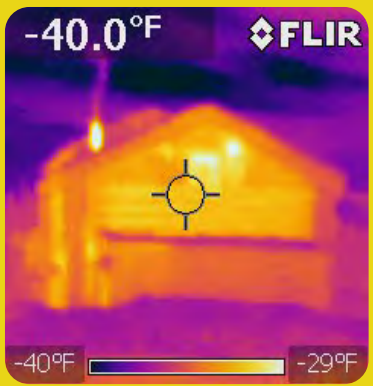
Second Edition 2011

ENERGY SAVERS TIPS FOR ALASKA



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

ALASKA ENERGY AUTHORITY

SWAMC Southwest Alaska Municipal Conference

Alaska Housing FINANCE CORPORATION

ABSN Alaska Building Science Network

SAVING

SAVING ENERGY AT HOME

In Alaska we pay some of the highest costs for energy in the United States. As consumers we have little control over these costs, however we do have control over how effectively we use our resources. This guide will provide you with numerous ideas and resources that will empower you to lower your energy costs by addressing heating and electricity usage first. Rising energy costs are an eminent reality across the state and by addressing heating and electricity usage first, we can quickly lower these costs and save money.

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 one or using an occupancy sensor.

TABLE OF CONTENTS

Front: Image from a thermal gun illustrating the heat loss of a home in Fairbanks. Scale shows range of temperatures. Gun only registers to -40°F. Actual temperature is -56°F. Photo courtesy of Sean Skaling, Alaska Energy Authority.

YOUR ENERGY BILL:

HOW MUCH ARE WE PAYING, EXACTLY?

Annual estimated average of fuel and electric costs by region*:

Northern.....$10,773
Southwest.....$8,361
Interior.....$8,317
Southeast.....$5,947
Railbelt.....$4,753

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 %

Space Heating: 38%
Water Heating: 15%
Lighting: 13%
Electronics: 8%
Refrigeration:.....7%
Cooking: 7%
Clothes Dryers and Dishwashers: 7%
Computers: 1%
Other: 4%
TOTAL: 100%**

*Alaska Housing Finance Corporation, Energy Rebate Averages.

**Village Appliance Usage Spread Sheet. University of Alaska Fairbanks' Cooperative Extension Service (UAF CES).

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 the 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 the pressure in the home allowing it to breath. 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

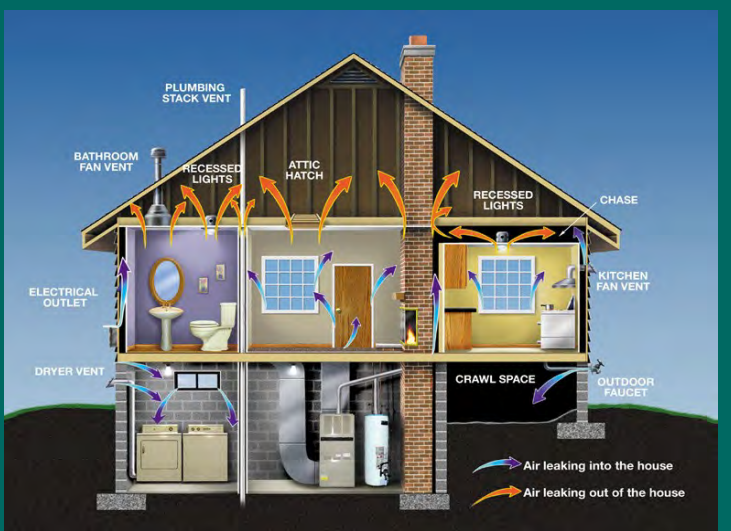


Photo courtesy of Energy Star

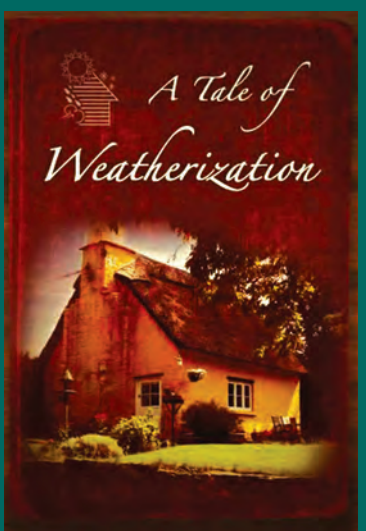
WHAT YOU CAN DO:

