

Grid Connected Solar Panel Power Plant in India

by Anand Kumar Ashodhiya - Sunday, November 25, 2018

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Yes, I know many of us just want to know the price of “1kw Grid Connected Solar Panel Power Plant in India with Subsidy”, however, to understand issues related to price, value, subsidy and cost of installation etc. we must first understand “What is a Grid Connected Solar Panel Solar Power Plant?”

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Simply we may put “a Solar Power Plant produces direct current directly from Sun by the interaction of sunlight or sun rays with [a solar](#) photo-voltaic PV Modules / solar PV panels made of semiconductor material. The electricity provided is direct current (DC) electricity. A Solar Power Plant consists of an array of solar PV modules generating DC electricity, an inverter and sometimes battery backup storage.

Further we need to understand types of Solar Power Plants. Basically we may classify the [solar power](#) plants in to two main and broad categories:-

(a) **Off-Grid Solar / Stand Alone System:** Standalone Off-Grid solar system with battery backup consists of solar panels, solar mounting structure, solar DC wire, solar inverter and solar batteries. Off-Grid solar system is installed in such areas where electricity from main Grid is either not available or very limited. Solar System integrator may design the off-grid system as per the requirement of user’s load and backup time required.

(b) **Grid Connected / On-Grid [Rooftop Solar Photo-voltaic Power Plant](#):** It is [grid connected rooftop solar power plant](#) which is further divided in to two types

(i) Grid Connected / On-Grid Rooftop Solar Photo-voltaic Power Plant without Battery Backup is normally known as Grid Connected Rooftop Solar (GCRT). Grid Connected Solar Panel Power Plant in India without battery backup consists of solar panels, solar mounting structure, solar DC wire, solar inverter and other Solar BOS including Net meter. Grid Connected Rooftop Solar / On-Grid rooftop solar system is installed in such areas where electricity from main Grid is available almost 24 hours hence does not require battery backup. Solar System integrator may design the Grid connected rooftop solar power plant as per the requirement of user’s load in terms of electrical units required every day. 1kw Grid Connected Solar Panel Power Plant in India is sufficient to produce 4 to 5 units per day for 300 clear sunlight days. The “grid-connected” Solar Power Plant may connect to the grid power by installing bi-directional Net meter with the permission of power utilities under “Net Metering” regulations of the State.

(ii) Grid Connected Hybrid Rooftop Solar Photo-voltaic Power Plant with Battery Backup normally known as Hybrid Solar which acts as “Grid Connected Rooftop Solar” (GCRT) in case of availability of main grid and “off-grid” when electricity from main grid is not available. Hybrid rooftop solar power plant with battery backup consists of solar panels, solar mounting structure, solar DC wire, solar string

inverter and other Solar BOS including Net meter and solar batteries. Hybrid Grid Connected Solar Panel Power Plant in India is installed in such areas where electricity from main Grid is available at least 18 to 20 hours and user needs 4 to 6 hours battery backup. Solar System integrator may design the Hybrid Grid connected rooftop solar power plant as per the requirement of user's load in terms of electrical units required every day and battery backup. 1kw Hybrid Grid Connected Solar Panel Power Plant in India is sufficient to produce 4 to 5 units per day for 300 clear sunlight days.

Grid Connected Solar Panel Power Plant in India with Net Meter

Grid connected rooftop Solar Power Plant can directly be connected from the Grid. The "Net Metering" allow you to feed the excess electricity to the grid when your system is generating more power than you are consuming. The power exported to the grid may be credited to your account and can be used by the consumer during one financial year. However carry forward beyond the financial year is not allowed under net metering regulations.

Solar Subsidy for 1kw Grid Connected Solar Panel Power Plant in India

Solar Power Plant ranging from 1kWp to 500 kWp may be installed under MNRE Scheme to avail solar subsidy at Rupees 20,000 per kilowatt or 30% of benchmark cost whichever is less. A grid connected Solar Power Plant can be installed in a shadow free area either in open ground or on the roof top. Central Financial Assistance (subsidy) up to 30% (or Rupees. 20000/- per kWp, whichever is less) of the benchmark cost of the system may be provided, as per the prescribed eligibility criteria from time to time on pre sanctioned cases and as per availability of funds from time to time. However, commercial and industrial establishment of private sectors are not eligible for the subsidy.

