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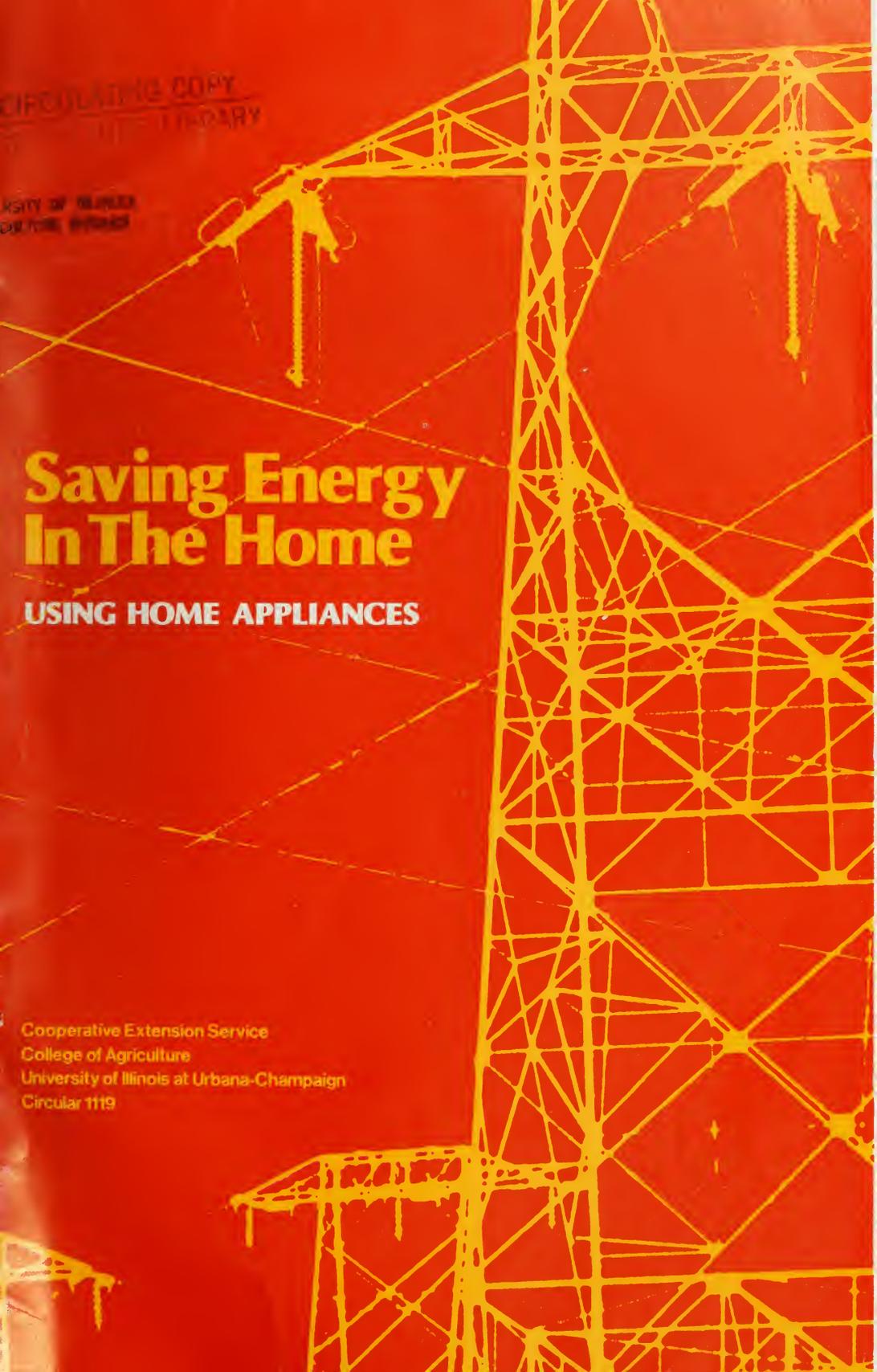
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# Saving Energy In The Home

## USING HOME APPLIANCES

Cooperative Extension Service  
College of Agriculture  
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**E**NERGY — SUCH AN IMPORTANT PART of our lives! Most of us have grown up surrounded by home appliances, automobiles, and other things that are dependent for their use or existence on energy in some form. Now, rather suddenly, we are faced with the realization that energy is not unlimited. We must conserve our use of it immediately and recognize that there will be only a limited supply in the long run.

