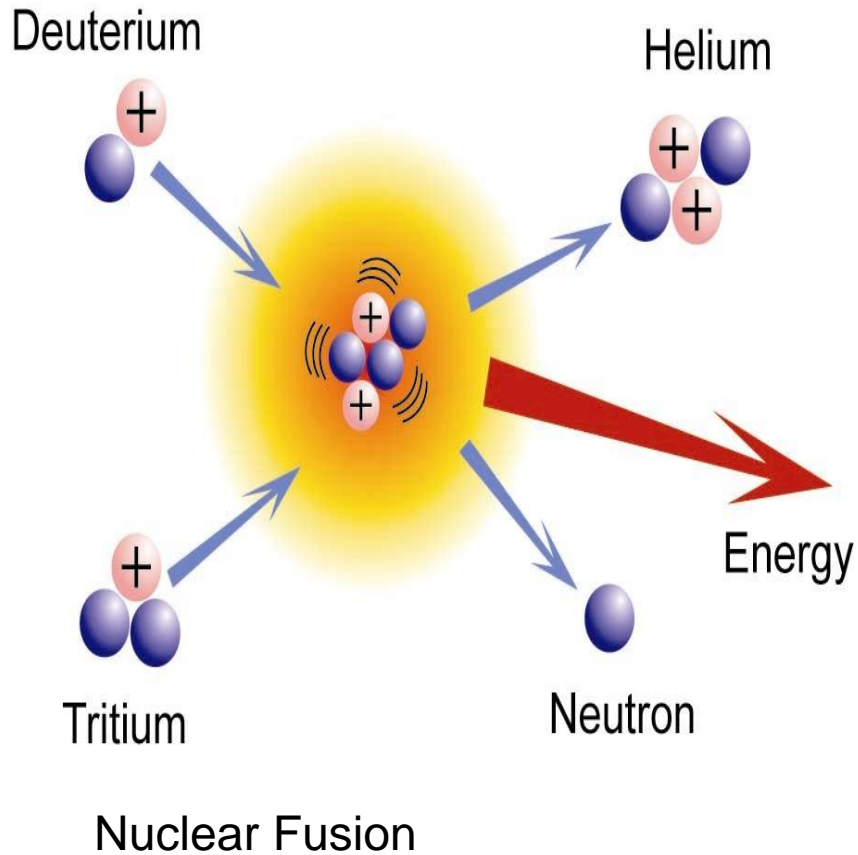


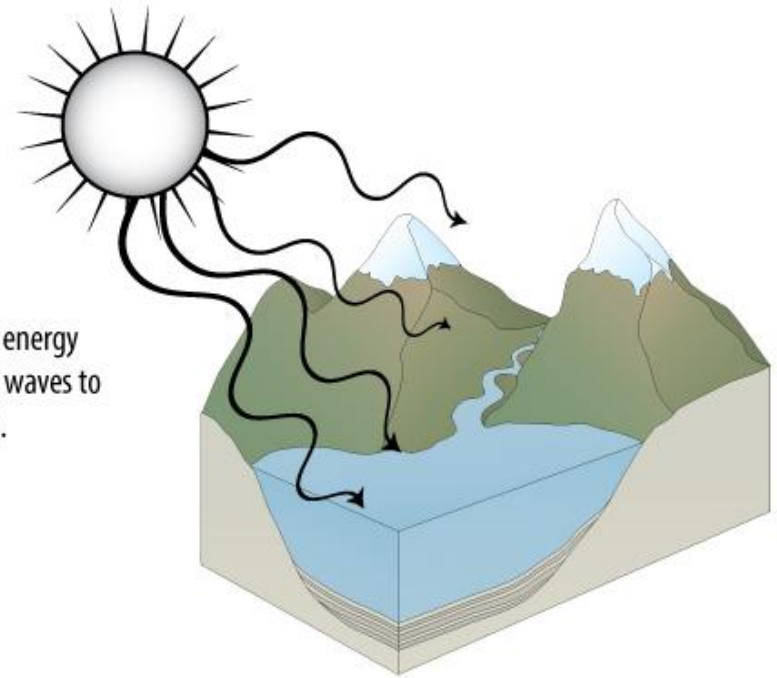
# Exploring Solar Energy

# Radiant Energy



## Radiation

The sun's energy travels in waves to the Earth.



