

# appliance energy costs

operating costs for major  
household appliances



## taking responsibility

As an individual, your efficient use of energy brings benefits such as lower bills, improved comfort levels in your home and a reduced personal impact on the environment.

Acting together, our individual choices add up—for the benefit of our community, our environment and our energy future. That's the power of working together.

As your community energy company, we are committed to sharing our experience and energy expertise. You can always contact us for:

- Answers to your energy questions.
- Energy efficiency information and advice.
- Help in evaluating energy-saving options.
- Assistance in finding energy-efficient products.

# How much do your appliances cost to operate?

Some appliances cost little to operate. Some cost a lot. The graph on the next page gives typical monthly costs. It helps to determine which appliances deserve energy-saving efforts.

Use this brochure to make energy decisions. Compare operating costs of a microwave and the oven or a whole house fan and central air conditioner. Make informed appliance choices.

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## Typical monthly costs\*

**(Excluding home heating and cooling.)**

■ Electric Appliances  
 ■ Gas Appliances

Clothes dryer (electric)

\$13.31 

Clothes dryer (gas)

\$4.00 

Clothes washer (ENERGY STAR®, water heated by gas)

\$1.84 

Clothes washer (typical, water heated by gas)

\$6.76 

Dehumidifier

\$24.10 

Freezer

\$7.34 


Lighting

\$11.41 

Microwave oven (20 minutes/day)

\$1.71 

Range (electric)

\$5.52 

Range (gas, with pilot light)

\$6.65 

Range (gas, without pilot light)

\$2.92 

Refrigerator

\$8.10 

Television (27")

\$2.00 

Television - Plasma (42")

\$6.35 

Water heater (electric, .86 energy factor)

\$55.25 

Water heater (electric, .93 energy factor)

\$51.09 

Water heater (gas, .54 energy factor)

\$28.75 

Water heater (gas, .61 energy factor)

\$25.00 

\*Based on a four-person household:  
 Average electric rate of \$.13/kWh  
 Average gas rate of \$1.25/therm  
 Average hot water use 64.3 gallons/day

# How to use this brochure

## Get your utility rate

Find your rates by adding components from your MGE bill.

For natural gas add the rates for therms used:

- Distribution Service
- Administrative Charge
- Natural Gas Service

For electricity add the rates for kWh used:

- Distribution Service
- Electricity Service

The energy prices in this brochure are not a prediction of future costs/ rates. This range of gas and electric rates is provided to cover possible fluctuations in energy prices mainly due to volatility of natural gas costs. Natural gas is traded on a national commodity exchange and its costs are affected by supply and demand.

## Find the average cost of using appliances

- Gas appliance tables, pages 5 to 6
- Electric appliance tables, pages 7 to 19

The tables are grouped by use or room, then divided between big energy users and medium to small energy users.

## Estimated monthly costs for big energy users

Big energy users cost the most to operate. Use these appliances wisely to lower monthly bills.

Find the average amount of electricity used each month in the kWh/month column. It's based on average-size appliances and average monthly use.

Many big energy users are controlled by a thermostat. They turn on and off automatically. Energy use is estimated with an average amount of “on” time.

### **Cost per hour for medium to small energy users**

The cost per hour of operation is given for appliances that use medium to small amounts of energy.

Find the column that is closest to the electric or gas rate you pay. Use this column to find the hourly cost of operation. Multiply the cost per hour by the number of hours per month the appliance is used. This is the monthly cost.

### **Figuring operating costs**

Have an appliance that’s not listed? Calculate the operating cost or borrow a portable energy meter from the library.

#### **Gas appliances**

Divide the Btu rating by 100,000. This is the number of therms used in one hour of operation. Multiply by the rate per therm (see page 3, Get your utility rate) and by the number of hours the appliance is used.

$$\text{Cost of operation} = \frac{\text{Btus}}{100,000} \times \text{rate/therm} \times \text{hours used}$$

**For example:** A gas clothes dryer uses 20,000 Btus per hour. Estimate that it runs one hour per load. How much does it cost to dry one load?

$$\text{Cost of operation} = \frac{20,000}{100,000} \times \$1.25/\text{therm} \times 1 = \$.25$$

## Electric appliances

Find the wattage of the appliance. It may be stamped on the back or bottom. Divide the wattage by 1,000 to get the kilowatts used per hour. Multiply this by the rate per kilowatt-hour (see page 3, Get your utility rate) and by the number of hours the appliance is used.

$$\text{Cost of operation} = \frac{\text{Wattage}}{1,000} \times \text{rate/kWh} \times \text{hours used}$$

Some appliances cycle on and off automatically, using energy only when they are on. To figure their energy use, estimate the amount of time they use energy.

