

Exploring Ontario's Power Grid

GETTING STARTED

A **power grid** is a system that moves electricity from the power plants where it is produced to the homes and businesses that use the power. In this activity, you are going to explore Ontario's power grid using a website called **Gridwatch**.

To get started, you will need to open Gridwatch on your computer. Open an internet browser and go to **gridwatch.ca** then click the button that says "BB, DESKTOP".

POWER GENERATION AND DEMAND

The amount of electricity that Ontario makes and uses is measured in **megawatts** or MW for short. Look at the POWER GENERATED box in the top left corner. How many megawatts is Ontario generating right now? Is that amount low, average (AVG) or high? Fill in your answers in the box to the right.

Now check ONTARIO DEMAND. How much power does Ontario currently need? Is that amount low, average or high?

When Ontario generates more electricity than we use, the province **exports** (sells) the extra power to nearby places. When we are using more power than we make, the province needs to **import** (buy) electricity.

POWER GENERATED

MW

LOW AVG HIGH

ONTARIO DEMAND

MW

LOW AVG HIGH

Compare Ontario's power generation and power demand. Is Ontario exporting or importing electricity? Circle your answer and explain how you know in the box below.

Right now, Ontario is **IMPORTING** **EXPORTING** electricity because...

EXPLORE A POWER SOURCE

What are the four biggest sources of electricity in Ontario? Label them here.



Pick one of Ontario's four biggest sources of electricity to learn more about.

Find your chosen power source under GENERATION – FUEL TYPE. How many megawatts of electricity is it currently generating? What percentage of Ontario’s electricity does that represent?

Country	%
USA	~85%
Canada	~75%
Germany	~65%
France	~55%
UK	~45%

Fill in the name of your power source, the number of megawatts it is generating and its percentage of Ontario's power. Then colour in the bar to match the percentage.

POWER PLANTS

Click on the name of your chosen power source and an information box will open on the right. The box shows the **output** (how much electricity is being made, in MW) and the **capability** (the maximum amount of electricity that can be made) for every power plant of that type in Ontario.

Scroll through the list of power plants. Which one has the largest capability? How many megawatts can it produce? Click on its name to see it on a map and read more information about it. When you're done, fill in the boxes to the right.

POWER PLANT NAME

CAPABILITY

MW

WHERE IS IT?

filter by fuel type

 nuclear ☒

 hydro ☒

 gas ☒

 wind ☒

 solar ☒

 biofuel ☒

Click on a fuel type to hide it from the map.

Let's look at all the power plants of your type in Ontario. Select the menu button (≡) in the top left corner then choose "plant map". This map shows the location of every power plant in the province. Next, click the options button in the top right corner (⚙).

You will notice that all six fuel types are selected which means they will all show up on your map. Un-check all the fuel types *except* the one you chose above. Now only the power plants of your type will appear.

Draw dots on the Ontario map to show the location of each of these power plants. Then, use a star to mark your school's location on the map. Complete the map legend and answer the question below.

Which plant is closest to your school? What's its capacity?

MW

MAP LEGEND



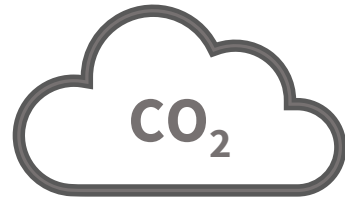




CARBON EMISSIONS

Carbon dioxide, or CO₂, is the gas that humans breathe out, but it's also released when we burn fossil fuels. It is a **greenhouse gas** which means that it traps the Sun's heat like a greenhouse or a blanket. We need to keep track of carbon emissions because they cause global warming and climate change.

Click on the menu in the top left corner then choose "carbon emissions". Carbon emissions are measured in **tonnes of CO₂e** which stands for "carbon dioxide equivalent". How many tonnes of CO₂e did Ontario's power grid release in the last hour? Is that low, average or high? Fill in the box to the right.



TOTAL EMISSIONS

tonnes

LOW

AVG

HIGH

How many cars would produce that much CO₂ in a year? How many trees would it take to remove all that CO₂ from the air?

passenger cars
produce in a year



trees take out of
the air in a year



What are some things you could do to
use less electricity?

What could Ontario do to reduce the
emissions from our grid?