

Other Renewable Energy Sources

Geothermal, Wave, Tidal Energy

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Slide 2: *Geothermal Energy: Electricity*

- Beneath the earth's surface lies hot, molten rock, the energy it contains is called geothermal energy.
- Geothermal or ground energy is used in many ways, eg. heat pumps and space heating.
- Geothermal power plants use the earth's natural heat to vaporise water or an organic medium.
- The steam drives a turbine that generates electricity.

Slide 3: *Geothermal Energy: Heating*

- Geothermal heat plants require lower temperatures and the heated water is used directly.
- If near the source, the heat can be used directly to heat homes, buildings and hot water supplies.

Slide 4: *The Ocean's Energy: Wave, Tidal and Current*

- The kinetic energy in waves can be used to generate electricity.
- Wave-power machines use the vertical displacement of the waves to generate electricity.

Slide 5: *Wave Energy*

- The structure interacts with incoming waves, converting this energy into electricity through a hydraulic, mechanical or pneumatic power take-off system.
- The structure is kept in position by a mooring system or placed directly on seabed/seashore.
- Power is transmitted to the shore by a sub-sea cable.

Slide 6: *Tidal Energy*

- Tidal power can be harnessed by constructing a dam or a barrage across an estuary or bay with a suitable tidal range.
- Gates in the barrage allow the incoming tide to build up in a basin behind it.
- The gates are then closed so that when the tide flows out, the water can be channeled through turbines to generate electricity.

Slide 7: *Tidal Energy*

- Tidal barrages have been built across estuaries in France, Canada and China.
- High cost and environmental objections have limited further expansion of this technology.