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HEG78-94 Electrical Appliances and the
Energy Dollar

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Electrical Appliances and the Energy Dollar

This NebGuide contains information on the typical wattage of various home appliances.

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Living costs are at an all-time high. The purchase of electric appliances represents a fairly large expenditure in a family budget and the cost of electricity is increasing. There is no indication these costs will come down. So, if you are concerned about cutting expenses and choosing energy-efficient appliances, you will need to choose appliances carefully. Here are some questions to ask yourself to simplify the choice:

- Is this new appliance really necessary?
- Can the same task be performed manually and thus save energy for other uses?
- Will it use less energy than appliances I now have?
- Will a more expensive but energy-saving model be cheaper in the long run?
- Are optional energy-saving features available?
- Can optional features that increase energy consumption be eliminated?
- What is the life cycle cost of the appliance (purchase cost plus operating and upkeep cost)?

Other factors such as style, color, safety, initial price, ease of cleaning, construction, and capacity are also, of course, part of the decision.

Computing the cost of operating appliances may help you to:

- become more aware of the energy appliances use,
- consider ways of cutting appliance and energy use if your costs are beyond what you want to pay,
- do your part to conserve energy.

To compute the cost of operating appliances, you need this information:

- wattage rating for each appliance;
- average number of hours used per year or percentage of time used *if* unit cycles on and off (such as a thermostatically controlled appliance);
- cost of electricity per kilowatt hour (call your local supplier for this information).

The amount of electricity needed to run an appliance is measured in watts. The wattages shown in the

following Electricity Consumption Score Card are the average watts used per hour by each appliance. Your electric service bill is based on the number of kilowatt-hours (KWH) used. A kilowatt is 1,000 watts; a kilowatt hour is 1,000 watts used in one hour. To determine energy usage of an appliance (examples follow in the Electricity Consumption Score Card):

1. Look at the wattage rating carried on the serial plate attached to the appliance or check the appliance instruction book. This rating is the total number of watts consumed in one hour of use. If you own an older model that does not carry the wattage rating, multiply the voltage by the amp ratings, also found on the serial plate. This gives you the wattage rating of the appliance. (Column 2)
2. Estimate the average number of hours per year you will use the appliance. (Column 3)
3. Multiply the total hours by the wattage rating. Divide by 1,000 to determine the kilowatts consumed per year. (Column 4)
4. Multiply by the cost per kilowatt. Fuel adjustment and taxes are additional. (Column 5) Four cents per KWH was used for examples.

To summarize:

$$W \text{ (watts)} = V \text{ (volts)} \times A \text{ (amperes)}$$

$$1000 \text{ W (watts)} = 1 \text{ KW (kilowatt)}$$

$$1 \text{ KW} \times 1 \text{ hr} = 1 \text{ KWH}$$

$$\text{KWH} \times \text{rate} = \text{cost of operation}$$

For example, *if* your coffee maker is rated like the one on the chart (894 watts), *if* you normally use your coffee maker less than a half hour a day, and *if* your rate is 4 cents per KWH, your yearly cost would be:

$$894 \text{ watts} \times 119 \text{ hours per year divided by } 1,000 = 106 \text{ KWH}$$

$$106 \text{ KWH} \times \$0.04 = \$4.24 \text{ (cost of operating coffee pot one year)}$$

For example, if you want a new clothes dryer, check the serial plate of the models you like. If the wattage rating of one model is 4,856 watts, and you estimate you will use the dryer about four hours a week, your energy usage will be 995 KWH per year. Example: Clothes Dryer--wattage rating:

$$4,856 \text{ watts} \times 205 \text{ hours per year divided by } 1000 = 995 \text{ KWH per year.}$$

$$995 \text{ KWH} \times \$0.04 = \$39.80 \text{ per year.}$$

Energy Efficiency Rating labeling is now being used with some large appliances (example, room air conditioners, refrigerators, freezers). This label indicates energy consumption and relative efficiency in comparison with other directly competitive models. Where practical, energy cost is also shown. Ask to see these labels when shopping.

This electricity consumption score card shows the typical wattage of various appliances families use. These figures are taken from a variety of sources and are estimates only. The actual amount of energy used by any one appliance will vary significantly depending on the size of the appliance, how much it is used and geographical area of use.

