ENERGY SAVING TIPS FOR ALASKANS

Ways to **Save Energy** and **Money** in your home

ALASKA ENERGY AUTHORITY

Alaska Housing FINANCE CORPORATION

SAVING

SAVING ENERGY AT HOME

In Alaska, we pay some of the highest costs for energy in the United States. As consumers we have no control over the price set for our various resources (for instance, the price of a gallon of heating oil). However, we do have control over how effectively we use our energy resources, and thus, we can control our energy costs by reducing the number of energy "units" we purchase.

TWO SIMPLE WAYS TO SAVE:

Energy Conservation involves changes in behavior that lead to lowering energy consumption, such as turning off a light when it is not in use.

Energy Efficiency involves using tools or devices that can lead to lowering energy consumption when installed and used correctly, such as replacing an incandescent light bulb with an LED or using an occupancy sensor.

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YOUR ENERGY BILL:

Annual estimated average of fuel and electric costs by region* includes Power Cost Equalization Subsidy:

Anchorage.....$3,368
Fairbanks.....$5,292
Juneau.....$4,374
Bethel.....$4,659
NW Arctic Borough..$6,223

WHERE DOES YOUR MONEY GO?

Energy bills don't come itemized showing you which appliances and systems use the most energy.

ALASKA HOUSEHOLD ENERGY COSTS %

Southeast
Space Heating.....69%
Water Heating.....14%
Appliances.....17%

Interior
Space Heating.....77%
Water Heating.....10%
Appliances.....13%

South Central
Space Heating.....73%
Water Heating.....14%
Appliances.....13%

Western
Space Heating.....68%
Water Heating.....16%
Appliances.....16%

*Statistics used on this page are from Alaska Housing Finance Corporation's 2018 Alaska Housing Needs Assessment

YOUR HOME

Your home works as a system. Altering one small part can impact the rest.

It is important to know how your home works before you start making changes that could affect airflow and pressure, such as covering vents, closing off holes in the garage, etc. Though the goal is to minimize air leakage, it is important to understand the health and safety issues that come with tightening your home.

Ventilation helps control pressures in the home and provides good indoor air quality. Without this, harmful health and safety issues can exist, including mold growth and back drafting of major appliances (where negative pressure may pull poisonous gasses into the home from heating systems, rather than allowing them to escape).

If you are not sure of the specific function of something in your home, it is best to research the issue or consult a professional before making any alterations.

Common Air Leaks in the Home

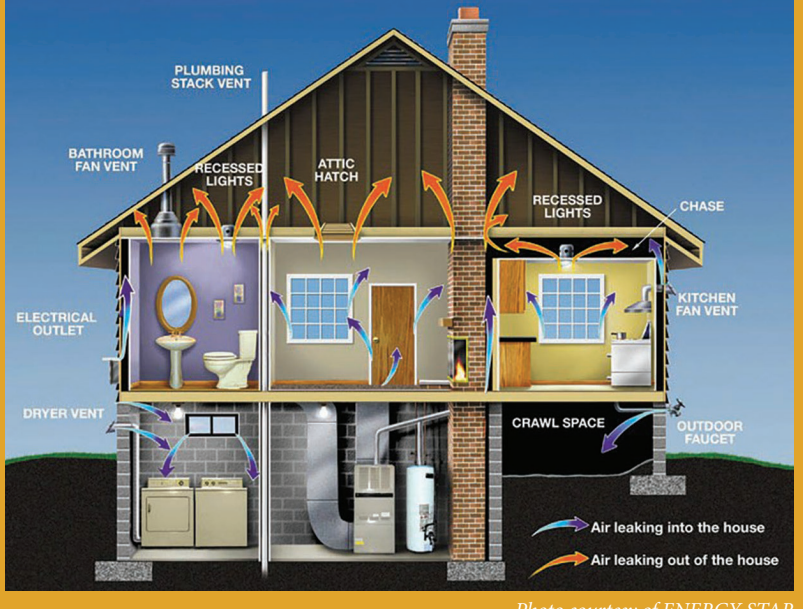


Photo courtesy of ENERGY STAR

WHAT YOU CAN DO:

DO NOT COVER VENTS, FANS OR AIR EXCHANGERS
Though these appear to be leaking cool air into your home, they are in fact regulating the air flow allowing heat to be evenly distributed and preventing moisture build up. If you have concerns about the ventilation in your home, consult a professional.

MONITOR MOISTURE LEVELS
If you notice moisture on your windows, your humidity levels are too high and/or ventilation is not working adequately. For Alaska it is best to stay between 30% and 50% relative humidity depending on the season and location. A hygrometer can be used to measure moisture levels in your home. With moisture levels above 50% there is a higher potential for mold growth and rotting materials. If you find mold growth in your home, consult a professional or refer to the EPA's A Brief Guide to Mold, Moisture, and Your Home at:
www.epa.gov/mold

Education and Resources

These websites offer videos, educational materials and classes covering building science in an easy to understand manner while diving into the slightly technical aspects of energy efficiency and how to make your home more comfortable.

Alaska Housing Finance Corporation https://www.ahfc.us/efficiency/education-and-events.

