



4 types of solar energy

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Exploring Solar Energy Technology Types

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The amount of sunlight that the Earth receives for just an hour and a half can deliver enough energy to power the world's energy consumption for the whole year. Solar technologies are developed to the extent that they can convert sunlight into electrical energy. Solar power harnessing systems use either photovoltaic systems or mirrors to concentrate solar radiation. This energy can be stored in thermal storage or batteries or can be used to generate electricity.

The sun is the ultimate source of energy, changing people's outlook on how they consume energy. A lot of consumers, governments, and businesses are trying to fight the climate crisis. But it is not just about generating clean and green energy. Saving up on energy bills has also become a challenge because things are just getting expensive.

Solar energy provides solutions to both the climate crisis and surging energy bills. Like any technology, solar energy comes with its own set of advantages. Whether it is residential systems or commercial ones, there are numerous types of solar energy that demonstrate a range of operational functionality and benefits.

This post explains different types of solar energy in detail to help the advocates of clean energy who are looking for a transition can make an informed decision.

Solar photovoltaic systems are the most common type of solar energy system that produces electricity directly from sunlight. Also known as solar cell systems, it uses semiconductor materials for absorbing sunlight. It works in a way that the heat from the sun's radiation makes the electrons loose from their atoms. These electrons then flow through the semiconductor materials and produce energy.

Thanks to technological advances, today's solar photovoltaic plants can absorb and convert most of the visible light spectrum and half of the infrared and UV light spectrum into energy.

Some of the well-known examples of the use of solar photovoltaic cells are solar-powered clocks and calculators. Several photovoltaic cells are required to provide sufficient power to households. However, for large-scale industrial applications, hundreds of photovoltaic arrays would be needed to form a large photovoltaic system.

The average cost of solar photovoltaic plants on a cost per watt basis may range from \$1 per watt to \$3 per watt, depending on the region. Remote technologies, improved maintenance strategies, and inverter gains are



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cutting solar integration and maintenance costs. The new operation-focused photovoltaic plant designs are said to create further savings.

As the name suggests, solar water heating systems use the sun's energy to heat up water or bring it to a boil. In nature, shallow parts of the lakes, ponds, and rivers have warmer water than deeper areas. The sunlight can easily reach the bottom of the shallow areas, causing it to heat it up, making the water warm. The same concept has been used to develop solar water heating systems.

Essentially, the design incorporates two primary segments – a water storage tank and the solar collector. The ones installed in homes and residential buildings are flat-plate collectors that are installed on the roofs facing the sun.

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