

# Refrigerators and Freezers

Appliance	Typical Energy Input	Approximate Cost* for Normal Use
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## Air Conditioner - Central Unit

Efficiency Rating (SEER)

7.0

13½¢ per ton per hour

9.0

10½¢ per ton per hour

10.0

9½¢ per ton per hour

11.0

8½¢ per ton per hour

12.0

7¾¢ per ton per hour

13.0

7¼¢ per ton per hour

14.0

6¾¢ per ton per hour

## Air Conditioner - Room Unit

Capacity (Btu/hr)

Efficiency Rating (EER)

6,000

7.0

857 Watts

6¾¢ per hour

(½ Ton)

8.5

706 Watts

5½¢ per hour

10.0

600 Watts

4¾¢ per hour

9,000

7.0

1286 Watts

10¢ per hour

(¾ Ton)

8.5

1059 Watts

8¼¢ per hour

10.0

900 Watts

7¢ per hour

11.0

818 Watts

6½¢ per hour

12.0

750 Watts

5¾¢ per hour

12,000

7.0

1714 Watts

13½¢ per hour

(1 Ton)

8.5

1412 Watts

11¢ per hour

10.0

1200 Watts

9½¢ per hour

18,000

7.0

2571 Watts

20¼¢ per hour

(1½ Ton)

8.5

2118 Watts

16½¢ per hour

10.0

1800 Watts

14¢ per hour

24,000

7.0

3429 Watts

26¾¢ per hour

(2 Ton)

8.5

2824 Watts

22¢ per hour

10.0

2400 Watts

18¾¢ per hour

## Aquarium Air Pump

5 Watts

28¼¢ per month

## Automotive Battery Charger

220 Watts

1¾¢ per hour

## Blanket

150 Watts

1¼¢ per hour

## Blender

2½¢ per hour

## Bug Killer Light

15 Watts

1/10¢ per hour

25 Watts

2/10¢ per hour

40 Watts

3/10¢ per hour

## Calculator

(1 hour per day)

10 Watts

2¼¢ per month

<b>Can Opener</b>	220 Watts	1¾¢ per hour
<b>Carving Knife</b>	100 Watts	¾¢ per hour
<b>Clock</b>	2 Watts	11¼¢ per month
<b>Clock Radio</b> (6 hours use per day)	10 Watts	22¼¢ per month
<b>Coffee Maker</b>	1500 Watts	5¾¢ per use
To Keep Coffee Warm	100 Watts	1¾¢ per hour
<b>Coffee Perculator</b>	660 Watts	1¼¢ per use
<b>Computer</b>	100 Watts	¾¢ per hour
With Accessories	200 Watts	1½¢ per hour
<b>Convection Oven</b>	1500 Watts	5¾¢ per hour <sup>1</sup>
<b>Cordless Appliance Recharger</b>	6 Watts	28¢ per month
<b>Crock Cooker</b>	High 150 Watts	1¼¢ per hour
	Low 70 Watts	½¢ per hour
<b>Deep Fryer</b>	1400 Watts	11¢ per hour
<b>Dishwasher</b>	1200 Watts	6¢ per load <sup>2</sup>
Wash Cycle Only	1200 Watts	2¢ per load <sup>2</sup>
<b>Dryer - Clothes</b>	Electric 5500 Watts	21¼¢ per load
	Gas 20,000 Btu/hr	7¢ per load
<b>Dryer - Clothes (portable)</b>	1200 Watts	9¼¢ per load
<b>Electronic Air Filter - Central</b>	40 Watts	\$2.26 per month
<b>Evaporative Cooler</b>	325 Watts	2½¢ per hour
<b>Fans</b>		
Attic	400 Watts	3¼¢ per hour
Blower - Central, ¼ HP	250 Watts	2¢ per hour
Blower - Central, ½ HP	500 Watts	4¢ per hour
Blower - Central, ¾ HP	750 Watts	5¾¢ per hour
Ceiling	150 Watts	1¼¢ per hour
Exhaust	200 Watts	1½¢ per hour
Portable - 12"	60 Watts	½¢ per hour
Portable - 20"	180 Watts	1½¢ per hour
<b>Fireplace Logs - Gas</b>	35,000 Btu/hr	20¢ per hour

