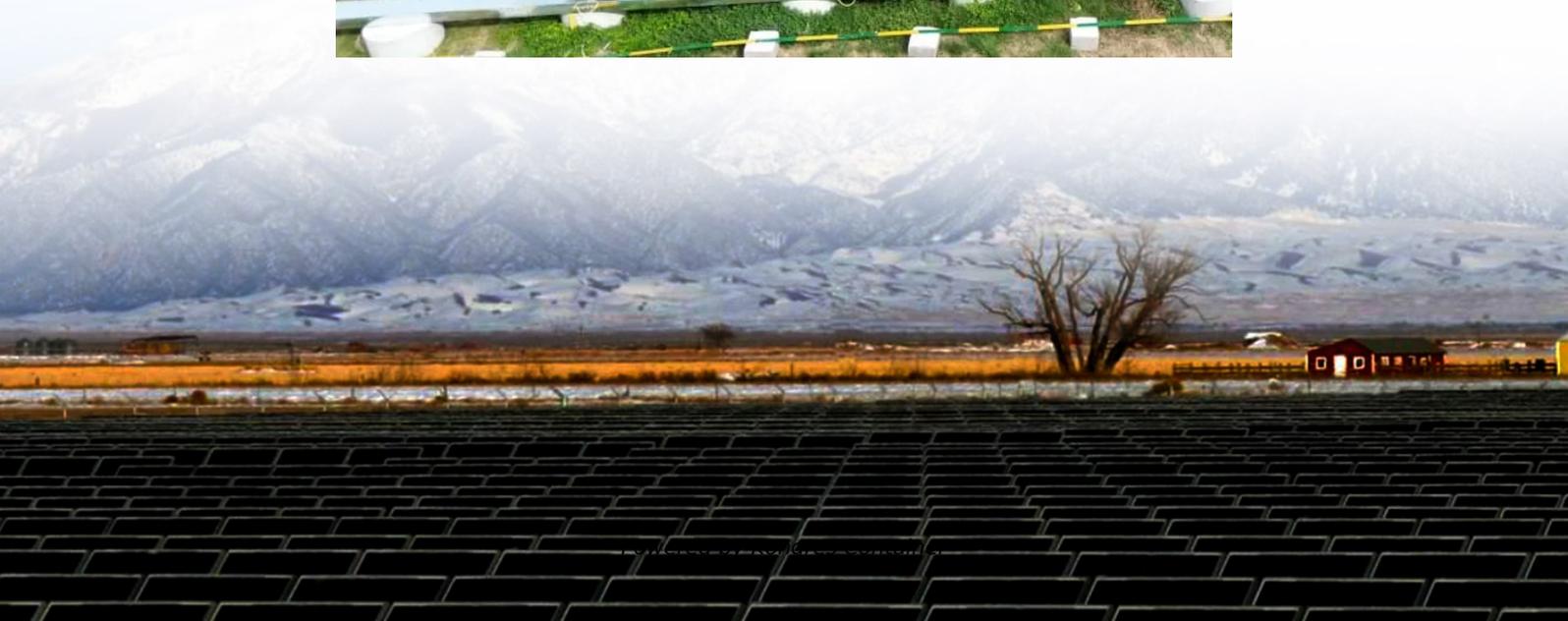


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Solar panels generate electricity and heat



Overview

Solar power generates electricity by using either solar thermal systems that convert sunlight into heat to produce steam that drives a generator, or photovoltaic systems, which transform sunlight into electricity through the photovoltaic effect. How do solar panels generate electricity?

Over 500 million tons of hydrogen atoms are converted into helium every second, resulting in photons that generate solar energy here on Earth. In a nutshell, solar panels generate electricity when photons (those particles of sunlight we discussed before) hit solar cells. The process is called the photovoltaic effect.

How does solar energy work?

The amount of sunlight that strikes the earth's surface in an hour and a half is enough to handle the entire world's energy consumption for a full year. Solar technologies convert sunlight into electrical energy either through photovoltaic (PV) panels or through mirrors that concentrate solar radiation.

How do solar panels convert solar energy into heat?

Instead, the solar panels, known as "collectors," transform solar energy into heat. Sunlight passes through a collector's glass covering, striking a component called an absorber plate, which has a coating designed to capture solar energy and convert it to heat.

How does a solar thermal system produce electricity?

A solar thermal system generates electricity indirectly by capturing the heat of the sun to produce steam, which runs a turbine that produces electricity. A solar photovoltaic system produces electricity directly from the sun's light through a series of physical and chemical reactions known as the photovoltaic effect.

What type of electricity does a solar panel use?

AC is the type of electrical current used when you plug appliances into normal wall sockets. What's the difference between solar PV panels and solar thermal panels?

Solar PV panels generate electricity, as described above, while solar thermal panels generate heat.

How is solar energy produced?

Solar energy is the light and heat that come from the sun. To understand how it's produced, let's start with the smallest form of solar energy: the photon. Photons are waves and particles created in the sun's core (the hottest part of the sun) through a process called nuclear fusion. The sun's core is a whopping 27 million degrees Fahrenheit.

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