The Cold Climate Housing Research Center is a great resource for Alaska's unique building applications.
www.cchrc.org.

HEATING

Heating accounts for 68-77% of your home's energy usage - the single largest energy expense.

There are a variety of heating systems used in Alaska and a variety of efficiencies. If a boiler has an AFUE of 60% efficiency, for every $100 the homeowner spends on fuel, $60 heats the home and $40 is going up the chimney. When replacing an old furnace or boiler, consider a sealed combustion/direct vent unit as they are more efficient and safer by reducing the possibility of back drafting. Back drafting is a hazardous condition where exhaust/carbon monoxide from combustion appliances does not properly go up the chimney and instead, comes back down the chimney and into the home. **NEVER BLOCK A COMBUSTION VENT!**

SAFETY TIP – Carbon Monoxide is an odorless, colorless gas that can kill you. At minimum, have a working carbon monoxide detector on each level of the home. Most carbon monoxide detectors last for 5-7 years and should be replaced after that timeframe.

PROGRAMMABLE THERMOSTATS

There is a lot of new technology available with programmable thermostats. From high tech to very simple, a programmable thermostat will save you money by automatically adjusting your home's temperature to maximize your savings. Program it between 62 and 68 degrees in the winter and turn it off in the summer to save energy. According to ENERGY STAR®, when properly used they can save up to $150 a year.

- **Make a schedule.** Program it to set back the heat 2 hours before you go to bed and increase it just before you wake. Set it back during the day if no one will be home.
- **Turn it down 5 degrees.** For every degree you lower the thermostat you save about 2% on your heating bill. Turning it down 5 degrees saves about 10%.
- **Vacationing.** When you're away from home turn the thermostat down.
- **Health & Safety First!** Remember that elders, children and those with medical conditions have greater heating needs when adjusting the thermostat.

WHAT YOU CAN DO:

HAVE A PROFESSIONAL EVALUATE AND TUNE YOUR HEATING SYSTEM
All heating systems should be checked every year. Gas stoves should be checked every two years. Furnaces should have the filter changed at least every six months. A heating technician can let you know if your heating system needs replacing.

SEAL YOUR FIREPLACE WHEN NOT IN USE
Close the flue when it is not in use or make a fireplace insert. Inserts seal air leaks and can be removed easily. If you never use the fireplace, have it sealed up permanently.

CHECK AIR VENTS, RADIATORS AND REGISTERS
If they are blocked by furniture or drapes, heat cannot circulate through the rest of your home.

WOOD HEATING
Wood burns best when dry and wood that is split dries faster than logs. Chimneys should be cleaned once a year or per manufacturers recommendations. It is important to use safe and efficient wood stoves. For a list of EPA certified woodstoves go to: *www.epa.gov/compliance/epa-certified-wood-heater-database*

GAS AND ELECTRIC STOVES
Never use your propane, gas, or electric stove for heating. It is very dangerous! Propane and gas stoves can cause carbon monoxide poisoning and should have a range hood exhaust fan above them. Electric ovens are not designed to heat large areas and can be a fire hazard.

USE ELECTRIC SPACE HEATERS SPARINGLY
Depending on the model and cost per kilowatt hour, a space heater running for 5 hours a day can cost anywhere from $100 to $175 a month in rural Alaska.

SOLAR

Solar has been growing in popularity in Alaska for the past several years, driven by a large decrease in solar panel prices and an increase in electricity rates in many places in Alaska. Here are some steps that should happen before solar photovoltaic (PV) panels are installed.

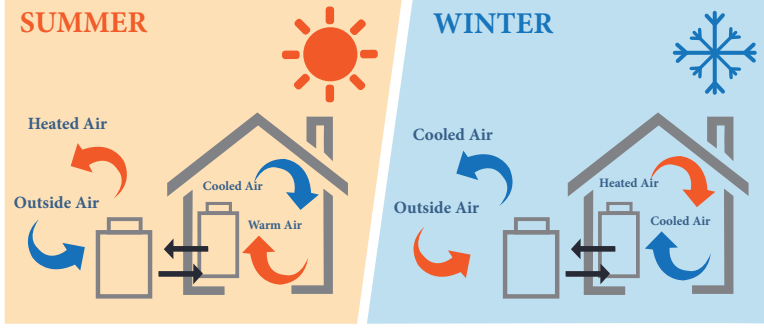
- Efficiency first! Make sure electricity use has been reduced as much as possible to ensure proper system sizing.
- Check with the local electric utility. There's usually paperwork that needs to be completed to have solar installed. Depending on the location in the state this paperwork may be done by the installer or property owner.
- Check if there's a Solarize campaign in the area. Solarize campaigns select an installer and purchase panels in bulk for a community to reduce overall costs.
- Get quotes from solar installers. If there isn't a Solarize campaign in the area, check with local installers who will evaluate your home and provide a quote for free. If friends or family have installed solar they may have recommendations.

