

Energy Notes -Chapter 17 and 18

Renewable vs. Nonrenewable

- _____ energy can be used up and cannot be replaced in a reasonable period of time.
 - Examples: Fossil fuels = _____
- _____ is energy that is constantly being replaced.
 - Examples: Wind, water, solar, biomass

Nonrenewable Energy Sources

1. Petroleum
2. _____
3. Coal
4. _____

- Fossil fuels are the remains of ancient _____ that changed into coal, oil, or natural gas
 - Uses:
 - _____
 - Manufacturing
 - Heating/cooling buildings
 - _____
 - _____
- Energy in fuels is converted into _____ energy

Fossil Fuel Formation

- _____ is formed from the remains of fossilized plants that lived in swamps.
- _____ formed from fossilized microscopic _____ organisms.

Environmental Costs of Fossil Fuels

- More than _____ the electricity in the US is generated from _____.
- It is relatively _____, _____ and a supply that should last at least _____.
- Dirty Coal Power

Coal produces:

- 66% of the US total of sulfur dioxide
- Largest polluter of mercury
- 50% of particle pollution
- 40% of carbon dioxide
- 67 different air toxins (many are known carcinogens)
- Older Coal-fired power plants are dirtier!!!!
- When congress passed the Clean Air Act of 1970 they "grandfathered" in the older plants that they thought would soon be replaced by new plants.
- Because of this loophole most coal plants are 30-50 years old and 10 times dirtier than new ones.

Costs of Oil

- \$ _____ to defend foreign oil supplies.
- _____ lives lost in war.
- Destruction of environment: oil spills, air pollution, global warming, acid rain.
- _____ Spills

Nuclear

Pros:

- No air _____
- Produces _____

Cons:

- _____
- Waste transport issues
- Hot water _____
- There are Nuclear Power Plants in Florida!
 - Crystal River
 - St. Lucie
 - Turkey Point
 - UF Gainesville
 - Renewable Energy Sources

Biomass

- Trees grown specifically for fuel
- Left overs from farming
- wood waste from _____
- _____
- _____
- farm animal wastes
- logging residue
- _____

Pros:

- _____
- Can use existing coal burning _____ plants
- Paper mills & _____ processing plants can make their own electricity
- Local sources

Cons:

- Emits _____ & smoke
- 1/10 the energy of coal by weight

Wind power

Wind = air moves due to the _____

Pros:

- No _____
- Renewable
- _____ energy
- Can provide 1.5 times US _____.

Cons:

- Noisy
- _____
- Regionally Available

Hydroelectric = energy captured from _____.

Pros:

- No air pollution
- Renewable
- Creates _____ (new lake)
- Flood control

Cons:

- _____
- Expensive to build
- Changes _____
- Water reduced down stream
- Prevents movement of _____ animals

Tidal Energy = capturing the energy from the _____. (Energy originally from the gravitational pull of sun and moon)

- Tidal Energy

Pros:

- Cheap _____
- Reliable: Tides move in and out twice a day!
- _____

Cons:

- Construction is expensive
- _____

Geothermal= Geo means Earth, Thermal means _____

Pros:

- Almost no air pollution
- _____

- Renewable

Cons:

- Limited locations on Earth

- Some _____ (carbon dioxide, hydrogen sulfide, ammonia, methane...)

Solar Energy Advantages

- Every hour the amount of Solar Energy reaching Earth is _____.
- The Sun is expected to radiate energy for at least another 5 billion years.

Pros:

- _____
- Renewable
- Can be imbedded into many surfaces including paint.
- _____

Cons:

- Best in places where _____ is strong.