

## **WIND POWER - FREQUENTLY ASKED QUESTIONS**

*Here are some of the most commonly asked questions about wind energy, as answered by the British Wind Energy Association. We hope that you will find the information useful as you consider the wind farm proposal at Mynydd y Gwair.*

### **Are wind turbines noisy?**

Wind turbines are not noisy. The evolution of wind farm technology over the past decade has rendered mechanical noise from turbines almost undetectable with the main sound being the aerodynamic swoosh of the blades passing the tower. There are strict guidelines on wind turbines and noise emissions to ensure the protection of residential amenity. It is possible to stand underneath a turbine and hold a conversation without having to raise your voice. As wind speed rises, the noise of the wind masks the noise made by wind turbines.

### **Do wind turbines produce low frequency noise?**

There is always low frequency noise present in any ambient quiet background and it can be produced by a variety of man-made sources, including machinery and transport and natural sources such as the sea, wind and thunder. It has been repeatedly shown by measurements of wind turbine noise undertaken in the UK, Denmark, Germany and the USA over the past decade, and accepted by experienced noise professionals, that the levels of low frequency noise and vibration radiated from modern, upwind configuration wind turbines are at a very low level, so low that they lie below the threshold of perception.

### **Why don't we put all the wind turbines out to sea?**

We will need a mix of both onshore and offshore wind energy to meet the UK's challenging targets on climate change. At present, onshore wind is more economical than development offshore. Furthermore, offshore wind farms take longer to develop, as the sea is inherently a more hostile environment. To expect offshore to be the only form of wind generation allowed would therefore be to condemn us to miss our renewable energy targets and commitment to tackle climate change.

Here in the UK, we are lucky enough to have good wind speeds both on and offshore. The first offshore turbines at Blyth began generating electricity in December 2000.

### **Do wind turbines frighten livestock?**

Wind farms are popular with farmers, because their land can continue to be used for growing crops or grazing livestock. Sheep, cows and horses are not disturbed by wind turbines. The first wind farm built in the UK, Delabole, has a stud farm and riding school, and the farmer, Peter Edwards, often rides around the wind farm on his horse.

### **How long does it take for a turbine to 'pay back' the energy used to manufacture it?**

The comparison of energy used in manufacture with the energy produced by a power station is known as the 'energy balance'. It can be expressed in terms of energy 'pay back' time, i.e. as the time needed to generate the equivalent amount of energy used in manufacturing the wind turbine or power station. The average wind farm in the UK will pay back the energy used in its manufacture within six to eight months, this compares favourably with coal or nuclear power stations, which take about six months.

### **How safe is wind energy?**

Wind energy is one of the safest energy technologies. It is a matter of record that no member of the public has ever been injured during the normal operation of a wind turbine, with over 25 years operating experience and with more than 70,000 machines installed around the world.

### **Do wind farms affect tourism?**

There is no evidence to suggest this. The UK's first commercial wind farm at Delabole received 350,000 visitors in its first ten years of operation. A MORI poll in Scotland showed that 80% of tourists would be interested in visiting a wind farm. Furthermore, wind farm developers are often asked to provide a visitor centre, viewing platforms and rights of way to their sites.

### **What can I do to help wind energy?**

One of the most helpful things you can do is to help win the debate on wind energy. Respond to letters in local and national papers, participate in radio

phone-in programmes and wherever else the opportunity arises. Don't be one of the silent majority. You can find out more about projects in your area which need support at Yes2Wind and don't forget to sign up to show your support for wind energy in the national Embrace the Revolution campaign.

You can also choose who supplies your electricity and even where that electricity comes from. 'Green' electricity generated from renewable resources is available from all electricity suppliers, in line with the Government's obligation on electricity companies to source 20% of their supply from renewable energy. You can compare and contrast the different green tariffs available online at uSwitch.com.

You can even consider installing your own wind turbine at your home or business.

### **What are wind turbines made of?**

The towers are mostly tubular and made of steel, generally painted light grey. The blades are made of glass-fibre reinforced polyester or wood-epoxy. They are light grey because this is the colour which is most inconspicuous under most lighting conditions. The finish is matt, to reduce reflected light.

### **How strong does the wind have to blow for the wind turbines to work?**

Wind turbines start operating at wind speeds of 4 to 5 metres per second (around 10 miles an hour) and reach maximum power output at around 15 meters/second (around 33 miles per hour). At very high wind speeds, i.e. gale force winds, (25 metres/second, 50+ miles/hour) wind turbines shut down.

### **How much does it cost to make electricity from the wind?**

Wind energy is one of the cheapest of the renewable energy technologies. It is competitive with new clean coal fired power stations and cheaper than new nuclear power. The cost of wind energy varies according to many factors. An average for a new onshore wind farm in a good location is 3-4 pence per unit, competitive with new coal (2.5-4.5p) and cheaper than new nuclear (4-7p).