

## Energy Round Up –Map Extension Activity

### Objectives:

- Research locations of different types of power generating plants in the US
- Create a map layer with all locations (different symbols)

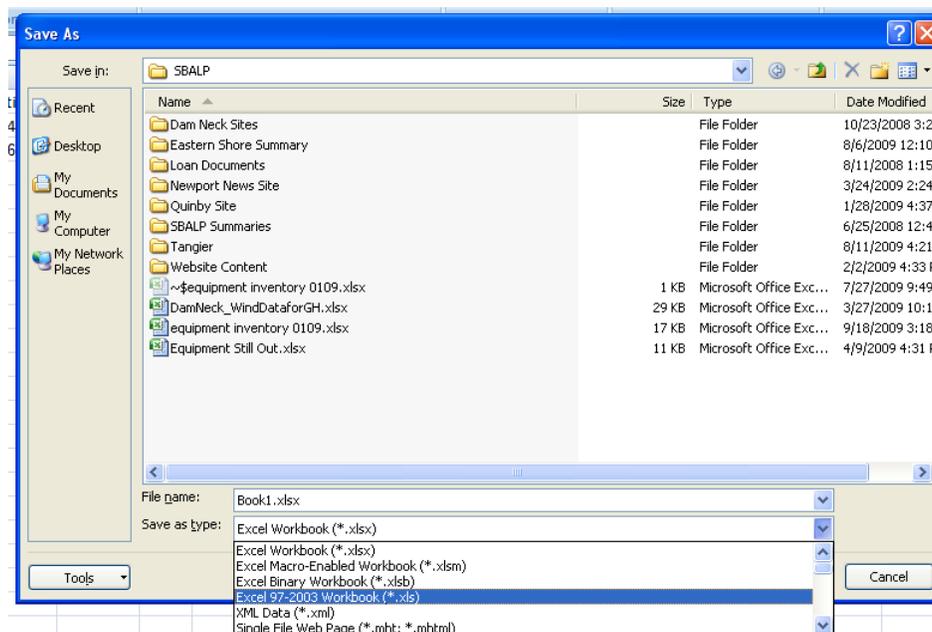
1) Using internet searches, find the location (latitude and longitude) of the following types of power generating plants:

	Power Plant Name	Address	Latitude	Longitude
<b>COAL</b>				
<b>HYDRO-ELECTRIC</b>				
<b>WIND</b>				
<b>SOLAR</b>				
<b>NATURAL GAS</b>				
<b>NUCLEAR</b>				

- 2) Open MicroSoft Excel and begin a new workbook
- 3) Enter in the data collected above into the first 4 columns. Be sure to name your columns (use no spaces)

	A	B	C	D	E	F
1	Name	Address	Latitude	Longitude	Type	
2	Centralia Power Plant	Lewis County, Washington	46.756	-122.86	Coal	
3	Cordell Hull Hydro Power Plant	150 Corps Ln, Carthage, TN 37030	36.2523	-85.95165	Hydro	
4						
5						
6						
7						

- 4) Save your file as an .xls file. If you are working in Office 2007, you will need to do a Save As and select this file extension from the list, as shown below.



- 5) Open ArcMap

### Adding Land Data

- 6) From the Alternative Energy Education Resource website ([aer.cisat.jmu.edu](http://aer.cisat.jmu.edu)), go to the Mapping Data page and download the States shapefile (states.zip).

- 7) Unzip and extract the files to your computer.
- 8) Use the Add Data tool in the upper right of the screen to add in the states data layer. You should see the data layer on the screen and the data layer name on the list to the left.

### **Adding Power Plant Location Data**

- 9) Using the Add Data tool again, navigate to the folder that you saved your .xls file in. You will need to double click the .xls file and select one of the sheets (i.e. Sheet1\$). This will add your data to the data layer list at the left, under the Source tab.
- 10) Next, we will check to see that the data you entered is being read by ArcMap by right-clicking on the data layer name and selecting Open. You should see all the data you entered in Excel. If not, you may have spaces in your column titles that need to be deleted.
- 11) Once you have verified the data is there, we will display the data on your map by right-clicking on the data layer name and selecting Display XY Data.
- 12) Be sure that the latitude and longitude columns are being used for the y and x data, respectively. Click the Edit button to define a projection for your data. Click Select. Select the Geographic Coordinate Systems folder, the World folder, and the WGS 1984.prj file. Hit OK and OK again. Your data points should now be located on your map.
- 13) Zoom in as needed to check that your power plants are where they should be.

### **Changing Symbol**

- 14) Click once on the symbol representing your data in the data layer list to the left. This will bring up the Symbol Selector window.
- 15) Choose any symbol from this list to represent your data. You can change the color and size of the symbol as well.
- 16) Press OK when you have finished choosing your symbol.

### **Displaying Symbols by Type of Power Plant**

- 17) Double click on the data layer name in the layer list to the left. This will bring up the Properties box.
- 18) Select the Symbology tab
- 19) Select Symbolize by Category/unique values from the menu on the left side of the window
- 20) Select the value field to be your type column
- 21) press Add All Values at the bottom of the window
- 22) Press OK
- 23) You can play with the symbol size and color you want each type to be represented by using the method outlined in the section above