**For example:** The dehumidifier uses 620 watts. Estimate that it runs 10 hours a day. How much does it cost to run the dehumidifier per day?

$$\text{Cost of operation} = \frac{620}{1,000} \times \$ .13 \times 10 = \$.81$$

Some appliances list only amperage and volts. They may be stamped on the back or bottom. If it plugs into a standard outlet, it's a 120 volt appliance. Use amperage multiplied by volts to figure the operating cost.

$$\text{Cost of operation} = \frac{\text{Amperage} \times \text{volts}}{1,000} \times \text{rate/kWh} \times \text{hours used}$$

Caution: Using this formula usually overestimates operating costs.

## Portable Energy Meter

For the most accurate electric appliance operating cost, borrow a portable energy meter. Accurate and easy to use, this tool has helped hundreds of individuals save energy and make appliance decisions. It may be reserved for checkout through all public libraries in the South Central Library System.

## Gas Appliances

### Big energy users

|                | Btu/hour | Monthly cost estimate<br>(rates per therm) |        |        |
|----------------|----------|--|--------|--------|
|                |          | \$1.25                                     | \$1.50 | \$1.75 |
| Clothes dryer* | 20,000   | \$4.00                                     | \$4.80 | \$5.60 |

\*Approximate therm/load = 0.1 and average use = 32 loads per month.

### Medium to small energy users

|                         | Btu/hour | Hourly cost estimate<br>(rates per therm) |        |        |
|-------------------------|----------|---|--------|--------|
|                         |          | \$1.25                                    | \$1.50 | \$1.75 |
| Gas fireplace (sealed)  | 18,000   | 0.225                                     | 0.270  | 0.315  |
|                         | 30,000   | 0.375                                     | 0.450  | 0.525  |
|                         | 45,000   | 0.563                                     | 0.675  | 0.788  |
| Gas log set             | 50,000   | 0.625                                     | 0.750  | 0.875  |
|                         | 75,000   | 0.938                                     | 1.125  | 1.313  |
| Grill                   | 27,000   | 0.338                                     | 0.405  | 0.473  |
| Outdoor gas light       | 2,000    | 0.025                                     | 0.030  | 0.035  |
| <b>Range:</b>           |          |   |        |        |
| Surface unit            | 9,000    | 0.113                                     | 0.135  | 0.158  |
| Oven, bake-broiler unit | 25,000   | 0.313                                     | 0.375  | 0.438  |
| Broil unit              | 20,000   | 0.250                                     | 0.300  | 0.350  |
| Pilot light             | 400      | 0.005                                     | 0.006  | 0.007  |
| Swimming pool heater    | 200,000  | 2.500                                     | 3.000  | 3.500  |
| <b>Pilot lights:</b>    |          |   |        |        |
| Dryer                   | 300      | 0.004                                     | 0.005  | 0.005  |
| Range                   | 400      | 0.005                                     | 0.006  | 0.007  |
| Furnace                 | 1,000    | 0.013                                     | 0.015  | 0.018  |
| <b>Water heater:</b>    |          |   |        |        |
| Standard gas            | 750      | 0.009                                     | 0.011  | 0.013  |
| Efficient gas           | 400      | 0.005                                     | 0.006  | 0.007  |



## Gas Water Heater

Estimated hot water costs

|  | Btu/hour | Average use*   | Approx. therms/month | Monthly cost estimate (rates per therm) |        |        |
|--|----------|----------------|----------------------|---|--------|--------|
|  |          |                |                      | \$1.25                                  | \$1.50 | \$1.75 |
| Typical - since 1990 (Energy Factor = .54)                           | 40,000   | 64.3 gals./day | 23.0                 | 28.75                                   | 34.50  | 40.25  |
| High efficiency (Energy Factor = .61)                                | 40,000   | 64.3 gals./day | 20.0                 | 25.00                                   | 30.00  | 35.00  |
| Demand - tankless water heater, no pilot light (Energy Factor = .82) | 180,000  | 64.3 gals./day | 15.0                 | 18.75                                   | 22.50  | 26.25  |
| Pilot light  | 400      | Continuous     | 2.9                  | 3.63                                    | 4.35   | 5.08   |

\*Based on a household of four.

| Cost per use                 | Therms per use | Cost per use (rates per therm) |        |        |
|------------------------------|----------------|--------------------------------|--------|--------|
|                              |                | \$1.25                         | \$1.50 | \$1.75 |
| Dishwasher (ENERGY STAR)     | 0.037          | 0.05                           | 0.06   | 0.06   |
| Dishwasher (typical)         | 0.051          | 0.06                           | 0.08   | 0.09   |
| Clothes washer (ENERGY STAR) | 0.046          | 0.06                           | 0.07   | 0.08   |
| Clothes washer (typical)     | 0.169          | 0.21                           | 0.25   | 0.30   |
| Shower                       | 0.110          | 0.14                           | 0.17   | 0.19   |
| Tub bath                     | 0.165          | 0.21                           | 0.25   | 0.29   |

Note: Based on standard gas water heater, Energy Factor = .54. Electricity cost per load of dishes is about 10 cents. Electricity cost per load of clothes is about 2 cents. These costs are in addition to the cost of gas for heating water.

## Air Conditioning

Central air conditioner - Estimated seasonal cost

|  | Size (tons)** |       |       |       |       |
|--|---------------|-------|-------|-------|-------|
|  | 1.5           | 2     | 2.5   | 3     | 3.5   |
| 8.0 SEER*<br>(typical pre 1992)                          | \$102         | \$137 | \$171 | \$205 | \$239 |
| 10.0 SEER<br>(least efficient allowed after 1992)        | 82            | 109   | 137   | 164   | 191   |
| 11.0 SEER  | 74            | 99    | 124   | 149   | 174   |
| 12.0 SEER  | 68            | 91    | 114   | 137   | 159   |
| 13.0 SEER<br>(least efficient allowed after 2006)        | 63            | 84    | 105   | 126   | 147   |
| 14.5 SEER<br>(ENERGY STAR minimum efficiency after 2008) | 56            | 75    | 94    | 113   | 132   |
| 15.0 SEER  | 55            | 73    | 91    | 109   | 127   |
| 16.0 SEER  | 51            | 68    | 85    | 102   | 119   |

\*Seasonal energy efficiency rating (SEER) compares air conditioners over an entire cooling season. Costs are for 325 hours of operation at \$0.14 per kWh.

\*\*Expressed in tons (one ton equals 12,000 Btus/hour).

Note: A typical central air conditioner costs between 20 and 60 cents per hour of operation.

Room air conditioner - Estimated seasonal cost

|   | Size<br>(Btus per hour) |        |
|---|-------------------------|--------|
|   | 8,000                   | 12,000 |
| 8.0 EER* (typical pre-1990)               | \$45                    | \$68   |
| 9.7 EER (least efficient after 2000)      | 37                      | 56     |
| 10.7 EER (ENERGY STAR minimum efficiency) | 34                      | 51     |

\*Energy efficiency rating (EER) compares air conditioners under continuous operation. Costs are for 325 hours of operation at \$0.14 per kWh.

Note: A typical room air conditioner costs between 10 and 20 cents per hour of operation.

## Home Comfort/Ventilation

|                                  | Typical wattage | Cost per hour of operation at the following rates (per kWh) |          |          |
|----------------------------------|-----------------|---|----------|----------|
|                                  |                 | \$.13   | \$.14    | \$.15    |
| Air-to-air heat exchanger        | 55              | \$0.0072  | \$0.0077 | \$0.0083 |
|                                  | 200             | 0.0260  | 0.0280   | 0.0300   |
| Electronic fireplace             | 1,500           | 0.1950  | 0.2100   | 0.2250   |
| Electronic air cleaner           | 100             | 0.0130  | 0.0140   | 0.0150   |
| <b>Fans:</b>                     |                 |   |          |          |
| Attic                            | 375             | 0.0488  | 0.0525   | 0.0563   |
| Bathroom exhaust                 | 60              | 0.0078  | 0.0084   | 0.0090   |
| Ceiling                          | 100             | 0.0130  | 0.0140   | 0.0150   |
| <b>Furnace:*</b>                 |                 |   |          |          |
| With efficient fan motor         | 250             | 0.0325  | 0.0350   | 0.0375   |
| With standard fan motor          | 500             | 0.0650  | 0.0700   | 0.0750   |
| Kitchen range hood               | 250             | 0.0325  | 0.0350   | 0.0375   |
| 20" to 24" window                | 200             | 0.0260  | 0.0280   | 0.0300   |
| Oscillating                      | 88              | 0.0114  | 0.0123   | 0.0132   |
| 24" whole house                  | 390             | 0.0507  | 0.0546   | 0.0585   |
| 30" whole house                  | 575             | 0.0748  | 0.0805   | 0.0863   |
| <b>Heater:</b>                   |                 |   |          |          |
| Portable space heater            | 1,500           | 0.1950  | 0.2100   | 0.2250   |
| 4-foot electric baseboard heater | 1,000           | 0.1300  | 0.1400   | 0.1500   |
| <b>Humidifier:</b>               |                 |   |          |          |
| Portable                         | 88              | 0.0114  | 0.0123   | 0.0132   |
| Furnace                          | 115             | 0.0150  | 0.0161   | 0.0173   |
| <b>Vaporizer:</b>                |                 |   |          |          |
| Steam                            | 420             | 0.0546  | 0.0588   | 0.0630   |
| Cool spray                       | 60              | 0.0078  | 0.0084   | 0.0090   |
| Whole house exhaust system       | 75              | 0.0098  | 0.0105   | 0.0113   |

\*Typical furnace fan runs about 1,000 hours per heating season and 400 hours per cooling season.

