

# Join-In

## ENERGY CONSERVATION TIPS

### **SIMPLE & PRACTICAL WAYS TO REDUCE ENERGY COSTS IN YOUR HOME**

#### Project:

**BANNOCK COUNTY ECONOMIC DEVELOPMENT THROUGH ENERGY  
EFFICIENCY  
“GATEWAY – JOIN IN PROJECT”**

#### Program participants:

**Greater Pocatello Chamber of Commerce, ID  
Idaho Energy Division, ID  
Idaho State University, ID  
School Districts 21 & 25, ID  
Bannock County, ID**

#### References:

The following energy conservation tips have been compiled from these references. Neither the US Department of Energy, the Idaho Power, the above program participants nor those who may distribute this publication are to be held accountable for the suitability or performance of these recommendations.

1. “How to Reduce Your Energy Costs”, Second ed., November 1991, Idaho Power.
2. “Energy Savers Tips”: U.S. Department of Energy website: (following tips are published with permission dated 2/3/2003 from the National Renewable Energy Lab.) [http://www.eren.doe.gov/energy\\_savers\\_partners/quick\\_tip\\_archive.html](http://www.eren.doe.gov/energy_savers_partners/quick_tip_archive.html).

## **Energy Conservation Tips: Save \$\$\$ using these simple energy tips.**

Following are easy ways to save energy<sup>1</sup>, you can cut down your utility costs by 25% to 50% by following these little or no-cost conservation methods.

1. When lights are not needed turn them off. This is the simplest and easiest to do.
2. Areas where light bulbs will not be used for a long time, remove and store them.
3. Use lower wattage or more efficient bulbs especially when replacing them.
4. Thermostat temperature settings:
  - a. lower your heating thermostat settings, and
  - b. raise your air conditioning (cooling) thermostat settings.
5. During unoccupied hours, plan on reducing the heating and air conditioning use.
6. Before the end of your operating hours, reduce heating and air conditioning use.
7. All heating, ventilating, and air conditioning systems should be maintained, serviced and adjusted on a regular basis. Automatic controls should be set properly and should be in good working condition.
8. Turn off power consuming machines and equipment when not needed (e.g. TV, computer, printers, kitchen equipments, heaters, washers etc are energy hogs).

## **Energy Conservation Tips from the US Department of Energy<sup>2</sup>**

**(Note for the “Gateway-Join In” program: Following tips are with details, and can be used for radio & television “Energy Tip of the Week”):**

### **Cut Your Cooking Costs**

Follow a few tips to save energy and money when cooking:

1. If you need to purchase a gas oven or range, look for one with an automatic, electric ignition system. An electric ignition saves gas because a pilot light is not burning continuously.
2. In gas appliances, look for blue flames; yellow flames indicate the gas is burning inefficiently and an adjustment may be needed (consult the manufacturer or your local utility).
3. For small meals, use small electric pans or toaster ovens rather than your large stove or oven; a toaster oven uses a third to half as much energy as a full-sized oven.
4. Keep range-top burners and reflectors clean; they will reflect the heat better, saving you energy.
5. It's also more efficient to match the size of the pan to the burner.

## **Lower Your Lighting Costs**

Increasing your lighting efficiency is one of the fastest ways to decrease your energy bills.

1. Turn off the lights in any room you're not using, or consider installing timers, photo cells, or occupancy sensors to reduce the amount of time your lights are on.
2. Use task lighting; instead of brightly lighting an entire room, focus the light where you need it. For example, use fluorescent under-cabinet lighting for kitchen sinks and countertops under cabinets.
3. Consider three-way lamps; they make it easier to keep lighting levels low when brighter light is not necessary.
4. Finally, use compact fluorescent lamps (CFLs); they are much more efficient than incandescent bulbs and last 6 to 10 times longer. CFLs are more expensive than incandescent bulbs, but they pay for themselves by saving energy over their lifetime.

## **This Winter, Save Money and Stay Warm**

Keep your energy bill and your pollution output low this winter by taking a whole-house approach to heating.