WHAT ELSE TO KNOW

- Having solar panels installed doesn't mean there will be electricity when the power is out, unless a battery system is also connected.
- Utilities "net-meter" monthly - if a solar system produces more electricity than is used in a month, the electric company will pay for the extra electricity - but only for the avoided fuel cost which is much lower than what the billed cost per kWh.
- Solar installations may be eligible for a tax credit. Learn more at Energy.gov: *www.energy.gov/eere/solar/homeowners-guide-federal-tax-credit-solar-photovoltaics*
- Learn more about solar in Alaska: *www.alaskarenewableenergy.org/technologies/solar*

HEAT PUMPS

There are different types of heat pumps. Most being installed in homes in Alaska are air sourced. Heat pumps are clean and efficient heating systems, which use electricity to efficiently transfer heat from outdoor ambient air into the home. They might be a good investment especially in places in Alaska that have low electricity costs.



WHAT ELSE TO KNOW

- They transfer heat, not generate heat, so they are much more energy efficient than other electric, oil, wood, or gas heating systems.
- They work very efficiently to about 0°F, and can still heat your home (but not as efficiently) down to about -20°F, depending on the model.
- They work well statewide spring through fall, and even through the winter in some climates, but you will likely still need a backup heating system for very cold days and emergencies.
- Heat pumps can be used as air conditioners in the summer months!
- They can improve your indoor air quality when replacing or reducing use of fossil fuel or wood heating systems.
- Learn more at Alaska Heat Smart: *www.akheatsmart.org*

INSULATE + AIR SEAL

Insulating, air sealing and other energy efficiency improvements can reduce heating costs by 30% or more according to Alaska Housing Finance Corporation.

Insulation and air sealing minimize a building's heat loss. Air sealing is essential for moisture control when adding insulation.

Insulation is rated in R-value and expresses resistance to heat flow. The higher the R-value, the more effective the insulation. Adding insulation combined with air sealing can be the easiest and most inexpensive way to save money on heating bills. Alaska's Building Energy Efficiency Standard (BEES) has recommendations for minimum R-values based on which part of the state you live. *www.ahfc.us/efficiency/bees*

WHAT YOU CAN DO:

CAULK CRACKS AND GAPS LESS THAN 1/4" WIDE
Caulk is flexible and a good way to seal air leaks, especially around windows and doors.

ACCESS DOORS AND GARAGE DOORS
Doors are a frequent source of heat loss. If you detect air leaks, replace the threshold or attach a door sweep. Also be sure to check seals and latches. Evaluate the garage door for insulation and seal with weather stripping so light cannot be seen around the door.

AIR SEAL WINDOWS
Cracks let cold air into your home. Install weather-stripping and window insulation kits (clear plastic film) if your windows have drafts. In most cases it is not cost effective to replace windows unless they are older than 1980 and are single pane or extremely damaged. To seal between the frame of a window and the frame of a house, remove window trim and use low expanding foam.

INSULATE YOUR WATER HEATER TANK
Your water heater can lose heat through the walls of the tank. If recommended by the manufacturer, install an insulating blanket.

SCHEDULE AN ENERGY RATING

WHAT AN ENERGY RATER CAN DO:

PERFORM AN ENERGY RATING
An energy rating models a home's existing energy efficiency and helps you find ways to reduce energy use.

IDENTIFY R-VALUES IN EXISTING INSULATION
Insulation is relatively cheap and effective in terms of payback. The floor and ceiling have the highest potential for heat loss. An energy rater can evaluate the current R-value and recommend improvements including insulation types and amount needed.

COMBUSTION SAFETY TESTING
Air sealing without combustion safety testing can be very dangerous. This testing evaluates ventilation and major appliances to ensure poisonous gases are not back-drafting into the home. Identify air leaks.

WHAT A CONTRACTOR CAN DO:

INSPECT VAPOR BARRIERS
Inspect the condition of your vapor barrier, identify air leaks and repair them. They should inspect crawlspaces and attics which need extra attention because of issues with excessive moisture.

INSTALL ATTIC AND FLOOR/FOUNDATION INSULATION
Insulation is relatively cheap and effective in terms of payback as the floor and ceiling have the highest potential for heat loss.

HOW TO FIND AIR LEAKS

To find air leaks look around window and door frames for daylight. Run your hand over surfaces to find cold spots. The smoke from an incense stick can be used to locate leaks. Be careful not to place the lit item near flammable materials.

WATER

The water heater is the **2nd** largest energy user in most homes.

The water heater accounts for about 10-16% of your energy usage, second only to your home's space heating system, according to the 2018 Alaska Housing Needs Assessment.

You don't simply pay once for water. If on a municipal system, you pay one bill for the cost of the water itself, as well as the treatment and pumping of that water. If you have your own well, you pay for the electrical cost. Then you pay a second bill for the cost of heating that water.

Reducing the amount of hot water you use will save money on both bills.

TURNING DOWN THE TEMPERATURE

Set the thermostat on your water heater to 120°F. It's one of the easiest ways to save energy and money.

- Water is often heated to 140°F unnecessarily; turning the temperature back will save between 6 and 10 percent on your energy bill according to the Department of Energy.
- The lower temperature prevents scalding from hotter water.
- Reducing the temperature slows buildup of minerals and corrosion in the water heater and in the pipes.
- Avoid turning down the water temperature too low, as pathogens can survive at temperatures below 120°F.
- Use heat tape sparingly and if possible put it on a timer.

