



ENERGY IN SOCIETY

RENEWABLE ENERGY

NONRENEWABLE ENERGY

ORGANIZATIONS

ALTERNATIVE FUEL VEHICLES

Biofuel

Solar Power

Geothermal

Wind Energy

Hydropower



Wind power is useful energy extracted from wind. The cost of wind-generated electric power is much less than the cost of fuel-generated electric power. It is estimated that 1 to 3 % of the energy from the Sun that hits the earth is converted into wind energy. This is about 50 to 100 times more energy than that created by plants through photosynthesis. Most of this wind energy can be found at high altitudes where continuous wind speeds of at least 160 km/h or 100 mph are common. While this is the best speed for wind turbines they only need 20 km/h or 12.5 mph for the use of turbines to be cost effective. The energy comes from the process of having the wind turn the wings that in turn exert torque on the rotor thus creating electricity.

Wind Parks

Wind parks usually utilize much of the land available by installing many turbines. Since each turbine gathers energy from the wind and then slows the "used" wind it is important to provide adequate spacing between turbines to allow the wind to gather more speed before it hits the next turbine.

Since wind power is greater at higher altitudes the parks are usually situated on mountain ridges or passes, or at the top of cliff faces. There are a couple of ways to decide where the best location for a wind park is. Without using expensive tools to collect large amounts of data one could look for trees that have been permanently cast into an abnormal growing pattern.

Wind parks are also located on the ocean. This is a limited practice because of some inhibiting factors. Water depth is a major deciding factor. The deeper the water the more each turbine costs. Another economical factor of offshore turbines is that offshore conditions are harsh, abrasive, and corrosive, and it is often impossible or near-impossible to repair a broken down turbine in open waters. However due to the productivity of wind energy in places such as Denmark, where the sea is shallow and there are an abundance of storms that create wind, there are many turbines in place.

International statistics

Currently there are many thousands of wind turbines operating in various parts of the world. It was the most rapidly-growing means of alternative electricity generation at the turn of the century and provides a valuable alternative to using fossil fuels. World wind generation capacity quadrupled between 1997 and 2002. 90% of the world's wind parks are in the US and Europe.

The Consumer Market

More and more households are taking advantage of wind energy. Most of

the time the turbine, which is much smaller version of the large ones previously discussed is mounted on the roof of a house. Then the power generated is stored in a battery which also regulates the surges to protect the devices that are hooked up to the turbine.

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