

Electrical Energy Use in the Home

The purpose of this activity is to determine the amount of electrical energy you and your family use in your home. Also, you will give some thought to a plan for reducing your energy use.

1. Bring in the most recent energy bill for your family or ask your parents to tell you the average amount they spend each month. Be as accurate as possible with this. You are trying to calculate monthly average of kilowatts used. If you don't have a bill, but know the monthly cost, calculate the kWh used as follows:

$$\text{kWh used} = \text{monthly cost (\$)} \times \frac{1 \text{ kWh}}{\$ 0.08}$$

2. Next, make a list of the specific uses of electricity in your home, starting with the highest user and ending with the lowest. Use Table 1 as a guide to help you. The annual kilowatt hour consumption is calculated using the equation:

$$\frac{\text{kWh}}{\text{y}} = \frac{\text{watts}}{\text{d}} \times \frac{\text{hours used}}{\text{d}} \times \frac{365 \text{ d}}{1 \text{ y}} \times \frac{1 \text{ kW}}{1000 \text{ W}}$$

Divide the answer by 12 to determine the monthly consumption. The annual cost is determined by multiplying the kWh used by the cost per kWh. The cost from NB Power is about \$0.08 per kWh.

Table 1

Appliance	Average wattage	Annual consumption (kWh)	Annual cost (\$)	Appliance	Average wattage	Annual consumption (kWh)	Annual cost (\$)
Air conditioner (room)	1566	1389	104.18	Lights	read wattage on bulbs		
Blanket, electric	177	147	11.03	Oven, microwave	1500	300	22.50
Blender	386	15	1.13	Oven, conventional	4800	1146	85.95
Car block heater	500			Oven, burner	12,000		
Clock	2	17	1.28	Radio	71	86	6.45
Clothes dryer	4856	993	74.48	Range	12,200	1175	88.13
Coffee maker	894	106	7.95	Refrigerator	615	1829	137.18
Computer (incl. monitor)	100			Shaver	14	1.8	0.14
Dehumidifier	257	377	28.28	Stereo	30		
Dishwasher	1201	363	27.23	Television	300	400	30.00
Fan (window)	200	170	12.75	Toaster	1146	39	2.93
Freezer (15 cu. ft.)	341	1195	89.63	Toothbrush	7	0.5	0.04
Frying pan, electric	1196	186	13.95	Vacuum cleaner	800		
Hair dryer	1000	14	1.05	Washing machine	512	103	7.73

Heater (portable)	1322	176	13.2	Water heater	2475	4219	316.43
Iron	1008	144	10.80				

3. Calculate the total consumption for the appliances in your home and determine the total average monthly consumption. Compare this to the kilowatt hours reported on your electric bill. How can you account for any differences?

Table 2 proportional Use of Energy

Energy Use	% of Use
Space heaters	30%
Refrigerator	24%
Miscellaneous	22%
Water heating	13%
Clothes dryers	6%
Stove	5%

4. Using Table 2 as a guide, develop a plan for your household to use 15% less energy next month.

- a) What kind of lifestyle change will be required to achieve your plan?
- b) Is your plan one that you think your family would adopt?
- c) How much money would be saved each month by your plan?