



Wind Works!

Harness the power of the wind!

Background Info

Climate Change is a result of the relatively recent increase in atmospheric **carbon dioxide** (CO₂), a **greenhouse gas**. The increase in CO₂ is largely attributed to the use of **carbon-based fossil fuels** such as coal, natural gas, and oil. When these energy sources are burned, large amounts of CO₂ are released into the air around us.

Renewable energy sources such as solar, wind, or geothermal are good alternatives to carbon-based fossil fuels. Because they are not carbon-based, they do not contribute to the increased levels of CO₂ that are responsible for climate change. Furthermore, unlike fossil fuels, these renewable energy sources can be replaced within a short period of time. Once we use fossil fuels up, they are gone.



Recent developments in wind technology have created excitement from scientists and engineers about the potentials for wind technology as a way to reduce our reliance on carbon-based energy sources. A 2008 study from the U.S. Department of Energy (DOE) estimates that wind could produce 20% of electricity by 2030. Recent technological innovations in both the efficiency and cost of wind turbines make wind energy one of the most promising ways to reduce fossil fuel consumption and to prevent the release of greenhouse gases that contribute to climate change.

Energy from the wind is captured using a **windmill** or a **wind turbine**. Both methods involve a rotating machine that converts kinetic energy from wind to mechanical energy. If the energy is used directly to do work, it is referred to as a windmill – just like the windmills used in this activity. If the mechanical energy is converted to electricity, the term wind turbine is generally used.

The current and future impacts of climate change are relatively uncertain. Scientists agree that the world is getting warmer, but there are still many unanswered questions about the rate of warming, the impacts of warming, and what should be done about it. Energy conservation, or cutting back on the amount of carbon-based energy that we use, is one direct way that we can help prevent CO₂ from entering the atmosphere, to help reduce the rate of climate change. There are many small things that people (including kids!) can do to cut back on their energy use. Over time these small savings can really add up, leading to a lasting impact.

Credits

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