WHAT YOU CAN DO:

INSTALL LOW-FLOW SHOWERHEADS
They use one-third to one-half the water that regular showerheads use and still provide adequate water pressure.

BUY A WATER HEATER THAT FITS YOUR NEEDS
There are several types of energy efficient water heaters you may want to consider depending on your location and circumstances.

A conventional storage tank water heater heats the water 24/7 which can be an energy waster.

With a boiler, it's possible to have an indirect water heater where the boiler heats the water and it is stored in an insulated tank. The water heating system then assumes much of the energy efficiency from the boiler.

A tankless or on-demand water heater heats the water as its being used. It must be sized correctly to produce the volume of water needed based on the temperature of the ground water. Other energy efficient options may include condensing, heat pump, and solar powered water heaters.
www.energystar.gov/products/water_heaters

TAKE SHOWERS
They use less hot water than baths.

FIX LEAKY WATER FAUCETS AND RUNNING TOILETS
Thirty drops of water per minute can waste up to 19 gallons of water per month. If your toilet runs, you potentially could be wasting money and energy from an overworked mixing valve.

INSTALL LOW-FLOW AERATORS ON FAUCETS
These reduce the amount of water flow, saving both water and energy.

LIGHTING

For Alaskans, about 15% of energy usage is attributed toward lighting and appliances.

Switching to more efficient lighting is a good way to reduce costs. Energy efficient bulbs such as LEDs last longer and use a fraction of electricity compared to incandescent bulbs. Start by replacing the lights you use most often. Any light used more than two hours per day is a good candidate for an upgrade.

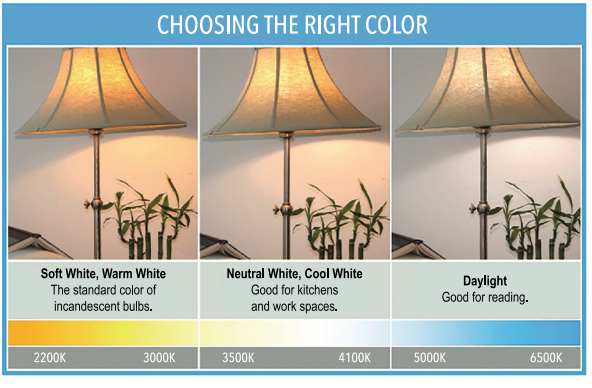


Photo courtesy of ENERGY STAR

WHAT YOU CAN DO:

TURN OFF THE LIGHTS WHEN THEY ARE NOT IN USE

BUY ENERGY STAR LIGHT FIXTURES AND LAMPS
They use one quarter of the energy traditional fixtures and lamps use and last longer than brands that do not meet ENERGY STAR criteria.

USE TIMERS AND OCCUPANCY SENSORS
These automatically turn off lights when they are not being used and can lower lighting costs if set up properly.

USE LED HOLIDAY LIGHTS
They use 90% less energy, are brighter than standard holiday lights and last much longer. Through the long, dark Alaskan winters, the cost of leaving inefficient lights on can add up.

LIGHT EMITTING DIODE (LED) LIGHTING

LEDs last approximately 25,000 hours compared to an incandescent bulb that lasts approximately 800 hours.

An LED bulb uses only about 10 watts of electricity compared to an incandescent 75 watt bulb. That's an 80% savings for the same amount of light and an 80% savings on your lighting costs!

LED bulbs cost more initially, but they will easily pay for themselves when they last 25 times longer and save 80% of the energy over a comparable incandescent bulb. They also come in a large array of colors and offer many Smart Bulb options.

COLOR RENDERING INDEX (CRI)

When purchasing LED bulbs it's important to know the brightness, color (Kelvin) and CRI of the bulb. A 100 watt incandescent bulb is equal to 1600 lumens in brightness. A 60-watt bulb is equal to 800 lumens. Another consideration is the color temperature (Kelvin). If you like the color of an incandescent 60 or 100 watt bulb look for a bulb that is close to 2700k. As the number goes up, the color becomes whiter or bluer. Daylight color temperature is 5000k or higher. The CRI indicates how accurate the color temperature of that specific bulb is compared to what is listed on the label. If the LED bulb is 2700k with a CRI of 93 the light from that bulb will look very close to the typical incandescent bulb. If it had a low CRI the less that bulb will look like the actual color (Kelvin) listed.

WHAT YOU NEED TO KNOW

Incandescent or natural sunlight is the reference point for how colors appear under artificial lights (LEDs). Using a numerical scale from 1 to 100, the CRI refers to how accurately artificial light shows the natural colors of the objects or people with 100 being the best.

LIVING ROOM

> Don't spend more money powering home audio systems and electronics when they are off than when they are actually in use.

Living rooms are home to most of the electronics in your house. Your family watches TV, plays video games, turns on computers and listens to music all racking up energy!

The living area is ripe for other energy-saving measures as well, especially if it has multiple windows, a fireplace or several air vents.

