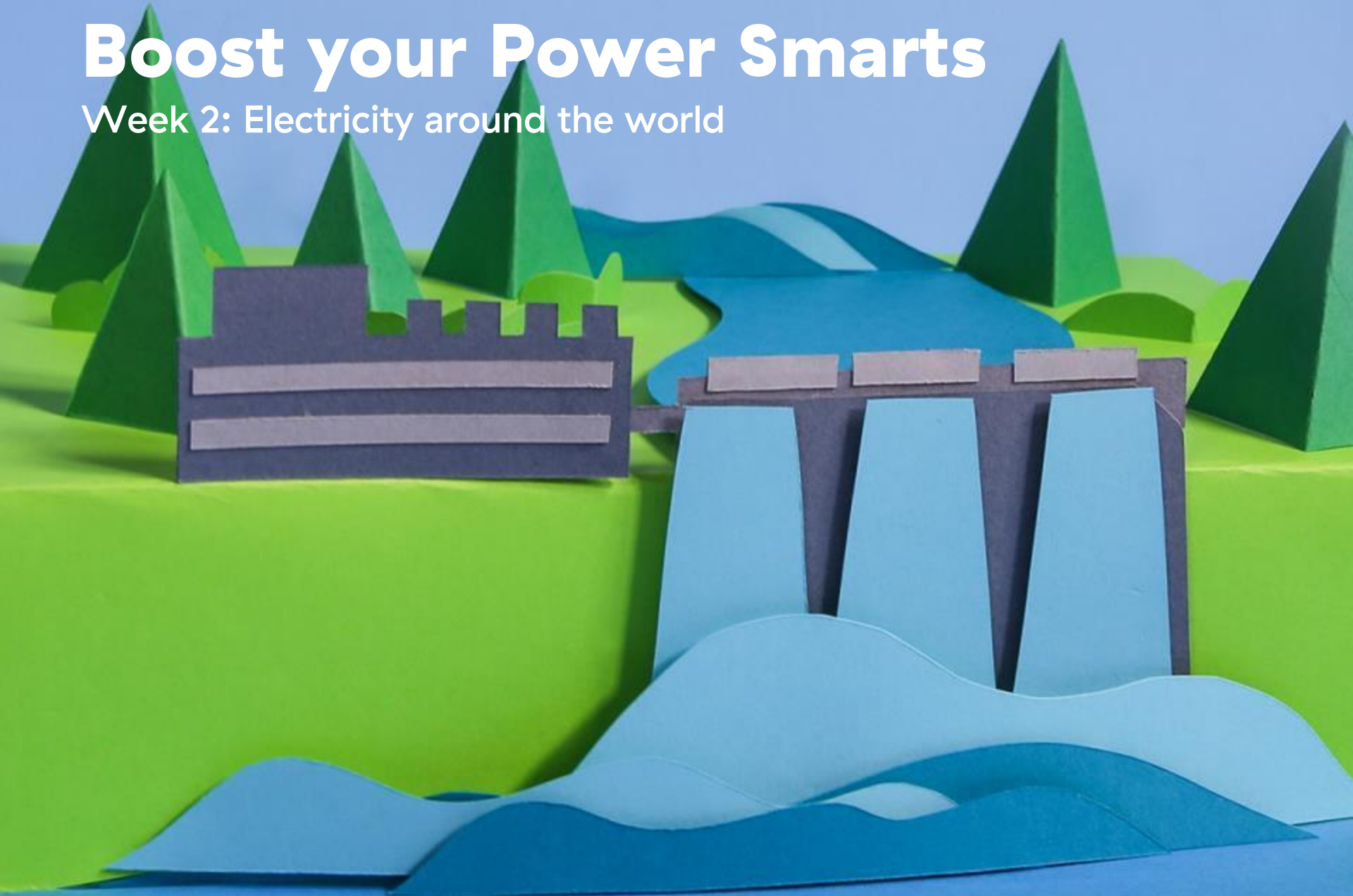


Boost your Power Smarts

Week 2: Electricity around the world



Next Boost your Power Smarts quiz:

“Electricity around the world”

Tuesday, October 8 to
Thursday, October 10

8:00am – 3:00pm



Renewable & non-renewable

We use natural resources to make electricity.

