

# Personal Energy Audit: The Spreadsheet

In this activity you will:

1. Examine your energy use habits.
2. Identify your high-energy consumption activities.
3. Identify some energy consumption habits you can change to reduce your energy use.

**Let's talk about watching TV!** Most people like to watch 2 hours of their favorite TV shows each day. Most American homes have 3 different TV sets turned on each night for two hours each. Why? Because everyone in the household likes to watch different TV shows that are on at the same time.

**Let's analyze your energy use!**



## Step 1: Download the energy audit spreadsheet.

- a. Open your Web browser. Go to [www.ei.lehigh.edu/learners/energy](http://www.ei.lehigh.edu/learners/energy)
- b. Click on **Energy Audit**.

The file, **Audit** will appear on your computer desktop.

- c. **Double-click** on the file to open it.

Your Energy Audit spreadsheet will look like this:

**Excel version:**

	A	B	C	D	F	I	J	K
1	<b>PERSONAL ENERGY AUDIT 1</b>	<b>Hours Used</b>	<b>Repeated Use</b>	<b>Typical Wattage</b>	<b>kW*h/year</b>	<b>BTU/Year</b>	<b>Out of pocket cost/day or week</b>	<b>Out of pocket cost/year</b>
2	<b>NOTES:</b>	How many hours do you do following things? If appliance is on all the time list 24 hours/day.	List number of appliances.	These values were found using a variety of Web pages and appliance manuals.	for daily use =(kW*h) X 365 For weekly use =(kW*h) X 52 (or number of weeks used)	for daily use =BTU X 365 For weekly use =BTU X 52 (or number of weeks used if seasonal)	Cost =(kW*h) x average rate (average rate is \$0.11 per kW*h)	Cost/year= Cost per day X 365 or Cost per week X 52 (or number of weeks used if seasonal)
3	<b>Everyday Activities</b>	<b>Hours used DAILY</b>	<b># of appliances being used</b>	<b>Typical Wattage</b>	<b>kW*h/year</b>	<b>BTU/Year</b>	<b>Out of pocket cost per day (cents)</b>	<b>Out of pocket cost per year (dollars)</b>
4								
5	<b>Entertainment</b>							
6	Watch TV			150	0.00	0.00	0.00	0.00
7	Charge your iPod/MP3 player			12	0.00	0.00	0.00	0.00
8	Charge hand-held video games (i.e. PSP or Nintendo DS)			50	0.00	0.00	0.00	0.00
9	Play video games (i.e. Xbox 360, Wii)			165	0.00	0.00	0.00	0.00
10	Watch a DVD or VHS tape on the TV			195	0.00	0.00	0.00	0.00
	Work/ play/ surf on the <b>desktop</b>							

**Numbers version:**

PERSONAL ENERGY AUDIT 1	Hours Used	Repeated Use	Typical Wattage	kW*h/year	BTU/Year	Out of pocket cost/day or week	Out of pocket cost/year
<b>NOTES:</b>	How many hours do you do following things? If appliance is on all the time list 24 hours/day.	List number of appliances.	These values were found using a variety of Web pages and appliance manuals.	for daily use =(kW*h) X 365 For weekly use =(kW*h) X 52 (or number of weeks used)	for daily use =BTU X 365 For weekly use =BTU X 52 (or number of weeks used if seasonal)	Cost =(kW*h) x average rate (average rate is \$0.11 per kW*h)	Cost/year= Cost per day X 365 or Cost per week X 52 (or number of weeks used if seasonal)
Everyday Activities	Hours used DAILY	# of appliances being used	Typical Wattage	kW*h/year	BTU/Year	Out of pocket cost per day (cents)	Out of pocket cost per year (dollars)
<b>Entertainment</b>							
Watch TV			150	0.00	0.00	0.00	0.00
Charge your iPod/MP3 player			12	0.00	0.00	0.00	0.00
Charge hand-held video games (i.e. PSP or Nintendo DS)			50	0.00	0.00	0.00	0.00
Play video games (i.e. Xbox 360, Wii)			165	0.00	0.00	0.00	0.00
Watch a DVD or VHS tape on the TV			195	0.00	0.00	0.00	0.00

**Save your file.**

- d. From the top menu bar, select **File -> Save As...**
- e. Rename your file using the following format: **Audit\_intials**  
For example, if your name is Diana Prince, you would save your file as Audit\_DP
- f. As you work on your audit, remember to re-save your file several times.



**Step 2: Enter data in the energy audit spreadsheet.**

How much does it **cost** (\$\$) to watch TV 2 hours a day every day of the year?

- a. Enter **2** in the **Hours used DAILY** column (see arrow #1 below).
- b. Enter **1** in the **# of appliances being used** column (see arrow #2 below).
- c. Look at the amount it costs each year to watch TV for 2 hours a day on your spreadsheet (see arrow #3 below).

PERSONAL ENERGY AUDIT 1	Hours Used	Repeated Use	Typical Wattage	kW*h/year	BTU/Year	Out of pocket cost/day or week	Out of pocket cost/year
<b>NOTES:</b>	How many hours do you do following things? If appliance is on all the time list 24 hours/day.	List number of appliances.	These values were found using a variety of Web pages and appliance manuals.	for daily use =(kW*h) X 365 For weekly use =(kW*h) X 52 (or number of weeks used)	for daily use =BTU X 365 For weekly use =BTU X 52 (or number of weeks used if seasonal)	Cost =(kW*h) x average rate (average rate is \$0.11 per kW*h)	Cost/year= Cost per day X 365 or Cost per week X 52 (or number of weeks used if seasonal)
Everyday Activities	Hours used DAILY	# of appliances being used	Typical Wattage	kW*h/year	BTU/Year	Out of pocket cost per day (cents)	Out of pocket cost per year (dollars)
<b>Entertainment</b>							
Watch TV	2	1	150	109.50	373,592.63	0.03	12.05
Charge your iPod/MP3 player			12	0.00	0.00	0.00	0.00
Charge hand-held video games (i.e. PSP or Nintendo DS)			50	0.00	0.00	0.00	0.00
Play video games (i.e. Xbox 360, Wii)			165	0.00	0.00	0.00	0.00
Watch a DVD or VHS tape on the TV			195	0.00	0.00	0.00	0.00

How many **Kilowatt hours (kW\*h or kWh)** are used in a home that watches TV 2 hours per day on 3 different TVs?

d. Enter **3** in the **# of appliances being used** column (see arrow #1 below).

