RECAP

Fossil Fuels	Pros • Inexpensive • Large amounts of energy	Cons • Air pollution • Climate Change • Nonrenewable
Nuclear Energy	Pros • No air pollution • Large amounts of energy	Cons • Nuclear Waste • Nuclear Meltdown • Nonrenewable

RENEWABLE ENERGY

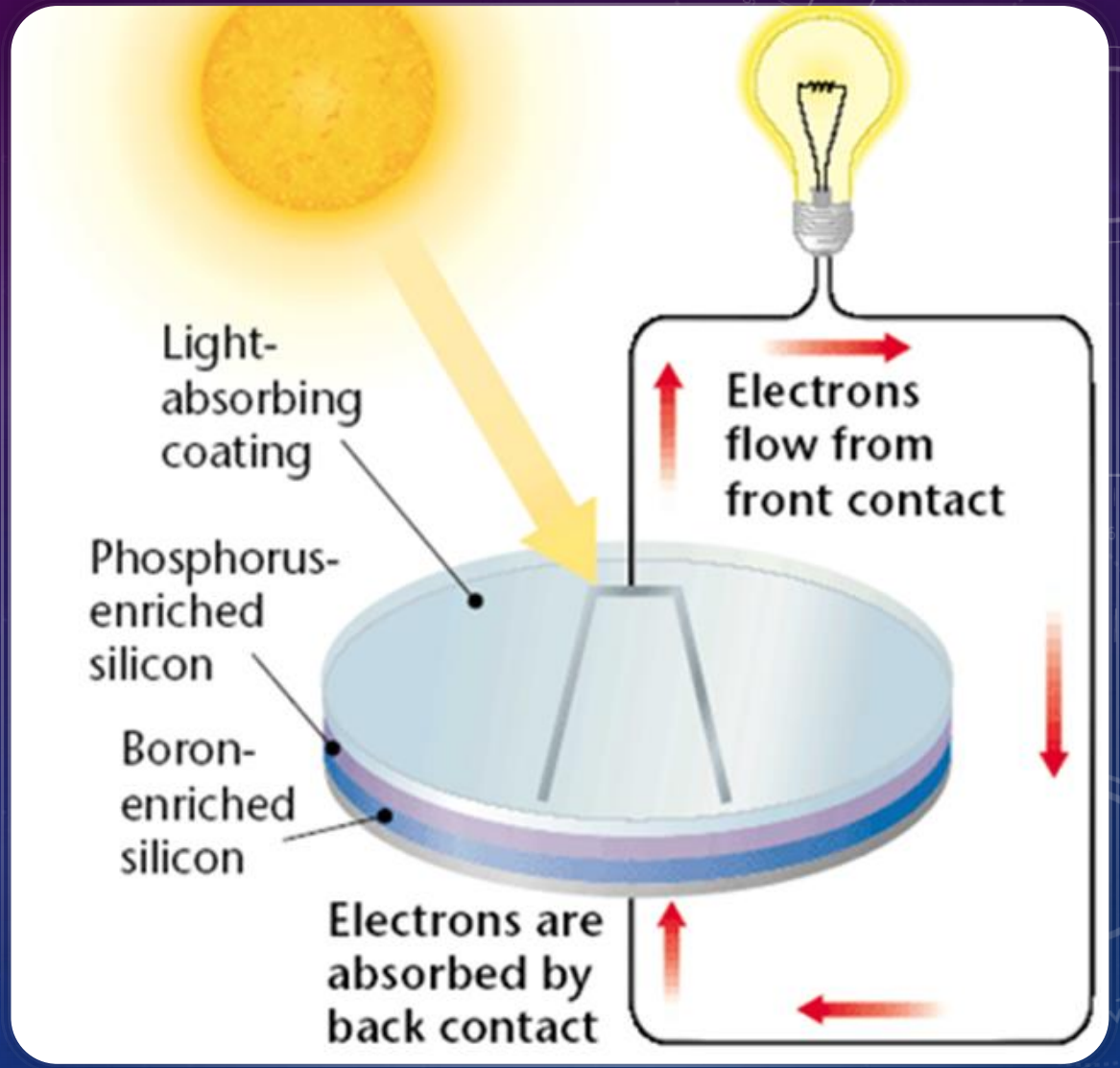
RENEWABLE ENERGY

- Renewable energy - from sources that are constantly being formed.
- Types of renewable energy includes:
  - Solar
  - Wind
  - Biomass
  - Water
  - Geothermal

