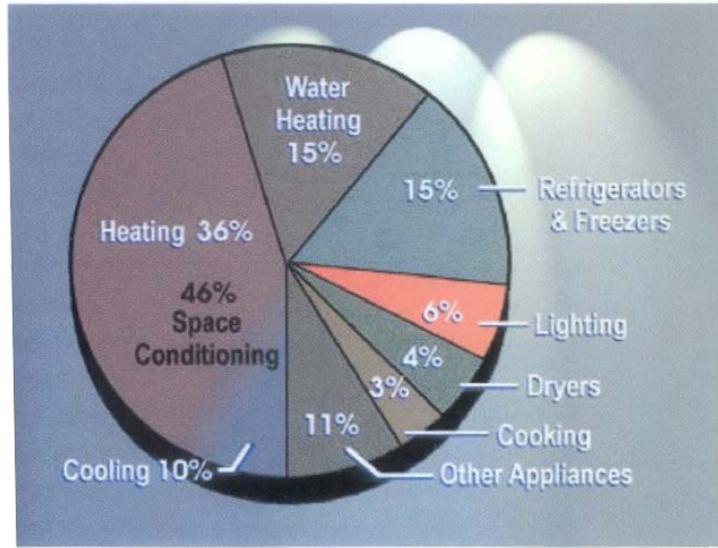


**Does your electric bill seem to be higher than usual? Here are some things to consider when evaluating your homes energy use.**



✓ WATER HEATER

Do you have an electric water heater? What is the temperature setting? Does it run a lot? Is it leaking? Is it putting out unusually hot water or cool water? The elements could need replacement. When the elements are bad, the water heater has to run more.

✓ SPACE HEATERS

Did you have an electric space heater running last month? How many and what size? They use a large amount of energy.

✓ WELL

Is your home on its own well? Leaking toilet valves, broken or damaged water lines, faulty pressure tank, pressure relay switch and well head failure are a few things that can cause high usage.

✓ REFRIGERATOR

Have you checked the coils on your refrigerator for dust accumulation? They may need a cleaning. Or is the refrigerator running a lot, it may need to be checked. What about that old freezer in the garage? It could be cycling longer or more frequently. It may be time to replace it.

✓ AIR CONDITIONING & HEATING

How do you heat your home? Electric resistance heating such as electric forced-air or electric baseboard heat can use a large amount of electricity. Do you have refrigerated air? Has it been serviced recently? Even evaporative coolers and window A/C units can cause high usage.

✓ FIREPLACE

Does your fireplace have a damper? Is the damper closed when fireplace is not in use; does it seal properly when closed?

✓ WOOD or PELLET STOVE

Wood or pellet stoves are often equipped with electric components such as blowers, igniters and augers.

✓ LIVESTOCK

Are you using stock tank heaters? Do you have heat lamps or barn lights? What about farm equipment such as diesel trucks or tractors with block heaters? All these can cause increased power usage.

✓ WATERBED

Do you have a waterbed? They can be a large user of electricity.

✓ SPA, HOT TUB

Most spas and hot tubs are equipped with high wattage heating components that can be large users of energy.

✓ POWER TOOLS

Have you been using power tools? Power saws, electric welders, air compressors, and other power tools have the potential of using a large amount of electricity.

**Often times we think nothing has changed with regards to our electric use. But the truth is things can change. Check it out for yourself with an easy to follow home energy evaluation.**

## Estimating energy use in your household

Electricity is measured in watt hours. 1000 watt hours are called a kilowatt hour or (kWh). You are billed by the amount of (kWh) you consume during a billing period.

Use this formula to estimate energy use:

Wattage  $\times$  Hours used per day  $\div$  1000 = kilowatt hour (kWh) consumption per day.

Let's use an electric space heater (1500 Watts) as an example.  
(1500 Watts)  $\times$  4 hours per day  $\div$  1000 = (6 kWh) per day  $\times$  30 days = (180 kWh) per month.

Then, calculate the cost to run an appliance by multiplying the total kWh by your local utility's rate per kWh consumed.

Most appliances and electronics have the wattage listed on the bottom, back, or on its nameplate. The wattage listed is the maximum power drawn by the appliance. Since many appliances have a range of settings, the actual amount of power consumed depends on the setting used at any one time.

