Topic 8: Electricity Production and the Environment

Electricity from Fuel

Explain how a **thermo electric generating** plant works.

Non-renewable resources are _____ ex:
Renewable resources are
_____ ex:

Page 333. The main source of electricity in Canada is _____.
The main source of electricity in Alberta is _____

_____ is the most common fuel for thermo electric power plants in AB. Open pit mining can disturb _____. When coal and other fossil fuels are burned they produce contaminants. Most of these harmful substances can be removed by _____but they cannot remove _____ such as _____. Sulfur dioxide causes acid rain. _____ can remove some sulfur dioxide gas. Explain how this works.

Carbon dioxide is a _____, which means it _____
_____

Hydroelectric plants use _____.

- Do not have smokestack or use radioactive materials BUT
- Flood land, which affects not only people but the water ecosystem as well.

Nuclear fission is when they bombard _____ atoms with neutrons causing the uranium to split. It produces a _____ amount of energy. An advantage is it does not release _____ or gases that cause _____ _____ nor do they release carbon dioxide. One disadvantage is _____
_____. **Nuclear Fusion** joins very small _____ to form a larger _____. Huge amounts of energy are released. This method is still being developed.

All thermonuclear and thermo electric generating plants release thermal energy.

Thermal pollution is _____
_____.

Cogeneration systems produce _____ and also supply thermal energy for _____ or _____ heating. An example is:

Thermoelectric plants, hydroelectric plants and nuclear plants all use _____.

Alternative Energy Sources

Supplies of coal, oil and natural gas are being depleted which causes them to become more _____. Energy form the Sun, wind and tides is becoming more competitive with _____.

Green Energy – electricity generated in an _____.

Four types of Green Energy:

1. Wind driven electricity generation – feasible with ave. wind speeds of 11km/hr.
   - Used together with other electric energy sources or storage devices.
2. Solar electricity – solar cells are expensive, fragile and inefficient
   - Use solar energy to heat a liquid. The steam drives a turbine and electric generator.
   - Include using storage batteries.
3. Ocean tides – few shorelines have appropriate shape for trapping tidal waters.
   - Bay of Fundy traps tidal waters – as water that has been trapped in the basin flows out, the water pressure turns turbine blades that turn an electric generator.
4. Geothermal energy – hot inner parts of Earth contain large amounts of thermal energy
   - Some places have cracks or thin spots, the ground water flows down and absorbs thermal energy and rises again as hot springs or geysers. Steam from this can be used to rotate turbines and turn electric generators. This is used in Iceland.

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Do questions ~~#1,2,5,6,8 p. 343~~

Do questions ~~# 2,5,13,20,28,36,39 p. 349-351~~ Pg 343 # 1, 5→10

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