PHANTOM POWER

Also referred to as phantom loads, phantom power is when your electronics draw energy even while they are off. This is energy that costs you money. Power strips help prevent this.

POWER STRIPS: A SMART WAY TO SAVE

- Plug electronics into a power strip. Flip the switch off when you are not using them.
- If you have many electronics, group them into several power strips. Put things you use at the same time, like the computer and printer, on the same strip.
- Put power strips in easy-to-reach places. They won't save energy if you don't use them regularly!
- Place your TV on a power strip. Though many TVs need to be reprogrammed if they are completely turned off, they still carry a phantom load when left plugged in.
- ENERGY STAR Appliances can also lower phantom power.

WHAT YOU CAN DO:

TURN OFF THE TV WHEN NO ONE IS WATCHING
It's the easiest way to save. Learn how much energy your electronics consume, including phantom loads by measuring with a electricity monitor.

USE THE SLEEP FUNCTION
An average household can cut 60 percent of the energy their electronics use by using the sleep mode.

UNPLUG THE PHANTOM'S POWER
Reduce or remove the phantoms ability to draw power. Turn off power strips when electronics are not in use.

SATELLITE/CABLE BOXES

In some cases, set-top boxes actually use more electricity in a year than your refrigerator even when turned off. To find your exact costs, look up the name and model number along with the search terms "wattage" or "energy use". Check out your specific box for energy use including sleep mode. You can multiply the kWhs by your local electric rate.

To read more about this go to:
www.nrdc.org/energy/files/settopboxes.pdf

KITCHEN

In rural areas it can cost $400 a year to run a refrigerator and $50 a year to power a coffee maker according to the UAF Cooperative Extension Service.

Kitchens are home to appliances that use a lot of energy, like the refrigerator, and ones that use a lot of water, like the dishwasher.

The kitchen has many high use appliances and using them efficiently will help your savings add up quickly!

WHAT YOU CAN DO:

USE MICROWAVES, TOASTER OVENS AND CROCKPOTS TO COOK
For small meals, they use less energy than the stove or oven. Keep the inside clean as it improves the efficiency.

USE LIDS WHEN COOKING
They keep steam in and cook food more quickly.

DON'T LET THE WATER RUN
When washing dishes by hand you will save on heating water.

USE YOUR DISHWASHER IF YOU HAVE ONE
According to ENERGY STAR, you can save 7,000 gallons of water each year and $111 in utility costs by using a dishwasher instead of washing by hand.

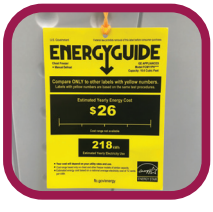
WASH ONLY FULL LOADS IN DISHWASHERS
It costs the same to wash one dish as it does to wash a full load!

USE THE AIR-DRY OPTION ON DISHWASHERS
It saves energy by keeping the heating element off.

THE FREEZER

Improvements in insulation and compressors mean today's freezers consume much less energy. ENERGY STAR certified freezers are at least 10 percent more efficient than non-certified models and are more efficient than models that simply meet the federal minimum standard for energy efficiency.

Another tip is to keep your chest freezer full if there is extra space. Store gallons of water in your freezer. www.ready.gov recommends storing at least one gallon of water per person/pet per day for a minimum of 3 days in the event of a disaster. The other benefit to this is if the power goes out the things in your freezer may stay frozen longer.



WHAT YOU CAN DO:

CHECK YOUR REFRIGERATOR TEMPERATURE
Keep your refrigerator between 36°F and 38°F. Set your freezer between 0°F and 5°F. You lose money if you keep it too cold.

CLEAN THE COILS
Most older refrigerators have exposed coils where dust can build up and lower the efficiency. Use a coil brush to clean these.

DOOR SEALS AND GASKETS
Check seals for leaks and replace them if necessary. Be sure to clean them regularly.

REPLACING YOUR REFRIGERATOR
When buying a new refrigerator, choose an ENERGY STAR model. It will be at least 10 percent more efficient than regular models.

LAUNDRY

Washing machines use two types of resources. They need electricity to power their motors and they need water to do the work.

Some machines are far more efficient at using water and electricity. To find the most efficient machines, look for the ENERGY STAR label. Conventional washers can use 40 gallons of water on just one load of laundry, but ENERGY STAR-rated washers can use fewer than 10 gallons of water. They use less energy and can cut utility bills by an average of $150 per year. That's a total savings of $750 over 5 years, (UAF CES).

WHAT YOU CAN DO:

WASHETERIAS AND LAUNDRY MATS
Using the washeteria is calculated into the costs Alaskans spend on energy. These tips will help you save your quarters!

DRY LAUNDRY OUTDOORS ON A SUNNY DAY
Save energy and lower indoor humidity. Sunlight is free.

WASH AND DRY ONLY FULL LOADS
The machines use roughly the same amount of water and energy to wash one item as they do to wash a full load.

CLEAN THE LINT FILTER
Clogged filters can prevent your dryer from doing its job. Clothes will dry faster by cleaning this before each use.