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
Use a hygrometer to measure the moisture levels in your home. For Alaska, it is best to stay between 30% and 50% relative humidity depending on the season and location. With levels higher than 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:

http://www.epa.gov/iedmold1/pdfs/moldguide.pdf

A Tale of Weatherization



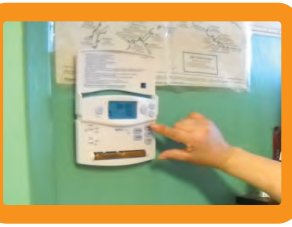
This short video delves into the basics of building science in cold climates. It provides a visual tour of how a house functions as a system, while addressing the many facets of a home. This video addresses complicated applications in an easy to understand and fun way. It was adapted from the Building Science Community of Alaska and currently can be found on the AHFC website at:

http://www.ahfc.state.ak.us/energy/energy_videos.cfm

HEATING

Heating accounts for 38% of your home's energy bill – the single largest energy expense.

A number of homes across rural Alaska use an oil furnace, stove or boiler as their primary heating system. These are controlled by a thermostat, which tells the system how much energy to produce, controlling the temperature of your home.



PROGRAMMABLE THERMOSTATS

These automatically adjust your home's temperature to maximize you savings. Set them between 62°F and 68°F in the winter and turn it off in the summer to save energy. Used properly, they can save up to $150 a year, according to Energy Star. They can save even more in Alaskan households.

- Make a schedule and stick to it. Program it to set back the heat two hours before you go to bed and increase it just before you wake. Set it back in the day if no one will be home.
- Turn it down 5 degrees. For every degree you lower the therm stat you save about 2 percent on your heating bill. Turning it down five degrees saves about 10 percent. See how low you can go!
- Vacationing. When you visit family in another state, go backpacking in Denali or off to fish camp, lower the heat even more!
- Remember Health and Safety First! As you adjust the thermostat keep in mind that elders, kids, and those with medical conditions have greater heating needs.

Pictured Above: Rebecca Derendoff. Photo courtesy of Dan Lung.

WHAT YOU CAN DO:

HAVE A PROFESSIONAL TUNE YOUR HEATING SYSTEM
All heating systems should be checked every year. Gas stoves should be checked every two years. Also check filters regularly.

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.

OLDER HEATING SYSTEMS
If yours is older than 15 years, have it evaluated for replacement and a new higher efficiency heating systems. New wood stove models can be more efficient than older ones.

WOOD HEATING
Burns best when dry and wood that is split dries faster than logs.

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 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 $50 to $125 a month in rural Alaskan households according to the UAF Bristol Bay Environmental Science Lab.

INSULATE + AIR SEAL

Insulating and air sealing can reduce heating costs by up to 60%, according to the University of Alaska Fairbanks' Cooperative Extension Services (UAF CES).

Insulation and air sealing work together to minimize a building's heat loss and 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. The Department of Energy has recommendations for minimum R-values based on which part of the country you live (See page 27).

WHAT A CONTRACTOR CAN DO:

IDENTIFY R-VALUES IN EXISTING INSULATION
A contractor can make recommendations on types, amounts and location of additional insulation and properly install it.

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.

ATTIC AND FLOOR/FOUNDATION INSULATION
Insulating these are relatively cheap and effective in terms of payback as the floor and ceiling have the highest potential for heat loss. A proper contractor or energy rater can evaluate these and recommend improvements.

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.

WHAT YOU CAN DO:

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

MAN 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. Poorly insulated and sealed garage doors also should be evaluated.

REPAIR 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..

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. You can also insulate the pipes.