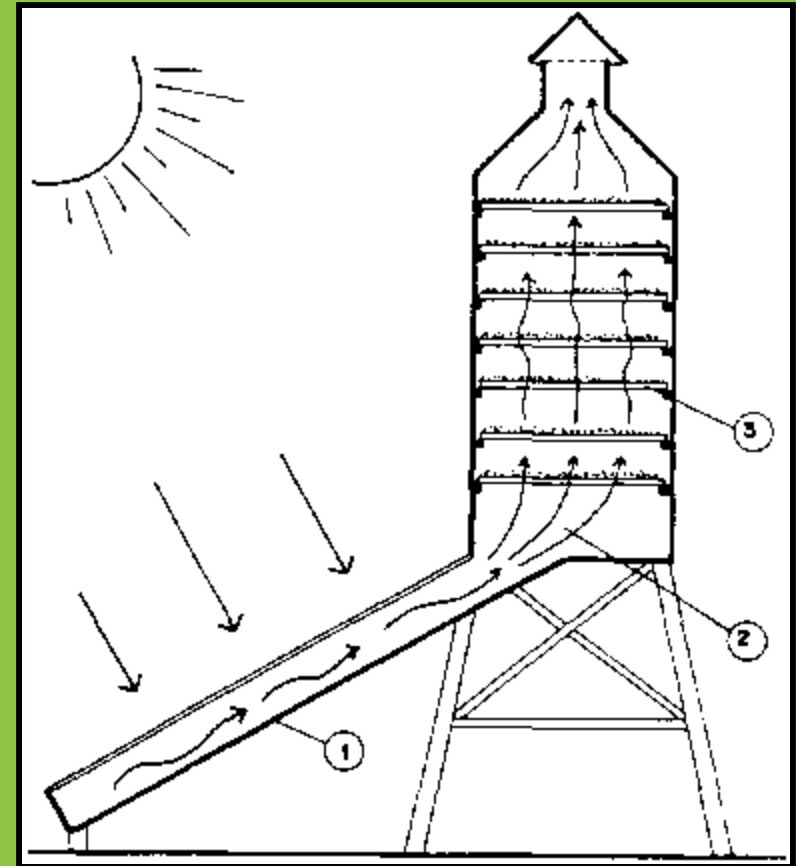
# Major Uses of Solar Energy

- Daylight
- Drying Agricultural Products
- Space Heating
- Water Heating
- Generating Electrical Power
  - Concentrating Solar Power (CSP)
  - Photovoltaics