## Floor Polisher

400 Watts 3¼¢ per hour

## Food Freezer (manual defrost)

8 cu. ft. upright	245 Watts	\$3.75 per month <sup>3</sup>
chest	245 Watts	\$2.50 per month <sup>3</sup>
12 cu. ft. upright	295 Watts	\$4.00 per month <sup>3</sup>
chest	295 Watts	\$3.00 per month <sup>3</sup>
16 cu. ft. upright	330 Watts	\$4.50 per month <sup>3</sup>
chest	330 Watts	\$3.25 per month <sup>3</sup>
18 cu. ft. upright	350 Watts	\$5.25 per month <sup>3</sup>
chest	350 Watts	\$4.00 per month <sup>3</sup>
20 cu. ft. upright	475 Watts	\$6.00 per month <sup>3</sup>
chest	475 Watts	\$4.00 per month <sup>3</sup>

## Food Freezer (automatic defrost)

16 cu. ft. upright	500 Watts	\$6.25 per month <sup>3</sup>
18 cu. ft. upright	520 Watts	\$6.75 per month <sup>3</sup>

## Food Processor

400 Watts 3¼¢ per hour

## Food Waste Dispenser

800 Watts 6¼¢ per hour

## Garage Door Opener (with light)

¼ HP	250 Watts	6½¢ per month
½ HP	500 Watts	8½¢ per month

## Grill - Outdoor

Electric	1600 Watts	12½¢ per hour
Gas	40,000 Btu/hr	6¼¢ per hour <sup>4</sup>

## Hair Curling Iron

40 Watts ¼¢ per hour

## Hair Dryer

1200 Watts 9½¢ per hour

## Hair Rollers

400 Watts 3¼¢ per hour

## Heater

Small Portable	750 Watts	5¾¢ per hour
Large Portable	1500 Watts	11¾¢ per hour
Bath - Electric	1000 Watts	7¾¢ per hour
Bath - Gas	12,000 Btu/hr	3¾¢ per hour

## Heater - Central Unit

Electric Resist.

Efficiency Rating (%)

100

57¢ per 25,000 Btu per hour<sup>5</sup>

Gas

Efficiency Rating (AFUE)

69

21¢ per 25,000 Btu per hour<sup>5</sup>

78

18¢ per 25,000 Btu per hour<sup>5</sup>

83

17¢ per 25,000 Btu per hour<sup>5</sup>

92

15¢ per 25,000 Btu per hour<sup>5</sup>

## Heating Pad

60 Watts ½¢ per hour

## Heat Lamp

250 Watts

2¢ per hour

## Heat Pump - Central Unit in Cooling Cycle

Efficiency Rating (SEER)

7.0

13½¢ per ton per hour

9.0

10½¢ per ton per hour

10.0

9½¢ per ton per hour

11.0

8½¢ per ton per hour

12.0

7¾¢ per ton per hour

13.0

7¼¢ per ton per hour

14.0

6¾¢ per ton per hour

15.0

6¼¢ per ton per hour

## Heat Pump - Central Unit in Heating Cycle

Efficiency Rating (SEER)

7.0

6¼¢ per ton per hour

9.0

4¾¢ per ton per hour

10.0

4¼¢ per ton per hour

11.0

4¢ per ton per hour

12.0

3¾¢ per ton per hour

13.0

3½¢ per ton per hour

14.0

3¼¢ per ton per hour

15.0

3¢ per ton per hour

## Hedge Clipper

300 Watts

2¼¢ per hour

## Hot Tub Heater

Electric

6000 Watts

86¢ per 100 gals.<sup>6</sup>

Gas

125,000 Btu/hr

28¢ per 100 gals.<sup>6</sup>

## Hot Tub Pump, 1½ HP

1800 Watts

14¢ per hour

Low Speed (if 2 speed)