1. Start with setting your thermostat as low as is comfortable. A programmable thermostat can help by adjusting the temperature according to your schedule—it can cut back heating at night, for instance, and turn it up again before you rise in the morning.
2. It's also important to weatherize your home—caulk and weatherstrip any doors and windows that leak air.
3. Make sure your equipment is properly maintained and cleaned, and that furnace filters are replaced regularly.
4. Finally, insulation is inadequate in many homes. Check the insulation in your attic, ceilings, exterior and basement walls, floors, and crawl spaces to see if it meets the levels recommended for your area.

## **Don't Let Your Fireplace Burn Up Energy**

A roaring fire in your fireplace can exhaust as much as 24,000 cubic feet of air per hour. This air must be replaced with cold air from outside, which is warmed by your heating system and then exhausted through your chimney. Minimize your losses by following a few tips:

1. Keep the fireplace damper closed unless a fire is going.
2. When you use the fireplace, open dampers in the bottom of the firebox (if provided) or open the nearest window slightly—approximately one inch—and close doors leading into the room; lower the thermostat setting to between 50 and 55 degrees.
3. Install tempered glass doors and a heat-air exchange system that blows warmed air back into the room.
4. Finally, if you never use your fireplace, plug and seal the chimney flue.

## **Close the Window on High Energy Bills**

1. If your home has single-pane windows, as almost half of U.S. homes do, consider replacing them.
2. New double-pane windows with high-performance glass are available in the market.
3. In colder climates, select windows that are gas filled with low-emissivity (low-e) coatings on the glass to reduce heat loss.
4. In warmer climates, select windows with spectrally selective coatings to reduce heat gain.
5. If you decide not to replace your windows, there are other ways to improve their performance. In cold climates, close your curtains and shades at night, and open them during the day.
6. Installing storm windows can also reduce your heat loss, by up to 50%.
7. In warm climates, install white window coverings to reflect heat away from the house, and close south- and west-facing curtains during the day.

## **Buy Efficient Appliances & Save on Energy Costs**

1. Appliances account for about 20% of a home's energy consumption, with refrigerators, clothes washers, and clothes dryers at the top of the consumption list.
2. When you have to shop for a new appliance, keep in mind that products have two price tags-the purchase price and the operating cost. You'll be paying on the second price tag every month through your utility bill for 10 to 20 years, depending on the appliance.
3. To reduce your energy bill, look for the Energy Star label, which identifies energy-efficient appliances that usually exceed minimum federal standards by a substantial amount.
4. And most appliances are required to display a bright yellow and black EnergyGuide label; these labels will not tell you which appliance is the most efficient, but they will tell you the annual energy consumption and operating cost so you can compare for yourself.

## **Heat Your Water with Less Energy and Money**

Water heating is probably the third largest energy expense in your home; it typically accounts for about 14% of residential utility bills.

1. If you heat with electricity, consider installing a solar water heater on an unshaded, south-facing location on your property (such as a roof).
2. More than 1.5 million homes and businesses in the United States have invested in solar water heating systems and over 94% of these customers consider the systems a good investment. Solar water heating systems are also good for the environment. They avoid the harmful greenhouse gas emissions associated with electricity production, and during a 20-year period, one solar water heater can avoid more than 50 tons of carbon dioxide emissions.

3. When shopping for a solar water heater, look for systems certified by the Solar Rating and Certification Corporation (SRCC) or the Florida Solar Energy Center (FSEC).

### **Don't Send Your Money Down the Drain**

There are many ways to conserve water and lower your water bill.

1. Repair leaky faucets promptly, and install aerating, low-flow faucets and showerheads.
2. The biggest water-user in a home is typically the toilet. Install low-flow toilets, or place a plastic container filled with water or gravel in the tank of your conventional toilet. (Be sure it does not interfere with the toilet's flush mechanisms.)
3. In the kitchen, scrape, don't rinse, off large food pieces, and add food wastes to a compost pile rather than using a garbage disposal.
4. If you use a dishwasher, soaking or prewashing dishes is generally only recommended in cases of burned-on or dried-on food. Run your dishwasher when it is full, but not overloaded. And don't use the "rinse hold" setting for just a few soiled dishes.
5. For laundry, wash full loads, or use the appropriate water-level setting.
6. Outdoors, use native plants, reducing the need for extra watering, and when using a hose, control the flow with an automatic shut-off nozzle.