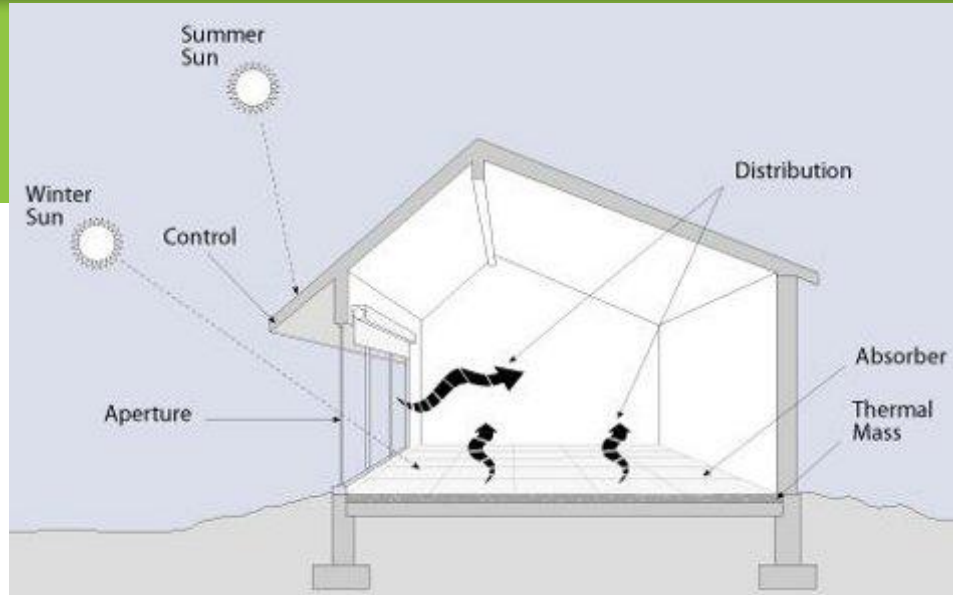
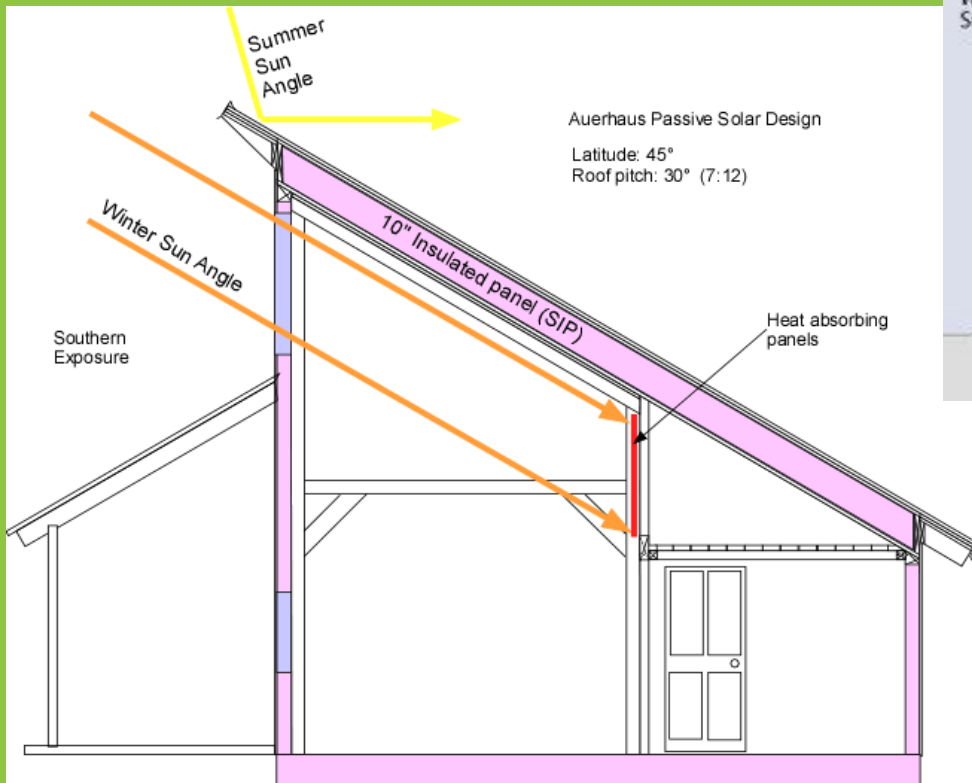