Common household appliances use:

- Clothes washer = 350–500 Watts
- Clothes dryer = 1800–5000 Watts
- Dishwasher = 1200–2400 Watts (heat drying feature increases energy use)
- Electric Space Heater = 1000 – 1500 Watts
- Hair dryer = 1200–1875 Watts
- Microwave oven = 750–1100 Watts
- Personal computer
  - CPU - awake / asleep = 120 / 30 or less
  - Monitor - awake / asleep = 150 / 30 or less
  - Laptop = 50 Watts
- Refrigerator (18 cubic ft.) = 725 Watts
- Televisions
  - 27"/36" = 113/133 Watts
  - 53"-61" Projection = 170 Watts
  - Flat screen = 120 Watts
  - Plasma = 400 Watts
- Water heater (40 gallon) = 4500–5500 Watts

# Home Energy Evaluation Work Sheet

## Heating & Cooling-

What is the main heat source for your home?

Electric \_\_\_\_\_ Gas \_\_\_\_\_

Forced Air \_\_\_\_\_ Radiant In-Slab \_\_\_\_\_ Radiant Wall \_\_\_\_\_

Baseboard \_\_\_\_\_ Space heaters \_\_\_\_\_ Other \_\_\_\_\_

1. Gas heated homes can expect some electric use from electrical components and blower motor depending on motor amperage. However we will be looking primarily at electric heating units.
2. If your home has an Electric Heating system. Check the total wattage of the heating unit which should be listed on the unit itself. Electric Baseboard and Radiant Wall heating units should also have the wattage labeled
3. Calculate how many kilowatt hours (kWh) per hour of operation by dividing the total watts by 1000. For example: 4500 watts  $\div$  1000 = 4.5 kWh
4. By taking the total kWh x the total hours of operation per day you can calculate the total daily kWh usage. For example: 4.5 kWh x 6 hours of operation = 27 kWh per day.

Heating Unit wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)

Space Heater wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)

Total daily kWh usage \_\_\_\_\_ x the number of days in the month \_\_\_\_\_ x (kWh)  
x rate of \$0.132 = Total Heating Cost \$ \_\_\_\_\_

Total (kWh) Usage \_\_\_\_\_

# Home Energy Evaluation Work Sheet

## Heating & Cooling-

What type of cooling System do you have?

Evaporative Cooler \_\_\_\_\_ Central Air Conditioning \_\_\_\_\_

Window A/C units \_\_\_\_\_ Individual Rooms Cooled \_\_\_\_\_

1. Central air conditioning units like electric heating units should have the wattage listed on the (UL) plate. Some units may only list the amperage. To calculate the wattage, multiply the amperage by the voltage. For example 10 Amps x 240 volts = 2400 watts.
2. Plug in 110-120 volt window units will have the wattage listed on the unit in the same manner as a space heater.
3. Using the same calculations for (kWh) usage of electric heating units. Calculate the kWh usage of your A/C unit.
4. Evaporative Coolers use considerably less power than refrigerated air units but can still use 1000 watts or more. You may need to open the side panel of the cooler to find the wattage on the motor and the pump.

Total Central A/C unit wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)

Window A/C unit wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)

Evaporative Cooler unit wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)

Total daily kWh usage \_\_\_\_\_ x the number of days in the month \_\_\_\_\_ x (kWh)  
rate of \$0.132 = Total Cooling Cost \$ \_\_\_\_\_

Total (kWh) Usage \_\_\_\_\_

# Home Energy Evaluation Work Sheet

## Electric Water Heater-

Your electric water heater may have the annual kWh usage listed on the ENERGY GUIDE label on the side of the unit. Simply dividing the estimated annual kWh by 12 months can give you an idea of what your monthly usage is.

