








Turn on a light using natural gas!

First, we dig wells to extract the  out of the ground. The natural gas then is sent through a small  to a plant where it is burned. The burning natural gas combusts to turn a . The water boils and turns to _____ that rises to turn another _____. The spinning turbines activate a _____. Inside the generator there is a spool of _____ surrounded by _____. The generator generates

ELECTRICITY

! The electricity travels through  into a . When you turn on a _____ you complete a circuit that sends the electricity to a _____, turning it on!

magnets**natural gas****copper wire****turbine****light bulb****water****house****turbine****turbine****generator****steam****pipeline****transmission lines****light switch**

Real World Example!

In 2020, construction began on the Cascade power plant near Edson, Alberta.²² It is a combined-cycle gas turbine power plant that will provide power for about 900,000 homes and business in Alberta. It is expected to produce 62% less carbon dioxide (CO₂) per MWh compared to current coal-powered electricity generation facilities.



(credit: Cascade Power Project)



Turn on a toaster using wind power!

Wind turbines are metal structures that are about _____ metres tall. The power of the



_____ pushes on the giant _____, which spins an internal shaft

connected to a _____. The gears work to increase the speed of _____ by a



factor of 100, which then activates a _____ to produce **ELECTRICITY!**

The higher the wind _____, the more electricity is generated. The electricity travels



through _____ into your home. When you plug in your _____,



through the cord and heat up the wires that are spaced apart to toast your bread!

rotation

blades

80

toaster

wind

generator

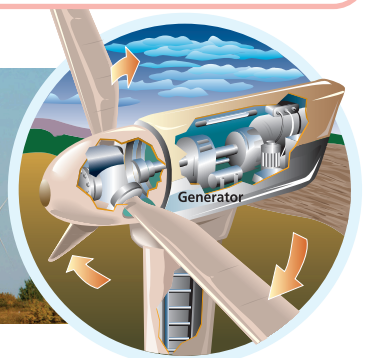
speed

transmission lines

gear box

Real World Example!

Constructed in 2012, Capital Power's Halkirk Wind Farm in East-Central Alberta has 83 wind turbines and produces 150MW of electricity.⁷ Capital Power has received approval from the Alberta Utilities Commission (AUC) to develop Halkirk 2, a second wind farm that will install another 74 turbines in the same area.⁸



(credit: Capital Power)