### **Seal Your Ducts and Save Money**

Many duct systems are poorly insulated or not insulated properly.

1. Ducts that leak heated or cooled air into unconditioned spaces (spaces that aren't heated or cooled, like crawlspaces) can add hundreds of dollars a year to your heating and cooling bills, so insulating these ducts is usually very cost-effective.
2. Although minor duct repairs are easy to accomplish, ducts in unconditioned spaces should be sealed and insulated by qualified professionals using appropriate sealing materials. For minor repairs, look for duct sections that should be joined but have separated, and then look for obvious holes.
3. If you use duct tape to repair and seal your ducts, look for tape with the Underwriters Laboratories (UL) logo.
4. Note that water pipes and drains in unconditioned spaces could freeze and burst if the heat ducts are fully insulated, because there would be no heat source to prevent the space from freezing in cold weather. However, using an electric heating tape wrap on the pipes can prevent this.
5. For cooling ducts, be sure a well-sealed vapor barrier exists on the outside of the insulation to prevent moisture buildup.

### **Chill Out with an Efficient Fridge**

Refrigerators are among the most energy intensive appliances in a home, but with a few steps you can keep your energy costs to a minimum.

1. Check that your refrigerator isn't too cold. Recommended temperatures are 37 to 40 degrees Fahrenheit for the fresh food compartment and 5 degrees for the freezer section. Long-term storage freezers should be kept at 0 degrees. (Stick a thermometer in a glass of water and read it after 24 hours; for the freezer, stick the thermometer between frozen packages.)
2. Frost build-up decreases energy efficiency, so regularly defrost manual-defrost refrigerators and freezers.
3. Replace your refrigerator door seals if they are not airtight, and cover liquids and wrap foods—uncovered foods release moisture and make the condenser work harder.
4. Move your refrigerator out from the wall and vacuum its condenser coils once a year unless you have a no-clean condenser model.
5. Finally, if you're in the market for a new refrigerator, pay attention to the EnergyGuide label, which lists electricity use in kilowatt-hours—the lower the better.

### **Outdoor Lights: Your Way to Energy Savings**

1. When shopping for outdoor lights, you will find a variety of products that can help you reduce your lighting bill, from low-voltage pathway lighting to motion-detector floodlights.
2. Some stores also carry lights powered by small photovoltaic (PV) modules that convert sunlight directly into electricity.
3. Look for outdoor lights with photosensors, which automatically turn off when they sense sunlight. Timers are not often used alone for outdoor lighting because they may have to be reset often with the seasonal daylight variation. However, they can be used effectively in combinations with other controls. For example, a photosensor could turn a light on at dusk, and a timer could turn the light off at a certain hour (like 11 p.m.).
4. Stay away from decorative outdoor gas lamps — they are very energy intensive. Long-living compact fluorescent lamps (CFLs) can be great for exterior lighting, but be sure to find CFLs that operate at low temperatures for outdoor use.

### **Keep Heating and Cooling Costs Under Control**

Heating and cooling your home typically accounts for about 44% of your utility bill. What's more, U.S. heating and cooling systems emit more than half a billion tons of carbon dioxide each year, contributing to global warming, and they generate large amounts of sulfur dioxide and nitrogen oxides, chief ingredients of acid rain.

1. You can significantly cut energy costs and use, by setting your thermostat low in the winter and high in the summer, but it's also important to maintain your heating and cooling systems.
2. Clean or replace filters on furnaces once a month or as needed, and clean warm-air registers, baseboard heaters, and radiators periodically, making sure they're not blocked by furniture, carpeting, or drapes.
3. Also, use kitchen and bathroom fans wisely; in just one hour, these fans can pull out a houseful of warmed or cooled air.

## **Turn Up the Savings on Your Dishwasher**

With a few easy steps, you can cut your dishwashing energy costs.

1. Most of the energy used by a dishwasher is to heat the water.
2. Check your dishwasher's manual for recommendations on water temperature; many have internal heating elements that allow you to set the water heater in your home to a lower temperature (115 degrees Fahrenheit).
3. Scrape, don't rinse, off your plate; soaking or prewashing is generally only recommended in cases of burned-on or dried-on food.
4. Be sure your dishwasher is full, but not overloaded.
5. Let your dishes air dry, and don't use the "rinse hold" on your machine for just a few soiled dishes; it uses three to seven gallons of hot water each time you use it.
6. Finally, when shopping for a new dishwasher, look for the Energy Star label.

