1. Cutting Heating and Cooling Costs

To check the efficiency of the heating system in a home you're thinking of buying, change the thermostat setting—raise it if it's cold outside and lower it if it's warm—and then see how fast the room heats up or cools down. It should take no more than half an hour for the home to reach the desired temperature.

Periodically cleaning the squirrel-cage-type blower in a forced-air heating system will improve its efficiency and lower the system's operating cost. A vacuum cleaner hose attachment and a stiff brush are effective cleaning tools for this purpose.

Your heating system will operate at peak efficiency only if it's clean, so regular maintenance means savings on fuel bills.

For each degree you set your thermostat above 70°F, you can expect a 3 percent rise in energy costs. For most people, a 65°F daytime setting and a 55°F nighttime setting is acceptable.

It takes less energy to run a thermostatically controlled electric blanket than it does to maintain daytime thermostat settings throughout the sleeping hours.

Exercise caution in setting low indoor thermostat temperatures. Older people may require temperatures above 65°F to protect them from hypothermia—a possibly fatal drop in body temperature. People with circulatory problems or those taking certain types of drugs may also be vulnerable. In such instances, ask your doctor about recommended winter and summer thermostat settings.

Reduce the thermostat setting before you go to bed at night; cutting back for several hours will measurably decrease fuel consumption.

To avoid having a thermostat turn the heat on or off when it's not necessary, make sure it doesn't misinterpret the true warmth of your home. This can happen if the thermostat is positioned in a drafty area, placed on a cold outside wall or near a fireplace, or installed too near a heat producing appliance such as a TV set or a lamp.
Take advantage of the fact that a large group of people generates heat-reduce the thermostat setting when you're entertaining a crowd.

A portable hair dryer can be helpful in checking where doors or windows need additional weather stripping. Move the air stream along the interface between a door and its frame or a sash and its frame. Have someone on the other side of the door or window follow the dryer's movements with his or her hands. Where heat is felt leaking through, you need a patch job.

Next time a banging radiator is driving you crazy, make a quick check with a level. The radiator should slope down on one side, toward the pipes and the boiler. If it doesn't, you can stop the banging by propping up the outside legs.

Turn the thermostat to its lowest setting if you won't be at home for a few days. You can turn off the heating system completely if there's no danger of pipes freezing while you're away.

Walk around the house with a candle on a cold windy day to see where cold may be entering around doors and windows.

Save on heating costs and stay comfortable in cold weather by dressing to retain body heat.

Layer your clothing: wear lightweight basic garments, such as a shirt or blouse or short-sleeved sweater, covered by heavier garments, such as a Saving Energy sweater vest, and topped with a warm jacket or sweater jacket. If you become too warm you can adjust your own body thermostat by taking off a layer.

Many types of weather-stripping must be installed with nails. You can use any type of hammer, but a magnetic tack hammer works best for driving small brads in cramped areas.

To speed the installation of weather-stripping, try stapling instead of nailing it.

Keeping your home well caulked is one of the best ways to save energy. When you caulk, make sure joints are thoroughly dry-you can dry deep crevices with a cloth stretched over the blade of a putty knife, or with a blast of hot air from a hair dryer.

When caulking several joints, start with the smallest joint and re-cut the tube's nozzle as necessary for successively larger joints.

Loose-fitting windows can lose heat up to 5 times faster than windows that fit properly. To check a window for air leaks, feel around the edges for air movement on a windy day. Or light a candle or match and move it around the edges; if the flame flickers, heat is being lost and weather-stripping is needed. Weather-stripping is also needed if ice or condensation builds up on a storm window; this is a clue that air is seeping around the interior window.
A room will stay warmer in cold weather if curtains fit tightly against the window’s frame so that warm room air doesn't move across the cold window surface. A fixed valance at the top and sides of the curtains will help, and so will weighting or fastening the curtains at the bottom.

Installing a window greenhouse in one or more of your house's south-facing windows is an unusual (and effective) way to gain extra heat for your home in winter, to reduce the loss of heat to the outdoors in the evening, and, of course, to provide an encouraging environment for plants.

Such greenhouses can fill even east or west windows if you install reflectors to catch more of the sun's rays.

If you plan to install new shades or blinds to help keep your home warm, consider mounting them outside the frames. If they're installed inside window frames air can leak along the edges, but outside mountings help reduce the flow of air against cold window glass.

Solar reflective films applied over your windows in warm-weather months will reduce the amount of light and, therefore, of heat that enters your home.

A simple strategy like keeping your windows sparkling clean in winter can help warm your home. Spotless window glass lets in more sunlight than grimy panes.

