30 SIMPLE THINGS YOU CAN DO TO SAVE ENERGY

The EarthWorks Group

Distributed by
Idaho Power Company

Sixth printing

Printed in the United States of America.

A *50 Simple Things*® book

We've provided a great deal of information about practices and products in our book. In most cases, we've relied on advice, recommendations and research by others whose judgments we consider accurate and free from bias. However, we can't and don't guarantee the results. This book offers you a start. The responsibility for using it ultimately rests with you.

THIS BOOK IS PRINTED ON 30%
POST-CONSUMER RECYCLED PAPER

INTRODUCTION

Idaho Power, headquartered in vibrant and fast-growing Boise, Idaho, has been a locally operated energy company since 1916. Our goal to provide 100% clean energy by 2045 builds on our long history as a clean-energy leader, safely providing reliable service at affordable prices for our customers across southern Idaho and eastern Oregon.

We understand energy plays an important role in the economic and environmental health of this vast and diverse region. Because of this, we are committed to being responsible, respectful stewards of our rich natural resources. Providing information and education to help you use electricity wisely is just one of the ways we uphold that responsibility.

We invite you to join us in our commitment by acting on some of the simple suggestions in this book. Then participate in one or more of Idaho Power's energy efficiency programs. These programs are designed to help you implement the most impactful changes for your home. For more information, visit *idahopower.com/save*.

Working together, we can maintain a reliable energy balance and continue to sustain our special quality of life for generations to come.

CONTENTS

INTRODUCTION

TO ENERGY

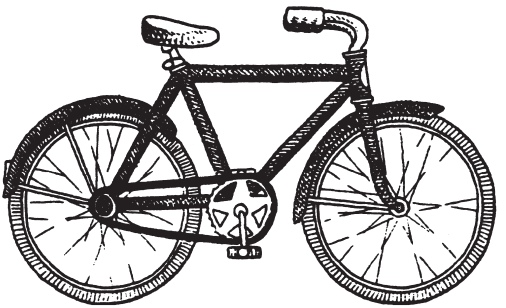
WHAT IS ENERGY?

Energy is the power to "do work." Anything that takes effort is work—and it always requires energy. If you're making a car run, pedaling a bicycle, running a vacuum cleaner, throwing a ball, firing a rocket into space, or writing a letter (or printing one), you're using energy.

At home, you commonly use energy in several ways:

- **To heat things up.** Activities like cooking, keeping a house warm, and heating the water for a shower all require energy.
- **To cool things down.** It takes energy to keep food cold in refrigerators, to make ice cubes, to keep ice cream from melting, and to run an air conditioner.
- **To make light.** Without energy, you'd be in the dark—literally. Whether it's directly from the sun, from a battery in a flashlight, or from an electric outlet, energy produces the light that enables you to see.
- **To do work.** You use energy to run clothes washers and dryers, food mixers, lawn mowers, and automobiles, among other things. In other words, you use energy to do work you'd otherwise have to do with your own muscles.
- **To entertain.** Energy supports leisure activities such as gaming, music, home theaters, etc.

You use energy in everything you do.



WHERE DOES ENERGY COME FROM?

The electricity and natural gas you use in your home come from natural resources, many of which developed over millions of years and are in limited supply. These natural resources are often described in terms of how easily they can be replenished. Fossil fuels took millions of years to develop and are usually referred to as "nonrenewable" resources. In contrast, hydro, geothermal, biomass, solar and wind energy, because they are continually replenished, are called "renewable" resources.

The most common sources of energy used in the United States are described below, along with some candidates for future energy sources.

FOSSIL FUELS

• It took millions of years to create coal, oil, and natural gas. They are the remains of plants and animals that lived millions of years ago—about the same time as the plants and animals found in fossils. That's why they're called "fossil fuels."

• People all over the world depend on fossil fuels. But there's a limited amount of these fuels.

• Someday, all fossil fuels may be burned up. Once fossil fuels are gone, it will take nature millions of years to make more.

Coal

• Coal is a little like rock and a little like charcoal—hard, black, and slightly greasy. It's found underground. In the 1700s, people began burning it to power some of the first factories.

• At the beginning of the 20th century, many Americans still heated their homes with coal, but now coal is burned mainly in electric plants and factories.

• Coal is acquired in two ways. In underground mines, workers dig tunnels through the earth to reach the coal. In surface mines (also called strip mines), the soil and rock are peeled off with heavy machinery and hauled away in huge trucks until the miners get to the coal below.

Oil

• Like coal, oil was formed from the remains of ancient jungles that were buried over the centuries. To get the oil, people drill wells into the earth. When they find it, they pump it up to the surface. When oil comes out of the ground, it's thick, black, and viscous in a form called "crude oil."

• Oil is the most widely used fuel in the United States and throughout the world. Most of the oil burned in this country is used for transportation—to power cars, trucks, ships, and planes.

• Just over 1% of all electricity generated in the U.S. in 2008 came from power plants that burned oil.

Natural Gas

• This fuel is found underground, too. It's called "natural" because when it comes out of the earth it's already in gas form.

• Natural gas comes from wells and is sent through pipelines to the places where it's used. Some is liquefied by pressure and transported by ship.

• Natural gas is used most often for cooking and heating. If you have a gas stove in your kitchen, a gas furnace, or a gas water heater, natural gas is what it burns.

NUCLEAR POWER

• Nuclear energy comes from splitting atoms of uranium ore. The heat from splitting those atoms is used to turn water into steam that powers electric generators.

RENEWABLE ENERGY

Hydro

• It's no mystery that water flows downhill. For thousands of years, people have been using the force of that falling water to make energy; for example, to turn mills that grind wheat into flour.

• Today, the force of falling water is used to generate electricity. Dams across rivers trap the water and direct it to run through pipes down ten stories or more to turn turbines that produce electricity.

Geothermal

• If you were to dig a deep well, you'd find that the earth around the well gets hotter the farther down you go.

• In some places, water trickles down through cracks in the earth and eventually gets to rocks so hot that the water boils into steam.

• This steam then rises back out of the earth, sometimes gushing into geysers like Old Faithful in Yellowstone National Park.

This kind of steam is used to turn generators and make electricity in several places around the world, including Iceland, California, and Idaho.

Solar

Leave a car in the sun with the windows rolled up, and it will get very hot inside. That's because sunlight has a lot of energy. This solar energy can be used in two ways:

• To heat things directly, like houses and water.

• To generate electricity. Scientists have designed special panels that convert light energy into electric energy. You've probably seen toys, calculators, or watches that have these "solar cells." More and more homes and businesses now generate electricity with rooftop solar panels, which are made of many solar cells.

Wind

If you've ever flown a kite, you know how strong the wind can be. Pioneers in America used windmills to pump their water out of wells. Now wind turbines are used to generate electricity. Here's how:

• A machine that looks like a big fan is set on top of a tall pole.

• The wind spins the turbine blades, which, in turn, run a generator that makes electricity.

Biomass

• Organic matter that can fuel electric power plants such as plant fiber, animal wastes, industrial waste and solid waste.

• Among renewable energy sources today, only hydropower produces more electricity than biomass.

A PROMISING FUTURE

Looking into the future, engineers and scientists are confident there will be better ways to store energy and harness other sources such as ocean tides.

ENERGY AND THE ENVIRONMENT

Using energy wisely can lower your energy costs, preserve natural resources, and improve air quality. Energy is a precious resource—you should use energy only when you need it, and use only as much as you need.

AIR POLLUTION

If you visit a big city, you may notice that the air is sometimes brownish gray. That's "smog," and it is caused by a variety of things including energy use in all its forms.

• When fuels are burned, waste products are released into the air. These can include gases, such as nitrogen oxides, carbon dioxide and hydrocarbons, as well as tiny particles that aren't burned in the combustion process.

• Some of these gases float in the air above the city, where sunlight turns them into pollution.

• On a national level, the biggest sources of smog are cars, trucks, factories, and electric power plants. Driving less and using less electricity can help clean up the air.

WATER POLLUTION

Our oceans, rivers, and bays are full of life. The plants and creatures that live there depend on clean water for life and health. You can do a better job of keeping the water clean and safe for them.

• Oil and chemical spills wreak havoc with ecosystems. You've probably seen pictures of oil and chemical spills on TV or in newspapers.

• When less oil is used, fewer ships are needed to carry oil around—and there is less chance of an oil spill.

HABITAT CHANGE

Whether the result of digging for coal, damming a river to produce hydroelectric power, or storing a nuclear power plant's radioactive waste safely, the production of energy can have an impact on the surrounding natural habitat.

• Conserving energy preserves open spaces. Conserving energy means less energy is needed. When you use less energy, less energy has to be produced. Fewer power plants leave more land available for open space, for parks, and for wilderness areas that people and animals can enjoy.

• Supporting renewable energy creates a healthier environment. Air emissions associated with generating electricity from solar, geothermal, hydro, and wind technologies are negligible because no fuels are burned when energy is generated from these sources.

Visit Energy & the Environment at *idahopower.com* for more information.

SIMPLE THINGS

TO DO

1. DIALING FOR DOLLARS

Is your thermostat accurate? If not, chances are that the temperature sensor is being affected by air coming through the opening where it's mounted.

BACKGROUND. Consciously managing your thermostat is one of the simplest ways you can save energy and money.

ENERGY FACTS

• During the winter, you can save as much as 2–3% on your heating costs by lowering your thermostat just 1°F (if it's set between 65°F and 72°F).

• In the summer, a programmable thermostat can save 3–5% in cooling costs for every degree you raise it (if it's set between 70°F and 82°F).

• Low-priced, easy-to-install thermostats that adjust the temperature automatically make it easy to save energy and money while keeping you comfortable. Most have built-in clocks or computers that tell your furnace when to adjust for your changing needs throughout the day. Some also have a "minimum energy use" setting that monitors temperatures when you go on vacation.

SIMPLE WAYS TO SAVE ENERGY

• **Keep the thermostat under control.** Recommended winter setting for forced air systems are: 68°F when you're at home, lower at night, and 55°F when you're away. In the summer we recommend 78°F when you're at home and 85°F when you're away. Heat pumps require specially designed programmable thermostats to make setbacks effective. Always take health issues into consideration when choosing a thermostat setting.

• **Check the temperature.** Using an accurate thermometer, make sure that the temperature near your thermostat is representative of the rest of the house. If it's located in a drafty or sunny spot, you may be getting false readings and wasting energy.

• **Plug the hole** in the wall behind the thermostat with expanding foam insulation.

2. DUCT SOUP

Leaking ducts can reduce the efficiency of your heating system by up to 20%.

BACKGROUND. If you think about your heating ducts at all, it's probably because they're in the way when you stack things in the basement…or because you keep banging your head on them.

But ducts are a critical part of making your home energy efficient. A one-square-inch hole in a duct will leak as much air as a hole 25 times that size in your wall.

ENERGY FACTS

- You can save up to 15% of your heating and cooling costs (or up to 11% of your total energy costs) by insulating and tightening up ducts.
- Even if the air isn't actually escaping from an uninsulated duct, you lose a lot of heat through its thin metal walls.
- When the first air that comes out of the vent after you turn on the heater is chilly, and stays chilly for a long time, you know your ducts are uninsulated and you're wasting energy.

SIMPLE WAYS TO SAVE ENERGY

If your rigid ducts aren't insulated: Turn on your furnace and feel for air escaping around the duct joints. If you feel any (and you probably will), clean around the joint, then seal with mastic or approved foil-faced tape. Idaho Power recommends mastic. Duct tape is not suitable for sealing joints.

- Insulate the ducts with 2-inch thick fiberglass (available at home improvement stores); seal the seams with tape or mastic sealant or foil-faced tape approved by Underwriters Laboratories. If ducts are hard to get at, call a heating contractor.

If your ducts are already insulated: It's harder to find out if your ducts leak. You can expose the joints (where the ducts bend, for instance) to check. Or leave it to an expert.

- Before you start any work, check to make sure the insulation isn't asbestos (looks like off-white, stiff, heavy cloth). If it is, stay away! If you're not sure, check with your local building department.

3. TUNE UP THE HEAT

The cost of heating and cooling homes can make up nearly half of a utility bill.

BACKGROUND. The American Council for an Energy-Efficient Economy puts it this way: "The single most important thing people can do to save energy in their homes is to make sure their furnaces are running efficiently."