## **Cut Energy Costs with Passive Solar Design**

Passive solar heating and cooling design can be both environmentally friendly and cost effective.

1. Heating techniques include placing larger, insulated windows on south-facing walls and locating thermal mass, such as concrete slab floor or a heat-absorbing wall, close to the windows. In many cases, you can cut your heating costs by more than 50% compared to the cost of heating the same house that does not include passive solar design.
2. Cooling costs can also be reduced through passive solar techniques like overhangs, windows with reflective coatings, and reflective coatings on exterior walls and the roof.
3. But a passive solar house also requires careful design and site orientation, which depend on the local climate. So, if you are considering passive solar design for new construction or a major remodeling, consult an architect familiar with passive solar techniques.

## **Track Your Energy Costs with a Home Energy Audit**

An energy audit will show you which areas of your home use the most energy and help you decide the most effective way to reduce energy costs.

1. You can conduct a simple audit yourself, contact your local utility, or call an independent energy auditor for a more comprehensive examination.
2. Check your home's insulation levels, and check for open fireplace dampers.
3. Look for holes or cracks around doors, light and plumbing fixtures, and other places where air may leak into or out of your home.
4. Make sure your appliances and heating and cooling systems are properly maintained.
5. Study your family's lighting needs and use patterns, paying special attention to high-use areas.

## **Insulate Your Home Against High Energy Bills**

A good insulating system can help keep your home warm during winter and cool during summer.

1. Check the insulation in your attic, ceilings, exterior and basement walls, floors, and crawl spaces to see if it meets the levels recommended for your area. (Insulation is measured in R-values — the higher the R-value, the better your walls and roof will resist the transfer of heat.)
2. Consider factors such as your climate, building design, and budget when selecting insulation R-value.
3. The easiest and most cost-effective way to insulate your home is to add insulation in the attic.

## **Lighten Up Your Energy Bill with Fluorescent Lamps**

If you replace 25% of your lights in high-use areas with T-8 fluorescents, you can save about 50% of your lighting energy bill.

1. Fluorescent lamps are more expensive than incandescents, but they more than pay for themselves because they save energy and last 6 to 10 times longer.
2. Compact fluorescent lamps (CFLs) can be used in portable table and floor lamps, and even in torchiere fixtures; consider carefully the size and fit of CFLs when you select them.
3. Exterior lighting is one of the best places to use CFLs because of their long life.
4. If you live in a cold climate, be sure to buy a lamp with a cold-weather ballast.
5. Use 4-foot fixtures with reflective backing and electronic ballasts for your garage and laundry areas.
6. Consider 4-watt mini-fluorescent or electro-luminescent night lights.

## **Cut Your Costs on Water Heating**

Water heating is a home's third largest energy expense, but there are a few ways to reduce its cost.

1. Use less water by repairing leaky faucets promptly and installing aerating, low-flow faucets and showerheads.
2. Lower the thermostat on your water heater to 115 degrees, and insulate your hot-water storage tank and pipes. (Do not cover the thermostat, and for gas or oil units, do not cover the heater's top, bottom, or burner compartment. When in doubt, get professional help.)
3. Finally, buy an energy-efficient water heater. While it may cost more initially than a standard water heater, the energy savings will continue during the lifetime of the appliance.

## **Cook Up Energy Savings in the Kitchen**

Cut down on your cooking costs by following some of these energy-saving tips:

1. Use a covered kettle or pan to boil water; it's faster and it uses less energy.

2. It's also more efficient to match the size of the pan to the burner.
3. If you cook with electricity, turn the oven and stovetop burners off several minutes before the allotted cooking time—the heating element will stay hot long enough to finish the cooking without using more electricity.
4. Use pressure cookers and microwave ovens to save energy by significantly reducing cooking time.

## **Cut Down on Energy Costs While Doing the Laundry**

About 80-85% of the energy used for washing clothes is used to heat the water.