300 Watts

2¼¢ per hour

## Humidifier

90 Watts

¾¢ per hour

## Iron

1100 Watts

8½¢ per hour

## Kiln

1000 Watts

7¾¢ per hour

10,000 Watts

78¼¢ per hour

## Lawn Edger

595

4¾¢ per hour

## Lawn Mower

750

5¾¢ per hour

## Lawn Trimmer

460 Watts

3½¢ per hour

## Lighting – Incandescent

Bulb

40 Watts

¼¢ per hour

60 Watts

½¢ per hour

100 Watts

¾¢ per hour

Spot Light

150 Watts

1¼¢ per hour

250 Watts

2¢ per hour

300 Watts

2¼¢ per hour

## **Lighting - Flourescent (with ballast)**

	40 Watts	¼¢ per hour
Shop Light	2 - 40 Watts	¾¢ per hour

## **Lighting - Mercury Vapor (with ballast)**

	50 Watts	½¢ per hour
	175 Watts	1¼¢ per hour

## **Lighting - High Pressure Sodium (with ballast)**

	35 Watts	¼¢ per hour
	70 Watts	½¢ per hour
	100 Watts	¾¢ per hour

## **Lighting - Quartz**

	150 Watts	1¼¢ per hour
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## **Lighting - Gas (outdoor)**

	2,125 Btu/hr	1¼¢ per hour
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## **Makeup Mirror**

	40 Watts	¼¢ per hour
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## **Microwave Oven**

	1500 Watts	11¾¢ per hour
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## **Mixer**

	225 Watts	1¾¢ per hour
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## **Oven**

Electric		
Single Oven	12,000 Watts	\$3.25 per month
Double Oven	17,000 Watts	\$4.25 per month
Self Cleaning Feature	3500 Watts	41¢ per month
Gas		
Single Oven	57,000 Btu/hr	\$1.45 per month
Double Oven	75,000 Btu/hr	\$2.05 per month
Self Cleaning Feature	18,000 Btu/hr	20¢ per cleaning

## **Paint Sprayer**

	110 Watts	¾¢ per hour
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## **Popcorn Popper**

Small	600 Watts	4¾¢ per hour
Large	1400 Watts	11¢ per hour

## **Power Tools**

Bench Grinder	370 Watts	3¢ per hour
Chain Saw	1200 Watts	9½¢ per hour
Circular Saw	1320 Watts	10¼¢ per hour
Drill	360 Watts	2¾¢ per hour
Portable Tool Charger	5 Watts	1/5¢ per hour
Sander - Belt	900 Watts	7¢ per hour
Sander - Pad	360 Watts	2¾¢ per hour
Scroll Saw	420 Watts	3¼¢ per hour
Soldering Gun	600 Watts	4¾¢ per hour
Soldering Iron	20 Watts	¼¢ per hour

## **Radio**

	15 Watts	1/10¢ per hour
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## **Refrigerator**

12 cu. ft. Single Door	225 Watts	\$4.00 per month <sup>3</sup>
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## **Refrigerator – Freezer**

10 - 12 cu. ft. Partial Auto Defrost	400 Watts	\$4.25 per month <sup>3</sup>
12 - 16 cu. ft. Partial Auto Defrost	400 Watts	\$4.25 per month <sup>3</sup>
12 - 14 cu. ft. Auto Defrost	475 Watts	\$5.00 per month <sup>3</sup>
14 - 16 cu. ft. Auto Defrost	500 Watts	\$5.00 per month <sup>3</sup>
18 - 20 cu. ft. Auto Defrost	550 Watts	\$5.75 per month <sup>3</sup>
Side-by-side		\$7.25 per month <sup>3</sup>
20 - 24 cu. ft. Auto Defrost	600 Watts	\$7.00 per month <sup>3</sup>
Side-by-side		\$8.00 per month <sup>3</sup>
24 - 26 cu. ft. Side-by-side	625 Watts	\$7.25 per month <sup>3</sup> \$8.75 per month <sup>3</sup>

