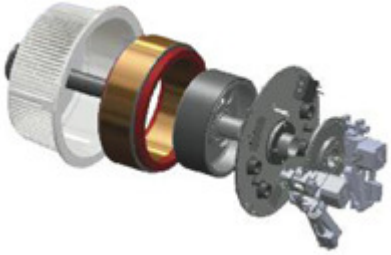
Wind Turbine Synopsis

A wind turbine is an electromagnetic generator that converts wind energy into kinetic energy by passing through a set of blades or rotors in turn producing an electrical output.



Permanent Magnet Generator

Flux CORE Generator

Wind turbines can be divided into three groups or sizes …

Micro Wind Turbine – domestic wind turbine of <2.0kW
Suitable for off grid, on grid and hybrid applications

Small Wind Turbine – domestic and commercial wind turbine >2.0kW and <10.0kW
Suitable for off grid, on grid and hybrid applications

Large Wind Turbine – commercial wind turbine >10.0kW
Suitable for large grid feed applications

Wind turbines are also divided into two distinct types …

Horizontal Axis Wind Turbine – this is the more traditional type of wind turbine that rotates on a horizontal axis and consists of a generator, multiple rotors and a stabilizing system to allow the wind turbine to pivot and face the rotors into the wind.

Vertical Axis Wind Turbine – this type of wind turbine has the main rotor shaft arranged vertically and consists of one or more generators attached to a series of rotors.
One advantage of this arrangement is that the turbine does not need to be pointed into the wind to be effective, which is an advantage on a site where the wind direction is highly variable.

Wind turbines are rated by their capacity which is the maximum amount of energy the wind turbine will produce every hour when exposed to the optimal wind speed that the wind turbine will perform the best. Generally, most micro and small residential wind turbines are designed to function in wind speeds between 30kph and 60kph.
Because of the intermittent nature of wind, general guidelines are that wind turbines will output between 10% and 40% of their rated capacity.

In all cases, the performance of a wind turbine is relegated by the geological location, actual position, average wind speeds recorded at that position and application.

For connection details please download the Off Grid Connection and On Grid Connection details from this website.