SOLAR ENERGY – POWER FROM THE SUN

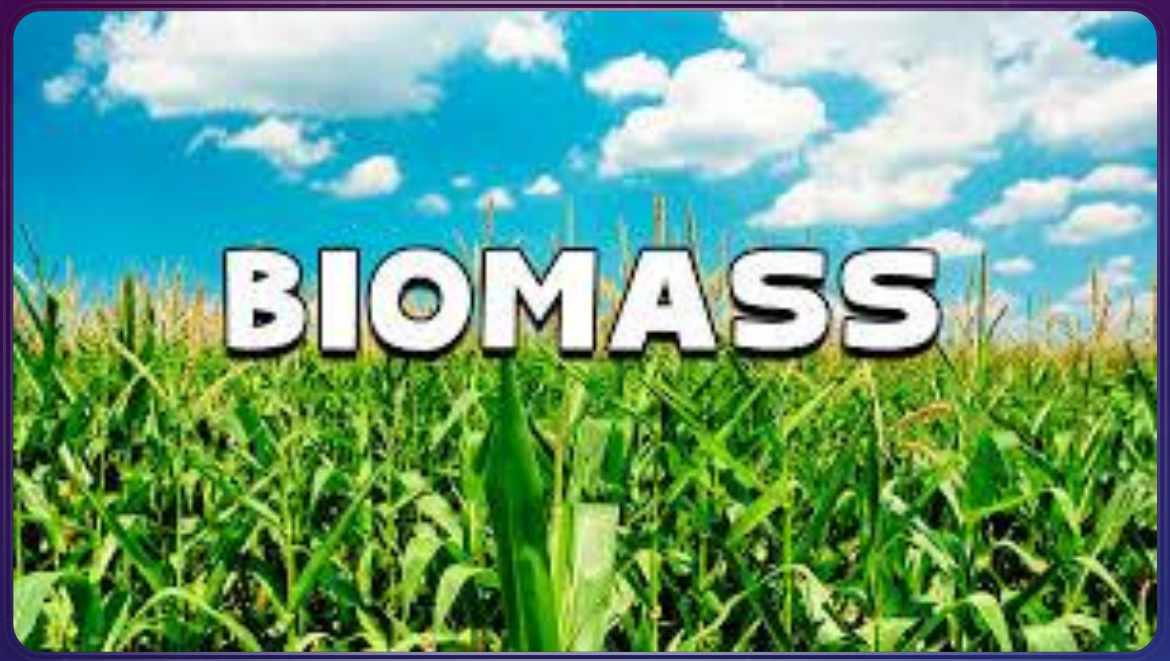
- Photovoltaic cells are solar cells that convert the sun's energy into electricity.
- Advantage
  - They have no moving parts, and they run on nonpolluting power from the sun.
- Disadvantage
  - They produce a very small electrical current. Meeting the electricity needs of a small city would require covering hundreds of acres with solar panels.
  - Relatively expensive
- Despite limitations, solar energy are becoming increasingly efficient and less expensive
- Solar cells provide energy for more than 3 million households in the developing world.