Some natural resources are renewable.

Some are non-renewable.



Renewable resources

Resources that we can use again and again.



Non-renewable resources

Resources that we use once
and then they're gone.



Guess the energy resource

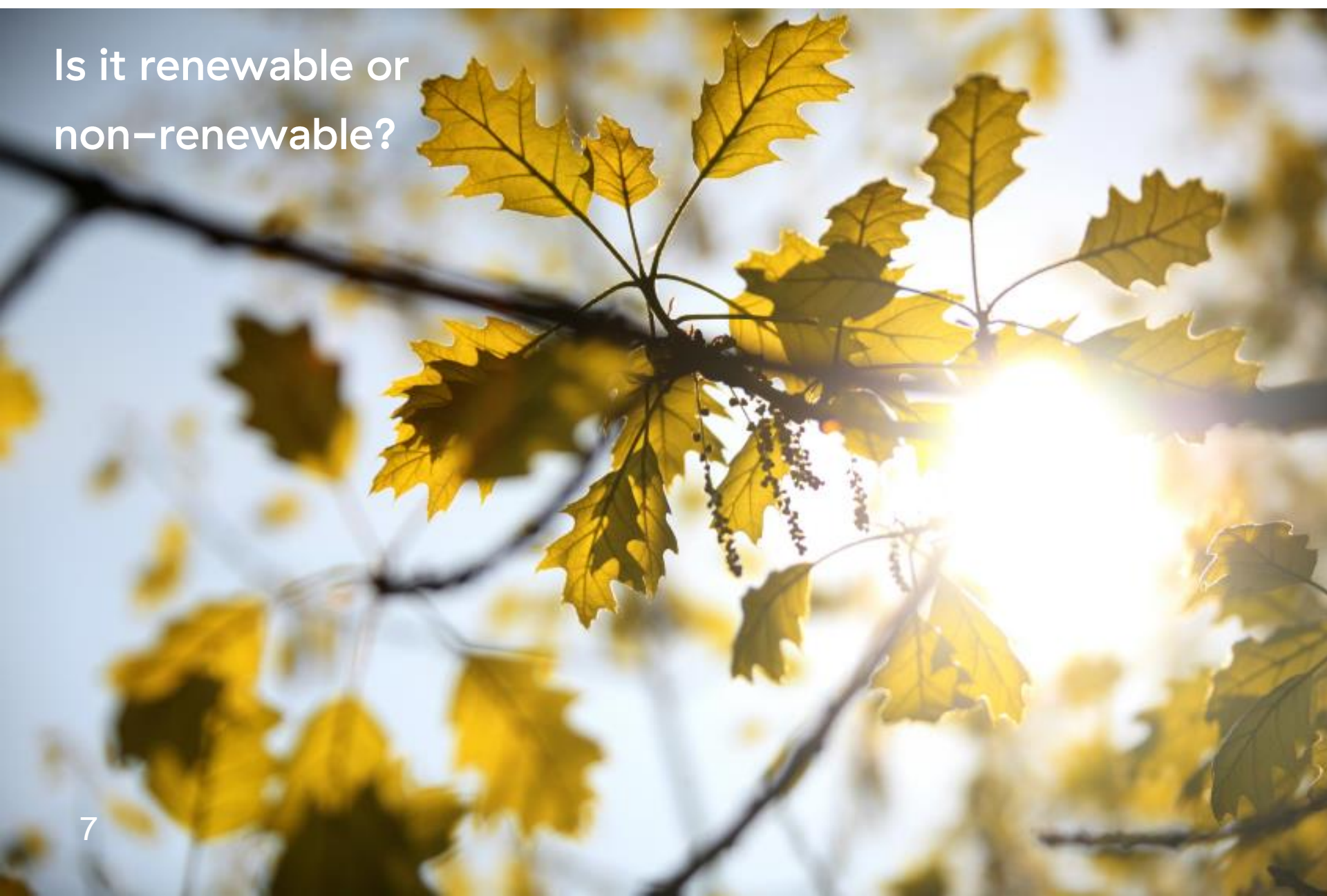
In groups, look at the following pictures and decide an answer for each :

- What is the type of energy resource being shown?
- Is it renewable or non-renewable?

Write your answers and hold them up when I say “go”.

