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THE USE OF TIDAL TURBINES TO GENERATE ELECTRICITY

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The goal of our project is to show that we can extract energy without adversely affecting the environment. Currently, there are a number of so-called traditional green energy sources such as the wind, the sun and the earth. In this project we intend to show how the water resources can be used to generate hydraulic power by using tidal turbines. In our research we used the observational analysis of the tidal turbines as well as the content analysis of the literature on the topic.

Although not used extensively, tidal power has a high potential in the future for electricity generation. In comparison to the sun and the wind, tides are more predictable. However, tidal power has not been used as extensively because of its high cost and low availability of sites with sufficiently high tidal ranges or flow velocities. Nevertheless, many recent technological developments such as tidal turbines indicate that the availability of tidal power is much higher than previously thought. In addition, new turbine technology also helps significantly reduce the environmental and economic costs.

Tidal Power or tidal Energy is a form of hydro power that converts energy that was obtained from tides into electricity. Energy of the future is, arguably, ocean-based, because about 71 percent of the Earth's surface is water-covered, and the oceans hold about 96.5 percent of all Earth's water. With new technologies we can produce electrical energy directly from the ocean.

Tidal turbines are the devices which are used to generate electricity by means of using cross tidal currents. Cross tidal currents are the currents which move in one direction for a certain period of time and move in the opposite direction after certain period. Tidal turbines generate electricity from the stream of these tides at the depth of 35-100 meters. Tidal Turbines generate electricity from the Earth's oceanic tides. Greater tidal variation and higher tidal current velocities can dramatically increase the potential of a site for tidal electricity generation. Energy can be harnessed from the tides in two ways: using the change in height of the tides (potential); and using the flow of the water (kinetic). Tidal power is very sensitive to speed. The power output varies as the cube of the speed. In other words, if the water flows twice as fast, it produces eight times more power. Also, tidal turbines do not have to spin as fast as windmills to generate power, because water is roughly 800 times denser than air. Earth's tides are ultimately due to gravitational interaction with the Moon and Sun and the Earth's rotation, tidal power is practically inexhaustible.

In conclusion, we can say that tidal activities are essentially the product of the orientation of earth, moon and sun, in which the knowledge behind has long reached its maturity. If a suitable site has proven to be suitable for the extraction of tidal stream energy, we can be rest assured that the supply of electricity will always be there.