To maintain your home's temperature, latch the windows-instead of merely closing them for a tighter seal.

It's best to remove window screens before winter arrives because fine-mesh screen can reduce by up to 20 percent the amount of warming sunlight entering your home.

During winter months, cooking foods slowly in the oven at low temperatures will provide extra heat to help warm the house.

Hot bath water will help keep your bathroom warm in cold weather months if you leave it to cool before draining the tub. The water will also add humidity to contribute to the comfort of your home.

Aluminum foil placed behind a radiator helps to reflect heat into the room. Tape a piece of foil to the wall directly behind the radiator, shiny side out; use duct tape all around the edges.

Because a great deal of heat is conducted through large, overhead garage doors, a significant amount of heat can escape from a home that has an attached garage but no insulation between the house and the garage. An insulated and weather stripped garage door, therefore, can save you money, even if the garage is unheated.
Odors emitted by a central air conditioner usually indicate condensate drain fungus. You can eliminate the smell by pouring laundry bleach into the condensate pan to kill the fungus.

Since cold air falls, you'll get better air circulation from a room air conditioner if you aim its vents upward.

If you have a forced air heating system but use window air conditioning units, be sure to close the heating system vents so cold air doesn't escape through the ducts and fall to the basement.

To keep air conditioning to a minimum, be sure you're not overheating your home needlessly.

Draw your draperies against direct sunlight, and switch off lighting fixtures when you're not in the room. If you have the facilities, consider barbecuing outdoors so that you can keep the kitchen cool.

If you install your air conditioner thermostat away from heat-producing appliances and direct sunlight, it won't "think" the room is warmer than it really is and work overtime. So place any outdoor portions of your unit or a central unit where they'll receive the least direct sunlight.

Using a patio cover will reduce the load your air conditioning unit bears in the summertime.

The cover shields the concrete from sunlight that would otherwise reflect and radiate into your home. Conversely, removing the cover in winter months lets you take advantage of the heat generated by reflected sunlight.

Keep furnishings away from air conditioning vents so that the cold air can circulate freely.

Save on energy costs by turning off your air conditioning unit when you leave home. If you're gone every day, install a timer control to keep the unit off until shortly before you return in the evening. (You can manually override the time when you're at home.)

Awnings and canopies can keep your home cooler in the summertime.

**Wood Stoves**

Have the elbows, joints, flue, and chimney of a stovepipe thoroughly cleaned once a year.

When installing a wood-burning stove, select a brand made of steel or cast iron for safety. Be sure that the stove carries a label indicating that it's been tested for reliability.
When purchasing a used stove, carefully check the condition of the hinges, grates, and draft louvers, and the sturdiness of the legs. Reject any stove with cracks.

A stove should be installed only over a fireproof material such as brick or stone, or an asbestos plate covered with metal, made especially for the purpose.

Keep easily flammable materials such as newspapers and magazines, wooden furniture, and firewood logs at a safe distance from your stove.

Before operating a newly installed stove, read the instruction manual for safety tips, or contact your local fire department for safety specifications on the stovepipe and flue.

Never use lighter fluid or other flammable liquids to start a fire. Place kindling wood and crumpled pieces of newspaper under your logs to help fan the flames.

The only material suitable for burning in a wood stove is dry, seasoned firewood.

Always extinguish the fire in a wood stove before leaving the house or before going to bed at night.

**Fireplace**

Empty cardboard milk cartons make wonderful kindling for fires. So do candle stubs.

When burning fireplace logs, sprinkle salt on them periodically. You can reduce soot by 2/3 by doing this.

To make newspaper logs, coat a 3-foot dowel, or a section of broomstick, with paste wax. When the wax dries, buff it to a smooth finish. Place a newspaper on a large flat surface; hold the dowel firmly at each end, and roll sheets of paper onto the dowel as tightly as you can. (Tightly rolled logs burn much longer than loosely rolled ones.) Continue to roll paper onto the dowel until the roll is 3-3/12 inches in diameter. Carefully holding the paper in place, fasten the log firmly at each end and in the center with thin wire. Slide the dowel out of the roll, and repeat to make as many logs as needed. Two to three thick newspaper sections make one log.

To make a dry fire extinguisher, pour 6 pounds of fine sand into a large container and add 2 pounds of baking soda. Stir the mixture thoroughly. Keep the container in your shop, garage, or kitchen. This mixture can be sprinkled directly on small oil, grease, and petroleum product fires.