What kind of energy?

Is it renewable or
non-renewable?



Solar energy

Renewable



Solar energy – Did you know?

China is the biggest producer of solar energy.

At the end of 2017, it had a solar energy capacity larger than all of Europe.



A large yellow wheel loader is shown in the foreground, positioned on a dark, rocky surface. The loader's bucket is raised, and it appears to be in the process of moving material. In the background, there is a vast industrial site with several large, circular piles of dark material, likely coal or ore. The site is surrounded by a fence and has various structures and equipment visible. The overall scene is an industrial coal processing or mining operation.

What kind of energy?

Is it renewable or
non-renewable?

Coal

Non-renewable



Coal – did you know?

Production of coal in the United Kingdom peaked in 1913, and until the late 1960s, coal was the main source of electricity.

Now over 25% of electricity is produced using renewables like wind, tidal waves, hydroelectric dams, biomass and solar with less than 10% being from coal.

Source: <https://www.energy-uk.org.uk/our-work/generation/electricity-generation.html>

What kind of energy?

Is it renewable or non-renewable?



Wind energy

Renewable



Wind energy – Did you know?

Alta Wind Farm in California is the United States' largest wind farm and provides electricity for up to 500,000 homes.



What kind of energy?

Is it renewable or non-renewable?



A close-up photograph of a hand pouring golden-brown oil from a black plastic jug into a black funnel. The funnel is placed on top of an engine's oil filler neck. The background is a blurred workshop setting with various tools and equipment. The lighting is dramatic, highlighting the stream of oil and the texture of the plastic.

Oil

Non-renewable

Oil – Did you know?

Burning fossil fuels like coal, oil and natural gas puts carbon dioxide (CO₂) in the atmosphere.

CO₂ is a greenhouse gas which traps more heat in the atmosphere and contributes to climate change.

What kind of energy?

Is it renewable or non-renewable?



Natural gas

Non-renewable



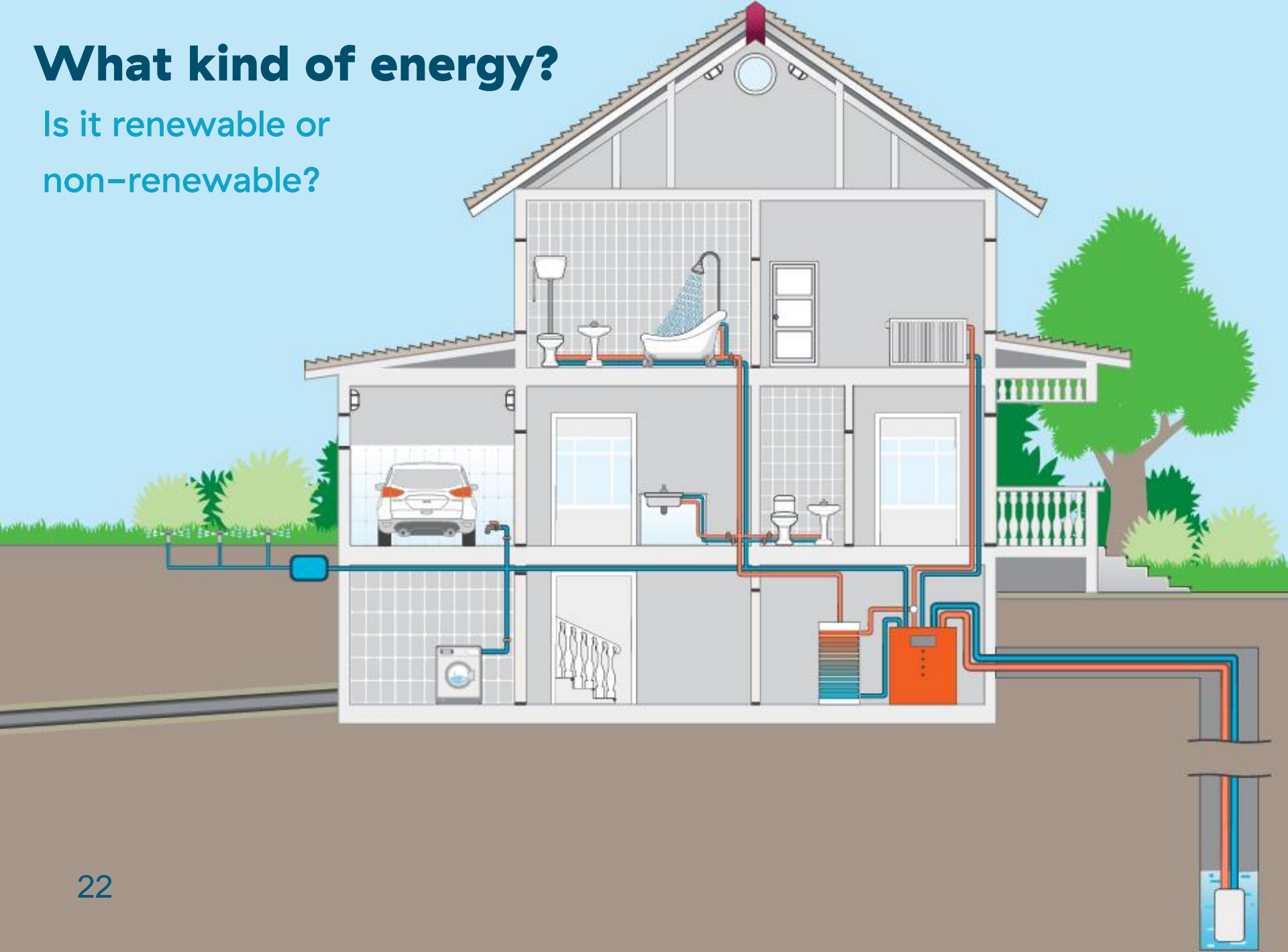
Natural gas – Did you know?