ENERGY FACTS

• Heating and cooling systems in the United States emit over 400 million tons of carbon dioxide into the air each year.

• They also generate about 12% of the nation's sulfur dioxide and 4% of the nitrogen oxide.

SIMPLE WAYS TO SAVE ENERGY

Get a Heating and Cooling System Tune-Up:

Have a professional inspect and clean your heating and cooling equipment every year. Schedule your tune-ups in spring and fall before contractors get busy.

A typical furnace tune-up includes:

• Tightening all electrical connections and measuring voltage and current on motors.

• Lubricating all moving parts to decrease friction and therefore use less electricity.

• Checking thermostat settings and system controls, including the start and stop cycles.

A FEW HEATING TIPS

If you have a forced-air system:

• Insulate ducts with R-6 or greater fiberglass insulation wherever they pass through unheated spaces.

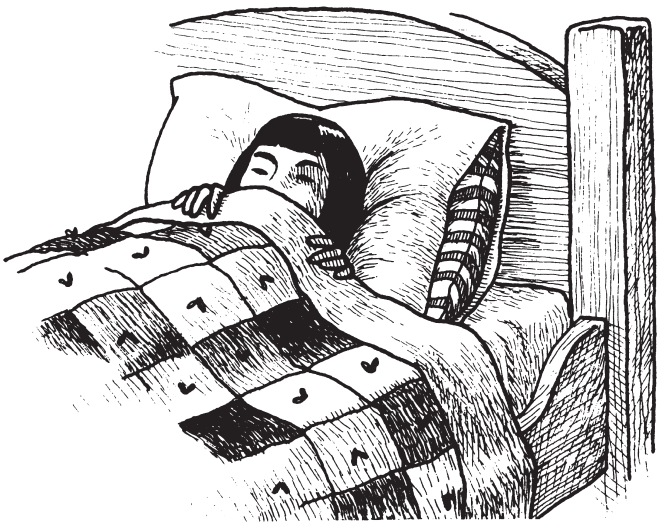
• Change or clean your air filters regularly. Your system uses more energy when the filter is full of dust.

If you have an electric forced air furnace:

Consider installing a heat pump, which uses thermal energy from outside air for both heating and cooling. New air source heat pumps are 2.5 to 3.5 times more efficient than electric-resistance heating depending on proper design and installation.

If you have a hot water/steam system:

Put a reflector behind your radiator (you can buy one or make one by taping aluminum foil on cardboard). This can save energy and cash by throwing back heat you'd normally lose through the wall. The shiny side of the foil should face away from the wall.



4. COOL TRICKS

On an average summer day, American air conditioners provide enough cold air to produce 16 trillion ice cubes.

BACKGROUND. Air conditioners have revolutionized lives. Summer in some parts of the U.S. was once considered "a long misery." But when air conditioners became widely available in the 1950s, people found they could enjoy life regardless of the weather.

Today, 2/3 of American homes have air conditioning. This may be comfortable for homeowners, but it's not easy on the energy supply. During the summer, air conditioners use 21% of a home's annual electricity—emitting 1.5 tons of CO_2 every year.

ENERGY FACTS

- To cool your house efficiently, your air conditioner coils have to be clean.
- Air conditioners located on the north sides of houses generally use less energy than those on the south or west sides, where it's sunnier.
- If your air conditioner is already in the sun, you can build a simple wooden shade screen for it—but don't block the air flow.

SIMPLE WAYS TO SAVE ENERGY

- **If you've got air conditioning, don't close off airflow to entire rooms**—that blocks the flow of air throughout the house. Whenever possible, leave inside doors partly open. Remember not to block wall or floor registers.
- **Turn the air conditioner off** or "set" your thermostat to 85°F when you leave the house for several hours or more, or when you are asleep (heat pumps excluded).
- **A thermostat is not a throttle,** so don't switch your air conditioner to a colder setting when you turn it on. It won't cool the room any faster, but it will waste energy when you forget to turn it back up.

• **Use a programmable thermostat with your central air conditioner.** You don't need to leave your air conditioner on all day to have a cool house when you get home.

• **Keep the heat out.** Minimize the amount of heat entering your home from outside by closing shades and curtains on hot days—heat from sunlight coming through windows can account for 20% of your cooling costs.

• **Set the thermostat as high as possible.** The minimum recommended energy efficient summer temperature is 78°F.

• **Avoid operating your air conditioner at full capacity during peak hours.** This is usually on weekday afternoons between 3 and 7 p.m.

• **Cook dinner outside** when possible to keep the heat out of your home.

CARING FOR THE OUTDOOR COILS

You can save energy by taking care of air conditioner coils. They won't work efficiently unless the fins are clean and straight. So check them out every spring.

• If the fins are bent, you can carefully straighten them with a plastic spatula. Or call a service person to repair them.

• If they're dusty, dirty, or clogged with leaves, you can vacuum them with a household vacuum cleaner. If the vacuum attachment won't fit between the coils, blow the dirt away instead.

DON'T FORGET THE FILTER

Air conditioners are equipped with filters (usually located on the lower or upper front of the air handler) to protect their fan blades, motors, and other internal parts. Dirty air filters are the primary cause of air conditioning service calls. But filters are easy to replace, and you can do it yourself. Change filters as needed, but at least twice each year. We recommend buying extra filters so you have one on hand for next time.

5. PLAY IT AGAIN, FAN

Americans purchase about 16 million fans each year.

BACKGROUND. "About 100 years ago," says *Electrical Review* magazine, "ceiling fans were introduced to make rooms more comfortable in warm climates." Today, when you think of ceiling fans, you may think of classic films like *Casablanca*. There is a romance to them. But there's a practical reason for buying one, too.

ENERGY FACTS

• Ceiling fans can consume as little energy as a 10-watt bulb—much less than the 2,000–5,000 watts central air conditioning uses.

• You can use your ceiling fan and air conditioner at the same time. Fans produce air currents that carry heat away from the skin, so even air-conditioned rooms feel cooler when one is running. But remember, fans cool people not air, so turn off the fan when you're not in the room; otherwise, you'll waste energy and money.

• Many ceiling fans save energy in winter as well as summer. The secret: Their motors run in reverse. This pushes warm air caught near the ceiling down to where you can feel it. Set the fan on low speed so it pushes room air up against the ceiling, forcing warm air slowly down the walls to the floor.

• How much difference can that make? Some rooms in your house can be 15°F warmer at the ceiling than at the floor. A well-placed ceiling fan can reduce this difference to only 2°F.

SIMPLE WAYS TO SAVE ENERGY

• **If you're shopping for a ceiling fan:** Purchase an ENERGY STAR® qualified unit. You can find them at home improvement centers. Look for a fan that's reversible and has more than one speed. Check to make sure the blades are angled between 11° and 16°.

• **If you're thinking about where to install one:** Rooms with the highest ceilings are the best candidates. But make sure the blades are between seven and nine feet above the floor.

• **Match the fan to the room.** For rooms 12 feet by 12 feet or less, you can use a 36 to 42-inch fan. For rooms up to 12 feet by 18 feet, use a 48 to 52-inch fan. For bigger rooms, you may need more fans.

6. GOT A LIGHT?

Lighting accounts for about 10% of all electricity used in the U.S.

BACKGROUND. Flicking a light switch is a simple motion. You do it dozens of times a day without thinking. It's time to give it some thought. Of your home's energy bill, 5–10% pays for lighting. So it's important to be energy efficient by using the right type and right amount of light.

LIGHTING TIPS

• Dust on a light bulb or dirt on a glass fixture can reduce the light it emits and make it seem that you need a brighter light.

• The paint color you choose can affect energy use. Light-colored walls "recycle" light and may reduce the number of lamps needed.

• Opening curtains during the day saves lighting energy. Direct sun is 100 times brighter than a light from a strong reading lamp.

SIMPLE WAYS TO SAVE ENERGY

• **Look at lumens instead of watts when you buy bulbs.** Watts measure the amount of energy used; lumens tell you how much light you're getting. More lumens means brighter light. Knowing this makes it easier to buy new energy efficient bulbs (see page 26).

• **Did you know that a 9-watt LED** can produce as much light as a 60-watt incandescent bulb? And it can last almost 20 times longer! But compare lumens (light output), not watts (energy used), to find similar illumination.

• **Check "lighting facts" labels on light bulb packages.** Light bulbs now come with labels that look like nutrition labels on food packages. They make it easy to compare bulbs by showing brightness (lumens), energy use, energy cost, and more.

• **When you leave a room, turn off the lights.** People often think it takes more energy to turn a light back on than it does to leave it on, but that's not true.

• **Put lamps in corners.** Light can reflect off of two walls instead of one flat wall. That way you'll get more usable light.

• **Dust the bulbs** and get the dead moths out of the fixtures before you try a higher-watt bulb.

• **Use only as much light as you need.** If you think a lower-lumen bulb will work, try it out; see if it still seems bright enough. Why waste energy on extra light?

• **Remove bulbs from multi-bulb fixtures.** This can be effective when an area is over-lit. If it's too dark afterward, consider replacing the remaining bulbs with an energy efficient bulb with more lumens. Since these bulbs use fewer watts, you're not likely to exceed the fixture's rating. Note: for safety's sake, put a burned-out bulb in any empty sockets, because it's safer to have a burned out bulb in an empty socket than it is to leave the socket empty.

• **Take advantage of sunlight to illuminate spaces.** But take care, especially in summer when direct sunlight can add unwanted heat and increase air conditioning load.

SAVE ENERGY WITH LIGHT SWITCHES

• If any lights in your house are frequently left on when they shouldn't be—in the garage or basement, for instance—you can install a timer or occupancy sensor to shut them off automatically.

• Light-switch timers are available at most hardware stores. If you're a competent do-it-yourselfer, you can install them easily.

• You can install dimmer switches wherever you need bright light only occasionally. Check the package to make certain your energy-efficient bulb is compatible with your dimmer switch. Note some older switches do not work well with new, low-wattage dimmable bulbs.

7. BETTER BULBS

Having a bright and well-lit home is safer and more economical than ever. Lighting a home for eight hours a day with 30 LEDs (800 lumens) costs a mere $0.20 a day, compared to the $1.46 it would cost using incandescent bulbs.[1]

BACKGROUND. In 2007, the Energy Independence and Security Act (EISA) was signed into law. The goal was to promote energy-savings across the country. EISA set a path for a steady increase in lightbulb efficiency which boosted innovation in an industry that had been largely stagnant for more than 100 years.

LIGHTING RIGHT

Here are some tips on how to make the best use of LED lighting in your home:

- **Select the right bulbs for your needs.** Consider the shape, brightness, color temperature, and color rendering index (CRI) of the bulbs.
- **Place LEDs strategically to create a well-lit space.** For example, use LED strips under cabinets to brighten your kitchen or LED accent lights to highlight a piece of art.
- **Use dimmable LEDs** to give you control over the light levels in your home. Dimmable LEDs are good for rooms where you want to create a specific mood, such as a bedroom or dining room.
- **Use LED strips and accent lights** to add interest or create a focal point in your home. They can highlight architectural features, such as crown molding or fireplace mantels.
- **Replace your LEDs when they start to dim.** LED lights can last for many years, but they may dim over time.

SIMPLE WAYS TO SAVE ENERGY

- Tired of reminding people to turn off the lights? Let technology handle the lift by using a combination of smart bulbs or switches, photocells, timers and occupancy/motion sensors.

[1]Based on 10.5 cents per kilowatt-hour

8. LIGHTS OUT

Outdoor lighting accounts for about 10% of all lighting in homes.

BACKGROUND. If you're interested in energy-efficient lights, here's an easy way to get started: Put an efficient bulb outside on your porch or walkway.

ENERGY FACTS

• Most people use 60-watt incandescent bulbs on their porches or in their backyards. But incandescents are the least efficient way to light, and they burn out after only 750–1,000 hours.

• Reflectorized floodlights are also common. They're roughly as inefficient as incandescents, and they consume as much as 150 watts each!

• Both types can easily be replaced by bulbs that do the same job but use ¼ of the energy.

SIMPLE WAYS TO SAVE ENERGY

• **Use an ENERGY STAR® certified LED BULB** rated for outdoor use with the fixture you already have. It uses 75–85% percent less energy and can last up to 25 years. Or buy an ENERGY STAR qualified outdoor light fixture.

