Wind turbines harness the power of the wind to generate electricity; the stronger the wind, the faster the blades turn, producing more electricity. The wind turns the blades which are connected to a rotating shaft which passes into an electricity generator where the electricity is generated.

Finding a suitable location

40% of all the wind energy in Europe blows over the UK, making it an ideal country for wind turbines. Most of the UK weather comes from the Atlantic, to the West, so generally higher wind speeds are enjoyed in the Westcountry.

A good location is crucial and the site should have an annual average wind speed of at least 5 metres per second (11mph). The site should be clear of nearby obstructions such as buildings and trees which reduce wind speed and create wind turbulence. An elevated position such as the brow of a hill is ideal.

At an early stage you also need to consider how the turbine will be connected to your property and the National Grid. It's likely that cable will need to be laid underground which could influence the siting of your turbine.

The introduction of the Feed-in Tariff in 2010 has increased the financial viability of wind turbines of all scales

Choosing your system

You could have a grid connected system, potentially eligible for Feed-in Tariff payments (if the technology and installer are accredited by the Microgeneration Certification Scheme), or an independent (known as off grid) system where unused electricity can be stored in a battery for use when there is no wind. The levels of generation tariff available are dependent on the size of the turbine installed.

Most household wind turbines generate direct current (DC) electricity. A converter changes it to alternating current (AC) so it can be used in the home, with any excess energy generated being exported to the National Grid.

Micro mast-mounted systems capable of generating up to 1.5kW usually stand from 10-15 metres tall. Small wind turbines between 1.5 and 15kW, with hub heights of 25-45 meters are better suited to community spaces, small holdings and farms.

An anemometer should be used to measure wind speed over a year to gain an accurate picture of a site's wind resource.

TOP TIP

To ensure that the electricity produced by your wind turbine is being used in your home as efficiently as possible, check out our top 10 energy saving tips factsheet.

Planning permission

Currently all small wind systems require planning permission. You should seek early advice from your local council's planning department and discuss your plans with your neighbours. Additional planning criteria may apply if the turbine is in a conservation area, World Heritage Site or similar.

Operation and maintenance

The expected lifetime of most turbines is up to 25 years. Regular maintenance will be required, so it is advisable to check the terms of the warranty and set up a maintenance agreement with your installer.

Cornwall's Independent Energy Experts

Our services to help householders in Cornwall and Devon enjoy warmer, energy efficient homes include:

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› Help to understand and reduce energy bills

In certain circumstances we can access funding for services – call us to discuss your needs.

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