

Tidal Information.

Tidal power (tidal energy) facts

Tidal energy is the utilization of the sun and moon's gravitational forces - as the tide is the result of their influences.

Tidal energy is a type of energy that produces electricity and other forms of power through the use of water.

Tidal energy is energy that could be obtained from the changing sea levels. In other words, tidal energy is a direct result of tide shifting from low to high.

Tidal energy is one of the oldest forms of energy. Tide mills, in use on the Spanish, French and British coasts, date back to 787 A.D. Tide mills consisted of a storage pond, filled by the incoming tide through a sluice and emptied during the outgoing tide through a water wheel.

The tide moves a huge amount of water twice each day and although the tidal energy supply is reliable and plentiful, converting it into useful electrical power is not easy.

There are two basic theories on how to convert tides into power. The first involves converting the power of the horizontal movement of the water into electricity. The second involves producing energy from the rise and drop of water levels.



La rance tidal power plant.

Tidal energy is considered to be a renewable source of energy since it only uses the energy from the changing of the tides instead of burning or consuming any form of energy source.

Although the technology required to harness tidal energy is well established, tidal power is expensive, and there is only one major tidal generating station in operation. This is a 240 megawatt station at the mouth of the La Rance river estuary in France.

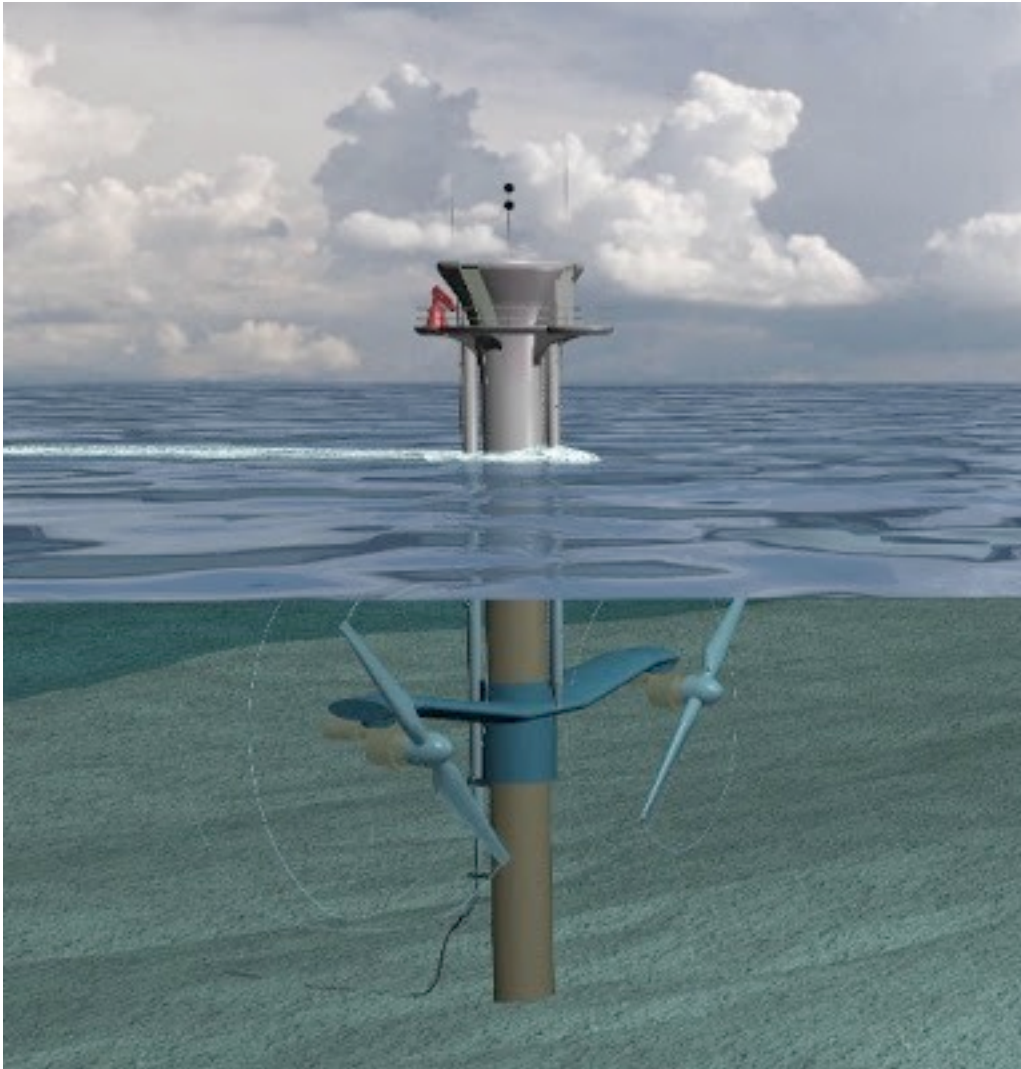
The major advantage of tidal energy is its economical benefits. For example, tidal energy does not require any fuel. Tides rise and fall every day in a very consistent pattern.

The technology required to convert tidal energy into electricity is very similar to the technology used in traditional hydro-electric power plants - dam, gates and turbines.

There are three prototypes of tidal energy devices: horizontal axis turbine, vertical axis turbine, and oscillating devices.

The cost of tidal energy is very site specific, and influenced by geography, distance to grid, and speed and volume of the current.

The altering of the ecosystem at the bay is the biggest drawback of tidal power. Damages like reduced flushing, winter icing and erosion can change the vegetation of the area and disrupt the balance.



Tidal energy underwater turbine.

Tidal energy is not on the list of sustainable energy technologies the UN agencies even though for islanders it is our best hope for large amounts of affordable clean power.

Stream tidal energy is harnessed from currents – horizontal water movement which is created by the rise and fall of tides.

Turbines, similar to wind turbines, can be anchored to the sea bed to generate electricity from tidal currents.

Tidal energy is at its most efficient where the height of the tide, mass of water being moved, and the speed of its movement are all at their optimum level.

Tidal energy is perceived as having the potential to provide a reliable source of green energy because it is predictable and guaranteed, unlike wind turbines, which are dependent on the weather.

Tidal energy has an efficiency of 80% in converting the potential energy of the water into electricity.

Tidal power can provide secondary benefits such as bridges and roads, which are built over the tidal generators.

Tidal power changes the sedimentation and turbidity (how clear the water is) of the water system.

By Davor Habjanec

Marks: hydropower, ocean energy