The first natural gas pipelines, made of bamboo, were built in China in 500 B.C. Now, the USA is the largest producer of natural gas, followed closely by Russia.



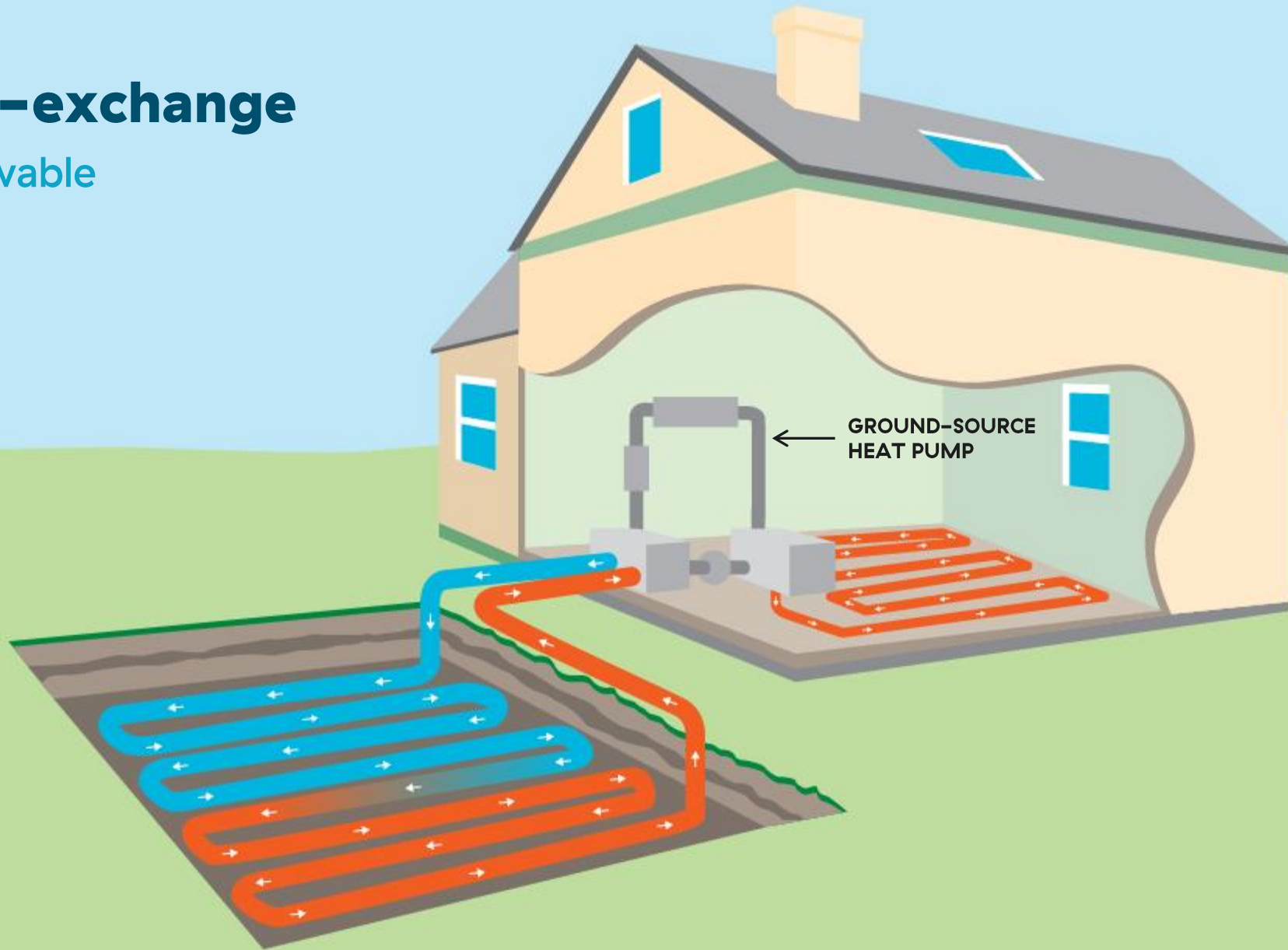
What kind of energy?