Add a curved-tube convection heater to your fireplace to draw more heat from the fire into the room, instead of letting it escape up the flue.
A curved-tube heater that has a blower unit can double the amount of heat thrown into a room from your fireplace. Be sure to select one that's big enough to fill the opening.

When you're not using the fireplace, be sure you're not losing heated air through the chimney; remember to keep the damper in the fireplace closed except when a fire is burning.

A fireplace draws air from the house to keep the fire going, so if your furnace is operating and warming up the air while the fireplace is going, the net effect is that you're paying to heat air that is going right up the chimney. The best way to correct this problem is to install an outside air vent directly in front of the fireplace. The fireplace will then operate on outside air instead of on your heated air. It's also a good idea to close the doors to the room where the fireplace is being used.

**Ceiling Fans**

With an old-fashioned ceiling fan, avoid using a light dimmer switch as a variable speed control. A light dimmer switch can't handle the electrical load involved. Use only a speed control and lighting-fixture outlet designed for your specific brand of fan.

Don't install an old-fashioned ceiling fan too close to curtains; the blades could rip them away from the window.

Never install an old-fashioned ceiling fan on a ceiling that's less than 8 feet high, since the blades twirl about a foot lower. If the ceiling is too low, the blades are close enough to head level to be dangerous.

Make sure that the ceiling fan in your bedroom doesn't hang so low that you hit it every time you raise your arms to take off your sweater.

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**2. Energy Efficient Use of Appliances.**

About 95 percent of the energy used by a washing machine goes into heating the water. A machine with a cold rinse cycle will save some of that energy and cost you less to operate.

You'll use less electricity when running your washing machine if you select the shortest cycle and the coldest water temperature appropriate for the type of fabric being washed. Using the right amount of detergent is important, too, since over-sudsing can overwork the machine.

Because some fabrics require less drying time than others, try to run loads of similar fabrics in your clothes dryer.
Save energy by drying clothes in consecutive loads; the dryer retains heat from one load to the next.

Position a refrigerator where there's plenty of air circulation. A refrigerator uses more energy when located near a stove or a heating vent.

To lengthen the life of your refrigerator and increase the unit's efficiency, periodically vacuum the dust that collects on the coils at the back of the refrigerator.

Color television sets use almost twice as much electricity as black and white sets. If you have both, it will cost less to watch a black and white movie on a black and white set.

If you want a mini-TV that's truly portable, make sure it operates on both AC or DC current. However, if you don't plan to use it outdoors, consider getting a larger set, with a larger screen, that operates on household current only. Though still portable, it'll cost less than a true mini.

Before you buy any TV set, study the picture it produces under lighting conditions similar to those of the room in which you'll watch at home. If you're not satisfied with the picture, look at other sets.

3. Saving Energy in the Kitchen

Sensible use of pots and pans can save energy when you use your range. Fit the pot or pan to the burner; a small pot or pan on a large element wastes heat, and a large pot on a small element is inefficient.

Whenever practical, use small cooking appliances, such as electric frying pans, instead of your range. These small units are energy-efficient and throw less heat into your kitchen.

To conserve energy when using the stove top units on an electric range, turn off burners a short time before cooking is complete. With electric burners, the cooking process often continues for as long as 5 minutes after the burner is turned off.

You'll use less energy when cooking if you cook with as little water as possible; small amounts heat more quickly.

Another energy-saving tip: Put a lid on the pan you're using because water boils faster when covered.

To save on heat costs, don't turn on an element or burner until the pot or pan is on the stove. If you're going to simmer, turn down the heat as soon as the liquid
reaches the boiling stage. Adjust the setting to just keep the contents boiling; a higher setting wastes energy. Copper and stainless steel cookware usually require lower heat settings than aluminum cookware.

It's important to keep pan bottoms dean because a layer of soot decreases heating efficiency on any type of stove. Shiny pans are particularly efficient on an electric range.

To save energy when using your oven, don't preheat it unless required. If you must preheat, put the food in as soon as the oven reaches the desired temperature. Cook as many items as possible at one time. Also, if you have a double oven, use the smaller one whenever possible.

Since a great deal of heat escapes each time you open the oven to examine what's cooking, you can conserve energy by minimizing the number of times you peek at the food inside. (During the summer, heat that escapes when you open the oven also puts extra strain on your air conditioner.

Try cooking food items in the oven-usable paperboard containers in which they're packaged.

You'll save from 10 to 20 percent of the oven energy normally required. The containers withstand temperatures up to 400°F. Don't, however, try to reuse them.

Ph self-cleaning oven will use less energy if you start the cleaning cycle right after cooking, when the oven will already be on its way to the high temperature needed for cleaning.