Electricity Consumption Score Card

| Appliances | Average Wattage | Average Hours per year | Est. KWH Used/Year | Cost Per Year (at 4 cents) |
|--|-----------------|------------------------|--------------------|----------------------------|
| Comfort/Conditioning | | | | |
| Air Cleaner | 50 | 4320 | 216 | 8.64 |
| Air Conditioner* | 860 | 1000 | 860 | 34.40 |
| Air Conditioner* | 3,750 | 1000 | 3750 | 150.00 |
| Blanket | 177 | 831 | 147 | 5.88 |
| Dehumidifier | 257 | 1467 | 377 | 15.08 |
| Fan, Attic | 370 | 786 | 291 | 11.64 |
| Fan, Circulating | 88 | 489 | 43 | 1.72 |
| Fan, Rollaway | 171 | 807 | 138 | 5.52 |
| Fan, Window | 200 | 850 | 170 | 6.80 |
| Heat Lamp (infrared) | 250 | 52 | 13 | .52 |
| Heating Pad | 65 | 154 | 10 | .40 |
| Humidifier | 177 | 921 | 163 | 6.52 |
| Space Heater--portable | 1,322 | 133 | 176 | 7.04 |
| Lighting Fixtures (when figuring, do each light fixture separately--then add together. Lighting is said to account for one-fifth to one-fourth of the average electric bill. | 40 to 300 | | | |
| Food Preparation | | | | |
| Blender | 386 | 39 | 15 | .60 |
| Broiler | 1,436 | 70 | 100 | 4.00 |
| Coffee Maker | 894 | 119 | 106 | 4.24 |
| Deep Fryer | 1,448 | 57 | 83 | 3.32 |
| Dishwasher | 1,201 | 302 | 363 | 14.52 |
| Disposer, waste-garbage | 445 | 67 | 30 | 1.20 |
| Egg Cooker | 516 | 27 | 14 | .56 |
| Fry pan** | 1,196 | 155 | 186 | 7.44 |
| Knife, Slicing | 92 | 87 | 8 | .32 |
| Microwave Oven | 1,450 | 131 | 190 | 7.60 |
| Mixer | 127 | 102 | 13 | .52 |
| Range with oven | 12,200 | 96 | 1171 | 46.84 |

| | | | | |
|-------------------------------|--------|------|------|-------|
| Range with self-cleaning oven | 12,200 | 99 | 1208 | 48.32 |
| 6" unit, high setting*** | 1,400 | | | |
| 8" unit, high setting*** | 2,600 | | | |
| Oven built-in | 6,000 | | | |
| Roaster | 1,333 | 154 | 205 | 8.20 |
| Sandwich Grill | 1,161 | 28 | 33 | 1.32 |
| Toaster | 1,146 | 34 | 39 | 1.56 |
| Waffle Iron | 1,116 | 20 | 22 | .88 |
| Food Preservation | | | | |
| Freezer | | | | |
| ---15 cu ft upright | 341 | 3504 | 1195 | 47.80 |
| ---15 cu ft upright frostless | 440 | 4002 | 1761 | 70.44 |
| Refrigerator | | | | |
| ---12 cu ft | 241 | 3021 | 728 | 29.12 |
| ---12 cu ft frostless | 321 | 3791 | 1217 | 48.68 |
| Refrigerator-freezer | | | | |
| ---14 cu ft | 326 | 3488 | 1137 | 45.48 |
| ---14 cu ft frostless | 615 | 2974 | 1829 | 73.16 |
| Health and Beauty | | | | |
| Curling Iron | 40 | 50 | 2 | .08 |
| Hair Dryer | 750 | 51 | 38 | 1.52 |
| Shaver | 14 | 129 | 2 | .08 |
| Sunlamp | 279 | 57 | 16 | .64 |
| Tooth brush | 7 | 71 | 0.5 | .02 |
| Vibrator | 40 | 50 | 2 | .08 |
| Home Entertainment | | | | |
| Radio | 71 | 1211 | 86 | 3.44 |
| Radio-Record Player | 109 | 1000 | 109 | 4.36 |
| Television | | | | |
| ---Black-White | | | | |
| -----Tube | 160 | 2188 | 350 | 14.00 |
| -----Solid State | 55 | 2182 | 120 | 4.80 |
| ---Color | | | | |
| -----Tube | 300 | 2200 | 660 | 26.40 |
| -----Solid State | 200 | 2200 | 440 | 17.60 |

| Housewares | | | | |
|---|-------|------|------|--------|
| Clock | 2 | 8760 | 17 | .68 |
| Floor Polisher | 305 | 49 | 15 | .60 |
| Garage Door Opener | 350 | 30 | 10 | .40 |
| Garden tools | | | | |
| ---edger | 190 | 10 | 2 | .08 |
| ---hedge trimmer | 265 | 16 | 4 | .16 |
| Hot plate | 1,257 | 72 | 90 | 3.60 |
| Sewing Machine | 75 | 147 | 11 | .44 |
| Trash Compactor | 1,380 | 24 | 33 | 1.32 |
| Vacuum Cleaner | 630 | 73 | 46 | 1.84 |
| Laundry | | | | |
| Clothes Dryer | 4,856 | 205 | 995 | 39.80 |
| Iron (hand) | 1,008 | 143 | 144 | 5.76 |
| Washing machine (automatic) (2500 KWH/year including energy used to heat water) | 512 | 208 | 107 | 4.28 |
| Washing machine (non-automatic) (2497 KWH/year including energy used to heat water) | 286 | 266 | 76 | 3.04 |
| Water Heater | 4,474 | 1075 | 4811 | 192.44 |
| *Based on 1000 hours of operation per year. This figure will vary widely depending on geographical area and specific size of unit. | | | | |
| **Thermostatically controlled units cycle on and off. Estimates of "hours of use" are based on the time the heat element is "on" and will be less than actual switch-on time. | | | | |
| ***Number of hours used varies widely. | | | | |

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