

Wind Power

What is wind power?

Wind power is energy, such as electricity, that is generated directly from the wind. It is considered a renewable energy source because there is always wind on the Earth and we aren't "using up" the wind when we make energy from it. Wind power also does not cause pollution.

Wind Turbines and Wind Farms

In order to make electricity from wind, energy companies use large windmills called wind turbines. They are called this because they use turbine generators to generate the electricity.

In order to create a lot of energy capable of powering thousands of homes, energy companies build large wind farms with lots of wind turbines. They usually build these in consistently windy places. Some companies build wind farms out in the ocean.

How tall are wind turbines?

Wind turbines are really big structures. The tower itself is typically between 200 and 300 feet tall. When you add in the height of the blades, some turbines tower 400 feet high! The blades are quite big, too. There are typically three wind blades on a wind turbine. Each blade is usually between 115 and 148 feet long.

How does a wind turbine work?

A wind turbine works the opposite of a fan. Instead of using electricity to turn the blades to make wind, it uses the wind to turn the blades to make electricity. When the wind turns the blades, the blades turn a shaft inside the turbine. This shaft is big but turns slowly. The shaft, however, is connected to several gears which causes a smaller shaft to turn much faster. This smaller shaft drives the electrical generator which generates the electricity that can be used by homes and businesses.

What if there isn't any wind?

If there isn't any wind, then no energy will be generated by the wind turbine. However, engineers do a lot of measurements and calculations to figure out the best areas to place the wind turbines. The wind won't be blowing all the time, but the important thing is how much the wind blows on average.

History of Windmills

Windmills have been used since the Middle Ages in order to harness the energy of the wind. They were initially used to pump water or to grind flour. They are still used in many places of the world today to pump water. It was in the late 1800s and early 1900s that windmills were first used to generate electricity.

ADVANTAGES:

1. The wind is free and with modern technology it can be captured efficiently.
2. Once the wind turbine is built the energy it produces does not cause greenhouse gases or other pollutants.
3. Although wind turbines can be very tall each takes up only a small plot of land. This means that the land below can still be used. This is especially the case in agricultural areas as farming can still continue.
4. Many people find wind farms an interesting feature of the landscape.
5. Remote areas that are not connected to the electricity power grid can use wind turbines to produce their own supply.
6. Wind turbines have a role to play in both the developed and third world.
7. Wind turbines are available in a range of sizes which means a vast range of people and businesses can use them. Single households to small towns and villages can make good use of range of wind turbines available today

DISADVANTAGES:

1. The strength of the wind is not constant, and it varies from zero to storm force. This means that wind turbines do not produce the same amount of electricity all the time. There will be times when they produce

no electricity at all.

2. Many people feel that the countryside should be left untouched, without these large structures being built. The landscape should left in its natural form for everyone to enjoy.
3. Wind turbines are noisy. Each one can generate the same level of noise as a family car travelling at 70 mph.
4. Many people see large wind turbines as unsightly structures and not pleasant or interesting to look at. They disfigure the countryside and are generally ugly.
5. When wind turbines are being manufactured some pollution is produced. Therefore, wind power does produce some pollution.
6. Large wind farms are needed to provide entire communities with enough electricity. For example, the largest single turbine available today can only provide enough electricity for 475 homes, when running at full capacity. How many would be needed for a town of 100 000 people?

GLOSSARY:
