NAME: _____ DATE: _____

6.2 c, d Renewable and Nonrenewable Information Sheet

The most commonly used **sources of energy** are the following:

- **Sun.** Solar energy comes to Earth from the sun in two forms — heat and light. Solar radiation can be used directly to make electricity in a solar cell, or it can be changed into steam for making electricity, heating homes, or heating water.
- **Wind.** Wind, like the sun, is a source of energy that has been used by mankind throughout history. Wind is still used to turns big blades on windmills, and the resulting movement can be used to pump water or produce electricity.
- **Water motion – hydro.** Moving water, such as water flowing in a stream or river or falling over a waterfall or dam can be used to generate electricity, or hydro power. The water turns wheels that run turbines that, in turn, run generators that make electricity.
- **Water motion – tidal.** Water in motion because of the ebb and flow of the ocean tides can also run turbines that generate electricity.
- **Earth's heat.** Geothermal energy is the natural heat of the Earth, originating at the Earth's core and flowing outward to the surface. This heat can be used in its unchanged form to heat homes, among other things, or it can be harnessed in the form of steam to turn turbines and generate electricity.
- **Fossil fuels.** Fossil fuels, like petroleum (oil), natural gas, and coal, are the results of solar energy being transformed in the distant past into potential chemical energy. These fuels are found under the ground or ocean, and it is usually necessary to drill deeply into the Earth to extract them. These fuels are used to make heat and/or electricity, as well as other products, like gasoline.
- **Wood.** Wood is another example of solar energy being transformed into potential chemical energy. Unlike fossil fuels, however, it is a renewable resource, as more trees can be always by grown to make more wood. When wood is burned, it gives off heat, which can be used for various purposes.
- **Atomic fuel.** Nuclear energy is made in power plants by splitting the nuclei of heavy atoms, such as uranium. This splitting of nuclei (nuclear fission) releases a very large amount of energy. This heat can be used to boil water and make steam, which then turns turbines to make electricity.

People and other living organisms are dependent upon many renewable and nonrenewable sources of energy, but use of these resources must be considered in terms of their cost/benefit tradeoffs. All living organisms also depend on having clean air and water — i.e., a healthy environment. Many sources of energy are managed and supplied by the private sector (private individuals and corporations), often at considerable cost to the environment. Local, state, and federal governments have significant roles in managing and protecting the environment. The need for sources of energy and the need for protecting the environment are often at odds, and the government must set priorities. Ultimately, however, resource conservation and environmental protection begin with the individual.