• **Bright isn't always better.** Positioning lights in a uniform way reduces the contrast between light and dark, and may allow you to use lower wattage bulbs while eliminating dark, shadowy areas.

• **Trim vegetation** to reduce the need for lighting and eliminate extra hiding places.

• **Put outdoor lights on a compatible timer or photocell control** so they'll operate only when needed. Make sure the bulb you choose is rated for these applications.

9. NOW YOU'RE COOKING

Microwaves now outsell all other types of stoves, ranges, and cooktops combined. In fact, 90–95% of all households in the U.S. now use microwave ovens.

BACKGROUND. When it comes to saving energy, your microwave oven and stove aren't as much of a mystery as they may seem. Here are a few facts and some simple tips that will help you get started.

ENERGY FACTS

• Microwaves use around 66% less energy than conventional ovens. They're most efficient for small portions or defrosting; for large items like turkeys, microwaving is least efficient.

• For soups and stews, slow cookers are very efficient.

• Pressure cookers are considerably more energy efficient than regular pots and pans because they cook faster.

• Believe it or not: Every time you open your oven door during cooking, you lose 25°F or more.

• If you use glass or ceramic baking dishes, you can lower baking temperatures by 25°F. Why? These materials retain heat better.

SIMPLE WAYS TO SAVE ENERGY

• **Use an oven thermometer** to check cooking temperatures accurately. If the actual temperature is higher than it should be, adjust your future temperature settings accordingly.

• **Check the reflectors under your stovetop burners.** The cleaner they are, the better they'll reflect heat. Clean microwaves and ovens use less energy too.

• **Check the seal on your oven door** to see if there are cracks or tears in it. Even a small tear or gap is room enough for a lot of heat to escape. And it pays to keep the seal clean (to get better heat retention).

PRACTICAL TIPS

• **Use the right-size pan** for the job. Flat bottoms are best, particularly for electric and smooth cook tops.

• **Thaw frozen foods in the refrigerator** first in order to reduce cooking time. This has a side-benefit of relieving the refrigerator's workload.

• **Clean self-cleaning ovens right after use** to take advantage of residual heat. To hasten the process, clean off what you can by hand before heating.

• **Keep your oven door closed.** To check baking progress, use your timer and the oven window instead.

• **Do not preheat longer than necessary.** Ten minutes should be sufficient. Preheating is not necessary when broiling.

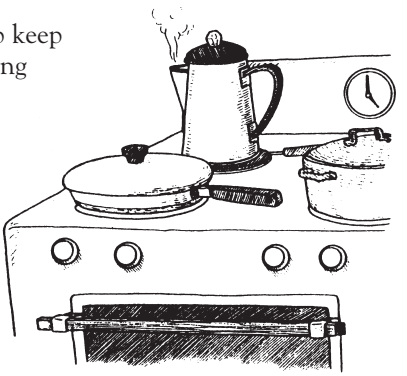
• **Keep your oven seals in good shape.** Heat from the oven can escape if a dollar bill can slip easily between the oven and the door.

• **Make sure stovetop electric coils are working properly.** A worn-out element is a real power drain.

• **Cook double portions.** Reheating prepared food uses less energy than cooking from scratch.

• **Put a lid on it!** Lids help keep heat in and speed up cooking times.

• **Turn on your kitchen fan** to exhaust air from the room when using your oven on a hot day.



10. INSULATE

If every U.S. home had a well-insulated attic, 25 billion fewer pounds of greenhouse gases would be released into the air each year.

BACKGROUND. If there's one bit of energy advice you've heard constantly, it's "insulate your home." But where? And how? It doesn't have to be a mystery.

WHAT IS INSULATION?

• Insulation works by trapping small pockets of air as buffers between warm and cold zones inside and outside your house—the same way clothes keep you warm by trapping a layer of air between you and your shirt or sweater.

• Insulation can be made of a number of different materials—cellulose (made from recycled shredded newspapers), fiberglass or rigid plastic foams of various sorts.

• Insulation is measured by its "R-value"—its resistance to heat flow. If you double the R-value, you cut heat loss in half.

• Find current code requirements for new construction in southern Idaho at *idahoenergycode.com*.

• Insulation can improve comfort and save energy year-round. Begin in the attic.

STAY DRY

• When insulation gets wet, it loses most of its insulating value—just like wet clothes.

• If water vapor gets into the insulation, chances are that some of it will condense there and soak the insulation.

• That's why it's important to install a "vapor barrier" on the inside face of insulation in above-grade walls to keep warm, moist air from the house from infiltrating into the insulation and dampening it. Quality vinyl paint will also help. Vapor barriers should NOT be installed on the inside face of insulation in basements or they may actually create mold and moisture issues.

• Also, ensure proper venting in attics and crawl spaces to prevent moisture from becoming "trapped" in the insulation. Proper attic ventilation will also help reduce temperatures in bonus rooms.

SIMPLE WAYS TO SAVE ENERGY

Find out if your home is insulated:

• Look between the attic joists—the place that's most likely to be insulated. Make sure the insulation is dry and that it's spread out evenly through the attic.

• To look for insulation in your walls, turn off the power to an electric outlet in an outside wall. Take off the switch plate and shine a flash light into the opening to see if there is anything besides air between the studs. Also, touch the wall in a heated room and see if the surface is cold on a cold evening.

• Check in your basement: The insulation might be between the floor joists, or draped down the foundation walls.

If you're ready to insulate:

• Call an insulating contractor for a bid.

• Basements are easy to insulate and should be within a do-it-yourselfer's ability. Make sure to wear gloves and use a respirator for safety's sake. Remember to ensure proper ventilation.

• Insulating walls in existing homes involves exterior drilling between each set of studs and blowing in insulation—a job for an experienced contractor. It's often best left until it's time to repaint the exterior of the building.

• Never compress batts of insulation. Remember that it's the air spaces in the insulation that keep you warm. Compressing them means less air, so less insulating value.

11. THE GREAT ESCAPE

The gaps you can find around the windows and doors of the average American house are the equivalent of a hole in the wall that measures 14 inches square.

BACKGROUND. Hey…psst…your house is leaking. There are cracks all over the place. Your doors and windows don't quite meet their frames; there are tiny spaces where the walls almost join the floor; there are open areas around your electrical and plumbing outlets.

And these little gaps eat energy. In fact, an amazing amount of heat in the winter—or cool air in the summer—escapes through them. But you have two simple weapons to fight with: caulking and weatherstripping.

ENERGY FACTS

• Caulking and weatherstripping an electrically heated home can keep some 1,700 pounds of CO_2 out of the air. So if 1,000 of these homes were weatherized, over a million pounds of CO_2 would be saved.

• Believe it or not, stopping air infiltration can reduce your home's heating and cooling bills by up to 20%.

• People are concerned that although weatherstripping may save energy, it will keep fresh air out of their homes. While it's true that some ventilation is necessary, it's really not much of a problem—a typical house may get twice as much fresh air as it needs.

CAULKING VS. WEATHERSTRIPPING

• Cracks without any moving parts—like the places where a wall in your house meets the outside edge of a window frame, or two other dissimilar materials come together—can be sealed with caulk.

• The places where doors and windows close into their frames can be sealed with weatherstripping—cleverly designed strips of felt, rubber, metal, or plastic that fill the spaces around doors and windows, and compress when you shut them.

• Weatherstripping materials come in many styles. Some are self-sticking, so you don't even need a hammer to install them. Others must be nailed on. Still others are crafted so pieces on the frame and the door lock together when the door closes.

• One of the trickiest places to weatherstrip is where the door meets the threshold. Special "shoes" and "sweeps" are available to stop these air leaks.

• Besides saving energy, weatherstripping and caulking have an additional benefit—by stopping drafts, they'll make your home more comfortable.

LEAK PATROL

• Some evening, when your house is at least 20°F warmer than the outdoors, hold your hand up to various places around window and door frames. If you feel any drafts, the windows and door frames need weatherstripping.

• You can also use a smoking incense stick to look for drafts. Hold the stick near the places you think might have cracks; if the smoke dances, you've found a place to seal. Note: Don't burn the house down; keep the burning tip away from all flammable objects.

SIMPLE WAYS TO SAVE ENERGY

• Weatherstrip around doors and windows.

• Seal leaks around electric switches and outlets on exterior walls. Gaskets are available that fit behind the switch plates and outlets. Don't underestimate this one—they keep out a surprising amount of draftiness.

• To hold loose windowpanes in place and seal them, use window putty (also called glazing compound), available at hardware stores.

• Install "sweeps" or "shoes" to stop air from sneaking in under outside doors. If the crack under your door is too wide for store-bought weatherstripping, make a cloth "snake," fill it with sand or beans, and lay it against the bottom of the door to keep the wind out.

12. THE UNKNOWN ATTIC

Summer temperatures in a poorly vented attic can reach 150°F…or more!

BACKGROUND. What have you got stashed in your attic? An old bowling ball? A prom dress? A pile of family photos? You reduce your energy use and preserve natural resources by getting to know your attic a little better. Here are a few facts that might inspire you to get started.

ENERGY FACTS

• In the summertime stuffy attics can add tremendously to your air conditioning needs. Your attic heats up in the sun, and the hot attic air warms the rooms beneath, even when the attic is insulated.

• Rooms under poorly vented attics can be 10°F hotter than if the attic were well vented.

• Whole-house fans can be installed in the attic or ceiling to pull fresh air through the house (usually at night, when it's cool outside) and make running the air conditioning less necessary.

• In most attics, the pipes, ducts, dropped ceilings, and electrical conduits enter the attic from the living space. When the weather is cold, these make easy escape routes for the warm air in your house.

SIMPLE WAYS TO SAVE ENERGY

• **Make sure your attic is well insulated.** You may want to add to existing insulation. Idaho Power recommends at least R-38, and up to R-49 in Oregon and colder climates.

• **Seal holes** where conduits and pipes enter the attic and along partition walls, eaves, and knee walls. Use caulk or expanding foam for small gaps; fiberglass insulation for spaces 3" or more. Go to *energystar.gov/saveathome/seal_insulate/do_it_yourself_guide* to download a complete do-it-yourself guide to sealing and insulating.

• **Check to see that your attic is well ventilated.** Look for unclogged, screened vents near gables or the roofline and under eaves.

• **Properly placed high and low venting** will result in natural convection currents that keep air flowing through the attic.

13. IT'S YOUR LOSS

Heat loss through a basement floor can account for a large portion of your heating bill. As much as 20% of total heat loss can occur through your foundation.

BACKGROUND. What's going on in your basement? Maybe you're wasting energy and harming the environment without realizing it.

ENERGY FACTS

• As hot air rises and escapes through leaks in the attic, cold air from the outside comes in through basement leaks to replace it. This creates what's called the "Chimney Effect," and it increases energy costs and makes your house feel drafty.

• Cold air often enters basements through cracks in the foundation. The resulting cool-off can be especially costly when the basement is used as a heated room.

• A cold basement can also rob heat from hot water pipes and ducts that run through it, so it's a good idea to seal and insulate those pipes and ducts.

SIMPLE WAYS TO SAVE ENERGY

• **Insulate under the floor.** It's the most effective way to save energy down below, provided your basement isn't heated. Idaho Power recommends R-30 for floor insulation.

• **Insulate hot-water pipes** with one-inch thick insulation and heating ducts with a minimum R-value of R-6.

• **Install a rug with a pad in your home.** It can work wonders in keeping the frost off your toes—and cut your energy use, too.

• **If you have a heated basement:** Patch cracks in the foundation to keep cold air from leaking in. Then insulate basement walls.

• **If your basement is unheated:** Use caulk to seal up the spaces around heating vents, the holes where telephone wires penetrate the floor, and around pipes or other openings.

• **Insulate and air seal crawl space/basement rim joists** using rigid foam insulation and spray foam.

Note: The vents under your house are there for a reason—to let moisture escape and prevent rot.

14. GLASS WEAR

An uninsulated drape can cut a third of the heat lost through a window. An insulated drape can reduce it by half.

BACKGROUND. Not all energy-saving methods involve sophisticated technology…or any technology at all, for that matter.

Believe it or not, a few well-placed pieces of cloth will help cut the amount of energy you use for heating or air conditioning your home. Drapes, window shades, and blinds are effective tools to keep your home more comfortable and environmentally sound.