## **Resistance Heating**

10,000 Watts 14¼¢ per ton per hour

## **Roaster**

1425 Watts 11¼¢ per hour

## **Sewing Machine**

120 Watts 1¢ per hour

## **Shoe Buffer**

175 Watts 1¼¢ per hour

## **Skillet**

1250 Watts 5¾¢ per hour<sup>1</sup>

## **Smoke Detector**

2 Watts 11¼¢ per month

## **Sound Equipment**

Record Player	50 Watts	½¢ per hour
Stereo Unit	100 Watts	¾¢ per hour
Component System	500 Watts	4¢ per year

## **Sun Lamp**

60 Watts ½¢ per hour  
800 Watts 6¼¢ per hour

## **Swimming Pool Filter Pump**

1 HP	1200 Watts	9½¢ per hour
1½ HP	1800 Watts	14¢ per hour
2 HP	2400 Watts	18¾¢ per hour

## **Swimming Pool Sweep Pump**

¾ HP	900 Watts	7¢ per hour
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## **Telephone Answering Machine**

9 Watts 6¼¢ per year

## **Telephone – Cordless**

6 Watts 16¾¢ per month

## **Television – Color**

Small Solid State	100 Watts	¾¢ per hour
Large Solid State	150 Watts	1¼¢ per hour
Large Projection	195 Watts	1½¢ per hour

<b>Toaster</b>	1100 Watts	8½¢ per hour
<b>Toaster - Broiler Oven</b>	1500 Watts	11¾¢ per hour
<b>Trash Compactor</b>	750 Watts	3¢ per month
<b>Typewriter</b>	70 Watts	½¢ per hour
<b>Vacuum Cleaner</b>	740 Watts	5¾¢ per hour
<b>Vaporizer</b>		
Small	30 Watts	¼¢ per hour
Large	660 Watts	5¼¢ per hour
<b>Video Camera</b>	20 Watts	1/5¢ per hour
<b>Video Cassette Recorder</b>	34 Watts	¼¢ per hour
<b>Video Games</b>	9 Watts	1/10¢ per hour
<b>Waffle Iron</b>	1400 Watts	11¢ per hour
<b>Washer</b>	840 Watts	4¢ per load <sup>2</sup>
<b>Water Bed Heater</b>	500 Watts	\$12.50 per month
<b>Water Heater</b>		
Electric	4500 Watts	\$26.25 per month
Gas	32,000 Btu/hr	\$10.19 per month
<b>Whirlpool Bath</b>		
¼ HP	250 Watts	2¢ per hour
¾ HP	750 Watts	5¾¢ per hour

\* **Approximate Cost is based on 8.3-cents per kilowatt-hour**

**Footnotes:**

1. Allowance made for thermostatic control.
2. Does not include cost of heating water.
3. Based on models listed in the AHAM 1991 Consumer Selection Guide for Refrigerators and Freezers.
4. Operating costs may be higher for older models.
5. Appliance not operated at maximum rated input.
6. Rating based on heat input.
7. Cost of heating 100 gallons of water from 55° F to 100° F during initial startup.

# Household Appliances

Miscellaneous energy uses, such as household appliances, can account for more of the energy use in your home than any other single product, including the heating system! Here are some places to find energy savings and what to look for.

## Cooking & Ovens

Use the right tool for the job. Using a full-size oven is not always necessary. Smaller appliances can get the job done for less, especially when cooking smaller meals. The chart below shows several methods of cooking the same meal and the energy consumed by comparison.

- Self-cleaning models are more efficient because they have more insulation.
- Convection ovens are more energy efficient because heated air is continuously circulated around the food being cooked. More even heat distribution and temperatures mean faster cooking times.