Is it renewable or non-renewable?



Geo-exchange

Renewable



Geo-exchange – Did you know?

Abbotsford Senior Secondary School in B.C. is heated using a geo-exchange loop. Just beneath our feet the Earth maintains a constant year-round temperature despite the change in air temperature in winter and summer.

Pipes go into the ground to collect this heat and use it to heat the building in winter.



Abbotsford Senior Secondary

Does your school use a geo-exchange system?
The large area of playing fields make it a good renewable option for many schools.

What kind of energy?

Is it renewable or non-renewable?

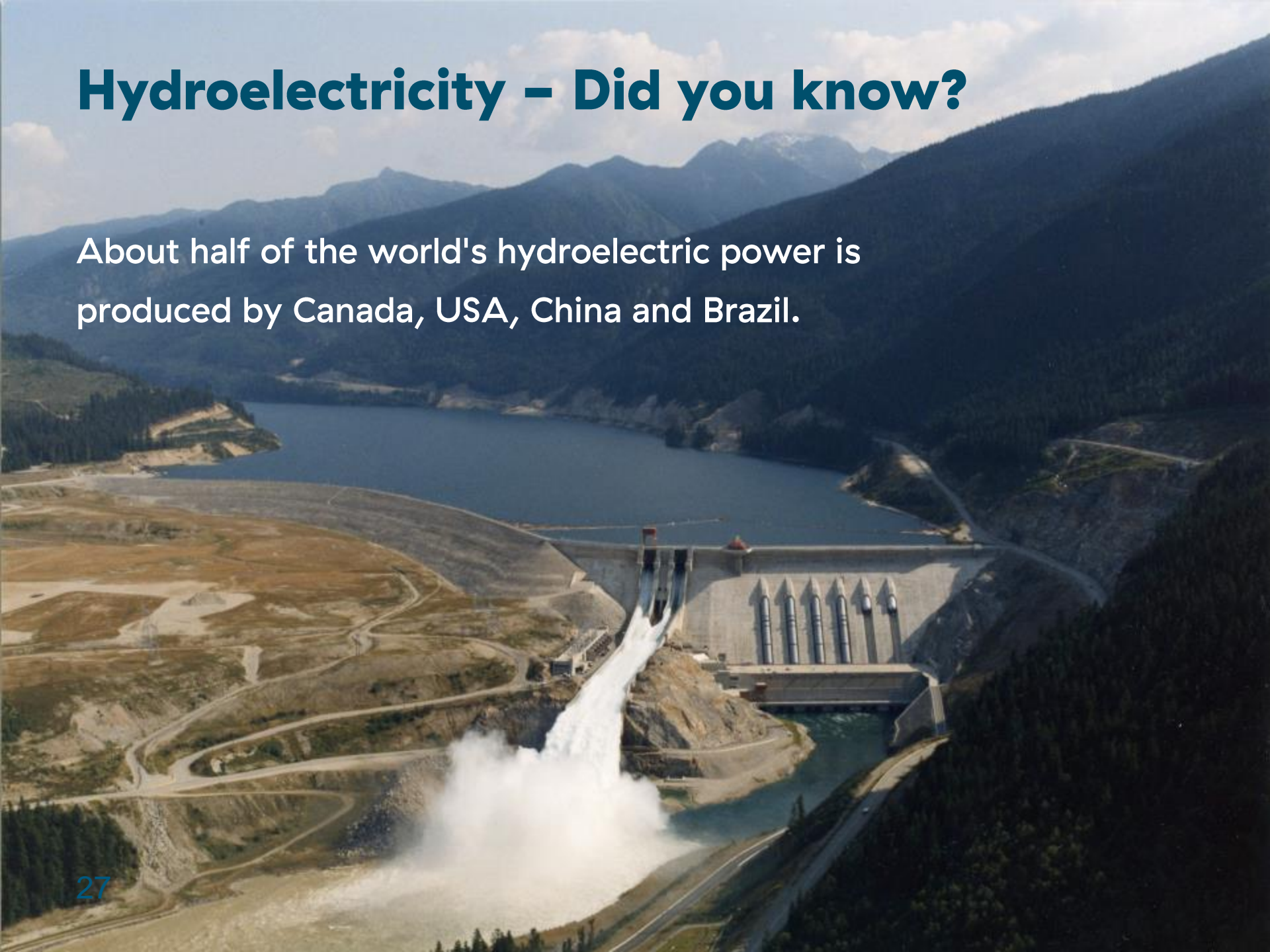
Hydro

Renewable



Hydroelectricity – Did you know?

About half of the world's hydroelectric power is produced by Canada, USA, China and Brazil.



Who am I?

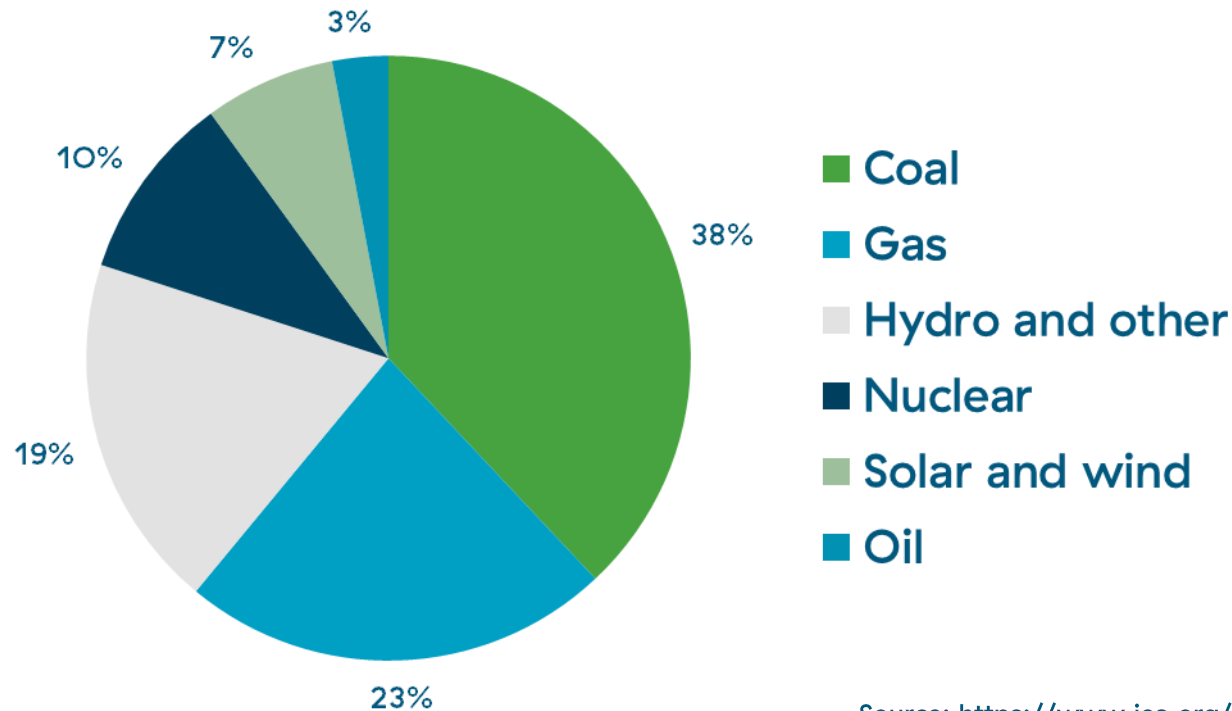
Let's play a game about renewable vs non-renewable energy

