

Hydro Energy

Water is a renewable energy resource, and one that offers the greatest variation in power production. We can harness the water energy through what is known as motive energy or through the differences it experiences in temperature. Water is nearly one thousand times as dense as our air. What this tells us, then, is that a slow moving stream of water is more powerful, in terms of renewable energy than wind. A wave or swell of the sea can deliver many times that energy. We have many forms of renewable water energy from which to choose. There are many forms of water energy. The first type of water energy, and the one we most commonly think of when we think of renewable water power, is hydroelectric. This is the power that commonly is created by large hydroelectric dams. You can also have what are called micro hydroelectric systems. These are small power installations that produce as much as 100 kilowatts of power. The most common places to find these renewable water energy sources are in areas where water is abundant and the hydro system can be used as a remote area power supply RAPS. While there are many RAPS around the globe several are functioning in the Solomon Islands. Wave power is another way of using water as a renewable energy source. The waves are used to create an up and down affect for pontoons that float in the water. This has just started to be used commercially as renewable energy. Tides can produce renewable energy as well. As the ocean tides come in the water level is raised in the water basin. Then, at low tide the basin water gets discharged through the water turbine. Tidal stream power is different in that it captures the energy produced by the tidal flow. This usually is accomplished through the use of an underwater plant that looks like a small-scale wind turbine. While governments have set up demonstrations for this type of tidal power, any large scale commercialization of this renewable tidal energy would require extensive upfront capital. This has yet to be attempted. Ocean thermal energy conversion OTEC is yet another form of water energy. OTEC uses the different in temperature between the oceans surface water and the water at deeper points. To do this it uses a cyclic heat engine. This form of renewable energy has had no large scale field test as yet. Though not technically a form of generating renewable energy the cooling of the water in deep lakes is an efficient way to save energy during the hot summer months. Pipes are submerged and used as heat sinks. The bottom of these lakes typically stays at less than 40 degrees Fahrenheit. Blue energy, which is really desalination in reverse, is a renewable energy resource still being researched. There is no data at this point to show whether it will work.

About the Author

James Copper is a writer for <http://www.plumbingcareer.co.uk> where you can find a [plumbing course](#)

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