

Ocean Energy

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Everyone wants to be able to help the planet and save as much energy as possible. The world uses so much energy that it could not possibly be all man-made; this is where ocean energy comes into play. Considering that the ocean covers over half the world, ocean energy is one of the world's largest renewable resources. Ocean energy offers several different types of possible energy-producing methods that include wave energy, tidal energy, and Ocean Thermal Energy Conversion, also known as OTEC. Each method could prove a helping hand in conserving energy and producing electricity from natural resources.

Wave energy focuses mainly on the wind that hits the ocean's surface, causing waves. There are several devices used in various locations, depths, and bearings of the ocean. One method that generates power uses waves that push air in and out, causing a turbine to spin. The turning of the turbine is what produces power. The strength of the wind on the sea's surface determines the potential of powerful waves, which in turn determines the amount of power that can be produced. Wave energy can be used during day and night, making it one of the most reliable renewable energies ("Ocean Thermal Energy Conversion," 2011). There are systems placed onshore and offshore, using a vast variety of wave power to produce electricity faster than it is being used. The majority of people who oppose wave energy disagree that it should be used because it could potentially harm the marine life living in the sea. However, generators are actually pollution-free and can even act as a large rock when weighed down in the depths of the ocean. With the size of the ocean, even the smallest wave energy devices have the ability to generate an abundance of energy ("Pros and Cons of Ocean Wave Energy," 2007).

Dams and tidal turbines are also helpful because they produce energy, called tidal energy. Tidal energy has been a reliable source for centuries. A storage-like barrage is built at shore to catch the tides as they come up. While inside the dams, water is guided through tunnels that ultimately convert it into power. Once the tide lowers, the water held is then let out. A negative aspect of tidal energy is that it can only produce energy when the tide is high enough to move water throughout the passage. Tides

are, however, very easily foreseen, making them simple to manage. Dams are not the only source of tidal energy. A newer kind of device is the tidal turbine. These are usually placed in different areas, such as rivers, where the currents move more quickly. Tidal currents move the turbines, producing electricity ("Ocean Energy," 2012). Much like the concerns about wave energy, there are concerns about the effect on fish and other sea animals. As technology advances, though, tidal energy has, and will, become less of a threat to the wildlife in the waters. The production of energy through tidal energy certainly outweighs the negative effects on marine life.

OTEC, or ocean thermal energy conversion, can produce compelling power using ocean energy. The ocean has different depths, and there are different temperatures throughout. There are systems that, as long as there is a significant difference in temperature, can convert that change into power. There are three categories of OTEC: open cycle, closed cycle, and hybrid. Open cycle is based off the warmer temperature, whereas the closed cycle uses deeper and much colder depths of the ocean to produce its energy. The hybrid, much like its name, uses a combination of both the open and closed cycle, mixing colder and warmer water to bring forth power. This type of power-producing resource is typically placed in the tropics, which have the perfect weather to keep the water temperatures at best for these devices ("Ocean Thermal Energy Conversion," 2011). OTEC is highly expensive to begin, but it could definitely pay for itself in the long run. Being relatively new, the process of ocean thermal energy conversion has a few issues; however, it also has many more environmental advantages than older fossil fuel plants ("Tidal Power Pros and Cons Comparing to Other Sources Of Energy," 2012).

The ocean is a renewable resource because by using some new technology, the ocean can produce a lot of power in a short amount of time, reusing the same waters over and over. Sometimes electricity is converted through the strength behind the oceans' waves, called wave energy. Tidal energy, one of the oldest types of ocean energy, catches the tides and processes it into power. Ocean thermal energy conversion makes electricity through the different cycles in separate depths and

temperatures of the sea. The use of ocean energy is and should continue to be a positive source of electricity for the world. The ocean is so large that it can produce mass amounts of energy a year using resources that can be used constantly without harming our environment and atmosphere.

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