APPLIANCES

Each of your appliances have two price tags. The first is the price you pay for it at the store. The second is the price you pay to run that appliance over its lifetime.

Over time, the cost of running your appliance will add up. Usually, this price is higher than the actual price tag of the appliance at the store. When purchasing appliances it is important to remember these lifecycle costs.

Choosing the most energy-efficient appliances will help reduce operating costs. An EnergyGuide label on each appliance will show you how much energy a model will use. But also look for the ENERGY STAR symbol. It's only on appliances that meet strict energy efficiency standards. If possible, recycle old appliances.

ENERGY STAR: A LABEL FOR SAVINGS

Products with the ENERGY STAR label meet strict energy-efficiency guidelines set by the U.S. Environmental Protection Agency and the U.S. Department of Energy.

Before you go to the store to buy a new appliance, see if ENERGY STAR certifies the type of machine you need. It certifies products including:

- **Clothes Washers**
- **Humidifiers**
- **Dishwashers**
- **Refrigerators**
- **DVD Players**
- **Heating Equipment**
- **Room Air Conditioners**
- **Home Audio Equipment**
- **Freezers**
- **Televisions**
- **Light Fixtures**
- **Computers and Printers**

SAVE

Limited budget? There are simple projects that can be done with a minimum of time and equipment to reduce your energy use. These low-cost energy efficiency techniques can add up to big savings.

ULTRA LOW COST

- Install foam gaskets under switch plates.
- Use transparent window film on windows.
- Invest in power strips to reduce phantom loads.
- Purchase a refrigerator coil cleaning brush.
- Stop leaks by replacing washers in sink faucets.

LOW COST

- Switch bulbs from incandescent to LED.
- Replace weather stripping around exterior doors.
- Get a refrigerator thermometer to monitor temperature.
- Replace door sweep on the bottom of exterior door.
- Caulk around leaky windows to prevent drafts.
- Use low expansion foam around windows and door frames to seal leaks and cracks.
- Purchase a electricity monitor to track your energy usage.

MEDIUM COST

- Install insulating blanket on water heater (if manufacturer recommended).
- Install new threshold under worn exterior doors.
- Install a low-flow shower head.
- Install a programmable thermostat.
- Purchase a timer for your engine block heater.
- Fix leaky faucets and running toilets.

Source: Adapted from Energy Tips: Conserve and Save by: Roxie Rodgers Dinstel

MONITOR YOUR USAGE

Look at your energy bill each month. Compare it to past bills. Before you begin to reduce your energy use, it helps to have an idea of how much energy you consume and what you are paying for both electric and heating bills.

Walk through your house and take inventory of the items that remain constantly on and in use. Track where your money is going by taking note how many hours a day items are in use.

Become aware of your habits and usage. Often times lights may be left on overnight or the TV may be turned off but not the DVD player, game console and sound system. Track how often your household runs the dishwasher or does laundry in a given week.

Measure and Monitor. Take this a step further and measure how much energy individual electronics and appliances use by using tools such as a Kill-A-Watt Meter. This could be a family project. With a few simple calculations, you can figure out how much you spend on each electronic when on and off. Local utility companies and libraries may have Kill-A-Watt Meters available for loan. Electricity monitors are also available for sale online and locally in some areas for about $30.

Reduce and Save. Once you know where your energy is being used, start looking for ways to reduce it. All of the tips provided through this guide may seem like small changes, but they can add up to huge savings!

See how low you can go on your energy bill with these tips.
Can you drop your costs by 10%? What about 40%?

Pictured: Nancy Gregory-Anderson. Photo courtesy of Todd Radenbaugh

SAFETY

Every year in the United States, more than 25,000 residential fires are associated with the use of space heaters, according to the U.S. Consumer Product Safety Commission.

Your home uses energy in many places and with many machines – and you must take care to operate each of these as safely as possible.

Decreasing your energy use means making changes throughout your home. Make each change as safely as possible. Be sure to have properly working carbon monoxide alarms and smoke alarms.

SPACE HEATERS: SAFETY FIRST!

In the U.S. every year, fires and carbon monoxide poisonings are caused by space heaters. More than 300 people a year die in these fires. Each year 6,000 people are treated at emergency rooms for burns associated with space heaters, mostly in non-fire situations. It's important to always think about safety when using a space heater.

Make sure your space heater:

- Meets the latest safety standards, as recommended by the manufacturer.
- Is never plugged into a power strip.
- Is only used in an open area. Air needs to circulate around the space heater. Only use on level, hard, non-flammable surfaces.
- Is at least three feet away from flammable items.
- Is vented. Unvented gas heaters are very dangerous. If you do use one, always keep the doors open to prevent pollutants from building up.

Alaskan villages have the highest mortality rate from carbon monoxide poisoning in the USA, according to UAF CES.

WHAT YOU CAN DO:

INSTALL SMOKE DETECTORS
You should have one on every level of your house and one outside each sleeping area. Replace the batteries twice each year.