Appliance	Temperature	Cooking Time	Energy Use
Electric Oven	350° F	1 Hour	2.0 kWh
Convection Oven	325° F	45 Minutes	1.39 kWh
Toaster Oven	450° F	50 Minutes	.95 kWh
Crockpot	200° F	7 Hours	.7 kWh
Microwave Oven	"High"	15 Minutes	.36 kWh

## General Cooking Tips –

- If possible, use a pressure cooker. By using steam pressure, they cook at a higher temperature and reduce cooking time.
- Keep pots and pans covered. Water boils faster and foods cook quicker. Use the smallest pot or pan necessary. Smaller pans require less energy.
- Match the pan size to the element size. For instance, a 6" pan on an 8" element will waste 40% of the energy produced by the element.
- Use reflective burner (drip) pans. Reflective burner pans under the elements reflect heat up toward the cooking surface. Always keep the burner pans clean and shiny.
- Use flat-bottom cookware. Burner elements are significantly less efficient if the pan does not have good contact with the element.
- Preheat ovens only when required. Except for baking, most foods can be cooked without preheating.

- ❑ No peeking. Sneak previews are energy wasters each time you open the oven door a significant amount of heat escapes. Use your oven light and look through the window instead.
- ❑ Don't line oven racks with foil. Foods cook more quickly and evenly when air circulates freely. Stagger pans on upper and lower racks. Bake in glass or ceramic cookware. You can turn the temperature down by 25° F and foods will cook in the same time.
- ❑ Use timers and meat thermometers to avoid overcooking. Not only does overcooking ruin the meal, it wastes energy as well.
- ❑ Turn the stove or oven off before cooking is done. Burner elements can be turned off just before cooking is done it will remain hot for a short time. Ovens can be turned off 15 - 20 minutes before done.
- ❑ Use the self-cleaning feature after you've cooked a meal. The oven will still be hot, and this feature will require less energy.

## Dishwashing

Depending on how you wash dishes by hand, you could actually save money by using a dishwasher. 80% of the energy used by a dishwasher goes toward water heating. Older dishwashers use 8 - 14 gallons of water. Newer models (after 1994) use 7- 10 gallons. Washing at the sink, two or three times a day could use much more water.

- Buy a dishwasher with a water booster heater, as this will allow you to maintain a lower water heater temperature.
- Energy-saving wash cycles, such as "light wash" or "light/china" saves energy by using less water and running for a shorter cycle.
- A "No-heat" dry option will save energy by allowing you to air-dry, instead of using an electric heater to dry.
- Energy Guide ratings for dishwashers can be misleading. The rating is based on operating the dishwasher through 322 cycles annually, on the "normal" setting. Your energy use could vary substantially, depending on how often you run your dishwasher. This is especially true if you are considering a model with other wash cycle options. Also, be aware that there are two categories of dishwashers, compact and standard capacities. Compact models use less energy, but they also hold fewer dishes.

### General Dishwashing Tips –

- A dishwasher with a booster heater allows you to maintain a lower water heater temperature. Some dishwasher models have built-in heaters to boost the water temperature to recommended levels (140° - 145° F). Some dishwashers preheat water automatically, while others require you to pre-select this feature. The benefit of this feature is that you are only heating the water required to wash with, instead of keeping your water heater temperature high. Each 10° F reduction in water heating temperature setting can result in 3% - 5% reduction of energy consumption for water heating.
- Use energy-saving wash cycles. Most dishwashers have various wash cycles you can select. The energy-saving feature allows you to use less water on dishes that are less soiled.
- Use the "No-heat" dry feature. Most dishwashers have a built-in heating element to make dishes dry. The "No-heat" dry feature circulates room air through the dishwasher by fans. If your dishwasher does not have this feature, turn the dishwasher off after the final rinse and open the door to air dry.
- Try not to position your dishwasher next to the refrigerator. The heat produced by the dishwasher will cause your refrigerator to work harder.
- Don't pre-rinse dishes. Most new style dishwashers don't require a pre-rinse. Scrape food, and empty liquids. If you must pre-rinse, use cold water.
- Wash only full loads. The dishwasher will use the same amount of water if it is half empty or completely full. Load dishes according to manufacturer's directions. This will allow for optimum performance.