Daylighting

# Drying Agricultural Products



# Space Heating Through Passive Solar

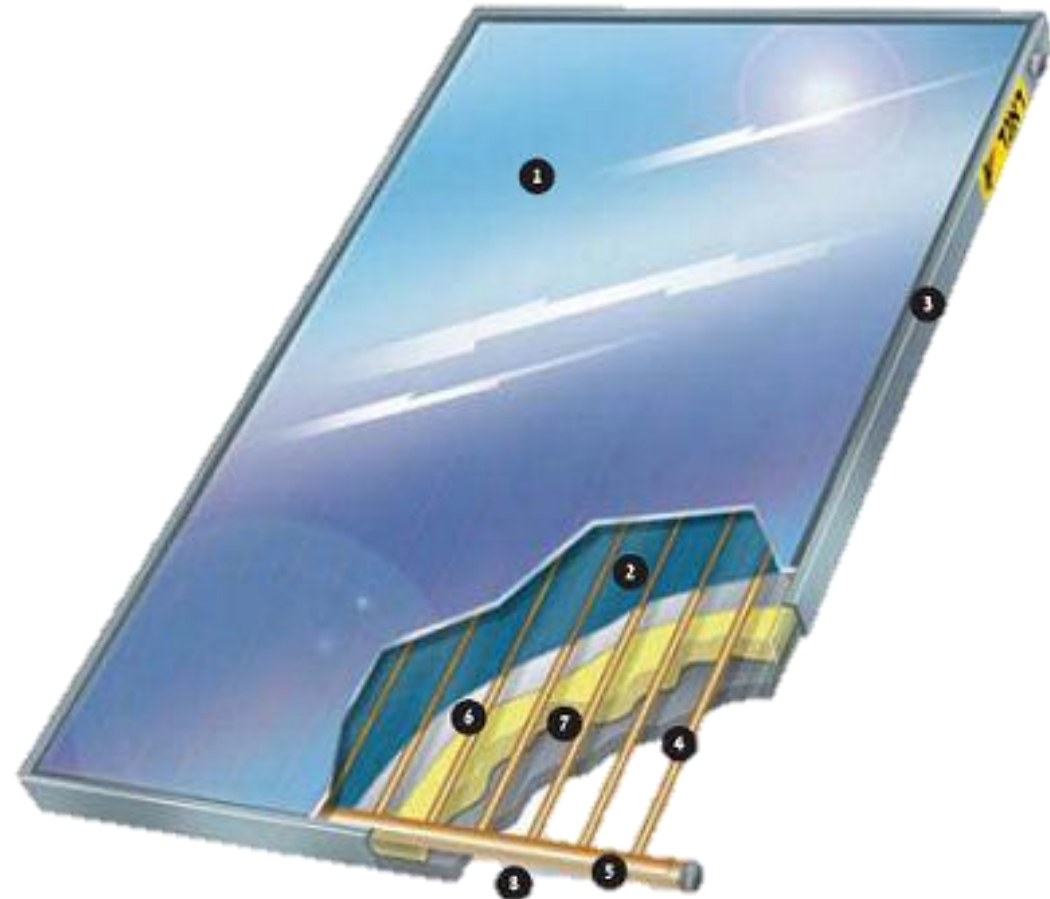


# Active Solar Heating



# Solar Collector

- Glass on outside
- Absorbent on inside
- Circulating Fluid





# Generating Electrical Power

- Concentrating Solar Power (CSP)
  - Trough systems
  - Power towers
- Heat exchanger plus steam turbine
- Photovoltaics
  - Small-scale (buildings) kW production
  - Large-scale (utilities) MW production
- Photoelectric effect

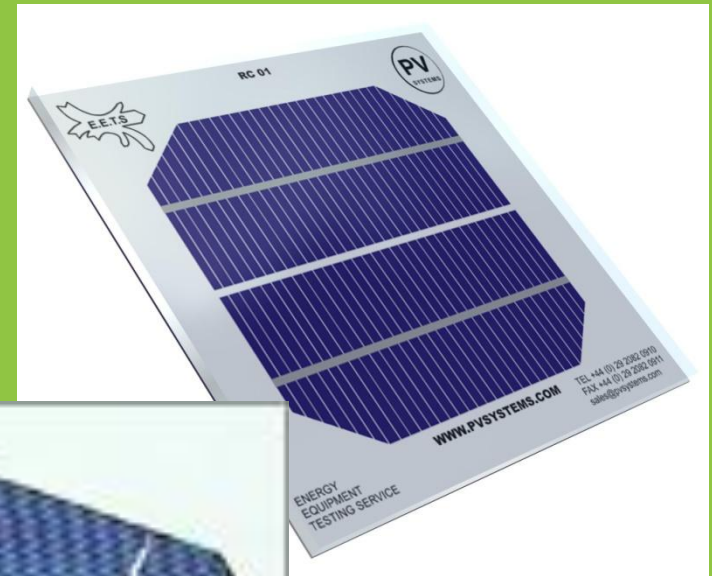
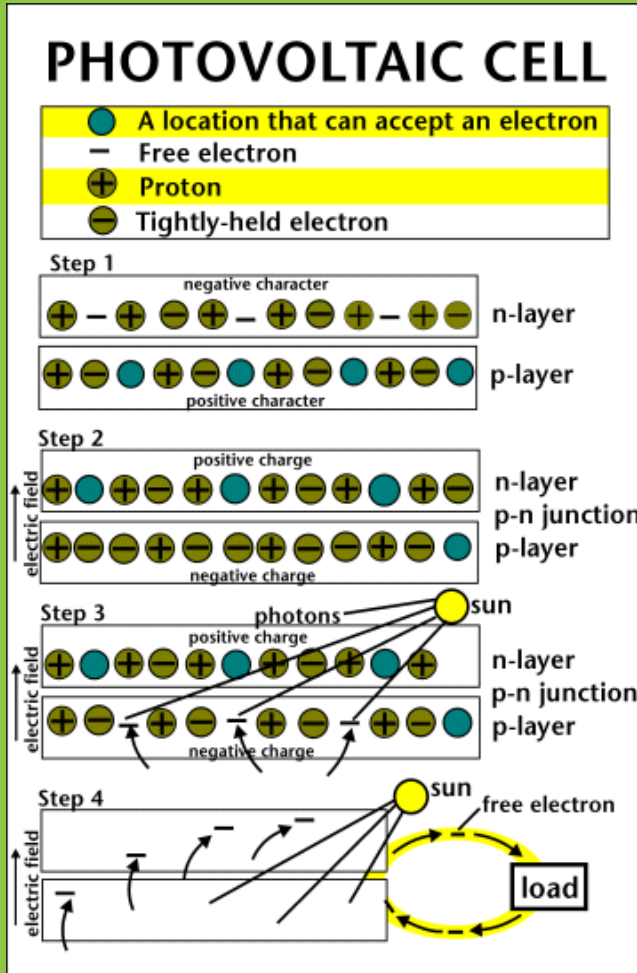
# Concentrating Solar Power (CSP)