ENERGY FACTS

- Drapes save energy effectively only if they fit tightly against the window and the floor. Usually this means a valance at the top, side guides, and a weighted hem. Or try adding in edge seals such as Velcro or magnetic strips.
- Double or triple-walled cellular blinds are one of the most energy efficient window coverings on the market.
- If you install a window covering on a window that faces north, you could save up to 5% home heating cost. In the summer, savings increase significantly if you put the same covering on west- and south-facing windows.

SIMPLE WAYS TO SAVE ENERGY

- **Use your drapes.** Open them on sunny winter days to let warm sun in; close them on winter nights to keep the heat in; close them on hot summer days to help keep the sun out.
- **Add an insulating lining to your draperies.** Installing insulated window coverings that create a sealed air gap between the window and the living space can reduce heat loss through the window by 25–50%.
- **Install white blinds on** the west-, east-, and south-facing windows to keep the sun from broiling your house in the summer. Better yet, put them outside the house to keep the wall and window shaded or install awnings or solar shades.

15. HERE'S LOOKING THROUGH YOU, KID

The amount of energy that escapes through American windows every winter is equivalent to all the oil that flows through the Alaska pipeline each year.

BACKGROUND. Your windows do more than let light into your house. During the summer, they also let in heat; and during the winter, they let it out. So it's fair to say that a lot of America's energy goes right out the window.

PANE-FUL FACTS

• About nine times as much heat escapes from your house through a single-pane window as through a typical insulated wall.

• Even during a mild winter, you can lose as much energy through one single-pane window as a 40-watt light bulb uses running seven hours a day, 365 days a year.

• A double-pane window retains twice as much heat as a single-pane window.

• Window coatings (thin films that are sprayed or baked on the windows during the manufacturing process) have been developed to reflect heat back into the house but let the sunlight through easily. Windows with these coatings—called "low-E"—cut energy loss significantly, compared to windows without the coatings.

• Windows can account for 25% of heating costs, and up to 30% of cooling costs.

SIMPLE WAYS TO SAVE ENERGY

Install storm windows.

• If you feel thrifty and don't mind plastic on your windows, you can make effective storm windows by tacking clear polyethylene plastic over the outside of your windows, or use a plastic window film kit on the inside.

• Glass storm windows are more expensive, but they will save

some energy and increase your comfort. Some types are attached in the fall and removed in the spring; others can stay on year-round and open just like regular windows.

Install new windows.

• Idaho Power's income-qualified weatherization programs may pay to replace older, inefficient windows in electrically-heated homes.

• Specially made double-pane windows are now available either with an insulating air-space between the two panes or filled with a gas, such as argon. In climates with colder winters, these can save a lot of energy.

• "Low-E" windows are more costly, but even greater efficiency can be achieved with them. Look for "low-E" U-factor ratings of .32 or less.

• Frames are important. Standard aluminum frames leak twice as much heat around the edges of the glass, as do the best wooden, vinyl, or fiberglass frames. If you must have aluminum frames, make sure they have "thermal breaks" (rubber gaskets between inner and outer pieces).

Get reflective.

• Window films stick onto the inside of windows to block out some of the sun's rays in the summer and keep your house from overheating. They can easily be applied to existing windows. They also keep out the winter sun, so they make the most sense in areas where summer cooling is a bigger concern than winter heating.

• A wide variety of other products are available to bounce those incoming sunbeams back to the sky and keep them from heating up your house. There are reflective screens—essentially a mirrored surface with holes cut in it so you can see out. There are louvered screens, like venetian blinds, whose slant intercepts much of the sun but little of the view. And there are fiberglass screens, which are like regular bug screens, but thicker and whiter to reflect the sunlight back outside.

16. UNPLUGGED

"Plug load" energy consumption accounts for about 15% of electricity use in a typical U.S. household. The number is on the rise due to the increased number of electronics in our homes.

BACKGROUND. Home electronics and small household appliances that plug into electrical outlets (TVs, entertainment and gaming systems, home office equipment, portable tools, cell phone chargers, rechargeable vacuums, etc.) are referred to as plug load. Many devices draw energy not only when they are in use, but also when they are in standby mode or turned off. This continual draw of energy is called phantom load.

ENERGY FACTS

• TVs, gaming and entertainment systems, and set-top boxes are responsible for more than half of the plug load in a typical household. Add computers, printers, and modems and the number goes up to 90%. Even when these appliances are turned off, they continue to draw power to support features such as instant-on, remote control, channel memory and LED clock displays.

• Many manufacturers now work with the U.S. Environmental Protection Agency (EPA) to make home electronics with low standby losses. Look for the ENERGY STAR® label when making new purchases.

SIMPLE WAYS TO SAVE ENERGY

• Plug your entertainment and office equipment into a smart power strip to help reduce or eliminate standby power. If you choose a standard power strip, place it in a spot that's easy to reach so you can easily switch it off.

• Energy savings can be found by simply turning a piece of equipment off or unplugging it when it's not in use.

• If you need your computer throughout the day, putting both the monitor and the computer to "sleep" after 5 minutes of inactivity can cut their electricity use by 50%.

17. ALL WASHED UP

The average American home washing machine is used more than 400 times a year.

BACKGROUND. Since it's unlikely that you're contemplating going back to using washboards or wringers, it would help (both your pocketbook and the environment) to learn a few tips about using washing machines efficiently.

ENERGY FACTS

• Where does the energy all go? Clothes washers and electric dryers can account for as much as 5%–17% of the electricity you use at home (including the hot water for the wash).

• As much as 90% of the energy consumed by washing machines goes to heating the water.

• Save energy with the right soap. You probably know that few fabrics need to be washed in hot water anymore. With today's detergents, many lightly soiled clothes can also come clean in cold water. Cold-water washing saves energy.

• Efficient ENERGY STAR® qualified washers consume 14 gallons per load compared to the 20 gallons used by a standard washer.

SIMPLE WAYS TO SAVE ENERGY

• **Experiment with cold water wash and rinse cycles.** For nearly all clothes, the results will be as good as with hot water wash and warm rinse cycles, and you'll cut your energy use by 15%. Also, by washing in cold water, you can cut carbon dioxide emissions by almost 1,300 pounds a year.

• **Set the water level** in the washing machine to suit the size of the load—you'll save both water and energy. Wash full loads when possible. It uses almost as much energy to wash a small load as a full one.

• **Try washing on a "delicate" setting instead of "regular."** The motor won't have to work as hard.

18. HOW DRY I AM

92% of U.S. families own a clothes dryer. Of household appliances, it's the second biggest energy user in the house (after the refrigerator) and consumes 6% of household electricity a year.

BACKGROUND. The only thing that concerns most of us about having a clothes dryer is where to put it. But since dryers use a considerable amount of energy, they have a big impact on the environment.

ENERGY FACTS

• The energy efficiency of a clothes dryer depends on unobstructed air circulation. So the filter and exhaust hose should be kept clear.

• People often leave their dryers on longer than necessary—the clothes are already dry, but they just don't feel like going to the basement and shutting the dryer off. Here's news: Overdrying clothes wears down fabric in addition to wasting energy.

SIMPLE WAYS TO SAVE ENERGY

• **Clean the lint filter in your dryer after each use.** A dirty lint screen can use 30% more energy.

• **Dry full loads, but don't overload your dryer.** The clothes need room to tumble around so air can circulate around them.

• **If your dryer has an automatic or "more dry/less dry" setting, use it.** It will shut off the dryer automatically when the clothes are dry, and typically cuts energy use by 15%.

• **Dry heavy and light fabrics separately.** That way, all the clothes in the load will be done at once.

• **Don't add wet items to a load that's already partly dry.**

• **Try drying loads consecutively** to take advantage of built-up heat.

• **Try using a clothesline.** It's natural, it's old-fashioned and the energy is free. For small loads like socks and underwear, try a small indoor drying rack. As an added bonus, your clothes will smell fresher too.

19. HOME WORK

Are you in the market to hire a heating and cooling contractor? Try these tips from the EPA/ENERGY STAR® to help with your hiring decision.

BACKGROUND. Find out about license and insurance requirements for contractors in your state. Expect a home evaluation. The contractor should spend significant time inspecting your home and current system to assess your needs.

ENERGY FACTS

• The right contractor can save you energy and money. Ask friends, neighbors and co-workers for referrals.

• Always ask for references...and call them! Ask about the contractor's performance. Was the job completed on time and within budget?

• Bigger isn't always better. A contractor should size a system based on the size of your home, level of insulation, and windows.

• Get three written, itemized estimates. Compare cost, energy-efficiency and warranties. A low cost may NOT be the best deal.

• Protect yourself by signing a written proposal that specifies project costs, model numbers, schedule and warranty information.

SIMPLE WAYS TO SAVE ENERGY

• **Look for the ENERGY STAR logo.** ENERGY STAR qualified products meet strict energy efficiency guidelines set by the U.S. Environmental Protection Agency and offer significant long-term energy savings. Contractors should be able to show you calculations of savings for ENERGY STAR equipment.

• **Pass it on.** Tell friends and family about ENERGY STAR. Spread the word, so we can all be part of the efficiency solution.

20. DISH IT OUT

According to research done at Ohio State University, a load of dishes cleaned in a dishwasher requires about 10 gallons of water. Washing by hand uses an average of 15.7 gallons.

BACKGROUND. Not everyone has a dishwasher—but everyone has to wash dishes. It's a surprisingly energy-intensive activity…which means there's plenty of room to conserve what you're using.

ENERGY FACTS

• 80% of the energy your dishwasher uses is for heating water.

• Dishwashers need water heated to 140°F…which is hotter than any other water used in your home. However, standard-sized dishwashers manufactured after 1994 have a booster heater on-board so you can still leave your water heater temperature set to 120°F and get clean dishes!

SIMPLE WAYS TO SAVE ENERGY

• **Wash by hand but fill wash and rinse basins** instead of letting the water run. You'll use half as much water as a dishwasher does.

• **Try to wash only with full loads.** The savings will surprise you.

• **Use short cycles** for everything but the dirtiest dishes. Short cycles use less energy and work just as well.

• **If your dishwasher has an air-dry setting, choose it** instead of the heat-dry setting. You'll knock 12% (and in some cases, as much as 50%) off the energy your dishwasher uses. If there's no air-dry setting, turn the dishwasher off after its final rinse and open the door. The dishes will dry without using any extra electricity.

• **Do you rinse dishes before loading them?** Most newer dishwashers don't require this, but if you must rinse, use cold water. (But of course, don't waste water by letting it run continuously.)

• **Install your dishwasher away from your refrigerator.** The dishwasher's heat and moisture make the fridge work harder. If you have to put them next to each other, placing a sheet of foam insulation between them can minimize the damage.

21. REFRIGERATOR MADNESS

America's refrigerators use more than 4% of the nation's total electricity.

BACKGROUND. What do you know about your refrigerator? Probably not much besides what's in it. Your refrigerator does a lot more than keep your food cold. Believe it or not, it is probably using more electricity than any other appliance in your kitchen. Here are some simple tricks that can help you operate it efficiently.

ENERGYFACTS

• Almost 8% of your electricity use goes to your refrigerator and 2% to your freezer.

• Have an older refrigerator? The condenser coils behind or underneath it help get rid of the heat it takes out of the food compartment. When dust or pet hair builds up on the coils (and it inevitably does), they don't work as efficiently, so the refrigerator motor has to work harder—which means it uses more energy.

• Newer, ENERGY STAR® qualified refrigerators have encased condenser coils that don't require cleaning.

• Putting your old refrigerator in the garage to keep sodas cold is inefficient from every standpoint except convenience. The refrigerator coils will get dirty faster and the summer heat will make the condenser work overtime and rot the gasket very quickly.

SIMPLE WAYS TO SAVE ENERGY

• **Keep your refrigerator and freezer at the right temperature.** If they're only 10°F colder than necessary, your energy consumption will go up an amazing 25%. By keeping an eye on the

temperature, you can keep a lid on energy use. The refrigerator should be between 38°F and 40°F and the freezer should be set at 0°F.

• **Make sure the door is sealed tightly.** If it's not, you're wasting energy. Check the gasket (rubber seal) for cracks and dried-on food.

• **No sweat.** Use the "power-saver" switch if your refrigerator has one. It controls a small heater built into the face of the narrow panel that divides the freezer from the refrigerator to keep water droplets from forming on the panel in humid weather. Turn the heater off except when it's humid.

