

## How Hydro-Power Is Generated

Hydro-power has been used for a variety of functions over the years. It was used in flour mills, where water-wheels turn a shaft, that ground the flour, and even in irrigation systems thousands of years ago. These days, it has a more prominent role as a renewable source of energy.

There are three methods to producing hydro-power: hydro-electric energy, tidal energy, and through ocean waves.

### Hydroelectric Power:

This is the most common form of hydro-power, making up the majority of all renewable energy produced. Electricity is produced in hydroelectric dams where the force of falling water drives massive turbines.

What makes hydro-electric dams so popular is that they have two very important roles - to store and distribute water to various cities, and generate thousands of megawatts of electricity at the same time.

But there are a number of environmental and social concerns with building these large dams. They affect the spawning patterns of various fish, they can wipe out entire communities as they flood the land, and destroy natural vegetation.

### Using The Tides:

Using the tides is the second most common form of hydro-power. Here, electricity is generated by using the low and high tides.

France and Russia have successfully used tidal power since 1966. One system is used in large bays and estuaries where water from the high tide is dammed up and diverted through turbines at low tide.

Although the tides are very predictable and consistent, the problem with this system is that the turbines only operate every 6 hours (once every tide).

The latest tidal power system operates where large windmill-type turbines are placed in shallow water, and spin slowly as the tide comes in and goes out.

The nice thing about this tidal system is that the technology is advanced and derived from our land-based wind turbines. And water is much denser than air, meaning it takes only a small current to get the turbine spinning.

The disadvantage with this tidal power system is that it can only operate in shallow areas. This is usually where other economic activities, such as oyster farming, take place, and also where marine life thrives.

### Wave Power:

This is the youngest of the three hydro-power solutions. The system harnesses the power from ocean surface wave motion, where air displaced by waves is driven through a generator that spins a turbine. The end result is electricity. These generators can either be coupled to floating devices out at sea, or fixed along the shore where seas are rough.

What makes this technology so appealing is its potential to harness over two thousand megawatts of power that the ocean's waves contain.

However, wave power systems do have environmental concerns. Their hydraulic fluids could leak out into the ocean, causing water pollution. And the fixed structures on the coastline, can damage the natural plant and animal life on the seafloor.

### Conclusion:

Over the years we have come up with advanced methods of using water to produce power. Though there are a variety of benefits to using this kind of renewable energy, there are still a number of social and environmental concerns.

## About the Author

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