# What is Wind Energy?

People have been tapping the power of wind for thousands of years to power windmills and drive sailboats. Without the power of wind, there would be no history of great explorers like Christopher Columbus, Vasco Nunez de Balboa, and John Cabot who voyaged across oceans and seas to explore the wonders of the world. Also, our ancestors would have struggled to travel across seas and oceans to trade with other nations.

Excessive heating of earth due to burning of [fossil fuels](https://www.conserve-energy-future.com/pros-and-cons-of-fossil-fuels.php) have forced people across the globe to generate power through wind. Wind is another form of [solar energy](https://www.conserve-energy-future.com/what-is-solar-energy.php) and is caused by uneven heating of the atmosphere by the sun, the irregularities of the earth’s surface and the rotation of the earth. Wind energy doesn’t generate any [toxic emissions](https://www.conserve-energy-future.com/top-10-worst-toxic-pollution-problems.php) like fossil fuels and provide clean source of power. Like any other source of power generation, wind energy has its own [set of advantages and disadvantages](https://www.conserve-energy-future.com/pros-and-cons-of-wind-energy.php).

Before we get to understand what wind energy is, it would be helpful to know how winds are formed.

### 

### 

### Formation of Winds

Wind is formed by large convection currents in the earth’s atmosphere, powered by the sun’s heat energy. This basically implies that as long as the sun is shining, wind will be available.

The earth’s surface contains both water and land. When the sun shines, the air occurring over the surface of the land heats up pretty quick than that occurring over water. The heated air is relatively lighter, and so it begins to rise. On the other hand, the cooler air is denser, and so it falls and takes the place of the air occurring over the land. When night falls, the exact opposite happens. Air occurring over the water is warmer, and so it rises, and its place is taken over by the cooler air coming from land. This series of moving air is known as wind and harbors vast amounts of kinetic energy.

So, wind energy is energy derived from the motion of the wind. Essentially, the speed of the wind, which is full of kinetic energy, is harvested and converted into mechanical energy to be used to turn windmills. The energy can also be converted into electricity. How? By installing turbines in their paths. The speeding winds will turn the turbine, which is tethered to a generator. The turning turbine will spark the generator to produce electricity.