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MODI

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Solar Powered Villas - FAQs

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Q1. What is solar power?

- A. Solar Power or energy means the capture of energy from the sun by using technologies like solar cells, solar water heaters, etc. Solar power is a non polluting renewable source of energy.

Q2. What are the environment benefits of using solar power?

- A. Over the last couple of centuries our planet has faced several important environmental issues which have adversely effected bio-diversity and human society. Several major problems like water pollution, air pollution (acid rain & fine particulate matter), ozone depletion, heavy metal poisoning (like lead, mercury, arsenic, etc.), release of toxic chemicals and substances into the environment (like PCBs, asbestos, etc.), nuclear waste disposal, etc., have been largely solved, especially in advanced nations or technological solutions have been found which are under implementation.

However, the biggest problem of all is global warming due to release of green house gases like carbon dioxide (CO₂) and methane into the atmosphere. Burning of fossil fuels like petrol, diesel, coal, etc., is a biggest contributor of green house gases. Presently, we have no solution to the problem. Power generated through renewable sources like hydro electric power, wind mills, etc., has a very limited potential and is unlikely to provide more than 20% of the world's energy requirements. The only realistic future technology which can save the earth from an environmental disaster is SOLAR POWER!

Q3. Isn't it too expensive to provide solar power for villas?

- A. Yes. It is too expensive to provide 100% power using solar cells. It is likely to cost upwards of Rs. 10 lakhs to provide 100% solar power. However, after a careful study of power consumption in a typical household we have designed our system to meet 70% to 90% of the annual power requirement.

Q4. What does the customer have to pay extra for the solar power?

- A. Nil. Modi Properties is offering solar power free of cost to its customers. This is a special promotional offer valid for a limited period.

Q5. How does the system work?

- A. The solar power system consists of a 1,000 watt solar panel (solar cells) and a suitable inverter /power conditioning unit (PCU) and suitable battery backup. During the day time when electric power is generated by the solar panels it is directly used to power the house. Additional power generated is diverted to charge the batteries. During the night power is supplied through the battery backup. Only, in the case where power is not available from the solar cells or the battery backup, the power from the mains (supply by electricity board) is utilized. The switching between different sources of power is seamless and automatic. In this way efficient use of solar power is ensured.

Q6. Will the solar power being provided be adequate?

- A. The electrical wiring and the system is carefully designed in such a way that heavy appliances like air conditioners, washing machines, microwave ovens, refrigerators, etc. are excluded from the solar powered circuit. Lights, fans, computers, TVs, etc. can be connected to the solar powered circuit.



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An average house has 12-20 lights, 5-7 fans, a computer & a TV. The power required to run these appliances on full load is about 600 Watts. Assuming that a computer and TV are used for 2-3 hrs a day and 60% of lights and fans are used for about 6 hrs a day the power consumed is about 2.25 units (kWhr) per day. The solar power system is designed to produce and store about 3.5 to 4 units a day. Thus, adequate provision for day to day consumption of power has been provided.

Appliances like washing machines & microwaves are used for couple of hours a day, while air conditioners are used seasonally. The compressor of refrigerator runs for 2-3 hours a day. Water is being heated by a solar water heater. Detailed calculation of the power consumption through out the year keeping in mind, cloudy days (20-30 days) where solar power is not fully generated, shows that the system will provide between 70% to 90% of annual requirement.

Q7. What about warranty?

- A. The solar panels, batteries, PCU & solar water heater carry a warranty of several years. State of art technology is provided by India's leading companies. Service of the equipment and warranty shall be provided by the vendors of the equipment.

Q8. What is the saving on carbon dioxide emissions?

- A. The solar power system is estimated to save 1,250 units of electric power every year. The primary source of electric power in India is thermal power plants which burn coal. The carbon dioxide saved in generating the 1,250 units of power is about 1,000 kgs.

Q9. How does it compare with planting trees?

- A. A mid size tree (30 to 40 feet tall) absorbs about 25 kgs of CO₂ a year. Therefore, the solar powered system absorbs CO₂ equivalent to 40 trees. An acre of land can accommodate 400 trees & therefore 40 trees required 484 sq yds of land. 2.5 times your plot area fully planted with trees is required to offset the CO₂ emission saving from the solar power system.

Q10. When will I get the solar power equipment and solar water heater?

- A. The solar power equipment and solar water heater will be delivered and installed within 3 months of completion of your villa, subject to payment of all dues and execution of sale deed in your favour. Subsidy from government and other such bodies is being sought for providing the equipment. Customer shall be required to sign necessary applications and documents for availing the subsidy.

Q10. How does it benefit the society?

- A. Modi Properties is acutely aware of its responsibility towards our society and environment at large. This is a small step towards solving a big problem. We hope that our ideas & policies will spread throughout the housing industry in the coming years. We look forward to a long and fruitful relationship with our eco-conscious customers. Together our efforts will certainly benefit our society.



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Notes

1. Voltage (volts or V) is the measure of strength of electric power. 220 volts is the normal electric power supply.
2. Current (amps or A) is a measure of flow of electric charge. An air conditioner requires 8 A of current.
3. Power (watts or W, 1,000 W=1 kilo-watt or kW) is the work done per second. Eg. a horse produces 750 W of power and a Maruti 800 produces 30 kW of power.
4. Power consumed is measured in kilo-watt-hours or kWhr which is commonly referred to as units. 1 kWhr is equal to 1000 W of power consumed for 1 hr. 1 unit or kWhr is charged at Rs. 6 to Rs. 9.
5. Power consumed by 6 fans & 12 tube lights is about 500 W. Power consumed by a TV & a computer is about 150 W. Power required per day is $500 \text{ W} \times 60\% \times 6 \text{ hrs} + 150 \text{ W} \times 3 \text{ hrs} = 2.25 \text{ kWhr}$ i.e. 2.25 units a day.
6. By using efficient appliances like LEDs, CFLs & 5 star rated fans, computers, TVs etc. power consumption can be further reduced.