https://www.youtube.com/watch?v=xKxrkht7CpY



WIND POWER

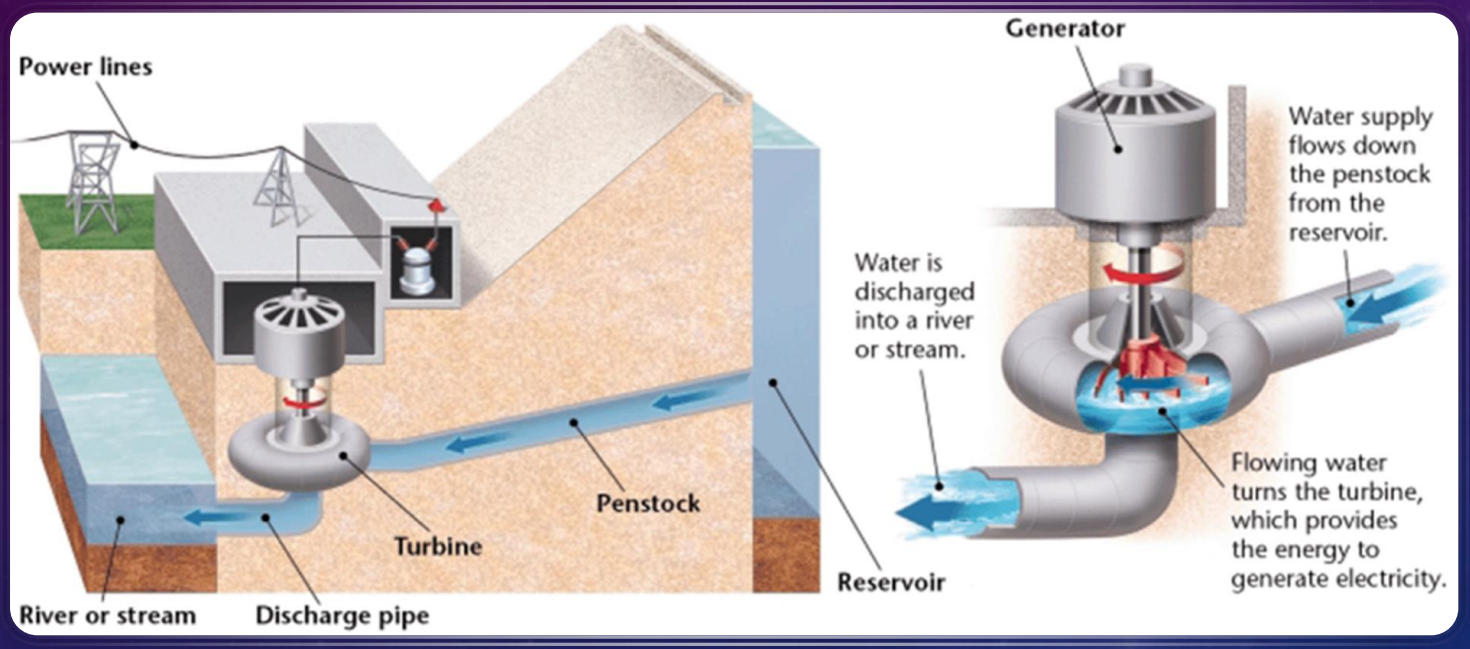
- Wind power, which converts the movement of wind into electric energy, is the fastest growing energy source in the world.
- Wind turbines are used to capture the energy from the wind.
- Wind Farms - large arrays of wind turbines.
  - Supply electricity to thousands of homes.
  - In windy rural areas, small wind farms with 20 or fewer turbines are also becoming common.
- One of the problems of wind energy is transporting electricity from rural areas where it is generated to urban centers where it is needed



BIOMASS—POWER FROM LIVING THINGS

- Biomass fuel consists of plant material, manure, methane, ethanol, algae and any other organic matter that is used as an energy source.
- Renewable biomass fuels, such as wood and dung, are major sources of energy in developing countries.
- More than 1/2 of all wood cut in the world is used as fuel for heating and cooking.

HYDROELECTRICITY—POWER FROM MOVING WATER



- Hydroelectric energy is electrical energy produced by moving water.
  - Large hydroelectric power plants have a dam that is built across a river to hold back a reservoir of water.
  - The water in the reservoir is released to turn a turbine, which generates electricity
- Hydroelectric dams are expensive to build, but inexpensive to maintain
- A dam changes a river's flow, which can have far-reaching consequences on the surrounding ecosystems

GEOTHERMAL ENERGY—POWER FROM THE EARTH

- Geothermal energy - energy produced by heated groundwater within the Earth.
  - The U.S. is the world's largest producer of geothermal energy.
- Geothermal power plants generate electricity using the following steps
  - Steam rises through a well
  - Steam drives turbines, which generate electricity
  - Leftover liquid is pumped back into the hot roc