• **Keep the condenser coils clean.** If you have an older refrigerator, brush or vacuum its coils at least twice a year to make them more energy efficient. Note: Don t use a sharp instrument; you might puncture the coils.

• **Manual defrost freezers should be defrosted regularly.** A $^1/_4$-inch buildup of frost makes the motor work harder.

FOODFACTS

Did you realize that the food you put in your refrigerator can actually affect its energy efficiency? For instance:

• It's better to keep your refrigerator and freezer as full as you can because food retains cold better than air. But don't overcrowd it; the cold air needs to circulate.

• Wrapping food and covering containers cuts down on the moisture, so your compressor doesn't have to work too hard and waste energy.

• You can move food you need to defrost from the freezer to the refrigerator a day before you need it. That way, the frozen food gives the motor a break in cooling the refrigerator as it thaws.

• It uses less energy if you let leftovers cool off a little before putting them in the refrigerator.

22. SHOP SMART

Over its 15- or 20-year lifetime, the electricity to run an older refrigerator costs several times as much as the refrigerator's purchase price. Replacing it with a new, energy-efficient refrigerator can save enough in energy costs to pay for itself over its life span.

BACKGROUND. Some of the greatest gains in energy efficiency are possible when you replace worn-out appliances. That's when "shopping smart" can save energy and money.

ENERGY AND APPLIANCES

• Efficiency counts. The most efficient new appliances typically use 50% less energy than the most wasteful ones.

• Convection ovens, which use fans to distribute heat evenly, can cut energy use by about 20% as compared to a standard conventional oven.

• When looking for new household appliances, look for ones that have earned the ENERGY STAR® designation. They meet strict energy efficiency guidelines set by the U.S. Environmental Protection Agency and the U.S. Department of Energy.

• Be sure to check out the yellow and black EnergyGuide labels, required by law on most major appliances. The labels show how the appliance's energy use stacks up against similar models.

• Buy the most efficient unit you can: High efficiency can pay off in your utility bills. And make sure it's the right size for your needs. Generally, the larger the unit, the more energy it uses.

FRIDGE FACTS

• It takes 10 cups of coal to run a refrigerator for one day. Over a year that's more than 4 tons of CO_2 emissions.

• Some refrigerators have heaters to keep their gaskets from sticking, to defrost, and to keep condensation from forming on the outside of the refrigerator. Newer models have automatic moisture control to keep condensation from forming without actually using a heater, like older models do.

• Choose a refrigerator with a freezer on top or bottom, instead of a side-by-side unit—it is 10–25% more efficient.

DISHWASHER DATA

• Look for a dishwasher with an air-dry setting, which can cut your dishwashing energy use by up to 12%.

• Choose a model with a built-in heater to boost the water temperature. Then you can lower your water heater setting to 120°F—and cut your water heating energy use by 6–10%.

• Look for models with short-cycle and delayed-start options. Short cycles can reduce hot water use by up to 50%, and delayed start allows you to run your dishwasher during the night when electricity costs may be lower.

IN THE LAUNDRY

• Look for clothes washers with adjustable water levels and temperature controls so you use only as much as you need.

• Look for a dryer with "moisture sensors." These sensors turn the dryer off automatically when your clothes are dry and can cut energy use by 10–15%. Moisture sensors are more efficient than temperature-sensor controls or standard timers.

• Cool-down cycles will tumble your clothes in cooler air during the last five minutes of the drying cycle, saving energy and reducing wrinkles at the same time.

AIR CONDITIONER TIPS

• Window air conditioners are rated with a Combined Energy Efficiency Ratio (CEER). Higher ratings are better but be sensitive to your budget. Units with higher efficiency usually cost more. Focus on selecting an ENERGY STAR® rated model.

• Central air conditioners have a similar rating, known as the SEER2 (the S stands for Seasonal). As of January 1, 2023, the minimum standard SEER2 rating for the upper half of the U.S. is 14.3. SEER2 ratings can exceed 20.

• Central air conditioners must be sized and installed by licensed professionals. Choose the right unit size for your needs.

23. DOWN THE DRAIN

About 3% of all the electricity America generates is used to pump water to homes and businesses, and to treat the resulting wastewater. Generating that much electricity puts more carbon dioxide into the air on average than six million cars.

BACKGROUND. You want to preserve rivers, lakes, and oceans—not only because of their beauty, but because they're absolutely essential to life. But there's an added benefit to preventing pollution that may never have occurred to you—you save energy.

ENERGY FACTS

When the water supply is polluted, it creates a domino effect. First, the water has to be treated to make it drinkable. Then, after it is used—no matter what it has been used for—it has to be treated again to reduce the potential toxic effects of soap, pesticides, or other chemicals on wildlife and the food chain.

You don't just save energy by saving water—you save water by saving energy too. It takes a huge amount of water to cool both fossil fuel and nuclear power plants. In fact, many of these plants have to throttle back or shut down entirely during long droughts, when cooling water is unavailable.

SIMPLE WAYS TO MAKE A DIFFERENCE

- Buy the most water-efficient clothes washers, dishwashers, toilets, showerheads, and faucets you can find. Most of the water they use is heated, so you'll be saving even more energy than you thought.
- Properly dispose of litter, pet waste, motor oil, antifreeze, paint and other chemicals so they don't get into a gutter, open drainage ditch or storm drain. These lead straight to rivers, creeks, lakes, and oceans, as well as the animals that live in them, with no treatment or filtering along the way.
- When you finish washing your car, dump the soapy water down your kitchen sink or toilet. That water gets treated before

being released into the environment.

• Take any old pesticides, chemicals, and toxic cleaning products to your local Household Hazardous Waste Collection Program instead of pouring them down the drain.

• *epa.gov/watersense* has ideas for other simple things you can do to save water and energy.

24. AERATE YOUR FAUCETS

If every home in the U.S. installed highly efficient appliances and plumbing fixtures, each house would save more than 18,000 gallons of water per year. That's enough water to fill more than 3 million Olympic-size swimming pools.

BACKGROUND. There's a simple device you can attach to the water faucets in your home that will save an amazing amount of water and energy used to heat it. It's called an energy efficient faucet aerator.

FAUCET FACTS

• Older faucets allow a flow of 3 to 5 gallons of water per minute (gpm). New faucets are regulated and flow at no more than 2.2 gpm for kitchens and 1.5 gpm for bathrooms. By updating old faucets with an energy efficient faucet aerator, you can reduce the flow by 50%. Although the flow is reduced, it can seem stronger because air is mixed into the water as it leaves the tap.

• Installing energy-efficient aerators on kitchen and bathroom sink faucets will save hot water. It will also cut water use by as much as 700 gallons per year for a typical family of four.

• If every U.S. household installed low-flow faucet aerators, we could save 60 billion gallons of water a year.

• Don't confuse energy-efficient faucet aerators with standard screen aerators (which do not reduce faucet flow rate). Ask a store clerk if you're unsure.

SIMPLE THINGS TO DO

• **Install a faucet aerator.** The ends of most modern faucets unscrew, and that's where the aerator attaches. It's easy.

• **Portable Dishwasher Alert:** If you use a portable dishwasher in your kitchen, don't install an energy-efficient aerator on the sink faucet; the reduced flow may affect the dishwasher's performance.

25. ENERGY EFFICIENT SHOWER

If each member of a family of four takes a daily five-minute shower with a non-conserving showerhead, the family will use more than 25,000 gallons of water every year. That could provide enough drinking water for 187 people for a year.

BACKGROUND. For a lot of us, a long, hot shower is a guilty pleasure—it feels great, but there's a nagging suspicion that precious water is being wasted.

Here's good news: If you have an older, non-conserving showerhead, here's a simple, effective way to cut shower water use by about 50%; just replace it with an energy-efficient model. It's a good way to preserve natural resources and cash without sacrificing a comfortable shower.

SHOWER FACTS

- A non-conserving showerhead uses about 4–8 gallons of water per minute (gpm)—so even a five-minute shower can consume 30 gallons!
- Energy-efficient showerheads could reduce this water use by 50% or more. They typically cut the flow rate to just 2.5 gpm—or less.
- According to the Western Area Power Administration, heating water is the third largest residential energy use. And 73% of the water used in a typical shower is heated. So by cutting the amount of water you use with an energy-efficient showerhead, you also reduce the amount of energy you're using.

SIMPLE THINGS TO DO

Make sure you are using energy-efficient showerheads.

RESULTS

- With an energy-efficient showerhead, a family of four that normally takes five-minute showers saves at least 14,000 gallons

of water a year. If only 10,000 similar families were to install energy-efficient showerheads, they could save around 140 million gallons. And—get this—100,000 four-person families with energy-efficient showerheads could save 1.4 billion gallons!

• Besides being good for the environment, an energy-efficient showerhead saves you money and will pay for itself in a few months.

• You can be even more water and energy efficient by installing a showerhead with the WaterSense label from the U.S. Environmental Protection Agency (EPA). It saves 20% over the standard 2.5 gpm, but still provides as good a shower as a higher-flow device. And it can save an average household over 2,300 gallons of water and 300 kilowatt-hours (kWh) of electricity, enough to run your TV for a year.

NOTE: Don't confuse "low-flows" with "water restrictors" (devices you insert into showerheads to cut flow). They're not recommended.

ANOTHER NOTE: If you're not sure how much water your showerhead uses, try this simple test:

• Open the top of an empty half-gallon milk carton so it forms a square.

• Turn on the water so it's a normal shower flow. Then get in (not with your clothes on, of course) and hold the milk carton up to the shower head for 10 seconds. Have someone else time you with a stopwatch.

• If the carton overflows in less than 10 seconds, your showerhead uses too much water. It's that simple!

26. TANKS A LOT

In the average American home, the water heater is the third or fourth largest energy user.

BACKGROUND. As long as you can get a hot shower in the morning, you probably don't think too much about your water heater.

But this mysterious appliance has a huge impact on the environment. Water heating consumes around 20% of residential energy used. Maybe it's time to pay a little bit of attention to getting out of environmental "hot water."

ENERGYFACTS

• Between 24–34% of the energy your water heater uses goes to keeping a tank of water hot, just in case you need it.

• Hot water heaters have adjustable thermostats. For every 10°F you lower the water temperature, you can save 3–5% of your water heating energy.

• The heat that escapes through the sides of the tank is especially important if it's in an unheated spot like a basement or garage. An insulating blanket can save 25–45% of the heat loss from the tank walls.

SIMPLE WAYS TO SAVE ENERGY

• **Adjust the temperature setting on the water heater so that water at the tap is 120°F.** Electric water heaters have two thermostats that should be set the same. To test your hot water temperature, run hot water for 1 or 2 minutes and then check the temperature with a thermometer. With electric water heaters, turn off power to the tank before adjusting the thermostat.

• **Put your hand on your water heater.** If it feels warm, install an insulating blanket around it, available at hardware stores. The colder the area it's in, the greater the heat loss. So if it's in

the garage in the winter, you're going to lose a lot of heat. Be practical—get a heater blanket.

- **Insulate the hot and cold water pipes leaving the tank** (for at least the first three feet—keep insulation six inches away from gas flues), wherever they are accessible. Foam sleeves or adhesive-backed foam tape are available at hardware stores.
- **When replacing an old tank**, make sure the new one is the correct size for your family and has an energy factor of at least .65 for gas and .95 for electric. Consider a heat pump water heater to cut your water heating expenses in half.
- **Tankless gas water heaters** may be a good choice for some families. However, electric tankless systems are not generally desirable given Idaho's climate and ground temperature. Call Idaho Power at 208-388-2323 in the Treasure Valley or 1-800-388-6151 for a free electrical assessment BEFORE you buy a tankless electric hot water heater. The high energy demand for these appliances may require an upgrade to your home's electrical facilities.

27. PLANT A TREE

Arbor Day, celebrated nationally each year on the last Friday in April, encourages tree planting and care.

ENERGY & YOU. What can you do that will help cool your house in summer, block cold winds in winter, and help clean the air, all at the same time? Plant a tree.

As a tree grows tall near your home, it can shade your house from the sun on hot days. And trees planted in a row farther from your home will protect it from cold winds on chilly days. Anywhere you plant a tree, it will help the Earth by absorbing polluting gases and giving off oxygen.

ENERGY INFORMATION

• In the summer, your home traps heat when the sun shines directly on it—which means it takes more energy to cool it. But if your home is shaded by the leafy branches of trees, it will stay cooler naturally.

