

Alternative Energy Sources

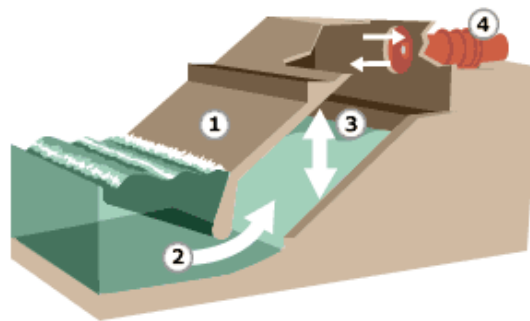
Tidal Energy

Tidal energy is a form of hydropower that converts the energy of tides into electricity or other forms of power.

There are two main types of tidal power:

- Tidal stream systems make use of kinetic energy of moving water to power turbines in a similar way to windmills that use moving air
- Barrages make use of the potential energy in difference in height between low and high tides. Barrages are dams across the full width of an estuary, and suffer from very high civil infrastructure costs, a world wide shortage of viable sites, and environmental issues.

WAVE POWER STATION



1. Wave capture chamber set into rock face
2. Tidal power forces water into chamber
3. Air alternately compressed and decompressed by "oscillating water column"
4. Rushes of air drive the Wells Turbine, creating power

Geothermal Power

Geothermal power is energy generated from heat stored in the earth, or the collection of absorbed heat derived from underground.

Advantages:

Geothermal power requires no fuel, and therefore virtually emission free and insusceptible to fluctuations in fuel cost. And because a geothermal power station doesn't rely on transit sources of energy, unlike, for example, wind turbines or solar panels, its capacity factor can be quite large up to 90% in practice.

Disadvantages:

Although geothermal sites are capable of providing heat for many decades, location may eventually cool down. For example, the world's second oldest geothermal generator in Wairakei has reduced production. It is likely that locations like these were designed too large for the site, since there is only so much energy that can be stored and replenished in a given volume of earth.