Since the homemaker has the responsibility for determining the use of energy in the home for such tasks as meal preparation, laundry, and selection and use of small and large appliances, it is especially important that you be well informed so you can guide your family in safe, energy-conserving practices.

First of all, let's look at the actual amount of energy used in the home. Energy used for all aspects of home living accounts for about 20 percent of the total energy used in this country (Fig. 1). In the average home, 57 percent of this energy is used for heating the home, 15 percent for heating water, 5.7 percent for cooling food, 5.7 percent for cooking food, 3.6 for air conditioning, 1.6 for drying clothing, and the remaining 10.9 percent for lighting and for operating small appliances.

Even if your family is close to the average in all areas of energy use, there are ways in which all of us can decrease our total consumption. The following suggestions apply to the use of some commonly used home appliances. For information on selection and efficient use of laundry equipment refer to Illinois Extension Circular C1120, Saving Energy in the Home — Doing the Laundry.

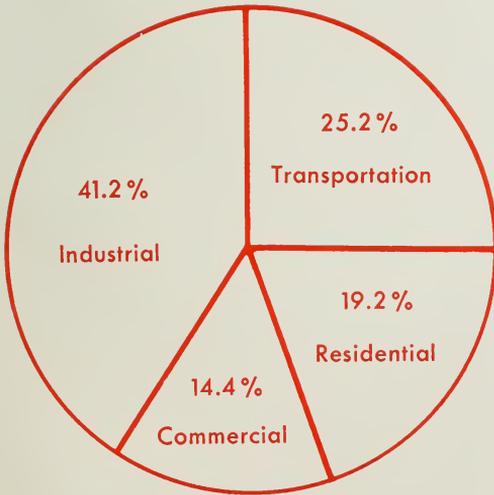


Figure 1. Energy consumption in the United States (courtesy of Association of Home Appliance Manufacturers).

## USING APPLIANCES EFFICIENTLY

There are two main ways to conserve energy when using home appliances. One is to remember that there is an energy shortage when you are buying a new appliance. Think about which features and options will call for the greatest use of energy — ask yourself if you really need them! The second way to conserve energy and lower the operating costs of your appliances is to learn to use appliances more efficiently.

The following chart, provided by the Electrical Energy Association, shows the annual operating costs for some commonly used home appliances. Let's consider each of these appliances from the standpoint of energy conservation.