• In the winter, though, you want the sun to shine on your home and warm it up. Luckily, the leaves of deciduous trees fall off—letting the sun shine through.

• By blocking the wind, some non-deciduous trees can help reduce the amount of cold air reaching your home. When this happens, it takes less energy to keep your home warm inside.

BE AN ENERGY-SAVER

• **Go to a local nursery or gardening center**. Ask the people who work there for advice about what kind of trees to plant, and where.

• **The best places to plant trees are where they'll shade** your home from the sun and protect it from the wind. That usually means planting evergreens on the north and large shade-trees on the west and east. If you must plant on the south, select only leaf-dropping trees. Make a map of your yard to figure out the best spots to plant. Chart the sun to determine the correct height of the canopy based on the distance from your home and the area you want to shade.

• **Help prevent electrical outages, fires, and public safet hazards** by planting trees so they'll stay clear of overhead power lines. If you must plant near power lines, make sure the maximum mature tree height is no more than 25 feet and that the tree is at least 15 feet away from the closest power line. Visit our website at *idahopower.com/trees* or the SafeTree website at *safetree.net* for more information.

• **Since a young tree doesn't add a lot of shade,** you'll have to wait for your new tree to grow before you get the full energy-saving benefits. But even a small tree is alread helping to make the air cleaner.

PROJECTS TO DO WITH OTHERS

• Talk with neighbors, friends, and people at local businesses or government agencies to see if you can start a community tree-planting effort. You'll be surprised how many people fin the idea appealing— especially after you explain how important trees are to the environment. Visit your local school. Could it use some trees to save energy and give kids shade during recess? Talk to the principal about planting trees as a class or schoolwide project.

• Planting trees is a lot easier than most people think. For some helpful tree-planting information, visit *idahopower.com/shadetree* or a local nursery.

28. THE LAWN RANGERS

U.S. homes are surrounded by 30 million acres of lawns, which need 900 million gallons of water a year to stay green and healthy.

BACKGROUND. You might not think that landscaping and lawn care have anything to do with energy. But, as Sierra Club founder John Muir said, everything is "hitched to everything else in the universe."

ENERGY FACTS

• During the summer, the majority of household water is used for keeping yards green.

• Even in places where water doesn't have to be moved long distances from source to tap, a significant amount of energy is required to treat and process it before it enters the water mains.

SIMPLE WAYS TO SAVE ENERGY

Treat your lawn right:

• Use a push mower instead of a power mower to save energy and reduce carbon dioxide emissions.

• If you have an electric mower, wait to charge it until after 10 p.m. and unplug the mower once it's charged. Many people install a timer to help manage charge time.

• Set your mower blades so they cut grass about 2–3 inches tall. Mowing it shorter dries out the grass faster and increases water use.

• Let grass clippings turn into mulch. During dry periods, cut the grass high and leave the clippings on the lawn to keep it from drying out—thus reducing the amount of water your lawn needs.

• Most lawns need about one inch of water a week once they're established. Apply it slowly so the water doesn't run off.

• Here's how to tell how long it takes to apply an inch of water: Set two or three cans out on the lawn and turn on the sprinkler.

Check every few minutes to see how long it takes to land an inch in each can. Average the times for the cans, and that's the length of time to water.

WATERING SMART

• Water in the early morning to cut down on how much water evaporates before it reaches the roots.

• Try drip irrigation for shrubs and garden plants. It's a way of putting the water in small, steady amounts right to the soil around the plant you're watering.

• When you re-landscape, group together the plants that need similar amounts of water. That way, you can avoid overwatering one just to irrigate another.

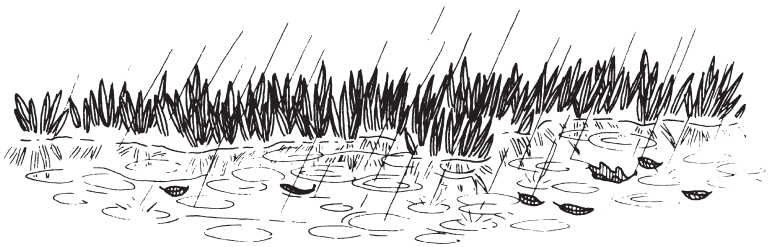
GOING NATIVE

• Consider plants for your yard that are already adjusted to local conditions and don't require extra water or attention. These are usually plants that are native to your area.

• Think about shrubs, succulents, and trees as a substitute for some of your lawn. Nothing requires more water than a lawn.

• When you're ready to reseed or resod your lawn, look for grasses that require less water to thrive.

• Check your local government or utility website for information about water-conserving plants. These plants are also called "drought tolerant," and the practice of landscaping to conserve water is called "xeriscaping."



29. AUTO SAVINGS

Transportation accounts for 29% of America's green house gas emissions.

BACKGROUND. You live in a mobile society; you count on being able to go where you want, when you want. For most Americans, that means driving. It also means using lots of energy. The impact of the automobile is too great to ignore. Cars add significantly to smog.

ENERGY FACTS

• Cars in the U.S. use more gasoline each year than the entire U.S. oil industry produces. In 2021, the U.S. imported more than 40% of the oil it consumed.

• Look around when you drive. Most cars on the road carry only one person. Carpooling only two days a week can save 167 gallons of gas per year compared to driving solo.

• With each car carrying so few people, roads are getting more and more crowded. In 2020, traffic congestion wasted about 1.7 billion gallons of gas.

SIMPLE WAYS TO SAVE ENERGY

• **Slow down and drive conservatively.** Gas mileage drops at speeds above 50 mph. Driving the speed limit, accelerating and braking gradually, and reading the road ahead can improve fuel economy by 15–30% at highway speeds, and 10–40% in stop-and-go-traffic.

• **Keep your car in shape.** A well-tuned car uses up to 4% less gasoline than a poorly tuned car. Just by checking and replacing the air filter regularly, you can increase your gas mileage. Plus, your engine will last longer and burn cleaner and smoother, lowering tailpipe emissions.

• **Keep track of gas mileage.** If it drops quickly, you can have your car checked for a problem. It also allows you to see what you're spending each year on gasoline.

• **Think inflation.** The costs of driving around on underin-flated tires are staggering. Just keeping your tires inflated their rated pressure or slightly above can improve your gas mileage by up to 3% and extend your tires' lifespan.

• **When you shop for a new car, look for one with high gas mileage** (miles per gallon). At *fueleconomy.gov* you can find and print the federal government guide to the most efficient cars.

STAY OUT OF A JAM

• Try public transportation. Bring reading material along and you could be ahead of the game when you get to work.

• Look into carpooling. Some employers and local governments have set up systems to help people share rides with other commuters.

• Consider walking or biking once a week on a trip when you would normally drive. Besides saving energy, it's good exercise.

GO WITHOUT OIL

• **Go electric:** Electric vehicles have lower emissions than gasoline cars, even when the electricity production is taken into consideration. Most electric vehicles have ranges between 200 to 300 miles or more, with ranges increasing each model year. They also have lower fuel and operating costs and are fun to drive.

• **Charge smart:** Home charging stations come in a range of sizes, with the higher capacity station providing a faster charge. However, most people drive less than 30 miles a day and have overnight or longer to charge. When selecting a charger, look for an ENERGY STAR® model with the lowest capacity charger that will meet your needs.

• **Consider time of use rates** and enable settings on your car to charge during off-peak hours.

30. IDAHO POWER PROGRAMS

Idaho Power encourages wise and efficient use of electricity. We offer energy efficiency programs and tools that provide energy savings and can help you make energy efficient choices that are right for you and your home. We offer demand response programs that can help the electrical system's capacity, reducing demand for short periods of time during extreme conditions on high-use days. We also have renewable energy options. Learn more at idahopower.com/save.

ENERGY EFFICIENCY PROGRAMS

FOR YOUR HOME

Heating & Cooling Efficiency Program
An incentive for qualified heat pumps, whole-house fans, evaporative coolers, heat pump water heaters, air handler motors, duct sealing, smart thermostats and central air conditioners.

Home Energy Audits
A professional in-home energy audit, recommendations for increasing energy savings and a variety of energy efficiency improvements for a discounted rate.

Kill A Watt™ Meters
Borrow an easy-to-use meter from your local library and measure how much electricity your appliances and electronics use.

Rebate Advantage
An incentive to customers who purchase a new, electrically heated, ENERGY STAR® certified manufactured home.

Residential New Construction
An incentive to builders for electrically heated homes using heat pump technology built to be at least 10% more efficient than code.

Shade Tree Project
Reduce summer cooling costs by participating in the Shade Tree Project that offers up to two free shade trees to customers in qualifying areas.

Weatherization Assistance for Qualified Customers
Whole-house energy efficiency upgrades for customers earning under 200% of federal poverty level. Electric heat only.

Weatherization Solutions for Eligible Customers
Whole-house energy efficiency improvements for customers earning between 175–250% of federal poverty level. Electric heat only.

FOR AGRICULTURAL IRRIGATION

Irrigation Efficiency Rewards
Financial incentives offered to improve your irrigation system. Repair or replace worn irrigation components. Improve the efficiency of existing pumps system or install an efficient new one.

FOR YOUR BUSINESS

Retrofits
Financial incentives for energy-saving retrofits to existing commercial/industrial buildings.

New Construction
Financial incentives to assist in offsetting capital expenses for new construction, expansion or major remodeling projects that are more efficient than code. Professional assistance incentives for third-party architect or engineer supporting the incentive process.

Custom Projects
Financial incentives for qualified energy efficiency projects, including capital and energy-management improvements not included within the retrofits or new construction menu of incentives.

DEMAND RESPONSE PROGRAMS

A/C Cool Credit
A bill credit for residential customers who allow Idaho Power to cycle their central A/C system on a few specific weekdays when summer energy demand is high or for other system needs.

Irrigation Peak Rewards
A demand credit for participating irrigation customers who allow Idaho Power to use control devices to turn off specific pumps on a few specific hours when summer energy demand is high or for other system needs.

Flex Peak Programs
A demand response program that pays an incentive to commercial and industrial customers who can reduce their electric load on a few specific hours when summer energy demand is high or for other system needs.

RENEWABLE ENERGY OPTIONS

Customer Generation
Provides customers the opportunity to operate their own small-scale renewable power generators to offset all or part of their electricity use.

Green Power Program
An easy and flexible option for customers to use renewable energy and support sustainability education through Solar 4R Schools.

Program continuation, eligibility requirements and terms and conditions apply. Visit *idahopower.com/save* for current offerings.

— NOTES —

Program continuation, eligibility requirements and terms and conditions apply.
Visit *idahopower.com/save* for current offerings.

SIMPLE THINGS

TO DO AGAIN

THE THREE R'S

During the past 50 years, the amount of waste each person creates has almost doubled from 2.7 to 4.5 pounds per day. Right now, Americans recycle about 33% of their garbage. Experts say that this country can do better—that most garbage can *be recycled.*

BACKGROUND. About 1/3 of our garbage is now recycled. About half of it is buried, and the rest, about 13%, is burned. Garbage is buried in what are called *landfills*, which are giant holes lined with plastic or clay. After garbage trucks dump trash into the landfill, the garbage is smashed flat with a bulldozer and covered with soil.

• Landfills take up lots of space—space that could be used for parks, homes, businesses…or left as wilderness for people and animals to enjoy. Many landfills are already full, so there will be a need for even more space.

• Landfills can leak. Decomposing waste creates a toxic liquid called "leachate." Special linings are required under landfills to block leachate from contaminating groundwater, but even the best-built landfill has the potential for leaks.

If your garbage is going to be burned, it's hauled off to an *incinerator*. Inside the incinerator, trash is cooked into *ash*. More than 90% of the garbage that is incinerated is burned to create energy. Unfortunately, that creates some problems, too:

• Incinerators are very expensive to build and run.

• About 50–60% of the trash that's incinerated goes up in smoke, which creates air pollution.

• Because any toxic materials in garbage stay in the ashes after burning, the ash must be carefully disposed of, usually in protected landfills.

SIMPLE THINGS YOU CAN DO

One way to solve the garbage problem is to practice the three R's.

1. Reduce: Why not cut down on garbage *before* you buy? For example, when you're picking out an item at the store, take the time to think about what you'll be able to reuse or recycle, and what you'll have to toss out. More packaging can mean more waste. Reducing means avoiding waste in the first place.