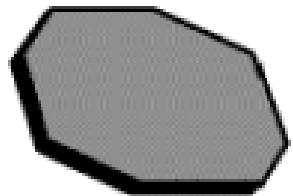
# Photovoltaics



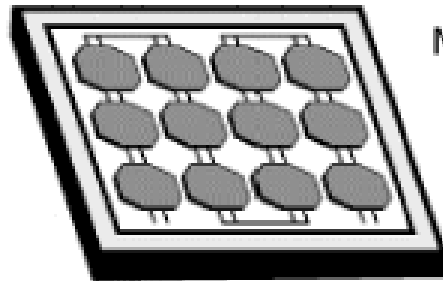
# PV Cell



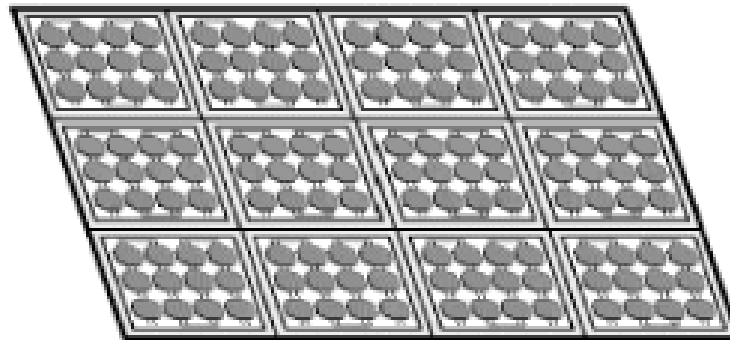
# PV Array Components



Cell



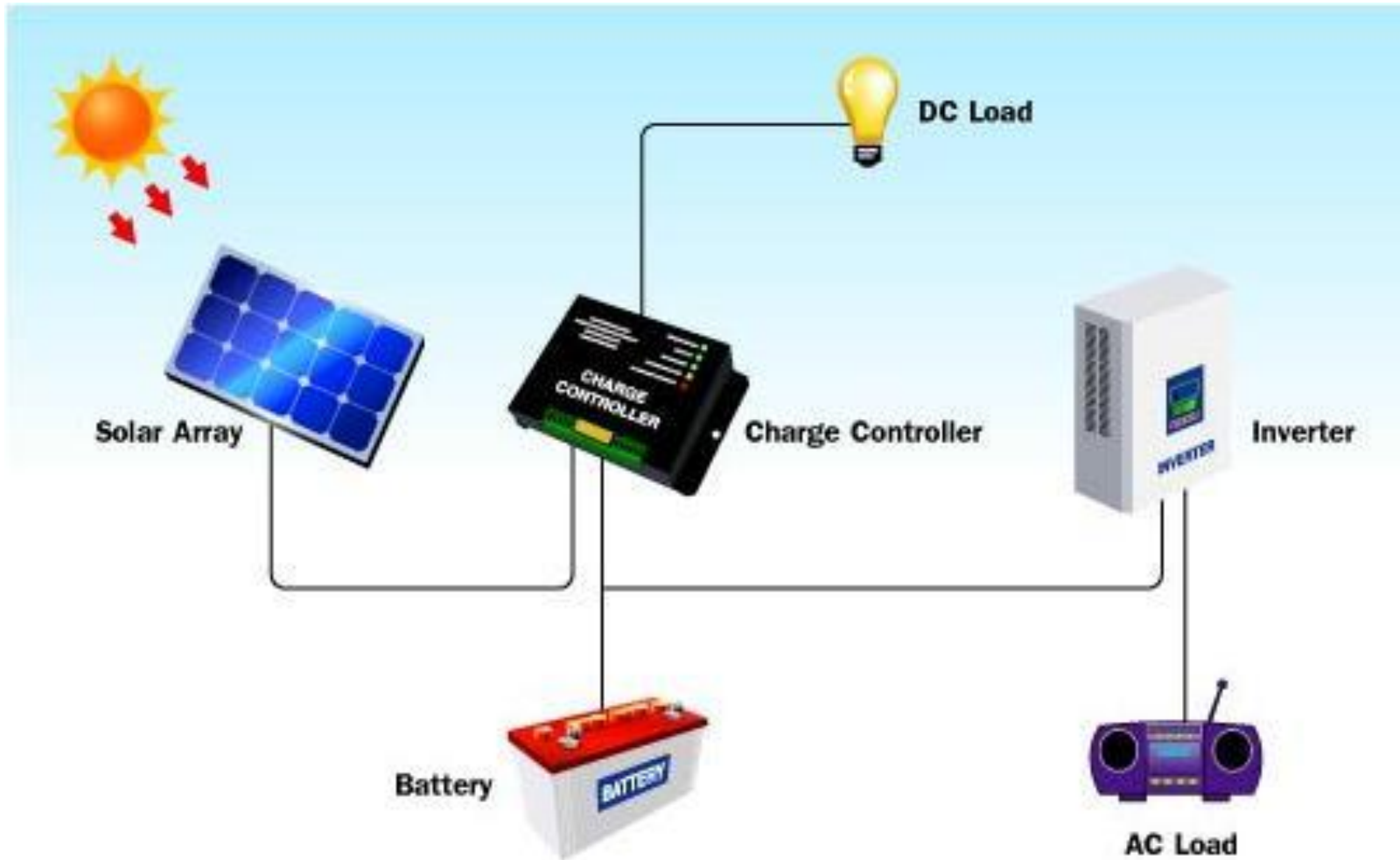
Module



Array

- PV Cells
