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Solar panels get energy from the sun for people to use. There are two types of solar panels, those that collect heat (thermal), and those that produce electricity (photovoltaic). Heat from solar panels is often used for space heating and for hot water.[1]

Solar panels collect renewable energy. In the 20th century, some used the heat of the sun to make steam for a steam engine to turn a generator. Nowadays producing electricity from the sun"s light is cheaper. This is a solid state way of producing electricity, meaning that it has no moving parts.

Home solar panels are often mounted on rooftops. Commercial or industrial installations are often on trackers mounted on the ground. The trackers point the panel towards the sun as the sun moves across the sky. Photovoltaic panels are also commonly used in outer space, where they are one of the few power sources available.

Solar panels have become much cheaper to use, compared to oil, diesel and liquified natural gas in parts of Asia. Solar energy will soon become the main source of energy. Over the years many innovations have been made to improve solar panels. Solar panels have been used for space exploration and are being developed to be able to power cars. Along with this, scientists are developing solar cells in silicone to increase its convenience.[6]

Solar shingles are a new type of solar panel that look like ordinary asphalt roof shingles. They are used where the appearance of traditional solar panels might be undesirable, such as on residential rooftops. Solar shingles are more expensive and less durable than normal solar panels.

Solar cells are semiconductor devices that convert light to electricity. They have many applications. They have long been used in situations where electrical power from the grid is unavailable, such as in remote area power systems, Earth-orbiting satellites and space probes, consumer systems, e.g. handheld calculators or wrist watches, remote radiotelephones and water pumping applications. More recently, they are starting to be used in assemblies of solar modules connected to the electricity grid through an inverter, often in combination with net metering.

The first generation photovoltaic consists of a large-area, single layer p-n junction diode, which is capable of generating usable electrical energy from light sources with the wavelengths of sunlight. These cells are typically made using a silicon wafer. First generation photovoltaic cells (also known as silicon wafer-based solar cells) are the dominant technology in the commercial production of solar cells, accounting for more than 86% of the solar cell market.

Third generation photovoltaics are very different from the other two, broadly defined as semiconductor

devices which do not rely on a traditional p-n junction to separate photogenerated charge carriers. These new devices include photoelectrochemical cells, Polymer solar cells, and nanocrystal solar cells.

Companies working on third generation photovoltaics include Xsunx, Konarka Technologies, Inc., Nanosolar and Nanosys. Research is also being done in this area by the USA"s National Renewable Energy Laboratory ().