Your Name _____

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 _____. Meanwhile, waste heat is used to heat up _____. 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	**light bulb**	**turbine**	**pipeline**
natural gas	**water**	**generator**	**transmission lines**
copper wire	**house**	**steam**	**light switch**
turbine	**turbine**		

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 (CO_2) per MWh compared to current coal-powered electricity generation facilities.

(credit: Cascade Power Project)

Your Name _____

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

rotation **toaster** **speed**
blades **wind** **transmission lines**
80 **generator** **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)