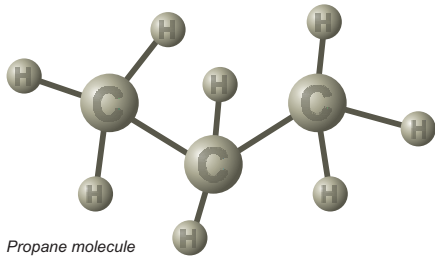


FOSSIL FUELS

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Propane molecule

What are They?

Fossils are the remains of ancient life. Fuels such as oil, natural gas, and coal formed millions of years ago from the remains of plants and animals, so we call them fossil fuels. Because they are made up mostly of hydrogen and carbon atoms they are also known as hydrocarbons.

Why are They Important?

Fossil fuels are important because of their stored energy. When burned, they produce the energy we use every day for commerce and industry, as well as for our own transportation, heating, cooking, and lighting.

Oil, natural gas, and coal are used to produce chemicals that make plastics, fertilizers, medicines, and many other materials.



Refueling a float plane, Quebec

How do They Form?

Oil and Natural Gas (petroleum) Remains of tiny plants and animals that accumulate at the bottom of oceans form a dark, organic sediment. As other sediment continues to pile up, this organic ooze is buried deeper and deeper and is 'cooked' under increasing pressure and temperature. If conditions are just right it can change, over millions of years, into oil and natural gas. The increasing pressure can squeeze the oil and natural gas from the rocks in which they were formed, called source rocks, allowing them to accumulate in large quantities in other rocks that act like sponges. We call these reservoir rocks.

Coal Partly decomposed plant debris that accumulates in swamps is preserved initially as peat. As peat is buried under increasing amounts of sand, silt, and mud, it is transformed over millions of years into coal. During this coalification process, natural gas can be trapped within the coal. It is called coalbed methane (CBM), or natural gas from coal (NGC).

Did You Know?

- Canada is the world's third largest producer of natural gas
- Polar fleece is made from recycled pop bottles, a petroleum-based product
- Canadian coal is exported to more than 20 countries on five continents
- Ink, crayons, bubble gum, dish-soap, deodorant, eyeglasses, and tires are made from fossil fuels

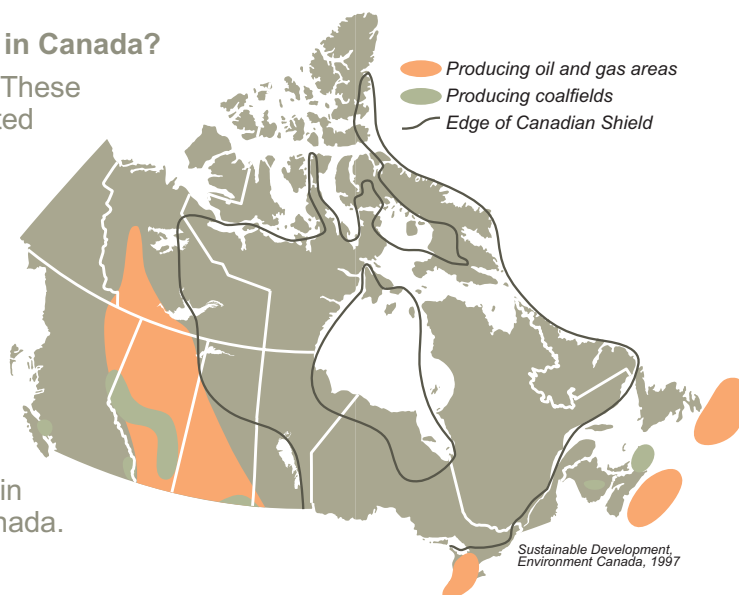


FOSSIL FUELS

Where are Fossil Fuels Found in Canada?

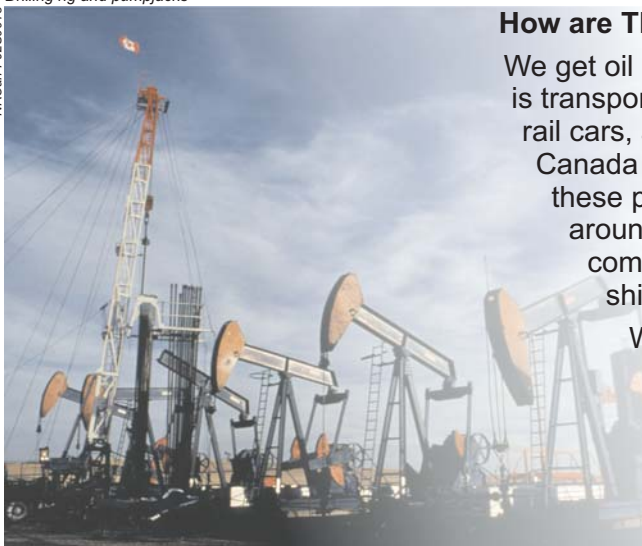
Canada is rich in oil, natural gas, and coal. These resources are found in rocks that originated mainly in and near ancient oceans.

For much of our geological history, the Canadian Shield of central Canada was an uplifted area that had oceans around its margins. The sediments that accumulated in and near these oceans, to the east, west, and north of the Canadian Shield, contain vast resources of fossil fuels. Many deposits of oil, natural gas, and coal have been discovered – a lot more remain to be discovered, especially in the sedimentary rocks of northern Canada.



Drilling rig and pumpjacks

NRCCan_F92/S0013



How are They Produced and Transported?

We get oil and gas by drilling wells into subsurface reservoirs. Oil is transported to processing plants and to market by pipeline, rail cars, and tankers. Gas is transported mainly by pipeline. Canada requires thousands of kilometres of pipeline to move these products. In the near future gas will also be transported around the world, as liquefied natural gas (LNG) and compressed natural gas (CNG), in specially designed ships.

When deposits are near the surface, coal can be mined by open-pit and strip mining methods. Underground mining techniques are used to get at the deeper deposits. It is transported short distances by truck, and longer distances by rail, or by ship for overseas destinations. Canada's rail system moves more coal than anything else.

Fossil Fuels and the Environment

All fossil fuels produce carbon dioxide when burned. Carbon dioxide is a greenhouse gas that is believed to contribute to climate change. Other harmful materials can also be emitted when burning fossil fuels but these can generally be captured and safely disposed of using modern technology. Methods are being developed to further lessen the environmental impact of producing and using fossil fuels. Fossil fuels will continue to be the world's main source of energy until alternative sources are developed.