

Working and Benefits of Solar Power Plant

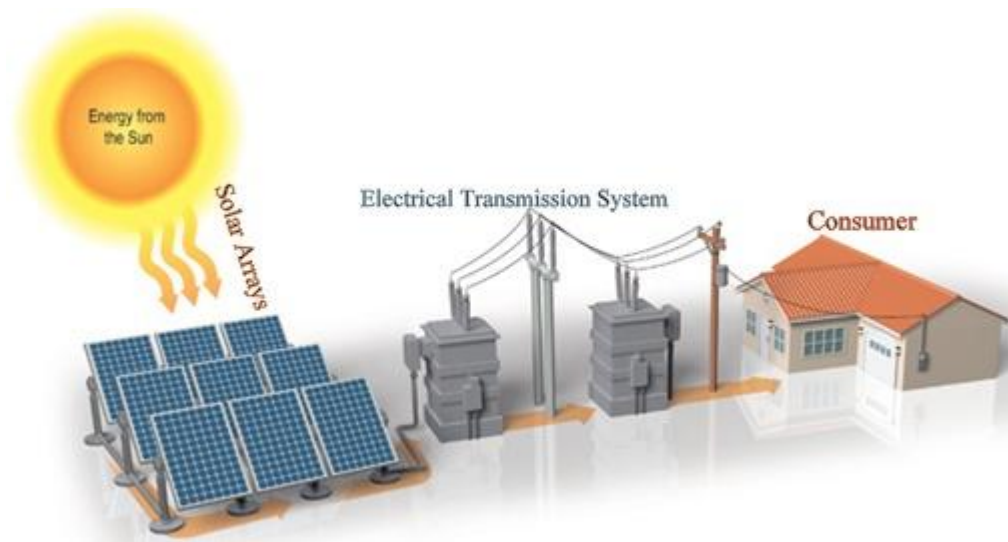
What is Solar Power Plant?

Solar energy is the energy that is available from the sun in abundance. Solar power is the conversion of sunlight into electricity. As electricity plays a key role in our day to day life we need it in abundance, as sunlight is clean, and is available for free solar power is created from it. A solar power plant is basically a system that supplies electricity to wide areas. The solar power tower system has many sun tracking mirrors installed that helps in tracking sunlight into a central receiver. In the solar thermal power system, the radiation of the sun heats the therm-oil that flows inside the receivers to a temperature of 400 degree Celsius so that the downstream heat exchanger can generate steam. The steam is then pressurized into the turbine that drives the generator. Thus the heat collected by the receiver is used as electricity for performing various activities and purposes. The method of this will however be explained in detail below.

Solar powers plants that are being for some time now, helps in supplying energy. They act as a source of energy which is total pollution free and environment friendly. The traditional solar plants that were used before were solar thermal plants. However, the solar power plants can be made very easily in few years as they are made readily available materials. These solar power plants are huge and hence require lots of pace. Thus the perfect place for their setup would be desserts and other barren unoccupied lands.

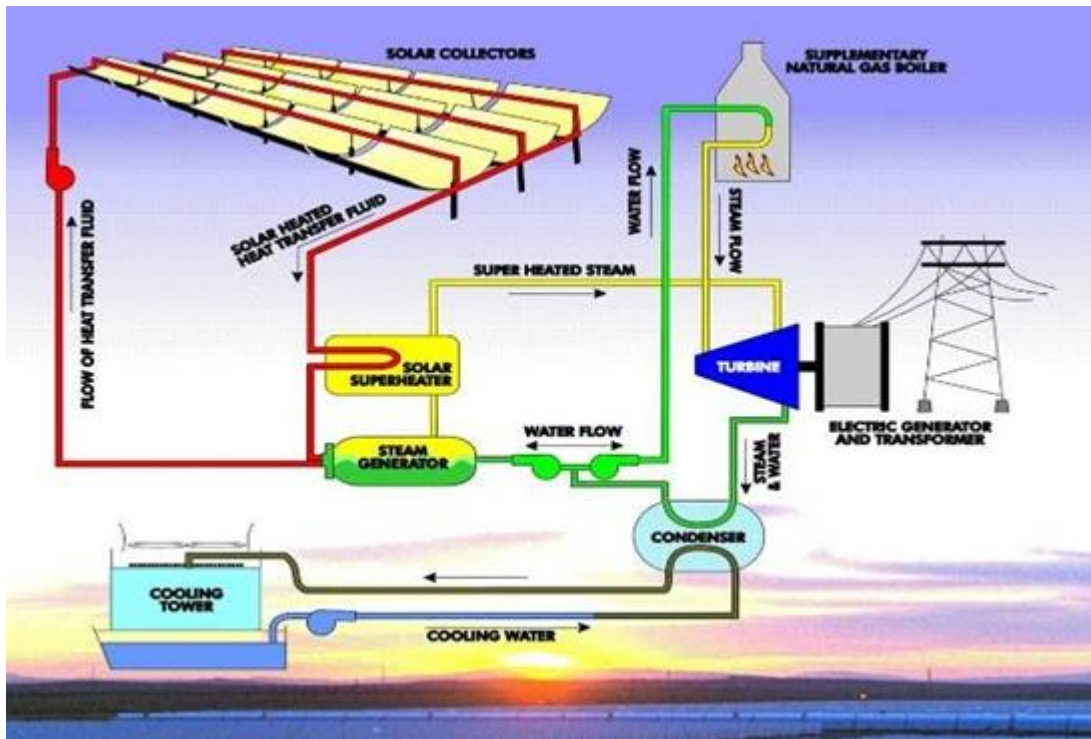
Apart from the solar power plant that makes use of tracking mirrors we have the photovoltaic cells that help in converting the sunlight into electricity directly. These cells are made of semiconductors i.e. crystalline silicon which are cheap and work effectively. On the whole solar power plants are being built in all the developing countries even though the installation charges are expensive.