Electricity around the world

We use many different types of energy to make electricity around the world.

Most of the world's electricity is currently generated by burning fossil fuels.

Electricity generation 2018



Source: <https://www.iea.org/geco/electricity>

Fossil fuels

Most of the world's electricity is generated using fossil fuels.

What are some of the negative impacts of this?



What renewables work here?

Renewable energy works best when the environment matches.

Look at the environment on your handout and circle one or more of the renewables that could make sense there.

			
Tidal	Solar	Hydro	Wind

Energy from
ocean waves

Energy from
the sun

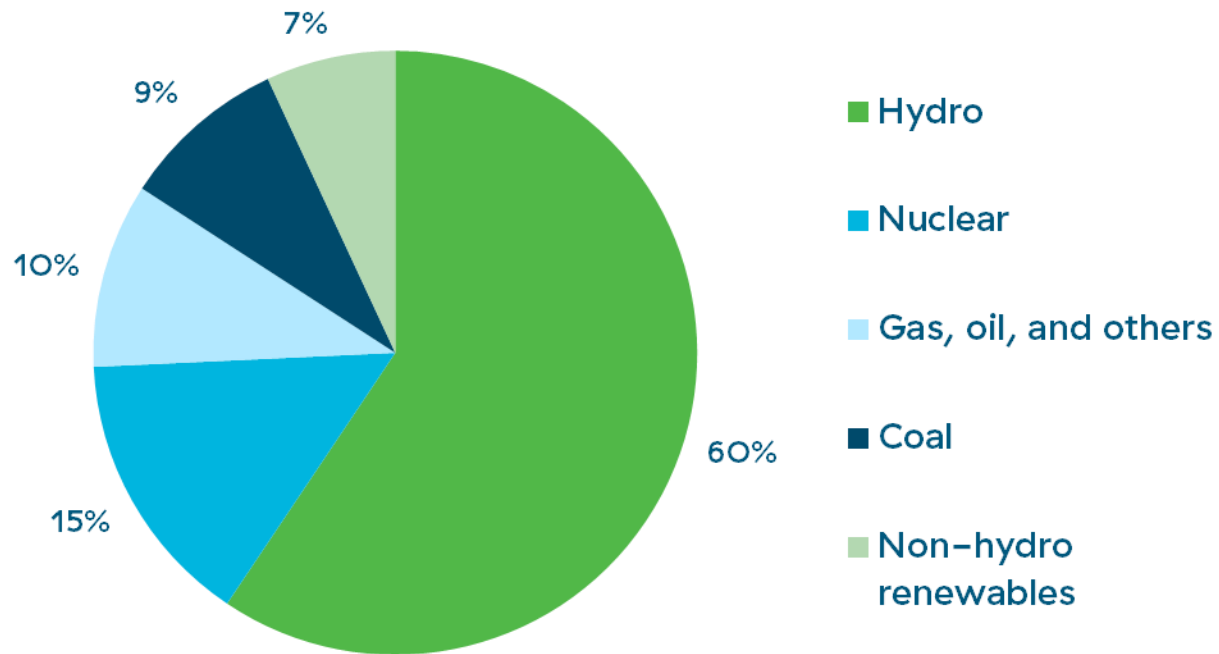
Energy from
lakes and
flowing rivers

Energy from
the blowing
wind

Electricity in Canada

67% of Canada's electricity comes from renewable resources.

Generation by source, 2017



Source: <https://www.nrcan.gc.ca/electricity-facts/20068>

Electricity in B.C.

In B.C., more than 90% of electricity is from hydroelectric dams.

Why does hydroelectricity work well in our province?



