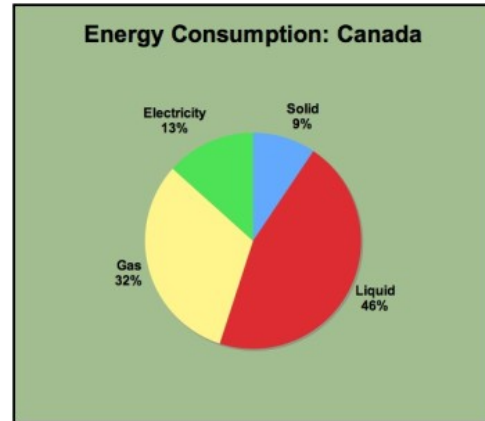
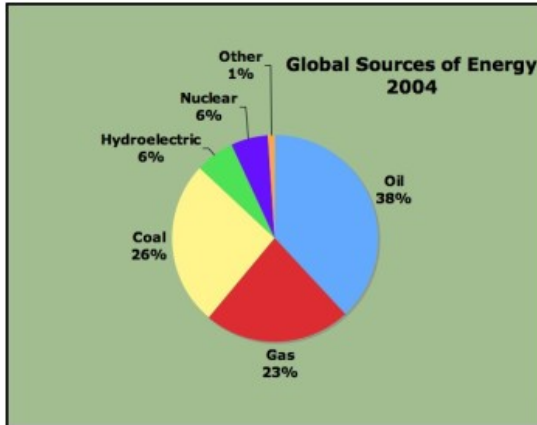
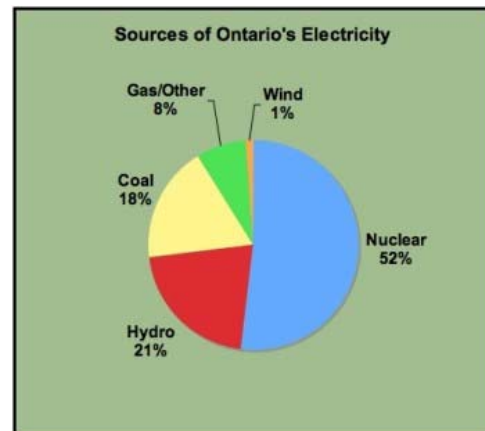


CGR4M0 Grade 12 Environmental and Resource Management
Developing Energy Sources

World consumption of energy exceeds 15 TW (terawatt) a year. Of this, over 85% is from the burning of fossil fuels. Although the amount of coal is ranked second to oil, the reserves of coal far exceed that of both oil and gas.



In Ontario, about 18% of the non-transportation energy needs are provided by electricity, 40% by petroleum, and 33% by natural gas. Over one half of the electricity in Ontario is produced by its 16 nuclear reactors. (There is also one in Quebec and 1 in New Brunswick.) Traditional “hydro” methods and fossil fuel thermal generating stations produce the remaining electricity.



Electricity

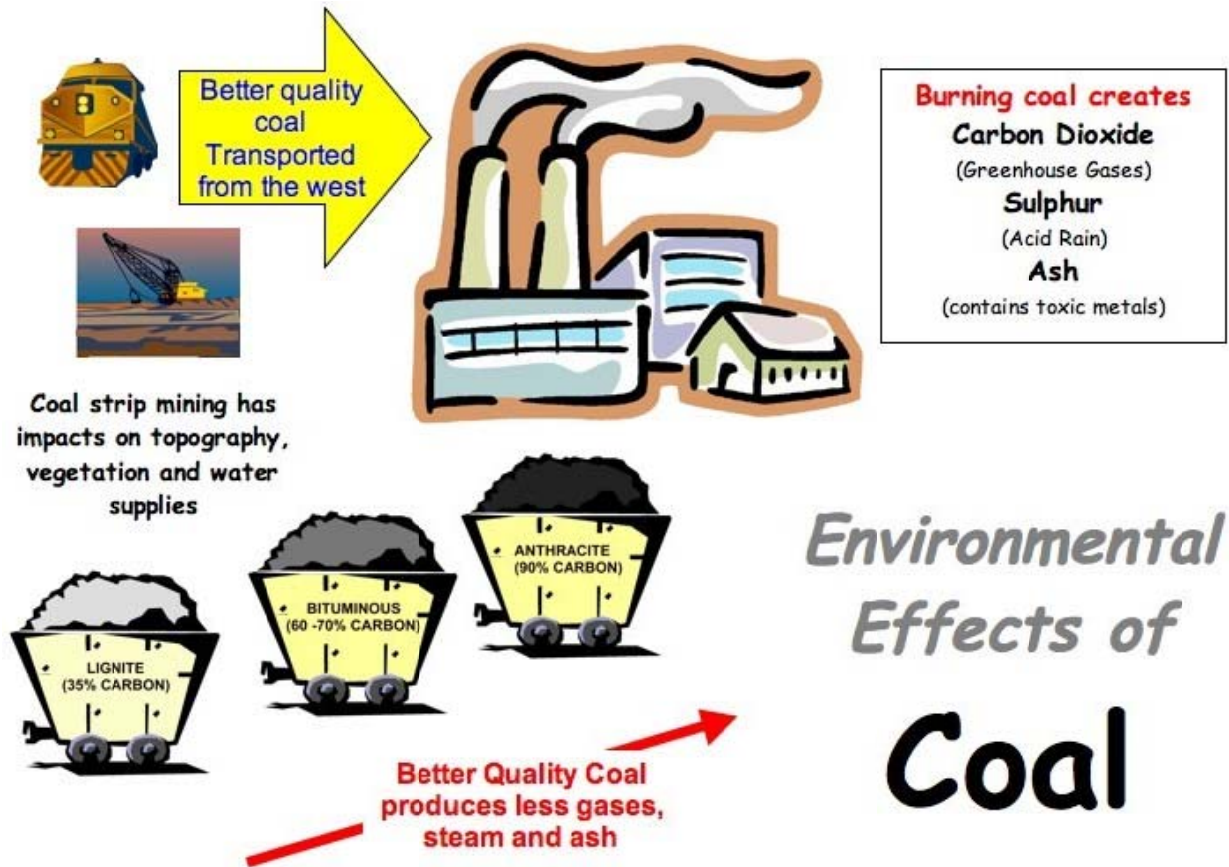
Most electricity is created by the same technique: a turbine is turned which generates electricity. The method of turning the turbine can vary. In traditional hydroelectric generation, a river does the work; whereas, in coal fired and nuclear plants, heating water makes steam and the pressure of the steam turns the turbine.

Hydro Electricity

The environmental impact of developing and consuming energy can be great. The creation of hydroelectric mega projects such as the one at James Bay in northern Quebec or the Three Gorges River project in China are detrimental to the existing environments and to those who live in these regions.

Part 1: Research the James Bay Project in northern Quebec, the Three Gorges River project in China, the Hoover Dam in Nevada or the Aswan High Dam in Egypt. In a paragraph or two discuss any major environmental and/or ecological impacts of the project that you chose.

The environmental impacts of extraction, transportation and use of coal in North America can be seen in the following diagram.



Canada's Oil Sands

Canada's oil sands project has been mired in controversy since it started. It takes up an enormous area of Alberta and many say that it does irreversible damage to the environment. However, others say that it makes great economic sense.

Part 2: Research Canada's oil sands project. Briefly describe the process of producing oil from the oil sands. What are the "pros" and "cons?" (Hint: Look at the pros from an economic point of view and the cons from an environmentalist's point of view.)

