

SOLAR ROOFTOP

Frequently Asked Questions

Q WHAT ARE THE MAIN COMPONENTS OF SOLAR POWER SYSTEM?

=> Solar Modules and Inverters are the main components of a solar power system and they constitute 70% of the project cost.

Q WILL A SOLAR PLANT MEET 100% OF MY POWER REQUIREMENT?

=> A solar plant typically meets 20%-26% of your total energy requirement. However, this depends on the space available to set up the plant.

Q WHAT IS A SOLAR PV (PHOTOVOLTAIC) SYSTEM AND HOW DOES IT WORK?

=> "PV, short for Photovoltaic, derives its name from the process of converting light ('photo') directly into electricity ('voltaic'). Simply put, a Solar PV system is a power station that generates electricity from sunlight.

Solar Panels/Modules: Solar panels consist of a group of small cells made from semiconductor material. When the sun's light falls on the modules, it excites the electrons, thereby creating direct current (DC).

Storage Battery: The best use of solar energy is to consume it while it is being generated. If the requirement is to store this power and consume it in the non-sunny hours, then solar energy can be stored in batteries for later consumption

Solar Inverter: The DC electricity goes into an inverter that converts it into alternating current (AC). We use AC for running our household or office or factory equipment

Q WHAT ARE THE THINGS I SHOULD THINK ABOUT IF I AM PLANNING TO GO SOLAR?

=> If you planning to install a solar plant, below are some things to consider:

- What are your energy demands? How do you consume the power?
- What is the availability of the shadow free area in your building?
- What is the business model you find more commercially viable (CAPEX or RESCO)
- What would be the savings if you go solar?

Q WHAT ARE THE BUYING OPTIONS IN THE SOLAR MARKET?

- => • CAPEX
• RESCO or OPEX

Q WHAT IS THE DIFFERENCE BETWEEN CAPEX AND OPEX MODEL?

=> There are two main models:

OPEX Model - In this, the investor owns the asset (Plant). The consumer and the producer enters a PPA (power purchase agreement) for a decided duration of time which is typically 15-25 years. During the tenure of PPA, the consumer pays the producer for the power generated at a decided tariff. After the PPA terminates, the asset is transferred to the consumer.

CAPEX model - In this, end consumer owns the asset (Plant) and can claim accelerated depreciation."

Q WILL MY SYSTEM GENERATE DURING NIGHT?

=> The Solar plant will generate electricity only during the Sunny hours, typically between 6 A.M. to 6 P.M and will not generate any electricity during the night. You must source electricity from Grid or the DG set during the night time.

Q WHICH SOLAR PV SYSTEM IS SUITABLE FOR YOUR PROJECT?

=> "There are various factors involved in choosing your PV system. You might want to research on them before choosing the apt model: Energy Consumption Pattern ; Power Cuts or outages ; Various Govt. Policies like Net Metering, Grid Power Access or subsidies on Solar power."

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Q IS MY ROOFTOP RIGHT FOR SOLAR PLANT?

=> If your roof is not having any shade from any adjacent buildings, trees etc. and its structure is not delicate then your roof is suitable for solar plant. Solar plant can also be installed on car parks, open shade ground within your premises by erecting special mounting structures.

Q WHAT IS NET METERING?

=> Net Metering allows you to sell excess solar power back to the grid and thus results in maximizing the savings of the solar project.

Q CAN I REMOVE MY GRID ELECTRICITY CONNECTION?

=> The plant will generate electricity only during the day time so during the night the electricity has to be sourced from the Grid. Secondly, solar electricity will meet only a part of your total electricity requirement, the remainder of which has to be met from the Grid.

Q HOW MUCH DOES A SOLAR PV SYSTEM TYPICALLY COST?

=> Below are the approximate costs for a 100KW set up:

- Rs. 65-75 lacs for household sector
- Rs. 55-65 lacs for larger commercial & industrial sector
- Utility scale is even cheaper owing to economies of scale

Q IS SOLAR POWER CHEAPER THAN THE DIESEL POWER?

=> Solar power is much cheaper than power from diesel generators. Today average power from solar is Rs. 5-7 per kWh (Fro commercial and Industrial segments) while average power from diesel generator is Rs. 17 per kWh (a litre of diesel generates around 3-4 kWh)

Q HOW MUCH TIME DOES IT TAKE TO INSTALL A SOLAR PV SYSTEM?

=> It can range between 2-10 weeks depending on the complexity of the project.

Q ARE THERE ANY APPROVALS REQUIRED TO INSTALL A SOLAR PV SYSTEM?

=> No permissions are required if you are installing an off-grid solar PV system. But in case you wish to integrate your solar system with grid to avail net metering option, certain permissions are required to be taken from the discoms

Q HOW MUCH AREA IS REQUIRED TO INSTALL A ROOFTOP SOLAR SYSTEM?

=> This would depend on various factors such as shading free rea available, direction of the roof etc, however as a thumb rule, the following could be a good approximate: 1KW plant requires 12 sq mtrs of shade free area."

Q HOW MUCH ENERGY WILL BE GENERATED FROM A 1 KW SOLAR PLANT?

=> On an average, every 1 KW setup produces 1300 to 1500 units in a year. This may however vary based upon the location of the plant, seasonal factors, surroundings and shadow free areas. You can consider 1400 units for sake of calculations.

Q HOW MUCH IS THE AVERAGE LIFE OF THE SOLAR PANELS?

=> A Most panel manufacturers give warranty of 25 years, however there have been plants in operations for 40 years as well

Q WHAT IS THE ANNUAL MAINTENANCE FOR A SOLAR PV SYSTEM?

=> The Maintenance is not significant. Water is used to clean the panels – Typically 5 litres of water is required for a kWh.

Q DOES RAIN AFFECT THE PERFORMANCE OF SOLAR PLANT?

=> The electricity generation of the plant suffers during Rainy and cloudy days but the generation never drops to zero. The loss of generation is already adjusted in the 1.3 to 1.5 Lakhs unit/100kWp/annum while designing the system.