Wind Essay, Research Paper

Wind

Wind is created from the earth’s warm air rising and creating a vacuum that causes cooler air to replace it. This flow is constantly disturbed by the rotation of the earth and local atmospheric conditions. This rotating cycle results in what we call wind. When harnessed, using sails, mills, and modern wind turbines, wind can serve us a powerful and renewable energy source that may soon become very important to our modern lifestyles.

Wind can be converted into mechanical energy which people have done for centuries using the windmill. Through this they were able to perform tasks such as cutting wood, grinding grain for flour, and directing water flow to their benefit. Now with our advancing technologies we are able to create electrical power using wind and turbines. The turbines convert wind energy into electric energy by using a windmill like structure attached to an electric generator.

Wind is a clean and renewable source of energy. Because of this modern wind turbines are being installed all over the globe in hopes of lessening the need of non-renewable energy such as the burning of fossil fuels.

The modern wind turbine first started to be used around the 1930’s in the United States. Interest in powering electric lighting and appliances on farms in the US led to the use of small battery charged wind turbines. The trend caught quickly and soon this new way of running things was common in homes and small businesses across the country. Today Wind turbines can generate 250 to 300 kilowatts of power, nearly 10 times the amount they could in the beginning in Europe.

The systems of the modern wind turbine consist of three components, a tower, a rotor, and a nacelle. The tower is where the wind turbine is mounted. The rotor is the component turned by the wind itself. The nacelle is the place that houses all of the equipment including, the generator, which converts the mechanical energy in the active rotor into electricity. All of these parts must be kept in top shape and be made of extremely strong materials.

The efficiency of these structures is highly dependent on the location they are set. A site with high average wind speeds will be a much better place than one that doesn’t because it will be able to produce more wind energy. On average the windiest times of the year are the winter season, and the spring season, with the summer and fall being the least windy.

Turbines can be placed alone in a location or they may also be placed in-groups. In a very large group of turbines the gathering is called a wind power plant or a wind farm. In a smaller gathering it would be called a cluster. Wind turbines located in a wind farm are thought to produce more electricity then if it were to stand alone. This results in a more efficient cost and also an easily operated group of turbines.

Today with the growing demand for electricity worldwide and the great concern for global warming, the use of wind energy may soon become one of our prime energy sources. It is cost effective and many scientists believe the market for wind energy will continue to expand.

A few of the negative factors associated with wind turbines is the time and skills needed to build them. Another is the altering of the visual display in the wilderness, especially when the turbines are placed in scenic areas. Also, there is a great deal of noise associated with the spinning propellers of the rotor. The unreliability of the wind is another factor. Wind speeds always may vary from one day to the next. All of these will be important factors as our other energy sources continue to dwindle.