How is solar energy harvested

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How is solar energy collected? 5 Solar harvesting methods

Three primary technologies for solar energy harvesting are as follows:

Up till now, solar panels are commonly known devices for generating electricity through renewable resources. What if I tell you that there are other ways too? Yes, energy from the sun is converted in 5 different methods including photovoltaic cells. Different methods of solar energy harvesting use thermal energy for different purposes ranging from individual to commercial and industrial levels.

What is Solar Energy Harvesting?

A method to generate electricity from heat and energy from solar power is termed solar energy harvesting. All methods and techniques fundamentally utilize sunlight to generate energy. Solar energy harvesting reduces dependency on fossil fuels to produce electricity, and it is beneficial in the long run. New innovations lead to more efficient solar energy harvesting methods and techniques. Along with methods you will get to know about solar energy harvesting technology used, the impact of solar panel size, along with the pros and cons of these methods.

Solar energy harvesting is the process of capturing as well as storing solar energy radiated from the sun. After this, this heat and light energy is converted into electrical energy by a suitable method. There are about 5 different methods of solar energy harvesting. Sometimes these methods are also referred to as solar energy harvesting devices.

You are aware that black absorbs most thermal energy and this is another method through which solar energy harvesting is done. Electromagnetic radiation from the sun along with its infrared spectrum is actively absorbed by black color. The energy from the sun is converted to heat energy through this radiation. Black bodies or containers and devices are capable of absorbing and emitting all wavelengths of the electromagnetic radiation spectrum. This method is used for heating up houses and most commonly for water heating purposes on an industrial level.

This method of solar energy harvesting uses electromagnetic radiation for melting salt. The molten salt is transferred to a heat exchanger to heat water and turn it into steam. This steam is driven through turbines that in turn generate electricity. Insulated tanks enable stable thermal power generation on cloudy days too.

This is the most widely adopted method that converts energy from sunlight into electricity. Different-sized solar panels are used for this purpose. The amount of energy generated depends on the number of panels and their efficiency. Monocrystalline or polycrystalline structures of panels are commonly used along with

inverters and battery banks to provide energy flow after sunset.

Thermal solar panels collect solar energy for these heaters. Regions with sunny climates use this method to harvest solar energy. The black heater body is similar to a photovoltaic panel as the black surface absorbs thermal energy efficiently. A pump circulates cold water within the vessel that takes up the absorbed heat, resulting in cooling down the container and warming up water.

Another system does not have a pump instead; it uses buoyancy created by heated water. With this method, cold water sinks, warm water stays on top, and amounts of flow are reduced. This situation is known as Thermosiphon.

It is another method of solar energy harvesting which is an enhanced version of the traditional solar water heater. Vacuum tubes ensure the entry of radiant energy in the system along with containing thermal energy. This thermal energy is absorbed by heat pipes and transferred to large water tanks. The minimum amount of thermal energy is escaped because of vacuum tubes and nearly all absorbed radiant energy is converted into thermal energy. After this, let’s learn what is solar energy harvesting technology.

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