

How does a Wind Turbine Work?

Wind turbines operate on a simple principle. The energy of the wind turns three propeller-like blades around a rotor. The rotor is connected to the main shaft, which spins a generator to create electricity.

Wind turbines are mounted on a tower to capture the most energy. At 100 feet (30 meters) or more above ground, they can take advantage of faster and less turbulent wind.

Wind turbines can be used to produce electricity for a single home or building, or they can be connected to an electricity grid for more widespread electricity distribution.



Parts of a Wind Turbine

There are three basic parts of a wind turbine: rotor blades, a shaft, and a generator. The blades are at the top of the turbine and they are basically large sails that turn when resisting the wind. They transfer energy to the rotor.

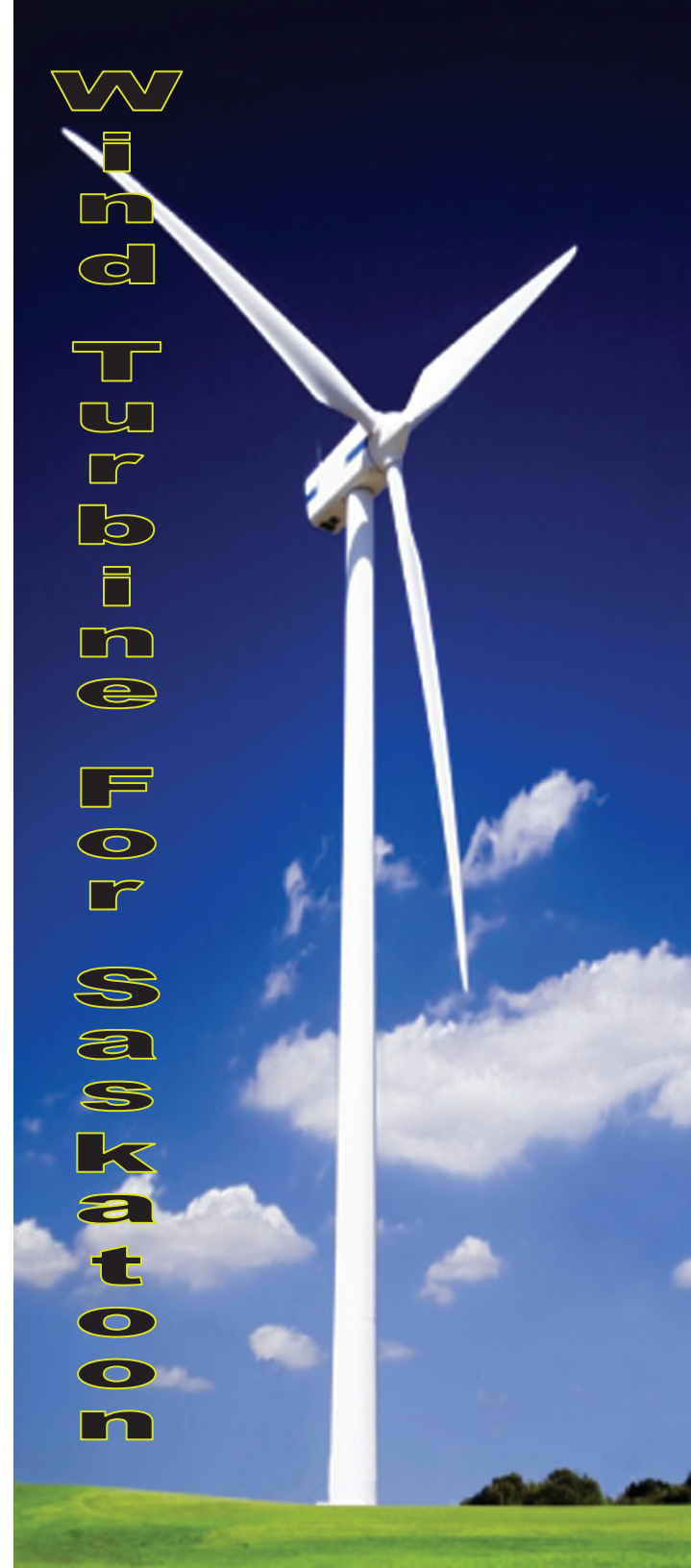
The shaft on a turbine is connected to the center of the rotor. When the rotor spins, the shaft spins also. By doing this, the rotor transfers its mechanical, rotational energy to the shaft, and then enters a generator on the opposite side. The generator is what makes the electricity – it creates an electrical voltage and current.

Additional information is available on the City of Saskatoon website at www.saskatoon.ca (Click 'W' for 'Wind Turbine')



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Harnessing the Power of Wind

Human beings have relied on the wind as an energy source for many centuries - to power sail boats, pump water, grind grain, and for other industrial purposes.

Today, wind power is a clean, reliable source of electricity for countries around the world.

The Canadian Wind Energy Association has outlined a strategy for wind energy that would supply 20% of Canada's electrical demand by 2025.

Frequently Asked Questions

- Q: Does a wind turbine make noise?
A: Standing at the base of the turbine, the sound is similar to the idling of a large vehicle engine.
- Q: Would the wind turbine kill birds?
A: On average, between 2 and 5 bird fatalities occur each year for a single wind turbine, similar to the number due to collisions with household plate glass.
- Q: How long does the average wind turbine last?
A: Wind turbines require refurbishment after 20 to 25 years of operation.
- Q: Is there enough wind in Saskatoon for a wind turbine?
A: The wind isn't always blowing, but on average the wind turbine will produce enough power for 500 homes.
- Q: Why build the wind turbine at the landfill?
A: The landfill site is one of the windiest locations in Saskatoon, and is far enough away from homes so that nearby residents won't be impacted by the wind turbine.

Interesting Facts

Wind energy produces power with near-zero greenhouse gas emissions.

Wind energy is one of the lowest-priced renewable energy sources.

Wind energy is the fastest growing segment of all renewable energy sources.

Countries like Germany and Denmark already produce 20% of their electricity from renewable sources like wind and solar energy, and combined have less land area than the province of Saskatchewan.