

## Energy Use of Some Typical Home Appliances

If you want a general estimate of how much electricity your home appliances consume, you can refer to the list below, which provides the energy consumption (Wattage) of some typical home appliances. If you have appliances that are not listed in the table, or desire a more exact figure based on a specific appliance in your home, use the following formula to estimate the amount of energy a specific appliance consumes:

$$\frac{\text{Wattage} \times \text{Hours Used per Day}}{1000} \\ = \text{Daily Kilowatt-hour (kWh) consumption}$$

Note: 1 kilowatt (kW) = 1,000 Watts

Multiply this by the number of days you use the appliance during the year for the annual consumption. You can then calculate the annual cost to run an appliance by multiplying the kWh per year by your local utility's rate per kWh consumed.

### ***For examples:***

*Window fan:*

$$\frac{200 \text{ Watts} \times 4 \text{ hours/day} \times 120 \text{ days/year}}{1000} \\ = 96 \text{ kWh} \times 8.5 \text{ Cents/kWh} \\ = \$8.16 \text{ /year}$$

*Personal Computer and Monitor:*

$$\frac{(120+150) \text{ Watts} \times 4 \text{ hours/day} \times 365 \text{ days/year}}{1000} \\ = 394 \text{ kWh} \times 8.5 \text{ Cents/kWh} \\ = \$33.51 \text{ /year}$$

You can usually find the wattage of most appliances stamped on the bottom or back of the appliance, or on its "nameplate." The wattage listed is the maximum power drawn by the appliance. Since many appliances have a range of settings (for example, the volume on a radio), the actual amount of power consumed depends on the setting used at any one time.

Here are some examples of the range of nameplate wattages for various household appliances:

Aquarium = 50-1210 Watts

Clock radio = 10

Coffee maker = 900-1200

Clothes washer = 350-500

Clothes dryer = 1800-5000

Dishwasher = 1200-2400 (using the drying feature greatly increases energy consumption)

Dehumidifier = 785

Electric blanket- *Single/Double* = 60 / 100

#### Fans

Ceiling = 65-175

Window = 55-250

Furnace = 750

Whole house = 240-750

Hair dryer = 1200-1875

Heater (*portable*) = 750-1500

Clothes Iron = 1000-1800

Microwave oven = 750-1100

#### Personal Computer

CPU - awake / asleep = 120 / 30 or less

Monitor - awake / asleep = 150 / 30 or less

Laptop = 50

Radio (*stereo*) = 70-400

Refrigerator (*frost-free, 16 cubic feet*) = 725

#### Televisions (colour)

19" = 65-110

27" = 113

36" = 133

53"-61" Projection = 170

Flat Screen = 120

Toaster = 800-1400

Toaster Oven = 1225

VCR/DVD = 17-21 / 20-25

Vacuum cleaner = 1000-1440

Water heater (*40 gallon*) = 4500-5500

Water pump (*deep well*) = 250-1100

Water bed (*w/ heater, no cover*) = 120-380

Refrigerators, although turned "on" all the time, actually cycle on and off at a rate that depends on a number of factors. These factors include how well it is insulated, room temperature, freezer temperature, how often the door is opened, if the coils are clean, if it is defrosted regularly, and the condition of the door seals.

To get an approximate figure for the number of hours that a refrigerator actually operates at its maximum wattage, divide the total time the refrigerator is plugged in by three.

If the wattage is not listed on the appliance, you can still estimate it by finding the current draw (in amperes) and multiplying that by the voltage used by the appliance.

The amperes might be stamped on the unit in place of the wattage.

If not, find a clamp-on ammeter—an electrician's tool that clamps around one of the two wires on the appliance—to measure the current flowing through it.

You can obtain this type of ammeter in stores that sell electrical and electronic equipment. Take a reading while the device is running; this is the actual amount of current being used at that instant.

Note: When measuring the current drawn by a *motor*, in the first second that the motor starts, the meter will show about three times the current than when it is running smoothly.

Also note that *many appliances continue to draw a small amount of power when they are switched "off."*

These "phantom loads" occur in most appliances that use electricity, such as VCRs, televisions, stereos, computers, and kitchen appliances.

Most phantom loads will increase the appliance's energy consumption a few watts per hour.

These loads can be avoided by unplugging the appliance or using a power strip and using the switch on the power strip to cut all power to the appliance.