|                          | kWh/month | Estimated monthly cost at the following rates (per kWh) |         |         |
|--------------------------|-----------|---|---------|---------|
|                          |           | \$.13   | \$.14   | \$.15   |
| <b>Dehumidifier:</b>     |           |   |         |         |
| Typical dehumidifier     | 194       | \$25.22   | \$27.16 | \$29.10 |
| ENERGY STAR dehumidifier | 163       | 21.19   | 22.82   | 24.45   |

## Home Entertainment/Office

Medium to small energy users

|                             | Typical wattage | Cost per hour of operation at the following rates (per kWh) |          |          |
|-----------------------------|-----------------|---|----------|----------|
|                             |                 | \$.13   | \$.14    | \$.15    |
| Cable box converter         | 25              | \$0.0033  | \$0.0035 | \$0.0038 |
| <b>Computer (desktop):</b>  |                 |   |          |          |
| With CRT monitor            | 135             | 0.0176  | 0.0189   | 0.0203   |
| With LCD monitor            | 100             | 0.0130  | 0.0140   | 0.0150   |
| In standby mode             | 5               | 0.0007  | 0.0007   | 0.0008   |
| <b>Computer (laptop):</b>   |                 |   |          |          |
| With LCD monitor            | 20              | 0.0026  | 0.0028   | 0.0030   |
| <b>Computer printers:</b>   |                 |   |          |          |
| Ink jet (3 ppm*):           |                 |   |          |          |
| Idling                      | 10              | 0.0013  | 0.0014   | 0.0015   |
| Printing                    | 19              | 0.0025  | 0.0027   | 0.0029   |
| Laser (4 ppm*):             |                 |   |          |          |
| Idling                      | 48              | 0.0062  | 0.0067   | 0.0072   |
| Printing                    | 175             | 0.0228  | 0.0245   | 0.0263   |
| Laser (8 ppm*):             |                 |   |          |          |
| Idling                      | 88              | 0.0114  | 0.0123   | 0.0132   |
| Printing                    | 275             | 0.0358  | 0.0385   | 0.0413   |
| <b>Fax machine (laser):</b> |                 |   |          |          |
| Standby                     | 45              | 0.0059  | 0.0063   | 0.0068   |
| Active                      | 400             | 0.0520  | 0.0560   | 0.0600   |
| Radio                       | 15              | 0.0020  | 0.0021   | 0.0023   |
| Stereo                      | 60              | 0.0078  | 0.0084   | 0.0090   |
| <b>Fish aquarium:</b>       |                 |   |          |          |
| Filter                      | 10              | 0.0013  | 0.0014   | 0.0015   |
| Heater                      | 100             | 0.0130  | 0.0140   | 0.0150   |
| Pump                        | 10              | 0.0013  | 0.0014   | 0.0015   |
| <b>Television:**</b>        |                 |   |          |          |
| 27" conventional            | 75              | 0.0098  | 0.0105   | 0.0113   |
| 42" plasma                  | 240             | 0.0312  | 0.0336   | 0.0360   |
| 42" LCD                     | 150             | 0.0195  | 0.0210   | 0.0225   |
| Digital video recorder      | 30              | 0.0039  | 0.0042   | 0.0045   |
| Video game system           | 160             | 0.0208  | 0.0224   | 0.0240   |

\*Pages per minute.

\*\*High-definition televisions use more.

## Kitchen

### Big energy users

| <b>Dishwasher</b>  | kWh/use | Estimated cost per load at the following rates (per kWh) |       |       |
|--|---------|--|-------|-------|
|  |         | \$.13  | \$.14 | \$.15 |
| Typical dishwasher including electricity to heat water     | 5/load  | 0.65   | 0.70  | 0.75  |
| ENERGY STAR dishwasher including electricity to heat water | 2/load  | 0.31   | 0.34  | 0.36  |

| <b>Range</b>       | Typical wattage | Estimated cost per hour at the following rates (per kWh) |       |       |
|--------------------|-----------------|--|-------|-------|
|                    |                 | \$.13  | \$.14 | \$.15 |
| Small surface unit | 1,300           | 0.17   | 0.18  | 0.20  |
| Large surface unit | 2,400           | 0.31   | 0.34  | 0.36  |
| Oven bake unit     | 3,200           | 0.42   | 0.45  | 0.48  |
| Broil unit         | 3,600           | 0.47   | 0.50  | 0.54  |
| Self-cleaning      | 4,000           | 0.52   | 0.56  | 0.60  |