2. Reuse: Reusing means saving things that you'd usually throw out, and using them over again. That could mean passing a book on to a friend, using a plastic yogurt container to store food, or donating something to a charity instead of throwing it away.

3. Recycle: Some things, like empty aluminum cans or last year's phone book, can't be reused. But the *materials* they're made of can be used again if you recycle them.

WHY PRACTICE THE THREE R'S?

Turning something old into something new is almost like getting it for free. Reusing things that would be garbage is a great way to save energy and help the environment…and not only because it keeps garbage out of landfills and incinerators.

The three R's save natural resources.

The things you use every day are made from materials that come from the earth. You get newspaper from trees, soda cans from metal, and plastic from oil.

Our planet has a limited supply of these precious resources, but they are often treated like garbage. By practicing the three R's, you can save resources. Rather than taking more new materials from the earth, you'll be using the same materials over and over.

The three R's save energy.

As noted throughout this book, energy is one of the most valuable things on earth. In the U.S., this energy comes from converting resources such as fossil fuels, wind energy, and water power into electricity.

It takes a lot of energy to dig up metal, remove trees from a forest, or get oil from the ground. And it takes a lot of energy to turn these raw materials into useable products. So the three R's save energy in two ways: 1) they reduce the use of energy in the first place, and (2) they call for reusing materials instead of wasting the energy it would take to extract them from the earth all over again. It almost always takes less energy to make a product from recycled materials than it does to make it from new ones.

The three R's create less pollution.

Making products from *any* kind of materials creates pollution. As factories run, for instance, they emit some pollution into the air through smokestacks. If not managed properly, chemical waste from manufacturing paper or plastic can get into lakes and rivers and pollute them.

Producing new products will always result in *some* pollution. But practicing the three R's can reduce that pollution.

The three R's protect animals.

Making holes for landfills…digging for metal or oil…cutting down trees. All of these activities can affect the surrounding natural habitat: the land, the plant life, and the animal life.

Practicing the three R's means you'll make less of an impact on forests, rivers, and fields.

The three R's help your community.

It may sound funny, but garbage is expensive. You pay for people to pick up your garbage, you pay to build landfills to store it, and you pay people to run the landfills and manage it.

If you create less garbage, your community can save money. That leaves more money to be spent on other things—such as parks and playgrounds, library books, and schools.

REDUCE

ENERGY & YOU. One way to reduce waste and save energy is to "precycle." By precycling, waste is prevented in the first place.

Precycling means shopping for things that don't have a lot of disposable packaging. It takes energy to make that packaging, and it takes more energy to cart away the extra garbage you're left with after you unwrap it.

By buying food and other products with less packaging or recyclable packaging, you can reduce needless carbon dioxide production—and its toxic after-effects—by up to 230 pounds per year.

ENERGY INFORMATION

• Think about all the little plastic things you throw away every day—a bottle cap, a sandwich bag, a juice bottle, a yogurt container. Then think about throwing those things away every day, 365 days a year. All that trash adds up!

• One reason to avoid extra packaging is that almost all that plastic packaging is made from one of the most important energy sources—oil.

BE AN ENERGY SAVER

• Use the precycling test—always think about how much packaging you'll have to throw away before you pick out what you're going to buy.

• Think about buying food in large quantities. When you buy one large bottle of apple juice, for example, you'll get just as much juice as two or more small bottles, but you'll use less packaging.

• Use rechargeable batteries. Substitute them for batteries you use in everything from toothbrushes to flashlights, cell phones to children's toys.

• Visit our website at *idahopower.com/save* for a list of all our energy efficiency programs and energy saving tips.

• Stop the junk mail you receive and then throw away. Call the 800 number of mail order catalog companies and sim-ply ask to be taken off their mailing list. Return junk mail stamped "address correction requested" by writing "Refused. Return to sender." on the envelope. Contact the Mail Preference Service at *recycleplease.org* and say you want off national mailing lists.

• Working in an office? Don't use cover sheets on faxes. Print or copy on both sides of a sheet of paper. Use e-mail and voicemail.

• Next time you buy something, carry it in your hands or your own bag instead of the shopping bag the store offers.

REUSE

According to the U.S. EPA, 2 to 5% of what Americans throw away as waste is potentially reusable.

ENERGY & YOU. Reuse means using an item over again in its existing form without major changes to it. Since the materials can be reused, they don't end up in landfills or need to be treated to prevent pollution. According to the Institute for Local Self-Reliance, reuse can also create jobs: "If only half of the 25.5 million tons of durable goods (such as used appliances, furniture, clothing, and machinery) now discarded in the U.S. were reused, more than 100,000 new jobs could be created."

Reusing products, when possible, is even better than just recycling, because the items do not need to be reprocessed before they can be used again. Sometimes, though, they may need a little sprucing up or some repairs.

You can provide products for others to reuse, and you can reuse other people's products. If you need an example of the value of reusing, look no further than the local antique store, where it seems that the more years something has been reused, the more valuable that item becomes!

BE AN ENERGY SAVER

Again and Again

- Instead of disposable razors, use razors with disposable blades.
- Write with refillable pens and pencils.
- Turn empty jars into containers for leftover food.
- Don't toss the pretty gift wrap away after you open your present. Reuse it for a gift you will give.
- Purchase durable goods, such as cloth napkins or kitchen towels that can be washed and reused.

Fixer-Upper

• Repair that broken toaster and it'll brown bread like new.

• Contact manufacturers for parts and repair instructions. They may have a local authorized dealer to help you.

• Look in the classified section of your newspaper, or online, for hard-to-find parts.

Share the Wealth

There are more than 6,000 reuse centers around the country, ranging from specialized programs for building materials or unneeded materials in schools to local nonprofit programs, according to the Reuse Development Organization.

• Donate your older-model computer to a school or other learning center.

• When you buy a new car, donate your old one to a charity. The charity can often resell the car to someone who needs it and earn some money in the sale.

• Instead of throwing away clothes you no longer wear, give them to a thrift center or homeless shelter.

• Even equipment that cannot be repaired can find a new home at a salvage yard.

RECYCLE

Recycling one glass bottle saves enough energy to light a 100-watt bulb for four hours.

ENERGY & YOU. Recycling means making something old into something new again. Newspaper can be made into new newspaper. Glass bottles into new glass bottles. Plastic milk jugs into new plastic flowerpots. And aluminum cans into new aluminum cans—using recycled materials can cut the energy it takes to produce new cans by 95%!

RECYCLING INFORMATION

• Here's how aluminum is recycled: Soda cans and other aluminum products, such as aluminum pie tins and aluminum foil, are collected and sent to factories, where they're shredded into little metal chips. Then they're melted down and turned into solid aluminum bars. The bars are rolled into sheets of aluminum, which are then sold to can makers…who make new cans out of them.

There is no limit to the number of times aluminum can be melted down and reused. The can you're drinking soda out of today could be part of someone else's soda can 20 years from now.

• Old paper is recycled by combining it with water to turn it into pulp. Then it's blended in a giant container to separate the fibers, and passed through screens that take out contaminants like ink, metal and plastic. Unlike aluminum, paper can't be recycled endlessly. After being used 5 to 7 times, paper fibers get too short to use. So paper with the longest fibers, like office paper, is the most desirable for recycling.

BE AN ENERGY SAVER

You're already recycling your aluminum cans, newspapers, and plastic bottles. That's great—you're saving energy and helping the Earth.

But what about the rest of your garbage—those empty soup

cans, for example, or that plastic yogurt cup? Yard waste? Car batteries? Does all that garbage have to be dumped in some landfill?

Not necessarily. These items—and others—can be recycled, too.

• When shopping, look for the word "recyclable" printed on packages. Recyclable means the product or packaging can be recycled. Then recycle it so it won't end up in a landfill.

• Read through this list of a few common things that can be recycled and check off the ones that you recycle.

aluminum foil	soup cans	phone books
greeting cards	clothes	wrapping paper
books	clothes hangers	plastic bags
shoe boxes	paper bags	yarn
cereal boxes	toys	plastic bottles
leftover food scraps	computer paper	toilet paper rolls
soda cans	pet food cans	plastic milk jugs
Christmas trees	wood	car battery
magazines	envelopes	junk mail

• Since not all communities will recycle all of these materials, find out what your local recycling center handles.

• Some centers offer curbside pickups or places where you can drop off your recyclable materials.

• Look for reverse vending machines that accept used beverage containers and reimburse you on the spot.

• Take advantage of the deposit on returnable bottles and cans.

• Participate in recycling campaigns organized by community groups, or start a campaign in your neighborhood or school.

• Each month, try adding new materials to the things you recycle.

• In many communities, plastic films and bags, styrofoam containers, and glass cannot be recycled. Check your community's list of materials that are accepted in the recycling program. Remember if in doubt, leave it out. It is better to recycle properly than to contaminate the entire load of recycled materials.

• Check out *earth911.com* for recycling tips and resources.

KIDS DO

TOO

INVESTIGATE YOUR HOME

Take a Guess:

How do you investigate energy efficiency in your home?
A) Take its temperature B) Open all the doors and windows
C) Find out where energy is being wasted

ENERGY & YOU

Here's a way to use many of the things you've learned in this book in your home. It's called an "energy investigation." You use it to uncover the clues that will tell you if energy is being wasted in your home.

BE AN ENERGY DETECTIVE

• Draw a map of all the rooms in your home, one whole floor at a time. (Imagine that you took off the roof, and draw what you would see looking down into your house or apartment.)

• If your home has more than one floor, use a separate sheet of paper for each floor.

• Do a room-by-room investigation. Start with any room and make a careful search for clues that energy is being wasted. Use the tips in this book.

• Some of the things you may want to look for:

✓ **Lights.** Are they brighter than they need to be? Are they left on when not in use? Could you use a more energy-efficient light, such as a compact fluorescent lamp?

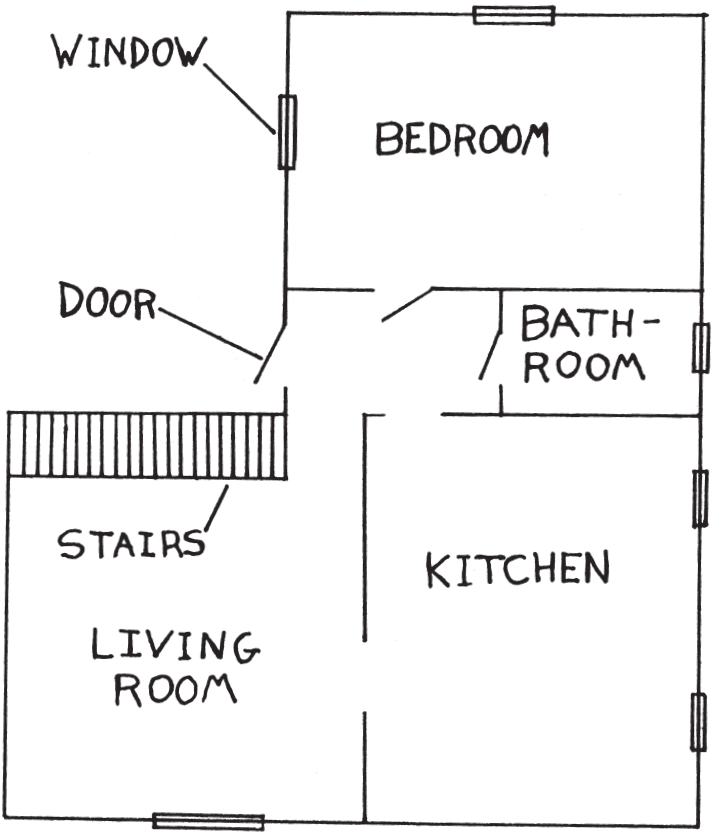
✓ **Windows.** Do they have curtains or shades? Are the curtains or shades used on cold nights? When the windows are shut, does cool air still sneak in?

✓ **Faucets.** Are there any drips? Do people forget to turn the faucets all the way off?

Answer: C. An energy detective looks for clues that energy is being wasted.

• Every time you find energy being wasted in a room, make a note of it on your map.

