

Student Essay on Water Power

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Essay

TIDAL ENERGY

Tidal power uses the twice daily variations in sea level mostly caused by the gravitational effect of the Moon. Sun and Earth's rotation is also a reason for tides.

To generate electricity from the tides the bay on the island is dammed (the dam can also be called a barrage). Along the dam sluice gates and turbines are installed. If there's a difference in the elevation of the water on the different sides of the barrage, the gates are opened to let the water in the basin (the bay) and out to flow through the turbines. The turbines turn the generator which makes electricity.

Sluice gates on the barrage allow the tidal basin to fill on the incoming high tide and to exit through the turbine system on the outgoing low tide.

TAPERED CHANNEL

Tapered channel consists of the channel and a reservoir constructed on the cliff. As the channel gets narrower, it causes the waves to increase their height as they move towards the cliff and then spill over the walls of the channel and get into the reservoir, which is situated few meters above the sea level. As the water is stored in the reservoir the kinetic energy of the wave movement is converted into potential energy. Then the water runs through the turbine on the way out. Turbine turns the generator which makes electricity.

Tapered channel is a useful way for getting energy as the reservoir is able to store energy until it's needed.

OSCILLATING WATER COLUMN

This column works simple. As the wave comes or leaves the water level in the chamber rises or falls. Incoming wave causes the water level to rise and force the air inside the chamber to rotate the turbine. The retreating wave causes the water level to fall and suck the air down through the turbine and rotate it again. The turbine then turns the generator, which produces electricity.