Commercial wind turbine installation

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The best turbine for your business is going to be one that will generate enough wind energy in the long run to pay back however much you spend on the model itself. The cost of the model depends on MW size, installation and any planning permission you may need.

Turbines differ in height, as well as whether they are stand-alone or roof-mounted. It is important to understand these specifics, and companies such as Britwind provide in-depth information. Roof-mounted turbines are more suitable for urban areas as they benefit from the height of the building itself and they are easier to install, connecting directly to the building’s electrics. However, they won’t generate the same amount of power as a stand-alone system which would be harder to install.

Before judging the cost, it is really important to first check the wind speed around the building or location where you would like the turbine to be installed. While doing this, it is useful to look at the possibility of also installing Solar PV technology depending on typical weather around your property.

A typical 5kW wind turbine system costs around £23,500, while a PV solar system of similar power output can cost around £10,000 but again, due to weather and seasons, a wind turbine may be much more effective.

It’s also important to consider your business model. For example, if your business consumes energy 24/7, then a wind turbine generating overnight will be much more beneficial than solar.

Turbines tend to need a speed of 5m/sec and you can use an anemometer to investigate this. You can buy these online on Amazon or pay for readings from a professional. There are maps to show average speeds around the UK but it is key to investigate the micro-climate of your property yourself in order to get an exact understanding of conditions and obstacles such as other buildings that may decrease wind speed.

Assuming the wind speed around the property is above 5m/sec, you can now judge if you need a smaller turbine better suited for slower winds or a larger, and more advanced model is best. It is also important to consider how much maintenance costs. Britwind, for example, has their own monitoring software you can use but maintenance professionals are at an additional cost.

Smaller turbines generating around 2,000 kWh (kilowatt hours) per year cost between £2,000 to £6,000 while purchasing and installing larger units could take the price up to £20,000 or more but these models will generate more power: around 9,000 kWh per year. Larger turbines generate just above 40MWh per year which is about the equivalent of powering a factory for a year. Roof-mounted turbines are certainly the cheapest to buy (as low as £1,000) but produce the least energy.

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Let’s look at a super simple example of what this could look like for your business. Below we’ve taken some rough assumptions to see what it could look like. This is ignoring any secondary benefits such as feed-in tariffs or battery storage, which would change the payback rate and proposition.

Running a light industrial unit consuming 20,000kWh per year therefore will cost £16,000 per year including daily charges in electricity (based on a quote obtained from EDF).

Installing a 5kW wind system such as Britwind R9000 will cost around £25,000 and generate 10,000kWh, or half of your annual usage. With an install cost of £25,000, it would reduce your energy bills by £8,000 per year, and break even in just over 3 years.

As above, solar may be a better option for your premises but this really depends on your location in the country and the topography of your land, as well as your business energy consumption. As a rough rule, somewhere in the west of Scotland will be more suited to wind, while someone in the southeast of England will benefit from solar.

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