How to get Solar Subsidy for Grid Connected Solar Panel Power Plant in India

In case of State of Haryana, the subsidy may be provided through the Renewable [Energy Department](#) / HAREDA for which the consumer shall make an online application at [HAREDA Online portal](#) before installation of grid connected rooftop solar power plant. Prior sanction of [MNRE](#) / Renewable Energy Department / HAREDA for each plant is required.

Space for installation of 1kw Grid Connected Solar Panel Power Plant in India

For installation of 1kw grid connected solar panel power plant in India you may require 10 square meter shadow free area. On clear broad day light a grid connected rooftop Solar Power Plant can generate electricity for 6 to 8 hours daily.

If Grid Connected Solar Panel Power Plant sufficient to run all devices

Grid connected solar panel power plant in India is sufficient to operate any electric operated devices / gadgets, however heavy load are not advisable to operate from a small capacity Solar Power Plant with battery backup.

Electricity generated by 1kw Grid Connected Solar Panel Power Plant in India

A South facing 1kw grid connected solar panel power plant in India will generate around 1200 to 1500 units per year. Grid Connected Rooftop Solar Power Plant may reduce your [electrical bill](#) up to 90% for next 25 years.

Does a Grid Connected Rooftop solar plant stop working in case of non-availability of grid?

Yes, In case of non-availability of main grid (electricity), grid-connected rooftop solar power plant would also stop working. Electric power may be available from the conventional inverter and battery if installed at your premises. However, in case of Hybrid grid connected rooftop solar power plant, your load will remain operational from already existing battery bank which is installed as part of Hybrid Solar Power Plant. Solar Power Plant with battery bank will work even when grid power (Electricity Supply) is not available but the power from solar power plant cannot be exported to grid in absence of grid power. However, the Solar Power Plant without battery bank will not work or give the power in absence of grid power (Electricity Supply). Existing conventional inverter can be attached with the grid connected rooftop Solar Power Plant for captive use as in the case of normal grid power.

Who can install Grid Connected Solar Panel Power Plant in India?

The user / applicant may install the Solar Photo-voltaic Power Plants system from any [Company or a body incorporated in India](#) under the Companies Act, 1956 or 2013 including any amendment there to or proprietary / partnership firm. The company or the body must be registered for business associate in solar sector. A copy of certificate of incorporation along with AOA / MOA shall be furnished with the Project Completion Report. The Company or the body should have not been debarred / blacklisted by any Government Departments / organization/ PSU's / institutions/ agencies / autonomous Organizations / Ministry of Corporate Affairs. The Company or the body should have a valid GST registration certificate.

Cost of 1kw Grid Connected Solar Panel Power Plant in India with subsidy

1 to 5kWp Grid Connected Rooftop Solar Power Plant without battery bank may be installed at the rate of Rupees. 60 to 88 per watt while that of with battery bank it may be Rupees 110 per watt for 3kWp, the cost depends on the type and capacity of battery bank. System prices would reduce as the capacity of the system increase.

AMC / Warranty / Guarantee for 1kw Grid Connected Solar Panel Power Plant in India

Solar vendor / system integrator / Solar EPC Companies provide 5 years AMC / Warranty / Guarantee for the complete grid connected rooftop Solar Power Plant while solar panels generally carries 25 years performance warranty from manufacturer for 80% power output as per the MNRE guidelines.

Net metering facility for Grid Connected Solar Panel Power Plant in India

In grid connected rooftop solar power plants with net-metering facility, surplus power over and above the premises load, if any, can be fed into the grid through a Bi-Directional Net meter. In case of off grid system the surplus power after charging battery bank fully remains wasted. Surplus electricity generated from a grid connected rooftop Solar Power Plant fed in the grid can be adjusted / utilized within one financial year.

Safety of Grid Connected Solar Panel Power Plant in India

Grid connected rooftop solar power plant are safe from wind for a wind velocity up to 150 KM per hour and also safe from hailstorms to a great extent, if installed properly, as per technical specifications and guidelines laid down by MNRE / HAREDA.



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