INSTALL CARBON MONOXIDE ALARM
Carbon monoxide is a deadly, colorless and odorless gas. This gas can be produced by combustion appliances such as heating systems, water heaters, space heaters and gas/propane cook stoves. Installing an alarm will alert you to this dangerous situation. If a carbon monoxide alarm goes off, immediately leave the house and call 911 from your neighbor's house or a cell phone. When using a gas/propane cook stove oven, be sure to use your range hood fan to exhaust any carbon monoxide outside.

CLEAR THE AREA AROUND YOUR HEATING SYSTEM
Heating systems need air to do their job. Never store anything flammable near your furnace – it's a fire hazard.

OPEN WINDOWS AND USE EXHAUST FANS
Use proper safety gear and ventilation while using caulking, spray foam and other products that contain chemicals.

PRACTICE PROPER MAINTENANCE
Following the manufacturers maintenance schedule on heating systems and appliances will allow for increased efficiency.

MOLD AND MOISTURE LEVELS
It is important to maintain keep humidity levels between 30-43%. Mold can become an issue if not monitored.

PROPER VENTILATION
Ventilation will help keep your family and home healthy. There are high efficiency bathroom fans that can be used for whole house ventilation systems.

FIRE EXTINGUISHERS
Keep multipurpose fire extinguishers labeled A-B-C near stoves and heating systems.

WOOD BURNING SAFETY
The smell of smoke from your wood stove means it is not venting properly. This can be both a fire and a safety hazard.

STATE PROGRAMS

There are a number of residential programs offered to Alaskans statewide.

THE HEATING ASSISTANCE PROGRAM

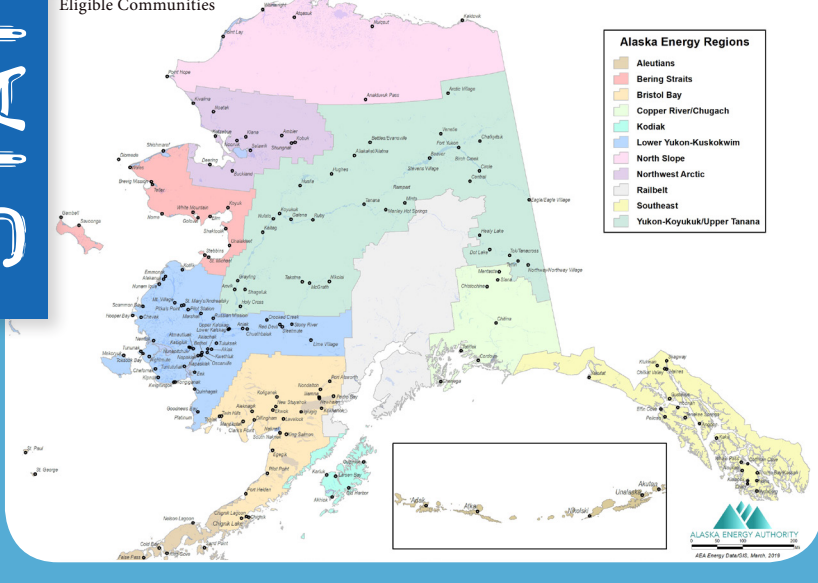
Helps Alaskan households pay a portion of their home heating expenses. Eligibility is based on gross monthly income and family size.

For more information, please visit the program's web site: www.benefits.gov/benefit/1411

POWER COST EQUALIZATION (PCE)

PCE subsidizes rural electric costs in an effort to equalize the gap between the high costs remote communities pay and the rates paid on the Railbelt and in Southeast communities. The PCE subsidy is only applied to the first 750 kilowatt hours (kWh) used in a month. For rural residents, keeping your household usage under 500 kWh is an easy way to lower your electric bill.

Power Cost Equalization (PCE) Program
Eligible Communities



For more information, or to see if you are covered under the PCE Program, go to www.akenergyauthority.org/what-we-do/power-cost-equalization

Alaska Housing
FINANCE CORPORATION

The mission of the Alaska Housing Finance Corporation is to provide Alaskans access to safe, quality, affordable housing. The following is a brief description of some of the programs available.

WEATHERIZATION PROGRAM

Homeowners and renters who meet certain income guidelines, may apply through their regional weatherization service provider to receive no cost energy improvements.

ENERGY EFFICIENCY INTEREST RATE REDUCTION

This program offers interest rate reductions on financing a new energy efficient home, or when purchasing and making energy efficiency improvements to an existing home.

RENOVATION OPTIONS FOR MORTGAGES

These programs offer financing for energy efficiency upgrades to your current home.

AHFC also has several loan programs that may be used to finance energy efficiency improvements. A full description of each program can be found at AHFC's Energy Programs webpage: *www.ahfc.us*

RESOURCES

GOT ENERGY QUESTIONS?

