

## LAB: Energy Web Activity

“Energy: The American Perspective” on our web site details U.S. energy history and usage until about 1985. Consult the following web site of the Dept. of Energy to obtain the needed information to complete a history of usage.

Web Site: <http://www.eia.doe.gov>

Once on the web site click on the *Sources and Uses* tab at the top. Click on *Total Energy* and then *Annual Energy Review*.

### Questions and Activities

1. While in the *Annual Energy Review* section click on *Energy Overview* and then on 1.1 *Primary Energy Overview, 1949-2010*. The information comes in html, pdf, or Excel file form. (Don't use the pdf files because they usually don't have all the information that the other files have.) You will notice that the units for our energy use change from file to file. In the html file they are in QBTU or Quadrillion BTU (in other words  $10^{15}$  BTUs), but the units are different in the other files. Be careful of this when graphing! Use this data and the program *Graphical Analysis* or *Excel* to graph total energy consumption versus year. (attach) If you download the Excel file you can cut and paste into *Graphical Analysis* but you will need to reformat the data to make sure there are no commas.

Summarize in words this information.

2. While in the same area get the numbers for *Total Energy Imports* (not Net Imports) for each year since 1949. Then use *Graphical Analysis* or *Excel* to graph total energy imports versus year. (attach)

Summarize in words this information. [If you are daring, you may wish to put both sets of data from questions 1 and 2 on the same graph. Give it a try]

3. Look at Topic 1.3 under *Energy Overview* and click on *Primary Energy Consumption by Source, 1949-2010*. Get the coal, natural gas, and petroleum numbers as well as total energy consumed (not just the total for fossil fuels) for the specific years below and calculate the percentage each is of our total consumption. Fill in the table below with % of U.S. energy use for each fuel.

Year	Coal	Natural Gas	Petroleum
1950			
1960			
1970			
1980			
1990			
1995			
2000			
2005			
2009			

4. Collapse the *Energy Overview* tab and click on *Energy Consumption*, then *2.1a Energy Consumption by Sector 1949-2010*. Find the total energy consumed by the transportation, residential, industrial and commercial sectors as well as the total energy consumed. Get the data and then calculate the percentage of our total consumption that belongs in each area. Fill in the table below with % of the U.S. energy use for each area. Note that the units may have changed

Year	Transportation	Residential	Industrial	Commercial
1950				
1960				
1970				
1980				
1990				
1995				
2000				
2005				
2009				

5. From the main page click on the link for *energy Kids*. Then browse the sections – especially “Games and Activities”. Finally take the “Quiz” and write the answers (a,b,c,d) below.

6. Use info from this site or others (unless otherwise specified) to answer the following questions.

a. What has happened to energy imports in the U.S. since 1985? Comment on any years that were not in a general trend and what was happening to cause this change.

b. Who were the top 5 world oil producers in 2008 according to this site?

c. How many gallons are in a barrel of crude oil? What is the approximate present price of a barrel of crude oil?

d. Who are the top 2 suppliers of crude oil and petroleum to the U.S.?

e. Which state has the highest overall electricity prices?

f. Which state produces the most coal?

g. List three possible alternatives to fossil fuels. List specific disadvantages (more than one) of each.