Notice that the amount of money changes in the **Out of pocket cost per year (dollars)** column (see arrow #3 below).

PERSONAL ENERGY AUDIT 1	Hours Used	Repeated Use	Typical Wattage	kW*h/year	BTU/Year	Out of pocket cost/day or week	Out of pocket cost/year
<b>NOTES:</b>	How many hours do you do following things? If appliance is on all the time list 24 hours/day.	List number of appliances.	These values were found using a variety of Web pages and appliance manuals.	for daily use = (kW*h) X 365 For weekly use = (kW*h) X 52 (or number of weeks used)	for daily use = BTU X 365 For weekly use = BTU X 52 (or number of weeks used if seasonal)	Cost = (kW*h) x average rate (average rate is \$0.11 per kW*h)	Cost/year = Cost per day X 365 or Cost per week X 52 (or number of weeks used if seasonal)
Everyday Activities	Hours used DAILY	# of appliances being used	Typical Wattage	kW*h/year	BTU/Year	Out of pocket cost per day (cents)	Out of pocket cost per year (dollars)
<b>Entertainment</b>							
Watch TV	2	3	150	328.50	1,120,777.89	0.10	36.14
Charge your iPod/MP3 player			12	0.00	0.00	0.00	0.00
Charge hand-held video games (i.e. PSP or Nintendo DS)			50	0.00	0.00	0.00	0.00
Play video games (i.e. Xbox 360, Wii)			165	0.00	0.00	0.00	0.00
Watch a DVD or VHS tape on the TV			195	0.00	0.00	0.00	0.00

How much does it cost (\$\$) to watch TV 2 hours a day on 3 different TVs in a home, annually?

Multiply **kW\*h per year** (see arrow #3) x the **electricity cost per kW\*h** found on your electric bill. The average **electricity cost** in the USA is **11 cents per kW\*h**.

$$328.50 \text{ kW*h} \times 0.11 \text{ cents} = \$36.14 \text{ out of pocket cost per year}$$

Our habit of watching 2 hours of TV on 3 different TVs costs us **\$36.14 each year** (see arrow #3).

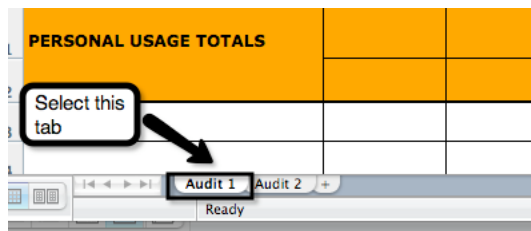


**Step 3: Complete the spreadsheet.**

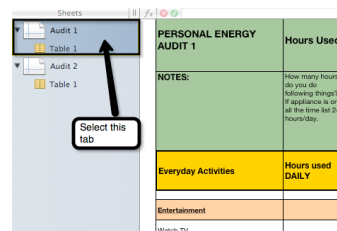
**General Instructions**


a. Be sure you are entering data in the sheet labeled **Audit 1**. Look the tabs on your spreadsheet.

**Excel version:**



**Numbers version:**



- b.  **Daily Average:** Some people complete activities in the daily section **a few times a week** rather than daily. Use the following formula if you do not do an “everyday activity” daily, but only a few times during the week.

$$\text{Daily Average} = \text{Hours used} / 7 \text{ days a week}$$

- For example: If you only charge your iPod a few hours a week you will need to figure out a daily average. For example, if you charge your iPod for 3 hours in a week, your daily average is  $3/7 = .43$  hours

- c.  **Time Increments:**

- Use the following **time increments for Column B** if you do not do an activity for a full hour.

**Time Increments**

<b>Minutes</b>	2 min.	5 min.	10 min.	15 min.	20 min.	30 min.	45 min.
<b>Hour equivalent</b>	.033	.083	.167	.25	.33	.5	.75


- Use the **Seasonal Equivalent Chart** for energy uses that you do not use year round to determine your entry for **Column B**.

$$\text{Seasonal Use Average} = \text{Hours used per day} \times \text{Seasonal Use Factor}$$

**Seasonal Use Equivalent Chart**

<b>Months used</b>	3 months	4 months	5 months	6 months	9 months	12 months
<b>Seasonal Use Factor</b>	1/4 or .25	1/3 or .33	5/12 or .42	1/2 or .5	3/4 or .75	No Change

- For example the air conditioner is always on in your house for 24 hours each day during 3 months of summer. Your **seasonal use average** is **24 hours X .25 = 6**  
In this example, you would enter 6 in **Column B**.

- d.  **Energy Vampire Alert:** Some appliances or chargers use energy when they are not actively charging or are in stand-by mode waiting be activated by a remote or sensor. If you see this icon please think about your current habits before you fill in your **hours used** or **repeated use** values.

- For example: If you keep your iPod or MP3 player plugged in even when it is completely charged you must count this as charging time. Appliances with chargers use electricity even if the battery is completely charged. If you leave the charger plugged in after the appliance is removed it also uses some electricity, although not as much.
- If your chargers or base stations remain plugged in all day, every day, **enter 24 hours in Column B**.