| <b>Refrigerator</b>  | kWh/month | Estimated monthly cost at the following rates (per kWh) |       |       |
|--|-----------|---|-------|-------|
|  |           | \$.13   | \$.14 | \$.15 |
| Top freezer - 18.5 to 20.4 cubic foot (bottom freezer models use about the same amount): |           |   |       |       |
| July 2001 or newer (ENERGY STAR models)  | 37        | 4.81  | 5.18  | 5.55  |
| 1993 to June 2001  | 58        | 7.54  | 8.12  | 8.70  |
| 1990 to 1993   | 82        | 10.66   | 11.48 | 12.30 |
| Older than 1990  | 100       | 13.00   | 14.00 | 15.00 |
| Side-by-Side - 21.5 to 22.4 cubic foot:  |           |   |       |       |
| July 2001 or newer (ENERGY STAR models)  | 51        | 6.63  | 7.14  | 7.65  |
| 1993 to June 2001  | 71        | 9.23  | 9.94  | 10.65 |
| 1990 to 1993   | 110       | 14.30   | 15.40 | 16.50 |
| Older than 1990  | 135       | 17.55   | 18.90 | 20.25 |
| Compact - 1.7 to 6.0 cubic foot - manual defrost:  |           |   |       |       |
| Conventional   | 32        | 4.16  | 4.48  | 4.80  |
| ENERGY STAR  | 26        | 3.38  | 3.64  | 3.90  |

Note: Ice makers will increase operating costs by 15% to 20%. Through-the-door ice and water dispensers will add another 10% to 15% to operating costs. Each cubic foot larger adds about 25 kWh per year.

## Kitchen

### Big energy users (continued)

| Freezer   | kWh/<br>month | Estimated monthly cost at the following rates (per kWh) |       |       |
|---|---------------|---|-------|-------|
|   |               | \$.13   | \$.14 | \$.15 |
| <b>Chest freezer - 12 cubic foot (approx.):</b>           |               |   |       |       |
| July 2001 or newer (ENERGY STAR models)                   | 25            | 3.25  | 3.50  | 3.75  |
| 1993 to June 2001   | 31            | 4.03  | 4.34  | 4.65  |
| 1990 to 1993  | 54            | 7.02  | 7.56  | 8.10  |
| Older than 1990   | 83            | 10.79   | 11.62 | 12.45 |
| <b>Upright - 15 cubic foot (approx.), manual defrost:</b> |               |   |       |       |
| July 2001 or newer (ENERGY STAR models)                   | 36            | 4.68  | 5.04  | 5.40  |
| 1993 to June 2001   | 45            | 5.85  | 6.30  | 6.75  |
| 1990 to 1993  | 59            | 7.67  | 8.26  | 8.85  |
| Older than 1990   | 97            | 12.61   | 13.58 | 14.55 |

Note: Auto defrost increases operating costs by about 60%. Each cubic foot larger adds about 15 kWh per year.

### Medium to small energy users

|                             | Typical wattage | Cost per hour of operation at the following rates (per kWh) |          |          |
|-----------------------------|-----------------|---|----------|----------|
|                             |                 | \$.13   | \$.14    | \$.15    |
| Blender                     | 400             | \$0.0520  | \$0.0560 | \$0.0600 |
| Broiler                     | 1,500           | 0.1950  | 0.2100   | 0.2250   |
| <b>Coffee maker (drip):</b> |                 |   |          |          |
| 2 to 10 cups                | 1,400           | 0.1820  | 0.1960   | 0.2100   |
| <b>Coffee percolator:</b>   |                 |   |          |          |
| 5 to 12 cups                | 600             | 0.0780  | 0.0840   | 0.0900   |
| 12 to 36 cups               | 1,090           | 0.1417  | 0.1526   | 0.1635   |
| 25 to 100 cups              | 1,500           | 0.1950  | 0.2100   | 0.2250   |
| <b>Corn popper:</b>         |                 |   |          |          |
| Oil-type                    | 575             | 0.0748  | 0.0805   | 0.0863   |
| Hot air-type                | 1,200           | 0.1560  | 0.1680   | 0.1800   |

## Kitchen

### Medium to small energy users (continued)

|                                    | Typical wattage | Cost per hour of operation at the following rates (per kWh) |        |        |
|------------------------------------|-----------------|---|--------|--------|
|                                    |                 | \$.13   | \$.14  | \$.15  |
| Deep-fat fryer                     | 900             | 0.1170  | 0.1260 | 0.1350 |
|                                    | 1,200           | 0.1560  | 0.1680 | 0.1800 |
|                                    | 1,500           | 0.1950  | 0.2100 | 0.2250 |
| Exhaust fan                        | 275             | 0.0358  | 0.0385 | 0.0413 |
| Fondue pot                         | 750             | 0.0975  | 0.1050 | 0.1125 |
| Food dehydrator                    | 400             | 0.0520  | 0.0560 | 0.0600 |
| Food processor                     | 360             | 0.0468  | 0.0504 | 0.0540 |
| Fry pan/skillet                    | 1,300           | 0.1690  | 0.1820 | 0.1950 |
| Garbage disposal                   | 500             | 0.0650  | 0.0700 | 0.0750 |
| Griddle                            | 1,470           | 0.1911  | 0.2058 | 0.2205 |
| Hot plate                          | 1,100           | 0.1430  | 0.1540 | 0.1650 |
| Ice crusher                        | 180             | 0.0234  | 0.0252 | 0.0270 |
| Microwave oven                     | 1,300           | 0.1690  | 0.1820 | 0.1950 |
| Pressure cooker                    | 1,300           | 0.1690  | 0.1820 | 0.1950 |
| Roaster                            | 1,350           | 0.1755  | 0.1890 | 0.2025 |
| Rotisserie                         | 1,575           | 0.2048  | 0.2205 | 0.2363 |
| <b>Slow cooker (high setting):</b> |                 |   |        |        |
| 2 quart                            | 115             | 0.0150  | 0.0161 | 0.0173 |
| 4 to 6 quart                       | 200             | 0.0260  | 0.0280 | 0.0300 |
| <b>Toaster:</b>                    |                 |   |        |        |
| 2 slice                            | 1,000           | 0.1300  | 0.1400 | 0.1500 |
| 4 slice                            | 1,500           | 0.1950  | 0.2100 | 0.2250 |
| Toaster oven                       | 1,350           | 0.1755  | 0.1890 | 0.2025 |
| Wok                                | 1,000           | 0.1300  | 0.1400 | 0.1500 |

