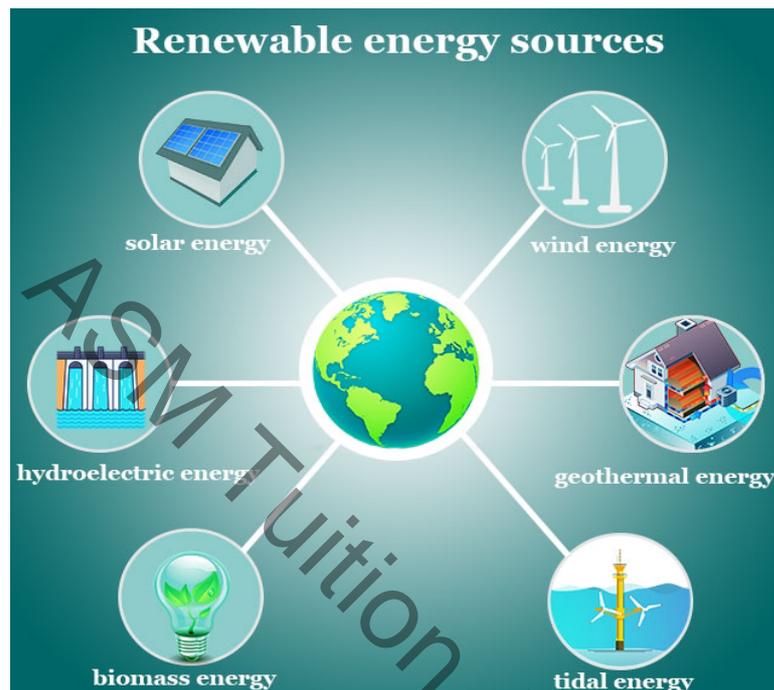


Renewable Energy Resources

Definition:

Renewable energy resources will never run out and energy can be renewed as it is used.



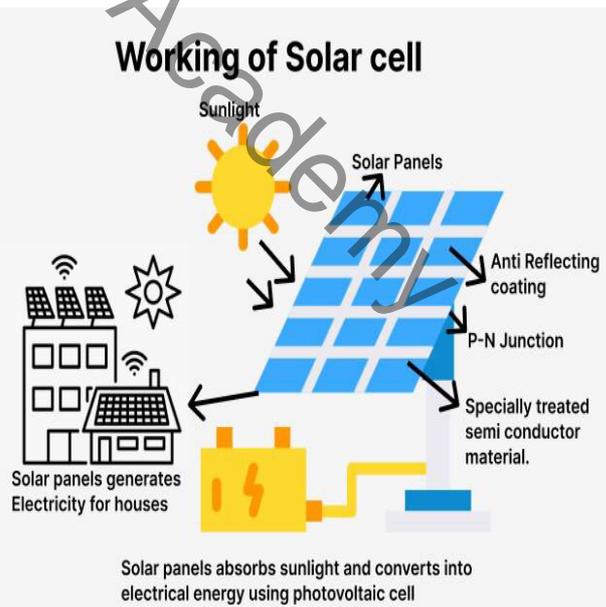
1- Wind Power or Wind Turbines:

- Putting Lot of wind turbines up in exposed places like moors and coasts.
- Each turbines have generator inside and rotating blades which turn on to produce electricity.
- **Problems with wind turbines:**
 - There is no pollution but they spoiled the view, 1500 wind turbines to replace one coal fired power station.
 - They can be noisy which is annoying for people.
 - When wind stop, wind turbines also stopped.
- On average wind turbines produce 70. - 85% of electricity.
- Initial cost is quiet high, but there is no cost of fuel.
- There is no permanent damage, if you remove wind turbines, you remove the noise and view turn normal.