1. The element wattage for your electric water heater can be found on the name plate or (UL) plate located on the side of the unit.
2. Depending on the gallon capacity of the water heater there may be 1 or 2 elements.
3. The element wattage will be listed as upper and lower wattage. For example: Watts 4500-3800 upper, 4500-3800 lower.
4. The upper and lower elements work in conjunction with one another. A bad or burned element can cause the secondary element to run continually to compensate.
5. Elements should be checked for continuity. This may require a qualified contractor.
6. Water heater and water lines should be inspected for leaks. A leak can cause the water heater to operate harder to maintain temperature.
7. Water temperature should be set to 120 degrees or lower for optimal efficiency. Temperature dial can be found under the element cover.

Element wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)  
(Estimated)

Total daily kWh usage \_\_\_\_\_ x the number of days in the month \_\_\_\_\_ x (kWh)  
rate of \$0.132 = Total Water Heating Cost \$ \_\_\_\_\_

Total (kWh) Usage \_\_\_\_\_

# Home Energy Evaluation Work Sheet

## Appliances-

Refrigerators & Freezers- can be the culprit in increased energy usage.

1. Making sure that coils and air flow vents are clean and free of dust will help the unit to operate more efficiently.
2. Since refrigerators and freezers are designed to cycle as temperatures need to be met they are often overlooked as long as they are keeping things cold.
3. Older refrigerators and freezers may cycle longer or more frequent to maintain temperatures. This could be an indication of condenser failure or low refrigerant. This will cause increased kWh usage.

Refrigerator wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)  
Total combined (kWh) \_\_\_\_\_

Freezer wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total estimated hours of operation \_\_\_\_\_ x \_\_\_\_\_ kWh = \_\_\_\_\_ Daily (kWh)

Total daily kWh usage \_\_\_\_\_ x the number of days in the month \_\_\_\_\_ x (kWh)  
rate of \$0.132 = Total Monthly Cost \$ \_\_\_\_\_

Microwave Ovens- may not affect your kWh usage as much as other appliances since they are usually only operated for a few minutes at a time.

1. Wattage for your microwave can be found on the side or the back of the oven.

Microwave wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total estimated hours of operation \_\_\_\_\_ x \_\_\_\_\_ kWh = \_\_\_\_\_ Daily (kWh)

Total daily kWh usage \_\_\_\_\_ x the number of days in the month \_\_\_\_\_ x (kWh)  
rate of \$0.132 = Total Monthly Cost \$ \_\_\_\_\_

Total (kWh) Usage \_\_\_\_\_

# Home Energy Evaluation Work Sheet

## Appliances-

Washer & Dryers- require a large amount of electricity and can impact your electric bill especially in the case of multiple loads.

1. Most electric dryers are 230-240 volt and use between 3000 and 5000 watts of power. Wattage should be listed somewhere on the unit. This may require moving the dryer away from the wall.
2. Your washing machine is the less likely of the two for high usage since most washing machines run on 110 volts and use about 750 watts but when coupled with the dryer can certainly contribute to increased usage.

Dryer wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Washer wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)    Total combined (kWh)  
\_\_\_\_\_

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)

Total daily kWh usage \_\_\_\_\_ x the number of days of operation \_\_\_\_\_ x (kWh)  
rate of \$0.132 = Total Monthly Cost \$ \_\_\_\_\_

Electric Range & Cook Stoves- Like other 230-240 volt appliances require a large amount of power to operate but only account for about 3% of your total power use.

1. To find the wattage for your electric stove you may have to refer to the manufacturer's manual since it may be labeled on the back of the stove.

Electric Stove wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)

Total daily kWh usage \_\_\_\_\_ x the number of days of operation \_\_\_\_\_ x (kWh)  
rate of \$0.132 = Total Monthly Cost \$ \_\_\_\_\_

Total (kWh) Usage \_\_\_\_\_

## Home Energy Evaluation Work Sheet

### Appliances-

Dishwashers- like all major appliances can contribute to increased power usage especially during the dry cycle.

Dishwasher wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)

Total daily kWh usage \_\_\_\_\_ x the number of days of operation \_\_\_\_\_ x (kWh)  
rate of \$0.132 = Total Monthly Cost \$ \_\_\_\_\_

Small Kitchen Appliances- such as coffee makers, hot plates crock pots and toasters use electric resistant heat to heat coils and heating surfaces. Many can use as much as 1000 to 1500 watts.