THE AHFC RESOURCE INFORMATION CENTER (RIC) provides information and technical assistance via the web, phone and in-person visits. Books, fact sheets, videos, reports, catalogs and other resources on northern building, innovative housing construction, energy efficiency, renewable energy and sustainable technology are available:
www.ahfc.us/efficiency/research-information-center

THE COLD CLIMATE HOUSING RESEARCH CENTER (CCHRC) has many resources on building energy efficient, safe and affordable homes through cold-climate research and technologies. For more information visit:
www.cchrc.org

RENEWABLE ENERGY

The popularity of renewable energy, such as solar, is gaining ground in Alaska. When considering solar, the first step is to have a site assessment done by a solar provider. This will help determine if solar is a good fit for the home and if so, how much it will cost to install. If on the grid, check with the utility company about net metering. If off the grid, look into battery packs for solar storage. Other considerations are the payback period/return on investment and whether local, state, or federal tax credits or incentives are available.

TOOLS AND GUIDES

ELECTRICITY MONITOR
This tool helps track how much different lights, electronics or appliances cost to power in your home. Local libraries or utility companies may have meters available to loan. They may also be purchased locally or online.

HOW TO CHOOSE A LIGHTBULB
www.energystar.gov/products/lighting_fans/light_bulbs

LED LIGHTING
Learn more about available LED lighting and technology
www.energystar.gov/lighting

ENERGY CALCULATOR
The energy use calculator allows you to estimate your annual energy use and cost to operate specific products.
www.energy.gov/energysaver/maps/appliance-energy-calculator

BUILDING ENERGY EFFICIENCY STANDARD
shows what levels of insulation are cost-effective for different climates and locations in the home.
www.ahfc.us/efficiency/bees

REDUCING ENERGY COSTS FOR ALASKANS
www.ahfc.us/efficiency

WOOD HEATING COST CALCULATOR
Calculate how much you are spending on wood heating.
www.alaskawoodheating.com/calculator.php

ENERGY AND COMFORT CHECKLIST

HEATING	Are furnace air filters cleaned and changed every six months (or per manufacturer's recommendation)?	Ref. Pg 6
	Is there a programmable thermostat?	Ref. Pg 7
	Is the thermostat set at 68°F or lower when someone is at home?	Ref. Pg 6
	Is the thermostat set at 62°F or lower overnight and when no one is home?	Ref. Pg 6
	Is there weather-stripping around most windows and doors?	Ref. Pg 11
	If there is a fireplace, is the flue kept closed when not in use?	Ref. Pg 7
	Are areas in front of baseboard heaters (or heater vents) clear of furnishings, curtains or other objects that block air flow?	Ref. Pg 7
	Do most windows have shades, curtains, or blinds?	Ref. Pg 11
WATER USE	Is the water heater set between 120°F and 140°F?	Ref. Pg 12
	Are the water heater pipes insulated?	Ref. Pg 11
	Are all showers fitted with a low-flow shower head?	Ref. Pg 23
	Do most household members turn the faucet off while brushing teeth, shaving, etc?	Ref. Pg 13
	Do all faucets have water-saving faucet attachments?	Ref. Pg 13
	Do most household members take 10-minute or less showers?	Ref. Pg 13
APPLIANCES	Is the dishwasher running only when there is a full load?	Ref. Pg 13
	Is there at least 2 inches of clearance around the refrigerator (front, back, top, and sides) to permit proper air circulation?	Ref. Pg 19
	Is the refrigerator kept between 36°F and 38°F?	Ref. Pg 19
	Is the freezer kept between 0°F and 5°F?	Ref. Pg 19
	Do household members usually only do laundry when there is a full load?	Ref. Pg 21
	Most of the time do household members wash clothes in cold water?	Ref. Pg 21
	Do household members clean the lint filter of the dryer after each load?	Ref. Pg 21
	Are the TV, computer, or other electronics, turned off when not in use?	Ref. Pg 17
	Are heat tapes and/or block heaters on timers?	Ref. Pg 7
	Do household members usually turn the lights off when leaving a room?	Ref. Pg 15
	Are most light bulbs LEDs?	Ref. Pg 15

YES	NO	N/A	NOTES

SOURCES

All estimates for energy savings vary by region and for each family. We have used typical savings. The following is a list of key sources used in preparing this book:

University of Alaska Fairbanks Cooperative Extension Service **www.uaf.edu/ces**
Southwest Alaska Municipal Conference **www.swamc.org**
Alaska Energy Authority **www.akenergyauthority.org**
Alaska Housing Finance Corporation **www.ahfc.us**
Anchorage Recycling **www.muni.org/Departments/SWS/Recycling/Pages/Default.aspx**
Cold Climate Housing Research Center **www.cchrc.org**
Bristol Bay Environmental Science Laboratory **www.uaf.edu/bbc**
American Council for an Energy-Efficient Economy **www.aceee.org**
U.S. Department of Energy **www.energy.gov**
U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy **www.eere.energy.gov**
ENERGY STAR, a joint program of the U.S. Department of Energy and the U.S. Environmental Protection Agency **www.energystar.gov**
Alliance to Save Energy **www.ase.org**
Recycling in Alaska **www.waste360.com/waste/alaskas-unique-solid-waste-management-tactics**
Rocky Mountain Institute **www.rmi.org**
State of Oregon's Office of Energy **www.oregon.gov/energy**
U.S. Consumer Product Safety Commission **www.cpsc.gov**

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For more information about Project Energy Savers, visit **www.projectenergysavers.com.**

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