to be installed at the optimum inclination and orientation to the sun. The photovoltaic (PV) system as it is called includes an unit that draws from the electric grid to continuously make up for any shortfall

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in the solar power generation to run the electric loads hooked to the circuit.

The initial cost of the system is high if batteries are included and the engineering becomes a bit more complex. It demands greater attention during maintenance too. However technologies are fast catching up to improve efficiencies and the cost of generation and storage are coming down with each passing year.

The PV has to be routinely wiped so the surfaces are clean of dust and grime. This is to ensure unhindered incidence of sunlight on them to maximise power output. An efficient, well-planned and well-maintained system has advantages that very easily outweigh the constraints of maintenance and operation...after all; all great things are high maintenance!

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