The development of solar cell technology

Environment, Ecology

The development of solar cell technology began on 1839 research of French physicist Antoine-César Becquerel. Becquerel observed the photovoltaic effect while experimenting with a solid electrode in an electrolyte solution when he saw a voltage develop when light fell upon the electrode. The major events are discussed briefly below.

Charles Fritts First Solar Cell: The first genuine solar cell was built around 1883 by Charles Fritts, who used junctions formed by coating selenium (a semiconductor) with an extremely thin layer of gold. The device was only about 1 percent efficient.

Albert Einstein Photoelectric Effect: Albert Einstein explained the photoelectric effect in1905 for which he received the Nobel Prize in Physics in 1921.

Russell Ohl Silicon Solar Cell: Early solar cells, however, had energy conversion efficiencies of under than one percent. In 1941, the silicon solar cell was invented by Russell Ohl.

Gerald Pearson, Calvin Fuller and Daryl Chapin (Efficient Solar Cells): In 1954, three American researchers, Gerald Pearson, Calvin Fuller and Daryl Chapin, designed a silicon solar cell capable of a six percent energy conversion efficiency with direct sunlight. They created the first solar panels. Bell Laboratories in New York announced the proto type manufacture of a new solar battery. Bell had funded the research.

Photovoltaic cell or photoelectric cell (Solar cell) is a solid state electrical device that converts the energy of light directly into electricity by the

photovoltaic effect. The energy of light is transmitted by photons-small packets or quanta of light. Electrical energy is stored in electromagnetic fields, which in turn can make a current of electrons flow. Assemblies of solar cells are used to make solar modules which are used to capture energy from sunlight. When multiple modules are assembled together (such as prior to installation on a pole-mounted tracker system), the resulting integrated group of modules all oriented in one plane is referred as a solar panel. The electrical energy generated from solar modules, is an example of solar energy. Photovoltaics is the field of technology and research related to the practical application of photovoltaic cells in producing electricity from light, though it is often used specifically to refer to the generation of electricity from sunlight. Cells are described as photovoltaic cells when the light source is not necessarily sunlight. These are used for detecting light or other electromagnetic radiation near the visible range, for example infrared detectors, or measurement of light intensity.