

How Wind Energy is Produced

The wind is an extremely reliable source of clean renewable energy. Wherever you are the wind will blow, it is infinite and readily available.

Energy is in the Wind!

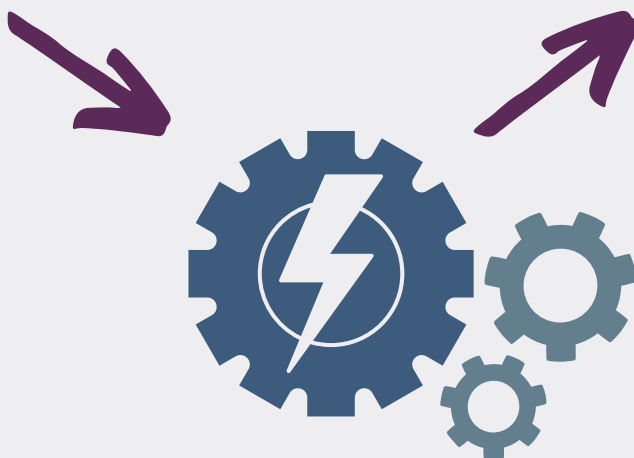


1

Fast blowing wind holds the energy to make the turbine blades rotate.

2

Rotating blades make the generator turn, which converts kinetic energy into electricity.



3

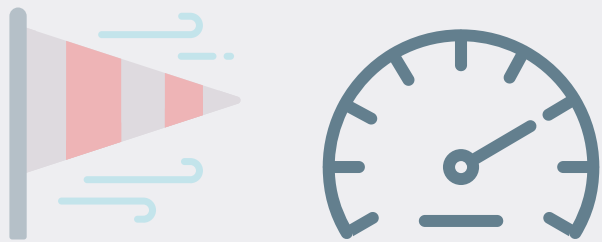
The electricity can then be used in your home, stored in batteries, or sent to the electricity grid.

Factors of Wind Energy Production

The amount of energy that can be generated from wind depends on several factors including wind speeds, air density, tower height, blade length, and the wind turbine itself.

Wind Speeds

- Energy produced is dependent on how fast the wind is blowing.
- High speed winds hold more energy than low speed winds.
- The energy in wind is the wind speed cubed.
- Ex. Doubled wind speed = 8x more energy.



Air Density

- Denser air means the turbine can receive more energy.
- Higher altitudes have lower air density than lower altitudes.
- Cool air is more dense than warm air.



Blade Length

- Longer turbine blades allow for a larger rotation. This helps capture more energy from the wind.

Tower Height

- Wind speeds vary with height
- Wind speeds are higher when there are less obstructions
- Taller towers are able to gather more energy