| Cost per use | kWh per load | Cost per use at the following rates (per kWh) |        |        |
|--------------|--------------|---|--------|--------|
|              |              | \$.13   | \$.14  | \$.15  |
| Bread maker  | 0.4          | 0.0520  | 0.0560 | 0.0600 |

## Laundry/Utility

### Estimated laundry use - electric water heater

|  | kWh per load | Cost per load at \$0.13 (kWh) | Loads per month | Estimated monthly cost at the following rates (per kWh) |       |       |
|--|--------------|-------------------------------|-----------------|---|-------|-------|
|  |              |                               |                 | \$.13   | \$.14 | \$.15 |
| <b>Clothes washer:</b>   |              |                               |                 |   |       |       |
| ENERGY STAR clothes washer including electricity to heat water | 0.65         | 8.5¢                          | 32              | 2.91  | 3.14  | 3.36  |
| Typical clothes washer including electricity to heat water     | 2.40         | 31.2¢                         | 32              | 9.98  | 10.75 | 11.52 |
| <b>Electric clothes dryer:</b>                                 |              |                               |                 |   |       |       |
| With typical washer  | 3.20         | 41.6¢                         | 32              | 13.31   | 14.34 | 15.36 |
| With ENERGY STAR washer  | 2.50         | 32.5¢                         | 32              | 10.40   | 11.20 | 12.00 |

Note: ENERGY STAR washers remove more water, so they save on drying time.

### Medium to small energy users

|                     | Typical wattage | Cost per hour at the following rates (per kWh) |        |        |
|---------------------|-----------------|--|--------|--------|
|                     |                 | \$.13  | \$.14  | \$.15  |
| Carpet cleaner      | 1,200           | 0.1560   | 0.1680 | 0.1800 |
| Floor waxer/cleaner | 350             | 0.0455   | 0.0490 | 0.0525 |
| Iron                | 1,000           | 0.1300   | 0.1400 | 0.1500 |
| Sewing machine      | 100             | 0.0130   | 0.0140 | 0.0150 |
| Sump pump (1/3 hp)  | 620             | 0.0806   | 0.0868 | 0.0930 |
| Vacuum cleaner      | 650             | 0.0845   | 0.0910 | 0.0975 |
| Water softener      | 3               | 0.0004   | 0.0004 | 0.0005 |



# Lighting

## Medium to small energy users

|   | Typical wattage | Cost per hour of operation at the following rates (per kWh) |         |         |
|---|-----------------|---|---------|---------|
|   |                 | \$.13   | \$.14   | \$.15   |
| <b>Christmas lights:</b>                  |                 |   |         |         |
| Miniature - 50 per string                 | 17              | \$0.002   | \$0.002 | \$0.003 |
| Miniature - 100 per string                | 35              | 0.005   | 0.005   | 0.005   |
| C-7 - 25 per string                       | 125             | 0.016   | 0.018   | 0.019   |
| LED - 35 per string                       | 3               | 0.0004  | 0.0004  | 0.0005  |
| <b>Household lighting:</b>                |                 |   |         |         |
| ENERGY STAR compact fluorescent torchiere | 58              | 0.008   | 0.008   | 0.009   |
| Halogen torchiere (not recommended)       | 300             | 0.039   | 0.042   | 0.045   |
|   | 500             | 0.065   | 0.070   | 0.075   |
| Standard incandescent                     | 40              | 0.005   | 0.006   | 0.006   |
|   | 60              | 0.008   | 0.008   | 0.009   |
|   | 75              | 0.010   | 0.011   | 0.011   |
|   | 100             | 0.013   | 0.014   | 0.015   |
|   | 150             | 0.020   | 0.021   | 0.023   |
| <b>Fluorescent:</b>                       |                 |   |         |         |
| 4-foot tube                               | 40              | 0.005   | 0.006   | 0.006   |
| Efficient 4-foot tube                     | 34              | 0.004   | 0.005   | 0.005   |
| Circle including ballast                  | 22              | 0.003   | 0.003   | 0.003   |
|   | 32              | 0.004   | 0.004   | 0.005   |
| Compact fluorescent                       | 9               | 0.001   | 0.001   | 0.001   |
|   | 15              | 0.002   | 0.002   | 0.002   |
|   | 20              | 0.003   | 0.003   | 0.003   |
|   | 27              | 0.004   | 0.004   | 0.004   |
| <b>Outdoor lighting:</b>                  |                 |   |         |         |
| Standard flood/spotlights                 | 75              | 0.010   | 0.011   | 0.011   |
|   | 150             | 0.020   | 0.021   | 0.023   |
| Compact fluorescent flood/spotlights      | 23              | 0.003   | 0.003   | 0.003   |
| Halogen flood/spotlights                  | 45              | 0.006   | 0.006   | 0.007   |
|   | 90              | 0.012   | 0.013   | 0.014   |
| Compact fluorescent                       | 18              | 0.002   | 0.003   | 0.003   |
| Mercury vapor                             | 175             | 0.023   | 0.025   | 0.026   |
| Metal halide                              | 39              | 0.005   | 0.005   | 0.006   |
| High-pressure sodium                      | 50              | 0.007   | 0.007   | 0.008   |

