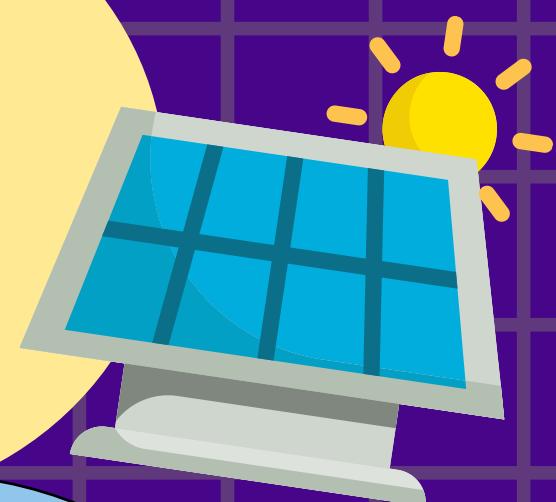


Solar Cell



A **Solar cell**, also known as a **photovoltaic (PV) cell**, is an electronic device that converts sunlight directly into electrical energy using the photovoltaic effect. Solar cells are the basic building blocks of solar panels, which are used to generate electricity from sunlight.



Working



The photovoltaic effect occurs when certain materials, typically silicon-based semiconductors, absorb photons (particles of light) and release electrons, generating an electric current. Solar cells are made up of multiple layers of semiconductor materials, usually silicon, with different electrical properties.

When sunlight strikes the solar cell, the photons with sufficient energy are absorbed by the semiconductor material. This energy excites electrons in the material, allowing them to break free from their atoms and create a flow of electrons, which is an electric current. By placing metal contacts on the top and bottom layers of the solar cell, this current can be captured and used as electricity.

Advantages



The advantages of solar cells:

1. Renewable and clean energy source.
2. Energy independence and reduced reliance on the power grid.
3. Long-term cost savings and potential for earning money through net metering.
4. Scalable and modular, suitable for various energy needs.
5. Low maintenance and durable technology.
6. Silent and non-intrusive operation.
7. Job creation and economic benefits in the solar industry.
8. Reduced transmission losses and improved overall efficiency of the electricity grid.

