



Working Waves (Tidal Power)

Will our world eventually run out of energy? Because of the growing need for electricity, many countries are looking for new ways to produce energy. Tidal power, also called tidal energy, is a form of **hydropower** (*hydro = water*) that converts the energy of tides into electricity or other useful forms of power. Even though the earliest uses date from the Middle Ages and Roman times, tidal stream generators are a relatively new technology. These generators draw energy from currents in much the same way wind turbines get energy from the wind. Even though it is not yet widely used, tidal power has potential for future electricity generation.

Tidal power is the only kind of energy that comes from the tidal forces produced by the motions of the Earth and the Moon. They are therefore more predictable than wind energy or solar power. A tidal energy generator uses the movement of water to generate energy. The stronger the tide, either in the height of the water or the speed of the tidal current, the greater the possibility for generating tidal energy. Compared with wind speed, a single generator can provide a lot of power even at low tide, because water is 832 times more dense than air.

Tidal energy is generated by the relative motion of the Earth, Sun and the Moon, which interact with the forces of gravity. The size of the tide at a location is the result of the changing positions of the Moon and Sun relative to the Earth, the effects of Earth rotation, and the shape of the sea floor and coastline.

Similar to wind power, selection of location is important for the tidal turbine. Tidal stream systems need to be located in areas with fast currents where natural flows are concentrated between obstructions, such as the entrances to bays and rivers, around rocky points, headlands, or between islands or other land masses.

Questions for research:

- How is this type of power different/better/worse than other types?
- What does this type of power tell us about the Creator?
- How would these generators be maintained?
- Does this type of power production impact environment? If so, how?
- What might opponents to this project be concerned about?

Research Ideas

Turbine, solar power, wind power