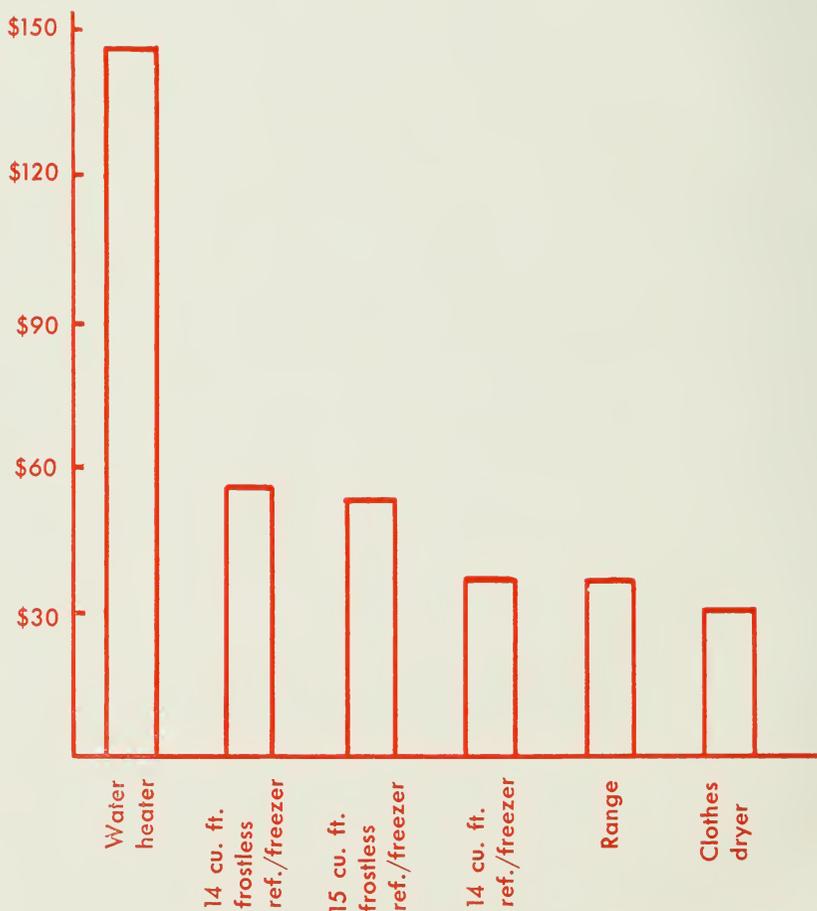


Figure 2. Annual operating costs of some home appliances, assuming a rate of 3 cents per kilowatt hour.

## WATER HEATER

Of the total amount of energy used in the home, 15 percent is used to heat water, according to the Stanford (Calif.) Research Institute. For some household activities, it might be possible to use cold water where you are accustomed to using warm or hot; for example, cold water can be used for rinsing clothes. For other activities, however, hot water is essential for proper cleaning and sanitation: the best results from automatic dishwashers and laundering white and colorfast cottons and blends require hot water (140° F).

Here are two ways to use your water heater efficiently:

- Have the water heater located near where the hot water will be used, to cut down on the amount of hot water left in the pipes after use.
- Stop hot-water faucet leaks; a leak can mean gallons of lost hot water each day.

## REFRIGERATOR

When selecting a refrigerator, consider the fact that a no-frost refrigerator consumes 55 to 60 percent more electricity than the manually defrosted type. This is because the compressor in a no-frost refrigerator runs longer and fans must be used to move air over the condensing coils to remove accumulated heat.

No-frost refrigerators also have heaters designed to prevent moisture from condensing around the refrigerator door when humidity in the home is high. Power-saver options on some of these models allow the heaters to be turned off, however, saving up to 300 kilowatt hours a year.

Refrigerator design affects energy consumption. A model in which the freezer is located at the side uses more electricity than one with a freezer at the top or bottom; a side-mounted freezer must have a larger proportion of the total refrigeration capacity kept at 0° F.

For efficient energy use, locate your refrigerator away from heat sources such as the range, heating vents, and direct sunlight. Keep the condenser coils clean and free of dust, lint, and pet hairs (the coils are located either on the back of the refrigerator cabinet or at the base behind the kick plate). Check the door for tightness of seal: place a dollar bill or sheet of paper in the door and close; if the bill or paper pulls out easily, the seal is not tight enough and the gasket (the flexible seal around the door) should be replaced. Do not allow frost to accumulate to more than one-fourth inch thick in refrigerators that are not "frost free," for thick frost reduces cooling efficiency.

Conserve energy by removing or replacing several items in the refrigerator at one opening instead of opening the door for each item. Remember where foods are placed so you won't have to search for them with the door open.

*Note:* Because bacteria grow rapidly in food held at room temperature, it is not advisable to cool food to room temperature before refrigerating, even though energy might be saved.

#### ELECTRIC RANGE

If you are planning to purchase an electric range, keep the following factors in mind. The cool-top induction range, which is based on magnetism, is the most efficient range on the market as far as energy consumption is concerned. No energy is used to heat the range unit itself, and 87 percent of the energy that is used heats the food (the other 13 percent is lost to the cooking utensil and the surrounding air). Because a self-cleaning oven has extra insulation, it retains heat better than a regular oven. This also allows less heat to escape into the room — heat that would have to be replaced when cooking.