# Outdoor Equipment

Medium to small energy users

|                             | Typical wattage | Cost per hour of operation at the following rates (per kWh) |         |         |
|-----------------------------|-----------------|---|---------|---------|
|                             |                 | \$.13   | \$.14   | \$.15   |
| Auto engine heater          | 600             | \$0.078   | \$0.084 | \$0.090 |
| <b>Battery charger:</b>     |                 |   |         |         |
| 6 amperes output            | 155             | 0.020   | 0.022   | 0.023   |
| 10 amperes output           | 235             | 0.031   | 0.033   | 0.035   |
| Bug exterminator (large)    | 145             | 0.019   | 0.020   | 0.022   |
| Electric fence              | 100             | 0.013   | 0.014   | 0.015   |
| Garage door opener          | 350             | 0.046   | 0.049   | 0.053   |
| <b>Garden tools:</b>        |                 |   |         |         |
| Edger                       | 650             | 0.085   | 0.091   | 0.098   |
| Hedge trimmer               | 300             | 0.039   | 0.042   | 0.045   |
| Weeder                      | 440             | 0.057   | 0.062   | 0.066   |
| Heat tape - 10-foot         | 50              | 0.007   | 0.007   | 0.008   |
| Lawn mower                  | 1,200           | 0.156   | 0.168   | 0.180   |
| Outdoor grill (electric)    | 1,500           | 0.195   | 0.210   | 0.225   |
| Snow blower (electric)      | 840             | 0.109   | 0.118   | 0.126   |
| <b>Snow melting cable:</b>  |                 |   |         |         |
| 100-foot gutter             | 700             | 0.091   | 0.098   | 0.105   |
| 4-foot by 70-foot sidewalk  | 11,200          | 1.456   | 1.568   | 1.680   |
| 10-foot by 50-foot driveway | 20,000          | 2.600   | 2.800   | 3.000   |
| Stock tank heater           | 1,000           | 0.130   | 0.140   | 0.150   |
| Sump pump - 1/3 hp          | 620             | 0.081   | 0.087   | 0.093   |
| Swimming pool pump          | 1,300           | 0.169   | 0.182   | 0.195   |
| <b>Water pump*:</b>         |                 |   |         |         |
| Jet pump - 1/2 hp           | 1,200           | 0.156   | 0.168   | 0.180   |
| Submersible - 1/2 hp        | 1,200           | 0.156   | 0.168   | 0.180   |

\*Water pump for single-family residence runs about one to two hours per day.

## Waterbeds/Personal Care/Health Care

### Big energy users

|                                   | kWh/<br>month | Estimated monthly cost at the following rates (per kWh) |       |       |
|-----------------------------------|---------------|---|-------|-------|
|                                   |               | \$.13   | \$.14 | \$.15 |
| <b>Waterbed heater</b> (350-watt) |               |   |       |       |
| King-size bed at 90°F:            |               |   |       |       |
| Room 70°F, with comforter         | 123           | 15.99   | 17.22 | 18.45 |
| Room 70°F, unmade bed             | 162           | 21.06   | 22.68 | 24.30 |
| Room 60°F, with comforter         | 195           | 25.35   | 27.30 | 29.25 |
| Room 60°F, unmade bed             | 234           | 30.42   | 32.76 | 35.10 |