2- Solar cells

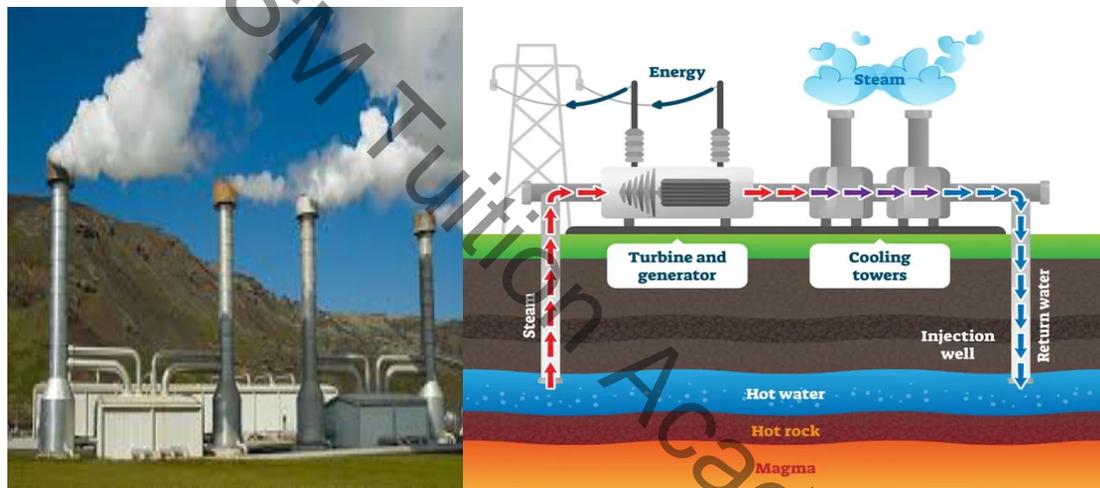
- Solar cells producing electricity directly from sunlight.
- Solar cells are often use in calculators and watches.
- Solar power are often use in remote places to power road signs and satellites.
- In sunny countries solar power are very useful and reliable resource of energy
- There is no pollution and solar power still cost effective in cloudy countries.
- Initial costs are height but energy is free and running costs are nil.



3- Geothermal and hydro- electric power

a. Geothermal power:

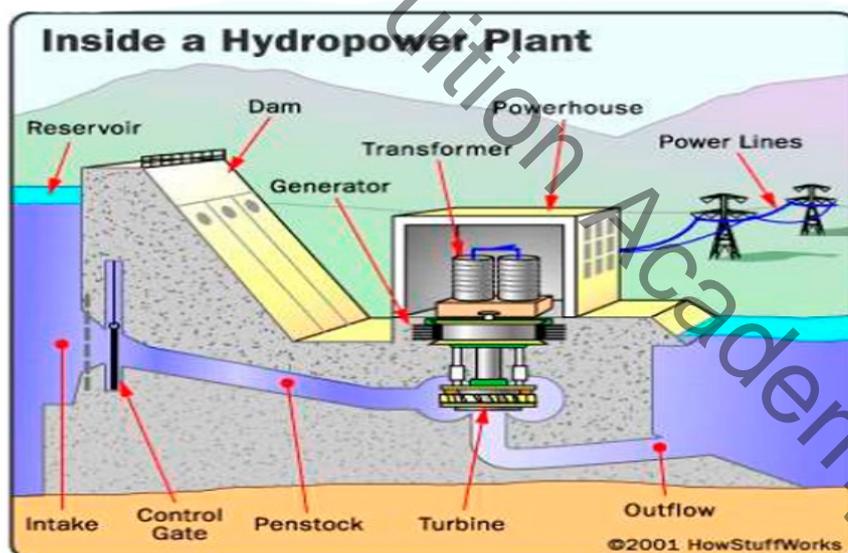
- Geothermal power uses energy from under ground thermal energy stores.
- Volcanic areas where hot rocks are quiet near the surface. The energy come from slow decay of radioactive element like uranium inside the earth.
- Geothermal energy used to generate electricity or heat up the buildings directly.
- The major drawbacks of geothermal power is location specific. Geothermal plants need to be built in places where the energy is accessible, which means that some areas are not able to exploit this resource.



b. Hydro-electric power

- Hydro- electric power transfer energy from the kinetic store of falling water.
- Hydroelectric power, electricity produced from generators driven by turbines that convert the potential energy of falling or fast-flowing water into mechanical energy.
- **Big impact on environment** Due to the Flooding land (rotting vegetation release methane and CO2 gas) it destroys forest, wildlife habitat, agricultural land, and scenic lands. That's why putting hydro electric power stations in remote valley to reduce this impact.
- **Advantages of hydro-electric power:**
 - it can provide immediate response to an increased demand of Electricity.

- It is reliable source of generating electricity except in drought conditions.
- Initial cost is high but no fuel cost and minimal running cost.
- Generate electricity on a small scale in remote areas.