How Solar Power Plant works?



Electricity can be generated in two ways with the help of solar energy or sun's energy. It can be generated Firstly, with the help of photovoltaic electricity and secondly with solar thermal electricity. Photovoltaic electricity is a method that uses photovoltaic cells to capture direct sunlight. The photovoltaic cells are nothing but solar cells. The solar thermal electricity on the other hand makes use of a solar collector which has mirror for reflecting sunlight into the receiver that heats up the liquid and the heated liquid produces steam which is used to produce electricity.

Working of Photovoltaic Plant:



As mentioned above, this is the working of a thermal plant but, apart from this the working of a thermal power plant can be categorized into three methods:

Parabolic Troughs:

In this method a solar field consists of many parallel rows of solar parabolic trough collectors. They make use of parabola shaped reflectors that reflect the sunlight. This method is used to heat a fluid and as mentioned in the above diagram steams the steam emitted by the heated liquid helps in generation of electricity.

Solar Power Tower:

This system makes use of sun tracing mirrors which are called as heliostats for reflecting and concentrating the energy of the sun. The energy can be concentrated for almost 1500 times. This concentrated energy is later is used for heating the air in the tower to more than 400 degree Celsius. The heat is then captured inside a boiler for the production of electricity with a steam turbine.

Solar Pond:

In this method there is a pool of saltwater which collects solar thermal energy. It makes use of the salinity gradient technology. The bottom layer of the pond is hot and hence it acts as a transparent insulator for trapping sunlight so that heat can be stored for future use.

Efficiency of Solar Power Plant:

Solar power plants are very efficient for providing electricity as they make use of the energy of the sun. As solar energy is used in abundance for various purposes, constant efforts are being made to improve the efficiency of solar panels, solar power plants and other systems. For measuring the efficiency of a solar power plant you first need to measure the density. Also a solar power plant should be efficient enough to supply power when there is no electricity.

Solar power plants supply or generate more amount of electricity when earth receives maximum density of sunlight. The power plants however also make use of fossil fuels the conventional power plants burn the fossil fuels for the production of steam, which then drives the turbines for generating electricity. As solar power plant's main aim is to supply good amount of power when a person needs it the most. Also solar power plants are installed as back up of electricity. In spite of certain drawbacks, the solar power plants make the right use of the sun's energy and have till date been successful in supplying electricity all over the world.

Benefits of Solar Power Plant:

Generating electricity with the help of sunlight is something which is going on since many decades. The sun's energy i.e. solar energy helps in carrying forward lot of activities. Electricity makes life easy and that electricity comes from the sun. Solar power plants help in supplying huge amount of electricity. Solar power plants make use of solar energy which is renewable for creating electricity hence it has in hold many benefits.

- They help in keeping the environment pollution free
- Help in generating electricity easily
- Though the initial installation for the solar power plant is expensive due to the advancement in technology the price of these plants are dipping down
- It is a brilliant way to store energy and use it for future
- It is a great way to save money as most of the electricity is consumed from the power plants it can help you to reduce bills
- As solar power is a renewable source of energy it available free of cost everywhere
- It can be used for lighting, mobile charging, security cameras, park lighting etc
- When there is no power you can use the electricity generated from solar power plant
- A solar power plant requires very low maintenance and at the same time have long life span
- It works in the best way when the location is a remote area
- Using photovoltaic system helps in increasing the value of your home
- As the fuel for running this system is free, you once gain need not worry about emptying your pockets.

Using a solar power plant has always been beneficial and it will help you live an easy life.

Types of Solar Power Plant:

We have been talking about what a solar power plant is. Now after knowing what exactly it is, in easier terms it can be stated that it is a method that makes use of the energy of the sun for providing electricity for the working of different appliances.

As mentioned before there are basically three main types of solar power plant namely -

Photovoltaic Solar Energy Plant:

This as mentioned before makes use of photovoltaic cells or solar cells as it is called for generating power. It is used for house wiring and powering electrical appliances.

Thermal Energy Solar Power Plant:

This can be used for heating water and drying clothes. Also this system is used for heating houses during cold days.

Concentrating Solar Power Plant:

This type of solar power plant is very similar to the photovoltaic one. However, the only difference is it makes use of mirrors and lenses for trapping sunlight. The trapped sunlight will then be directed to the photovoltaic cells that will convert into heat energy. These plants are used by big companies and industries.

Source: <http://www.electronicshub.org/working-and-benefits-of-solar-power-plant/>