- Modules
- Arrays

# PV System Components



# Remote PV Power



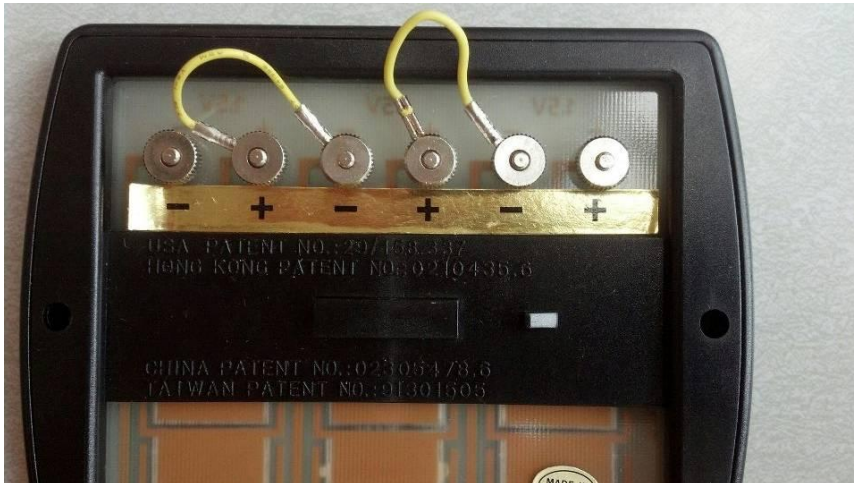
# Advantages of Solar Energy

- Clean
- Sustainable
- Free
- Provide electricity to remote places



# Wiring the PV Modules

## Series



## Parallel

