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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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