When using your electric range for surface cooking, use utensils that have flat bottoms and fit the diameter of the heating unit so that all available heat will be used. Adjust the control to the lowest setting that will maintain the desired cooking temperature.

Ten minutes is long enough to preheat an oven — any longer simply uses electricity unnecessarily. (This is also true for gas ranges.) Each time the oven door is opened, 20 percent of the oven heat is lost, so don't open and peek unless you have to. A self-cleaning oven should be cleaned immediately after it has been used for baking or broiling, since the heat buildup can be used in the cleaning process. In a conventional oven, an oven-cleaning product recommended for use in a warm oven could be applied immediately after baking or broiling.

#### MICROWAVE OVEN

Of the total amount of energy needed to cook food in a microwave oven, only about 46 percent actually heats the food; the remainder is needed to operate the oven itself. To do the same amount of cooking, a microwave oven takes more energy than an electric surface unit, about the same amount as a gas burner, but less than an electric oven.

#### ROOM AIR CONDITIONER

The important thing to consider when buying a room air conditioner is the size needed for the space to be cooled. A unit that has too large a cooling capacity will be expensive and may not dehumidify properly; such a unit may give a room a cold, "clammy" feeling because the air is cooled before it is sufficiently dehumidified. On the other hand, a unit that is too small will not cool satisfactorily. Your appliance dealer should be able to tell you what size air conditioner you need. A form to help you figure what size you need is available from the Association of Home Appliance Manufacturers, 20 North Wacker Drive, Chicago,

Illinois 60606. Ask for *Cooling Load Estimate Form RAC-1* or *Cooling Load Guide — Square Feet Method*.

Install the unit in a shaded window if possible. Don't block the airflow with draperies or furniture. In hot weather the unit will operate more efficiently if it is turned on early in the morning instead of in the hottest part of the day.

#### SMALL APPLIANCES

The following comparisons between the energy consumption of specific small appliances and that of an electric range should serve as a guide when considering whether to purchase small appliances and deciding whether to use the appliance instead of the range for a specific task.

- Electric frypans and saucepans use less energy than conventional pots and pans on a range unit.
- A portable oven uses less energy than a range oven.
- A portable broiler uses less energy than a range broiler.
- Making toast with a toaster takes less energy than a range broiler.
- A large slow-cooker, such as the Crock Pot, set on the low setting uses electricity at the same rate as a 6-inch range unit on the warm setting.

#### LIGHTING

Since lighting is such an important consideration in making a home attractive and livable, it is difficult to restrict the use of lamps and light fixtures. Avoiding unnecessary use, however, can cut down on wasted energy. Turn off an incandescent lamp if you will be out of the room 3 minutes or more; turn off a fluorescent lamp if you will be gone 15 to 20 minutes or longer. If you have the choice, use fluorescent lamps, which use energy three to four times more efficiently than incandescent lamps.

#### WHEN TO USE APPLIANCES

Besides selecting and using appliances wisely, you should also know the best time of day to use appliances. Our electric system in the United States is designed to handle one critical time of day — the peak load period, which usually occurs between 4 and 6 p.m. Consumers can help lower the peak by using electric appliances later in the evening.

For example, use the dishwasher, dry clothes, and clean the self-cleaning oven after 7 p.m., when industrial and commercial demands are lower. This will help relieve some of the need for increased generating capacity, which is the biggest cost in providing additional electricity.

Black-outs and brown-outs usually occur in the summer during peak loads of air conditioning. During a brown-out appliances such as toasters, irons, and electric ranges suffer no permanent damage when operated at reduced voltage, but motors such as those in air conditioners, washing machines, and clothes dryers are subject to damage and shortened life if operated during a prolonged period of greatly reduced voltage.

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