To conserve refrigerator and/or freezer energy by minimizing loss of cold air, plan ahead and put in or take out as many items as possible each time you open the unit.

Make sure your refrigerator is standing on the level; if it isn't! it may be working harder than necessary.

If you notice water standing in the bottom of your refrigerator, there may be an air leak around the door. To test the gasket, close the door on a dollar bill. If the bill pulls out easily, the gasket needs replacing.

4. Energy Efficient Home Lighting

To save energy, convert incandescent fixtures to fluorescent wherever practical. Fluorescent tubes illuminate more efficiently than incandescent bulbs.
To make sure that bulbs in remote places (attic, basement, garage, or closets, for example), aren't left burning, install automatic switches that shut off the lights in a room when the door is closed.

Another way to monitor lights in remote areas of the house is to install a switch with a red pilot indicator. When the red light glows, you'll know lights in the basement, garage, etc. have inadvertently been left on. These remote switches are available from hardware stores.

Three-way bulbs, like dimmers, let you adjust lighting intensity to your needs and can save electrical energy. If a fixture won't take a 3-way bulb, reduce the size (wattage) if you need the bulb only for general light.

If you install bright security lights, consider controlling them with a photoelectric cell or timer that turns the lights on at dusk and off at dawn; this means you can avoid burning the lights unnecessarily.

It is important that light fixtures be kept clean, because a dusty or dirty light fixture will absorb light, decreasing the amount of illumination reaching areas where it's needed. A dirty fixture may therefore prompt family members to turn on additional lights that shouldn't be necessary.

Getting rid of a decorative outdoor gas lamp can save you money in energy costs. However, if you need outdoor light for visibility or security, consider converting a gas lamp to electricity. This will reduce energy consumption considerably, especially if the lamp is turned on only when necessary.

To save energy, use one large bulb rather than several smaller ones. It requires six 25-watt bulbs to produce the light of a single 100-watt bulb.

If you turn a 3-way bulb to the lowest level while watching television you'll both save energy and reduce glare in the room.

White or light-colored lamp shades capitalize on the light produced by lamp bulbs. With such shades, a lower-wattage bulb can produce the same amount of light as a higher-wattage bulb screened with a dark-colored shade.

Fifty-watt reflector floodlights are recommended for directional lamps such as pole or spot lamps. They require half the wattage of standard 100-watt bulbs, yet provide nearly the same amount of illumination.

The smallest diameter recommended for a lampshade is 16 inches. Anything smaller will waste electricity by not diffusing enough light to be functional.

In high-intensity portable lamps, you can substitute 25-watt reflector bulbs for the 40-watt bulbs normally used; you'll get approximately the same illumination while consuming less energy.
5. Energy Efficient Water Use

Increase the efficiency of your water heater by spreading the family's baths, dishwashing, and laundry throughout the day. Also consider showering rather than tub bathing because a short shower consumes 4 to 8 gallons of hot water, while a bath uses 20 gallons or more.

Another way to make your water heater still more efficient is to use cold rather than hot water for washing clothes. Many fabrics and detergents are designed for cold water washing.

A moderate temperature setting further increases a water heater's efficiency, since the "normal" setting, usually about 140°F, supplies all the heat most people need.

If your water heater is warm to the touch, it is not well insulated and is wasting energy. Wrap insulation around the tank to solve the problem.

If you have a swimming pool, economize on your water bills by filling your swimming pool with rain water. Attach an elbow connection to the gutter spout on your house and run a pipe from

the elbow connection to your pool. To prevent water from cooling as it travels to your plumbing fixtures, wrap hot water pipes with insulating material.

Sediment buildup can slow your water heater's recovery rate. If you notice a marked drop in recovery time, drain the sediment from the tank.

To prevent sediment from building up in your water heater, drain the heater periodically.

Perform this maintenance step early in the morning, before anyone has used hot water and disturbed the water in the tank.

If you have an electric water heater, check with the power company about obtaining an off peak meter. An off-peak meter allows your heater to operate at times when the company has power to spare, and you may be able to buy electricity at a lower rate.

You can further conserve energy by turning off your water heater if you plan to be away for a few days.

Hot water can cool very quickly as it makes the long trip from the basement to a second-floor bathroom. Consider locating a water heater centrally, perhaps in a small closet in the kitchen. It's also important to have the water heater in a place as warm as is practical. The warmer the environment, the less the water has to be heated.
Locating your dishwasher near your water heater is one way to reduce heat loss, because shorter water lines lose less heat than longer ones.