3- Wave power and Tidal barrage

- Lots of little waver power turbines which is connected to the Generators.
- **Disadvantages of Wave power:**
 - I. Disturbing seabed
 - II. Harmful for animals
 - III. Spoiling the view
 - IV. Dangerous for boats

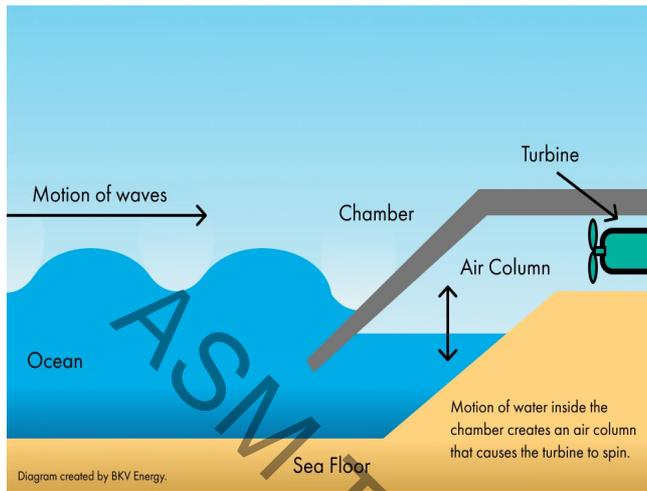
V. Fairly unreliable

► **Advantages of Wave power**

I. No fuel cost

II. Minimal running cost

III. Useful for small island



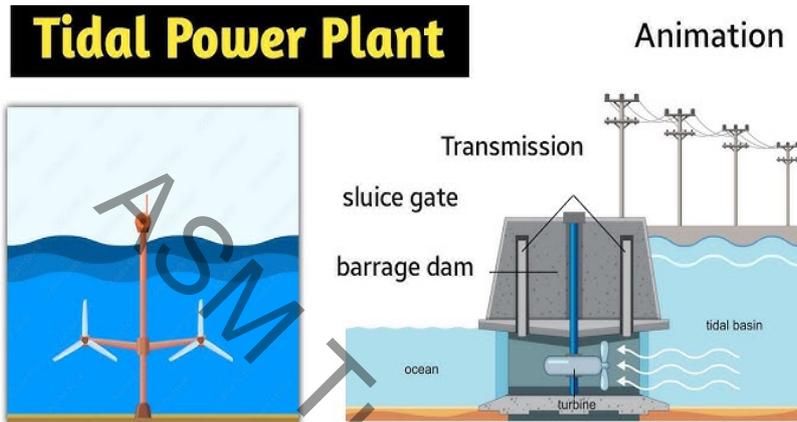
Tidal Barrage:

- A tidal barrage is a dam-like structure with turbines placed at the bottom of the reservoir.
- Tides are produced by gravitational pull of moon and sun to generate electricity.
- **Working:** dam creates a barrier between the sea and the tidal basin taking advantage of the change in the tide levels to produce power.
- **Disadvantages:**
 - I. altering animals habitat
 - II. Spoiling the view

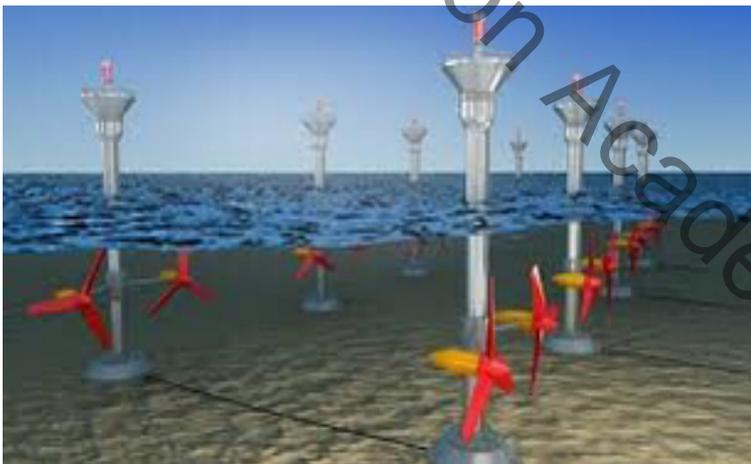
III. preventing free access by boats

► **Advantages**

- I. No fuel cost
- II. Minimal running costs
- III. Environmental friendly



• Tidal Energy Power plant construction and working



4- Biofuel

- Biofuel are renewable energy resources created from plant products and animal drugs.
- It can be Solid, Liquid or gas.
- Burnt biofuel to produce electricity