1. To reduce this cost, use less water by washing full loads, and use cooler water (switching the temperature setting from hot to warm cuts a load's energy use in half).
2. To reduce drying costs, clean the lint filter after every load to improve air circulation, and don't over-dry clothes. Use the cool-down cycle to allow clothes to finish drying with residual heat.

## **Stay Cool This Summer While Saving Energy**

Set your thermostat as high as comfortably possible in the summer.

1. The less difference between the indoor and outdoor temperatures, the lower your overall cooling bill will be.
2. If you use an air conditioner, don't set your thermostat at a colder setting than normal when you turn it on. It will not cool your home any faster and could result in excessive cooling and unnecessary expense.
3. If you're shopping for an air conditioner, look for the Energy Star and EnergyGuide labels.

## **Reduce Energy Bills with Landscaping**

Carefully placed trees can save up to 25% of a typical household's energy used for heating and cooling.

1. Deciduous trees - trees that lose their leaves in the fall can be especially effective, providing protection from the summer sun but permitting winter sunlight to reach and warm the house.
2. The height, growth rate, branch spread, and shape are all factors to consider when choosing a tree.
3. Evergreen trees and shrubs can be placed to deflect north and west winds during the winter, and south and west winds during the summer.
4. Vines are another source of shading and cooling in the summer.

## **Use Window Coverings to Save on Energy Costs**

Draperies and shades can help you keep your heating and cooling bills under control.

1. During the heating season, keep the coverings on your south-facing windows open during the day to allow the sunlight to enter your home and closed at night to reduce the chill you may feel from cold windows.

2. During the summer season, keep the window coverings closed during the day to block direct heat from the sun.

### **Save Money Without Sacrificing Comfort**

You can save as much as 10% a year on your heating and cooling bills by simply turning your thermostat back 10% to 15% for 8 hours.

1. You can do this automatically without sacrificing comfort by installing an automatic setback or programmable thermostat.
2. Using a programmable thermostat, you can adjust the times you turn on the heating or air-conditioning according to a pre-set schedule, saving energy and money while you're asleep or at work.
3. Programmable thermostats can store and repeat multiple daily settings that you can manually override without affecting the rest of the daily or weekly program.

### **Be Fireplace Savvy and Save Energy**

A fireplace is one of the most inefficient heat sources in your home - a fire exhausts the air your heating system has warmed, sending it out through the chimney. But you can minimize your losses.

1. Keep your damper closed when the fireplace is not in use, and if you never use your fireplace, plug and seal the chimney flue.
2. When you do use the fireplace, reduce heat loss by opening dampers in the bottom of the firebox, if you have them, or open the nearest window slightly - approximately one inch - and close doors leading into the room.
3. Lower the thermostat setting to between 50° and 55°F.

### **Don't Let Your Energy Go out the Window**

Storm windows can reduce your home's heat loss through windows by as much as 50%, and they can help reduce drafts, water condensation, and frost formation.

1. Install storm windows over single-pane windows or replace them with double-pane windows.
2. As a less costly alternative, you can use a heavy-duty, clear plastic sheet on a frame or tape clear plastic film to the inside of your window frames during the cold winter months. Be sure to seal the plastic tightly to the frame.

### **Test Your Home for Air Tightness & Save Money**

Air moves in and out of your home through every hole, nook, and cranny. About one-third of this air moves through openings in your ceilings, walls, and floors—this is like having a small window open all winter long.

1. Check your home for air tightness in locations where there is a possible air path to the outside.
2. Caulk and weatherstrip doors and windows, and seal air leaks where plumbing, ducting, or electrical wiring penetrates through exterior walls, floors, and ceilings.
3. The cost savings to weatherizing your home will be realized throughout the year.

## **References:**

1. "How to Reduce Your Energy Costs", Second ed., November 1991, Idaho Power.
2. "Energy Savers Tips": U.S. Department of Energy website: (above tips are published with permission dated 2/3/2003 from the National Renewable Energy Lab.) [http://www.eren.doe.gov/energy\\_savers\\_partners/quick\\_tip\\_archive.html](http://www.eren.doe.gov/energy_savers_partners/quick_tip_archive.html).