### Medium to small energy users

|                             | Typical wattage | Cost per hour of operation at the following rates (per kWh) |         |         |
|-----------------------------|-----------------|---|---------|---------|
|                             |                 | \$.13   | \$.14   | \$.15   |
| Blanket                     | 200             | \$0.026   | \$0.028 | \$0.030 |
| Curling iron                | 40              | 0.005   | 0.006   | 0.006   |
| Hair dryer (hand held)      | 1,200           | 0.156   | 0.168   | 0.180   |
| Heating pad                 | 50              | 0.007   | 0.007   | 0.008   |
| Heat lamp/sun lamp          | 250             | 0.033   | 0.035   | 0.038   |
| <b>Massager:</b>            |                 |   |         |         |
| Back                        | 55              | 0.007   | 0.008   | 0.008   |
| Foot                        | 135             | 0.018   | 0.019   | 0.020   |
| Hand                        | 30              | 0.004   | 0.004   | 0.005   |
| <b>Oxygen concentrator:</b> |                 |   |         |         |
| Home                        | 400             | 0.052   | 0.056   | 0.060   |
| Portable                    | 42              | 0.005   | 0.006   | 0.006   |

## Electric Water Heater

### Big energy users

|  | Typical wattage | Average use       | kWh/month | Estimated monthly cost at the following rates (per kWh)* |         |         |
|--|-----------------|-------------------|-----------|--|---------|---------|
|  |                 |                   |           | \$.13  | \$.14   | \$.15   |
| Standard<br>(Energy Factor = .86)        | 3,800           | 64.3<br>gals./day | 425       | \$55.25  | \$59.50 | \$63.75 |
| High-efficiency<br>(Energy Factor = .93) | 3,800           | 64.3<br>gals./day | 393       | 51.09  | 55.02   | 58.95   |
| Heat pump                                | 2,500           | 64.3<br>gals./day | 141       | 18.33  | 19.74   | 21.15   |

\*Based on a household of four.

| Cost per use*          | kWh per use | Cost per use at the following rates (per kWh) |       |       |
|------------------------|-------------|---|-------|-------|
|                        |             | \$.13   | \$.14 | \$.15 |
| Typical clothes washer | 2.4         | 0.31  | 0.34  | 0.36  |
| <b>Dishwashing:</b>    |             |   |       |       |
| Hand                   | 1.6         | 0.21  | 0.22  | 0.24  |
| Typical dishwasher     | 2.1         | 0.27  | 0.29  | 0.32  |
| Shower                 | 1.9         | 0.25  | 0.27  | 0.29  |
| Tub bath               | 2.9         | 0.38  | 0.41  | 0.44  |

\*Based on standard electric water heater listed above.

## Workshop

### Medium to small energy users

|                | Typical wattage | Cost per hour of operation at the following rates (per kWh) |         |         |
|----------------|-----------------|---|---------|---------|
|                |                 | \$.13   | \$.14   | \$.15   |
| <b>Motors*</b> |                 |   |         |         |
| 1/4 hp         | 350             | \$0.046   | \$0.049 | \$0.053 |
| 1/3 hp         | 440             | 0.057   | 0.062   | 0.066   |
| 1/2 hp         | 580             | 0.075   | 0.081   | 0.087   |
| 3/4 hp         | 850             | 0.111   | 0.119   | 0.128   |
| 1 hp           | 980             | 0.127   | 0.137   | 0.147   |
| 1.5 hp         | 1,440           | 0.187   | 0.202   | 0.216   |
| 2 hp           | 1,900           | 0.247   | 0.266   | 0.285   |
| <b>Tools</b>   |                 |   |         |         |
| <b>Drills:</b> |                 |   |         |         |
| 1/4"           | 240             | 0.031   | 0.034   | 0.036   |
| 3/8"           | 360             | 0.047   | 0.050   | 0.054   |
| 1/2"           | 540             | 0.070   | 0.076   | 0.081   |
| Grinder        | 312             | 0.041   | 0.044   | 0.047   |
| Router         | 600             | 0.078   | 0.084   | 0.090   |
| Sander         | 200             | 0.026   | 0.028   | 0.030   |
| <b>Saws:</b>   |                 |   |         |         |
| Chain          | 1,380           | 0.179   | 0.193   | 0.207   |
| Circular       | 1,200           | 0.156   | 0.168   | 0.180   |
| Jig            | 360             | 0.047   | 0.050   | 0.054   |
| Table          | 1,380           | 0.179   | 0.193   | 0.207   |
| Soldering iron | 250             | 0.033   | 0.035   | 0.038   |

\*Motor cost of operation depends on the type and use. See "Figuring operating costs" (page 4) for more information.

## Hot Tubs/Spas

The cost to operate these products varies widely, but average is about \$20 per month. To save energy:

- Use a cover
- Buy a large heater to heat the water quickly
- Turn on the heater before use
- Turn off the heater when weather permits

Considerations:

- Location - indoors or out?
- Pump motor size?
- Heated with electricity or natural gas?
- Frequency of use?
- Size in gallons?

For general pump information, see page 16.

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