## Clothes Washing & Drying

Water heating accounts for 90% of the energy consumption of washing machines. The single most important consideration for reducing the energy consumption of your washer is to wash in cold water. Even more consumption than dishwashers, saving energy with washing machines means lowering the water temperature. Unlike dishwashers, washing machines are capable of cleaning with great results in cooler water temperatures.

**Washer Consumption/ Electric Hot Water**

Wash / Rinse Settings	Energy Use Per Load
Hot / Hot	6.5 kWh
Hot / Warm	4.9 kWh
Hot / Cold	4.3 kWh
Warm / Warm	3.4 kWh
Warm / Cold	1.9 kWh
Cold / Cold	0.4 kWh

### General Washing Machine Tips –

- Load the washer to capacity when possible. Most people tend to under load their washing machines. One large load of laundry will use less energy than two small or medium loads. Match the water level to size of the load. When you don't have a full load, use the appropriate water level setting.
- Choose a washer that offers a wide range of water temperature controls for wash and rinse cycles. Options to control the length of a wash cycle have little impact on energy consumption. Choose a machine that allows you to select lower water levels when doing smaller loads. Some models have advanced electronic controls that automatically adjust water levels according to the size of the load.
- A front-load washer uses one-third less water than a top-loading machine. Consumer Reports and other studies show better overall washing performance with a front-load machine. Front-load washers have no agitator so you can fit large items, and clothes won't wear out as fast. Finally, since front loaders use less water, you need less detergent.
- The Energy Guide Label will help you compare energy efficiency by comparing annual operating costs. But be sure not to compare apples to oranges. Smaller capacity washers will have better energy-efficiency ratings, but the smaller capacity may mean that you have to run the machine more often, and it may cost you more to operate.

### General Dryer Tips –

- Separate clothes for drying purposes. Lightweight synthetics dry much faster than bath towels or natural fiber materials such as denim.
- Don't over-dry clothes. Take clothes out while they are still slightly damp. This will reduce the need for ironing. Over-drying also causes shrinkage, static electricity, and shortens fabric life.
- Dry two or more loads in a row. Take advantage of the heat still in the dryer from the first load.
- Don't add wet items to a load that is partially dry. This will cause the dryer to run longer.
- Dry full loads when possible. Drying small loads wastes energy.
- Clean the lint trap after each load. A clogged lint trap will reduce air flow and reduce dryer performance.
- Check the vent to the outside. Proper ventilation is important for the proper operation of your dryer. Keep it clean and free from obstruction.
- Hang clothes outdoors. In good weather, take advantage of the sun... it's free.

# Energy-Efficient Appliances Cost Less to Own

Although energy-efficient appliances sometimes cost more initially, any extra cost can often be made up by the additional savings on your utility bill. One way to look at whether purchasing energy-efficient appliances makes sense for you is to think of the appliance as having two price tags. The first price tag is the price that you will pay to purchase the appliance. The second price tag is the cost to operate the appliance over its lifetime. When both are considered, what seemed like a good deal in the store may end up costing you a bundle to own.

## The Energy Guide Label

An appliance's life-cycle cost is the most realistic measure of its true cost, because it takes into account the purchase price and the operating cost. By using the "Energy Guide" label, you can compare the true costs of different makes and models of refrigerators and freezers. The following simple calculations can be used to estimate the actual long-term cost of these appliances:

- ❑ Purchase Price + (Average Lifespan x Est. Annual Energy Cost) = Total Life-Cycle Cost
- ❑ Total Life-Cycle Cost/Average Lifespan = Annual Expense For Appliance

One of the easiest ways to determine and compare the operating or energy cost of different models is to use the "Energy Guide" label. The federal government requires that all appliances (not just energy-efficient models) display this yellow and black label. This label identifies the type of appliance, make and model number, and estimated annual energy cost based on average electric rates and use. It also shows how that model compares with models having the highest and lowest energy costs and contains a table showing average costs for different electric rates.

