

Wind Power



Renewable Resource

Wind power is a **renewable resource** that utilizes the **kinetic energy** from wind to power turbines that generate electricity.

Fun Fact!

Large wind farms consist of several hundred individual wind turbines that are connected to the electric power transmission network.

How it Works

1. The Sun heats different locations on Earth by different amounts.
2. Air that becomes warm rises and then sucks cooler air into that area.
3. The movement of air from one spot to another along the ground creates wind. This movement is called **convection**
4. Since wind is moving, it has kinetic energy. The wind blows the propeller of a wind mill
5. The circular motion of the propeller powers a generator that produces electricity

Advantages and Disadvantages

Advantages	Disadvantages
<ul style="list-style-type: none"> • Does not release pollutants or carbon dioxide • Wind is plentiful in most places 	<ul style="list-style-type: none"> • Expensive • Wears out quickly • Wind does not blow all the time • Windmills are not welcomed by residents of some locations

Variables

Factors affecting wind power	Description
Wind Velocity	minimum wind speeds of 8 mph peak power between 25-55 mph
Blade Radius	The larger the radius, the larger area of wind can be acquired
Tower Height	Taller turbines are generally more efficient
Air Density	Denser air near sea level is more efficient

Concept Check

- What are electromagnetic waves?
- How are electromagnetic waves classified?
- What is the unit that measure the amount of light reflected off a surface?

