



A **solar cell** consists of a potential energy barrier within a semiconductor material that is capable of separating the electrons and holes that are generated by the absorption of light within the semiconductor.

Solar cells are described as being **photovoltaic**, irrespective of whether the source is **sunlight** or an artificial light. In addition to producing energy, they can be used as a **photodetector** (for example **infrared detectors**), detecting light or other **electromagnetic radiation** near the visible range, or measuring light intensity.

The operation of a photovoltaic (PV) cell requires three basic attributes:

- The absorption of light, generating either **electron-hole** pairs or **excitons**.
- The separation of **charge carriers** of opposite types.
- The separate extraction of those carriers to an external circuit.

In contrast, a **solar thermal collector** supplies **heat** by **absorbing sunlight**, for the purpose of either direct heating or indirect **electrical power generation** from heat. A "photoelectrolytic cell" (**photoelectrochemical cell**), on the other hand, refers either to a type of photovoltaic cell (like that developed by **Edmond Becquerel** and modern **dye-sensitized solar cells**), or to a device that **splits water** directly into **hydrogen** and **oxygen** using only solar illumination.





16MEOE1-Solar Energy Utilisation – UNIT IV SOLAR PHOTOVOLTAIC

Topic - Fundamentals of solar cells- - types of solar cell

