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Introduction

Ocean waves are caused by the wind as it blows across the sea. Waves are a powerful source of energy.

The problem is that it's not easy to harness this energy and convert it into electricity in large amounts. Thus, wave power stations are rare.

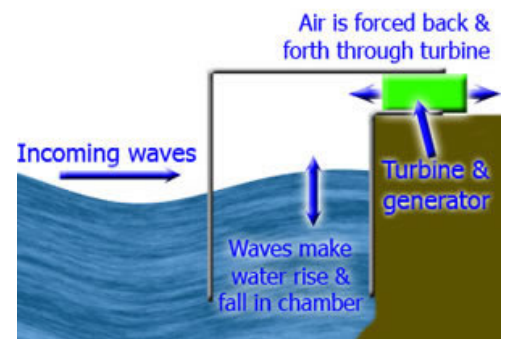


How it works

There are **several methods** of getting energy from waves.

One of them works like a swimming pool wave machine in reverse.

At a swimming pool, air is blown in and out of a chamber beside the pool, which makes the water outside bob up and down, causing waves.



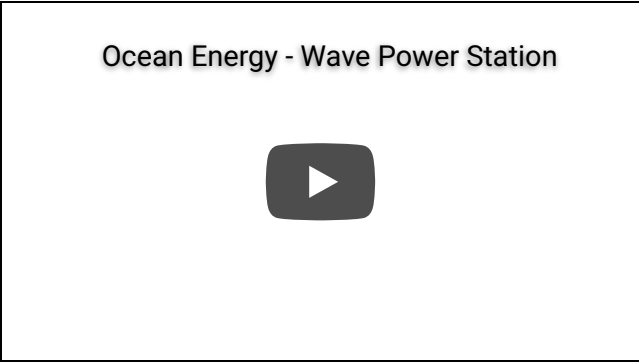
At a wave power station, the waves arriving cause the water in the chamber to rise and fall, which means that air is forced in and out of the hole in the top of the chamber.

We place a [turbine](#) in this hole, which is turned by the air rushing in and out.

The [turbine](#) turns a generator.

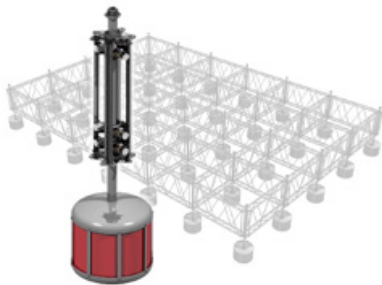
A problem with this design is that the rushing air can be very noisy, unless a silencer is fitted to the turbine.

The noise is not a huge problem anyway, as the waves make quite a bit of noise themselves.



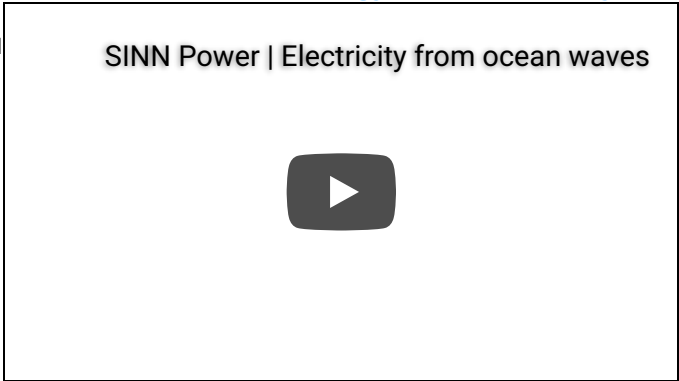
Example:

A company called SINN Power based in Germany uses a simpler, modular approach - which means that the system is easier to make and is made of units, and you can install as many units as you need.



Find out more at www.sinnpower.com

Video Clip: Wave Energy Converter Arrays

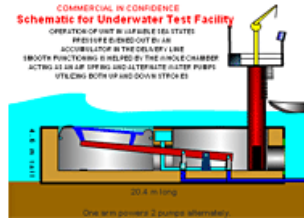


Example:

Another company is called **Renewable Energy**

Video Clip: CETO

Holdings. Their idea for generating wave power (called "CETO") uses underwater equipment on the sea bed near the coast. Waves passing across the top of the unit make a piston move, which pumps seawater to drive generators on land. They're also involved with wind power and biofuel.



CETO Wave Power



**Example:
The Oyster wave energy device**



The action of the waves moves the device, pumping hydraulic fluid to a shore station to drive a generator.

The Oyster Wave Power Device



More

More ideas about how to extract energy from waves are being proposed all the time. This page only shows a few examples.

Once you've built a wave power station, the energy is free, needs no fuel and produces no waste or pollution.

One big problem is that of building and anchoring something that can withstand the roughest conditions at sea, yet can generate a reasonable amount of power from small waves. It's not much use if it only works during storms!

Advantages


- The energy is free - no fuel needed, no waste produced.
- Not expensive to operate and maintain.
- Can produce a great deal of energy.

Disadvantages

- Depends on the waves - sometimes you'll get loads of energy, sometimes almost nothing.
- Needs a suitable site, where waves are consistently strong.
- Some designs are noisy. But then again, so are waves, so any noise is unlikely to be a problem.
- Must be able to withstand very rough weather.

Is it renewable?

Wave power is [renewable](#).



 [Summary](#)

 [Quiz](#)

Updated Sep 12, 2019

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