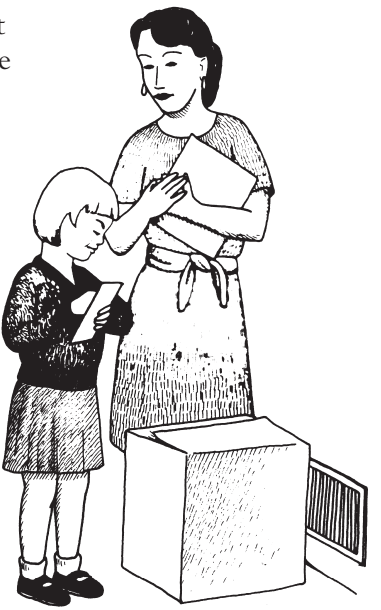
• Show your family what you've discovered. See if you can work together to come up with ways to use energy more efficiently.



SAVING AT SCHOOL

Take a Guess:
How can you save energy at school?
A) Put it in a jar on your desk B) Play hooky
C) Do an energy investigation

ENERGY & YOU



While walking down the hall at school, you notice that someone has left a light on in an empty classroom, computers running in an empty lab…or maybe you see a window left open when the heat is on. If nobody pays attention to these things, a lot of energy will get wasted.

But you can help prevent that energy waste. By staying on the lookout for ways energy is being wasted at school, you'll help the school save money—and help the Earth at the same time. Think how much energy could be saved if kids from every school around the world were on the lookout.

ENERGY INFORMATION

Kids already work to save energy at school.

• In Idaho, high school students use science and math skills to evaluate and make recommendations for energy improvements in their schools.

Answer: C. Do an energy investigation. You can do it today!

• At iSTEM Summer Institutes, teachers receive training and materials to teach energy-related topics in their classrooms. For more information, go to *stem.idaho.gov/apply/i-stem/*

• Elementary teachers are also getting involved by requesting that Idaho Power employees bring energy curriculum and take-home kits into their classrooms. Register at *idahopower.com/wise*

KEEP A LOOKOUT

You can patrol your school, too. Here are some things to look for:

• When the day is bright enough, use natural daylight instead of turning on artificial lights.

• Watch for lights that are often left on in classrooms during recess. And ask if you can turn off outside lights when they are not needed.

• Double-check the thermostat. A comfortable temperature on cold days is between 65°F and 68°F. If the thermostat is set higher than that, you might be able to save energy by turning it down a few degrees. (In the summer the thermostat should be set higher—78°F is good.) Suggest the change to your teacher.

• Look around your classroom. Find the vents where the heat comes out. If the flow of air is blocked by a desk, table, or bookshelf, the heater will be forced to use more energy to warm the room. Blocked vents can also pose a safety hazard. Point it out to your teacher, so the furniture can be moved.

• Check for drafts around the windows and doors. Even when a window is closed, heat can escape through cracks between the window and the wall. (See tip #11, *The Great Escape*, for good ways to find air leaks.) Weatherstripping might be the answer.

START AN ENERGY OR ENVIRONMENTAL CLUB

Take a Guess:

What's a good way to save energy with a group of friends?
A) All ride on one skateboard B) Share a lunch
C) Start a club

ENERGY & YOU

Have you ever wondered who chooses the light bulbs for your classroom? Or who decides what happens to the waste paper from your school? What about the air conditioning and the heating system—who sets the temperature?

Somebody has to make these decisions—maybe it's the principal, or the teachers, or the facilities manager. Whoever they are, they may be able to use your help.

You and other students who have learned about energy can form a group that will help your school save energy.

START A CLUB

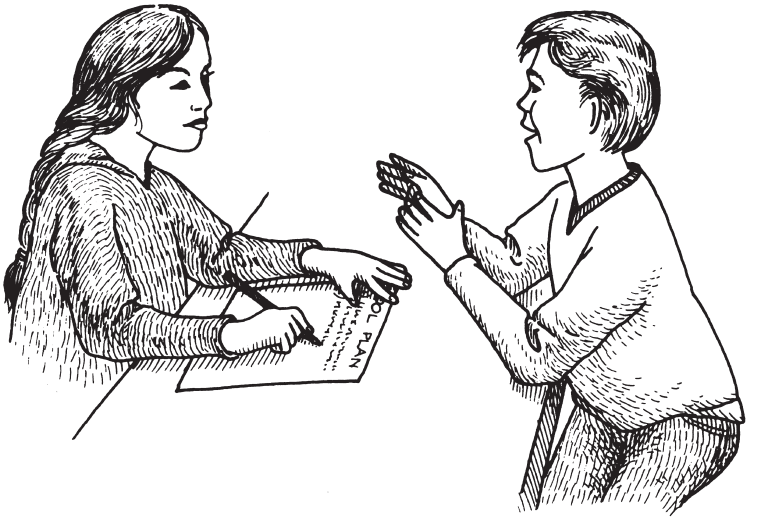
- Start an energy or environmental club. Get together with other students who want to talk over some of the ways to save energy at school.
- Find an advisor, a teacher, or other adult at the school who's interested in helping you save energy.
- Make a list of the most important energy-saving things to do at school. For example, lighting sensors, weather-stripping around classroom windows, and turning off lights when not in use. Try to figure out how long these things will take to do and how many people will need to be involved.
- With your advisor's help, try to estimate how much money could be saved by making the changes.

Answer: C. Start a club. It can be fun and you could help your school.

• Now turn your ideas into an action plan and present it to the school principal or district administrators. Tell them how much money the school might save. Ask them to make the plan part of the school or district policy.

• Make sure that there are students and teachers who will follow through with the energy action plan after you've moved on to the next grade or school.

• The U.S. Environmental Protection Agency has a list of projects for environmental clubs at: *epa.gov/students*



THE ENERGY-SAVER PICNIC

Home and school aren't the only places where you can save energy. In reality, you can save energy wherever you are. For example, when the weather is nice, you can go on a picnic, have fun,and save energy at the same time.

WHAT YOU'LL NEED

- Paper and pencil
- A map that includes your home and possible picnic sites
- A map of bus routes

WHAT TO DO

1. Make a list of the food you want to take and supplies you think you'll need (cups, plates, napkins, and so on).

2. Use the maps to pick a site that everybody you invite can get to without wasting energy (by walking, biking, taking the bus, or carpooling).

3. Check your food list. Make sure the food you bring uses little energy to prepare. For example, salads, fruits, and cheese don't need to be cooked.

4. Check your supply list. Bring plates, cups, and utensils that are reusable or made from recycled materials.

Note: Remember to "precycle" when you shop for supplies. Look for items with less packaging to throw away at the end of the picnic.

5. Have fun. And don't forget to point out to your guests how they've helped to save energy.

THREE R's FOR ENERGY

You can teach other students at your school about saving energy. How? Design a campaign that spreads the word about the three R's for energy—Reduce, Reuse, Recycle.

WHAT YOU'LL NEED

- Other interested students
- A teacher who's willing to help
- A little imagination
- Poster paper (recycled if possible) and other art supplies
- Optional: a video camera
- Optional: a website

WHAT TO DO

1. Get together a team of students to work on the three R's campaign.

2. Ask a teacher to get involved as an advisor.

3. With your team, make a list of different ways people can use the three R's to save energy.

4. Create posters that teach other people about the things on your list. Put together web pages with text and graphics. Be imaginative. Use neon colors or other eye-catching tricks to get their attention.

5. Borrow a video camera and try making a short commercial.

6. When your materials are ready, ask your school to display them. Choose areas of the school where students are most likely to see posters. Hold a special screening for your video, or advertise your website.

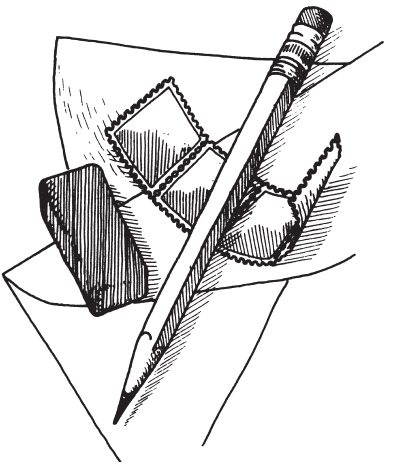
7. Spread the word. Ask neighborhood shop owners, librarians, and other people in your community to display your posters or check out your website. You can even call local TV stations and see if they'll broadcast your video and website address.

PUT YOUR STAMP ON THE WORLD

Just because you're not an adult doesn't mean you can't influence big decisions. People listen to what kids have to say. So if you have ideas about saving energy, make yourself heard—write a letter or send an email.

WHAT YOU'LL NEED

- Paper and envelopes or an email account
- Pen or pencil, or computer access
- Postage stamps
- A phone book or Web access for finding addresses



WHAT TO DO

1. Make a list of energy issues you want to speak out about.

2. Make another list with the names and addresses of people and companies who could use your ideas to change things. Ask a friend, parent, or teacher to help make the list and find the right addresses or email addresses.

3. Write your letters. Each letter should:

—State the energy problem clearly

—Include some facts that help make your point

—Suggest what actions you think the person or company should take.

Read this sample list for some ideas.

What is my concern?	Whom to contact?
1. Lights are left burning all night at schools throughout the district, which wastes energy.	The school superintendent or president of the school board.
2. The computers at my home or school do not have powersave features enabled.	Parents, family members or school principal and teachers.
3. Our city needs bike paths so students can ride their bicycles safely to school, conserving oil and reducing pollution.	The mayor of the city.
4. My favorite CD has a lot of packaging that it doesn't really need.	The president of the music company. (The address of the company should be on the CD package.)
5. My school doesn't recycle paper.	The school principal or the president of the Parent-Teacher Association (PTA).
6. I am not learning enough about renewable technologies at school.	Science and math teachers. *solar4rschools.org*

AN ENERGY CONTRACT WITH THE EARTH

The Earth gives you the energy you need and use every day. You can make a promise to give something back by saving energy, conserving natural resources, and reducing your impact on the environment. You can do this by making an energy contract with the Earth.

WHAT TO DO

1. Read this contract with the Earth carefully.
2. Copy the contract onto a sheet of paper.
3. Choose the actions you'll agree to take each day. Put a check next to them.
4. Add your own energy-saving ideas to the contract.
5. Sign the contract and keep it where you'll see it every day.

Contract with the Earth

I, _____(name)_____, agree that each day I will try to do the following things to help save energy and protect the environment. I know that this is an important promise to the Earth.

ENERGY-SAVING ACTIONS

1. Walk or ride my bike instead of always asking for a ride in the car. _____
2. Use both sides of paper. _____
3. Take short showers instead of baths. _____
4. Turn the water off while I brush my teeth and wash my face. _____
5. Try to leave the refrigerator door open as little as possible. _____
6. Turn off all lights when leaving a room. _____
7. When I'm cold, put on a sweater instead of turning up the heat. _____
8. Turn off the television, computer, and other appliances when they're not being used. _____
9. Try to keep the heater's thermostat set between 65°F and 68°F in the winter, and the air conditioner's thermostat at 78°F in the summer. _____
10. Recycle glass, paper, plastic, and aluminum whenever possible. _____
11. (Your own idea) _____
12. (Another idea) _____

Date: _____ Signature: _____

RESOURCES

A Note on Web Site Addresses

Web sites are often updated and redesigned, and over the course of the year, a few of the addresses listed here could change. If you find that an address no longer works, try

1) Backing up to the home page for that site. On the home page it is usually clear where a resource is located. If not, a search engine on the home page will help guide you to the page you need.

2) Using a search site such as *google.com* or *yahoo.com*. Use the name of the program as your search term.

ONLINE RESOURCES

IDAHO RESOURCES

Idaho Power—Ways to Save
idahopower.com/save

Learn more about our energy efficiency programs for residential, irrigation and commercial/industrial customers. Discover efficient tools to help you manage your energy use and energy costs. Get a jump start on improving the efficiency of your home.

Idaho Governor's Office of Energy and Mineral Resources (OEMR)
oemr.idaho.gov

The OEMR is facilitating discussions to provide the state with achievable and effective options for improving its energy future.

NATIONAL RESOURCES

U.S. Department of Energy—Energy Information Administration
energy.gov/education

This site provides K-12 STEM and education activities focusing on the development and enhancement of workforce skills to engage and inspire the future clean energy workforce.

U.S. Environmental Protection Agency—Student Center
epa.gov/students

This Web site is dedicated to involving students in protecting the environment. It has links to environmental club projects, careers, internships, and scholarships, environmental youth awards, and basic information about human health, waste and recycling, and air and water conservation.