Small appliance #1 wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)

Small appliance #2 wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ kWh

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)

Small appliance #3 wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ kWh

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)

Small appliance #4 wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)

Total (combined) daily kWh usage \_\_\_\_\_ x the number of days of operation \_\_\_\_\_ x (kWh) rate of \$0.132 = Total Monthly Cost \$ \_\_\_\_\_

Total (kWh) Usage\_\_\_\_\_

## **Home Energy Evaluation Work Sheet**

### **Well-**

Residential well pumps usually operate on a 230-240 volt system and can be a source of high electric usage especially in the event of broken lines or malfunctioning components.

1. Residential well pumps are usually equipped with a pressure tank and pressure relay switch that engages the pump when the tank pressure drops below the required PSI.
2. Underground leaks, broken lines or even a leaky toilet valve can cause a drop in pressure that will cause the pump motor to cycle on and off or run continually.
3. Even in the case where no visible leaks are detected a torn or ruptured bladder in the pressure tank can cause the pump to run continually to maintain pressure.
4. If your well pump seems to be running when no water has been used you may have a leak or malfunction that can cause a dramatic increase in power usage.

If you suspect a problem at your well pump turn off the well breaker and contact a qualified well expert.

# Home Energy Evaluation Work Sheet

## Miscellaneous-

Spa & Hot Tubs- are equipped with high wattage heating components that can be large users of energy.

1. Since spas and hot tubs must maintain temperatures often exceeding 100 degrees they require high wattage heating elements similar to an electric water heater.
2. The wattage should be listed on the UL nameplate near the power panel of the unit.

Element wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)  
(Estimated)

Total daily kWh usage \_\_\_\_\_ x the number of days in the month \_\_\_\_\_ x (kWh)  
rate of \$0.132 = Total Monthly Cost \$ \_\_\_\_\_

Livestock tank heaters- usually operate on 1000 to 1500 watts and are equipped with an internal thermostat that turns the heater on when water temperatures drop below about 40 degrees. Floating type heaters are usually lower wattage and may be more efficient to use since they only have to heat the surface of the water.

1. Wattage should be listed on the heater.

Element wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)  
(Estimated)

Total daily kWh usage \_\_\_\_\_ x the number of days in the month \_\_\_\_\_ x (kWh)  
rate of \$0.132 = Total Water Heating Cost \$ \_\_\_\_\_

Total (kWh) Usage \_\_\_\_\_

# Home Energy Evaluation Work Sheet

## Miscellaneous-

Engine Block Heaters- are often responsible for increased usage during cold months when diesel vehicles are plugged in

1. Most engine block heaters are 1000 watt heaters.
2. After market engine block heaters may have the wattage listed on the unit.

Wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)

Total daily kWh usage \_\_\_\_\_ x the number of days of operation \_\_\_\_\_ x (kWh)  
rate of \$0.132 = Total Monthly Cost \$\_\_\_\_\_

Power Tools- such as table saws, air compressors, welders and even electric hand tools that are used on a regular basis can cause increased power usage.

Power Tool #1 Wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)  
(Estimated)

Power Tool # 2 Wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)  
(Estimated)

Power Tool # 3 Wattage \_\_\_\_\_  $\div$  1000 = \_\_\_\_\_ (kWh)

Total hours of operation \_\_\_\_\_ x \_\_\_\_\_ (kWh) = \_\_\_\_\_ Daily (kWh)  
(Estimated)

Total daily kWh usage \_\_\_\_\_ x the number of days of operation \_\_\_\_\_ x (kWh)  
rate of \$0.132 = Total Monthly Cost \$\_\_\_\_\_

Total (kWh) Usage \_\_\_\_\_

# Home Energy Evaluation Work Sheet

## **Totaling up your kWh usage and power cost-**

To figure your estimated monthly (kWh) usage, add the Total kWh usage from each page.

Total daily (kWh) usage	_____
X	
Number of days of operation	_____
=	
Total (kWh) Usage	_____

To figure your estimated monthly cost, add the Total Monthly Cost from each page.

Total (kWh) Usage	_____
X	
General Service	
Rate \$0.132 per (kWh)	\$ <u>0.132</u>
=	
Total Monthly Cost	\$ _____