Plug Load Audit

In each building, there are many daily appliances, like modems and cell phone chargers that do not have "off" switches that in turn use energy when they are plugged in. These appliances use energy because electricity is needed to light the LCD displays, receive infrared beams from remote controls, and the like. This creates a "phantom power", which is estimated to waste about 50 watts per hour, for 24 hours a day.

One way to easily reduce your energy usage is through eliminating or decreasing plug loads. You can do this either by turning all devices that have plug loads off whenever you are not using them or by putting everything that has a plug load on a power strip and turning that off whenever you leave your room for long periods of time or go to sleep.

To measure your average energy usage from plug loads, we will look at many devices which you may use, which may have plug loads. On the first sheet, you will fill out how many watts each device uses and estimate how many hours you have this device turned on and turned off (for devices with plug loads) each month.

Meter Instructions:
To find the power consumption of each device, you will be using a 'Kill A Watt Meter'. Here are instructions for using the meter:

1. The LCD shows all meter readings: Volts, Current Watts, Frequency, Power Factor, and VA. The unit will start to accumulate kWh and powered duration time (hours) as soon as something is plugged into it.
    a. For this audit, you will not need to worry about volts, amps, VA, Hz, or PF.
2. Pressing the kWh button once shows the cumulative energy consumption when since power was applied to the unit. Pressing the key again shows the cumulative time since power was applied.
3. Consumption will be displayed in kWh (from 0.01 kWh to 9999 kWh). Time will initially be displayed as Hours:Minutes (from 00:00) and switch to hours (to 9999). Counters will go to 0 when they reach their maximum. To reset, remove power from the unit momentarily.

Audit Instructions:

1. Try and find the power consumption (watts) of each device listed somewhere on the device.
    a. Use the meter to check these numbers and see how accurate they are
2. Find the power consumption (watts) a device uses if it does not have a label
    a. Some devices, like a light bulb, use a relatively steady amount of energy. These will be easy to measure.
    b. Other devices, such as refrigerators and microwaves, use varying amounts of energy. For example, a refrigerator uses a very small amount of energy during most hours, but when the door is opened or the temperature falls, it will "turn on" and drastically increase the energy usage. To find averages for these devices, plug the monitor in for at least a day and use averages (with the kWh monitor function) to find the average amount of watts it uses.
    c. There will also be devices, such as cell phones, where the energy consumption is very low and may read 0, even though it may be using more than this. Leave these devices plugged into the meter for at least a day as well to calculate the averages.
3. Find the plug load for each device by plugging it in when it is "turned off."
    a. Plug loads may be very small and require the same methods for cell phones- leave it plugged in for at least a day and calculate averages.
4. Record all of these findings in the following sheets
5. Estimate the amount of hours you use each device per month
6. Make calculations

PLUG LOAD AUDIT WORKSHEET

Part Two: Plug Load Cost Analysis

1. Use the chart below to figure the current rate of use and current cost to run the plug loads in your room.

Current Plug Load Use & Cost

	A	B	C	D	E	F	G	H
Appliance/Device	**Wattage**	**# hrs. used per month *(hrs per day x 30 days)***	**Watts use Per month *(A x B)***	**kWh used per month *(C/1000)***	**Cost to run Per month *(D x electric rate per kWh)***	**# of items of this type**	**Total Cost *(E x F)***	**Can this device be eliminated?**
Desktop Computers (on)								
Hibernate/standby								
Laptop Computers (on)								
Hibernate/standby								
TVs (on)								
(when off)								
Printers (on/running)								
(when off)								
Microwave (on/running)								
(when not running)								
Cell phone (charging)								
(charger itself)								
Digital Clocks								
Electric Space Heater								
Phone								
Fans								
Other:								

PLUG LOAD AUDIT WORKSHEET

2. Estimate how many hours that the plug loads are on unnecessarily and could be turned off. Recalculate the cost of using the plug loads if the number of hours were reduced by this amount, using the chart below.

Adjusted Plug Load Use & Cost

	A	B	C	D	E	F	G	H
Appliance/Device	**Wattage**	**# hrs. used per month *(hrs per day x 30 days)***	**Watts use Per month *(A x B)***	**kWh used per month *(C/1000)***	**Cost to run Per month *(D x electric rate per kWh)***	**# of items of this type**	**Total Cost *(E x F)***	**Can this device be eliminated?**
Desktop Computers (on)								
Hibernate/standby								
Laptop Computers (on)								
Hibernate/standby								
TVs (on)								
(when off)								
Printers (on/running)								
(when off)								
Microwave (on/running)								
(when not running)								
Cell phone (charging)								
(charger itself)								
Digital Clocks								
Electric Space Heater								
Phone								
Fans								
Other:								