SCHEDULE AN ENERGY RATING
A certified rater can identify the most effective energy efficiency upgrades. Measures range from identifying air leaks, testing heating system efficiencies, evaluating insulation levels and quality, etc. To find an energy rater near you, visit www.ahfc.state.ak.us/energy/energy.cfm

HOW TO FIND AIR LEAKS

To find air leaks, look for daylight around the frames of windows and doors. You can also light a stick of incense and use it to locate leaks. Hold it in areas you think are drafty. Moving air will make the smoke waver showing you where there is an air leak. Be careful not to place the lit item near flammable materials. Running your hand over surfaces to find cold spots is also a simple effective way to locate leaks.

WATER

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

The water heater accounts for about 15% of your energy bill, second only to your home's space heating system, according to UAF CES.

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. The change:

- Saves energy. Water is often heated to 140°F unnecessarily; turning it back will save between 6 and 10 percent on your energy bill, according to the Department of Energy.
- Prevents scalding from hotter water.
- Slows buildup of minerals and corrosion in the water heater and in the pipes
- If you will be on vacation or out of of town, turn down the thermostat even further if there is no risk of freezing.

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
Why? If you buy a new water heater that is too big, you will pay to heat up water you don't need. That's a waste of both energy and money.

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.

INSULATE YOUR WATER HEATER
If recommended by the manufacturer install an insulating blanket.

MAINTAIN YOUR WATER HEATER
Manufacturers recommend draining your water heater at least once a year in order to run most efficiently. Other necessary yearly maintenance will also help. Consult a professional or refer to your user manual for details.

Pictured Above: Olianne Tinker. Photos courtesy of Rebekah Lührs

LIGHTING

For Alaskans, about **13%** of energy bills are spent on lighting in a home.

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

WHAT YOU CAN DO:

TURN OFF THE LIGHTS WHEN THEY ARE NOT IN USE
One 100-watt bulb left on 8 hours a day can cost $102 per year.*

BUY ENERGY STAR LIGHT FIXTURES AND LAMPS
They use one quarter of the energy traditional fixtures and lamps use and are guaranteed to 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 CHRISTMAS LIGHTS
They use 90% less energy, are brighter than standard Christmas lights and last much longer. Through the long, dark Alaskan winters, the cost of leaving inefficient lights on can add up.

**Source: Energy Star CFL Calculator, based on $0.35 kwh, to reflect average rural costs. To calculate savings for your specific community, check out the the resource page.*

Photos courtesy of Rebekah Lührs

COMPACT FLORESCENT LIGHTING (CFL)

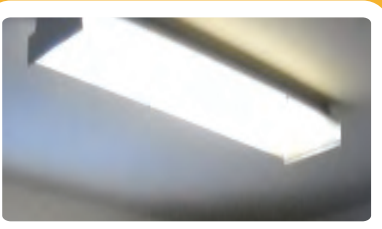
- Save Money. By switching a 100-watt bulb that is used 4 hours a day to a 23-watt CFL, you could save $65* a year per bulb!
- Fit Your Needs. There are a range of colors and light outputs as well as bulb types for various fixtures. Check out the *Energy Star CFL Purchasing Guide* on pg. 27.
- Properly Dispose of CFLs. CFLs contain Mercury and must be deposited at a hazardous waste facility in your community.

LIGHT EMITTING DIODE (LED) LIGHTING

- Save Even More Money. Though the upfront cost is higher, LED lights have an even larger payback than CFLs. As technology advances they will become more affordable.
- Fit Your Needs. There are a range of colors and light outputs as well as bulb types for various fixtures. Check out the LED Lighting resource on pg. 27.
- The Safer Option. LEDs do not contain Mercury.

LINEAR FLORESCENT LIGHTING

Many homes built in rural Alaska have linear florescent fixtures in their homes. If you have not had these retrofitted from the original T-12s to either T-8s or T-5s, have a professional install more efficient fixtures and lower wattage bulbs. In most cases this work this work can be done by a local contractor.



Photos from Chignik, Alaska, courtesy of Dan Lung

LIVING ROOM

Alaskans spend more money powering home audio systems and DVD machines 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!

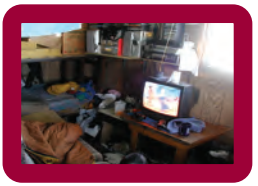
The living area is ripe for other energy-saving measures as well, especially if it has multiple windows, a fireplace or several air vents.

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 large 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.

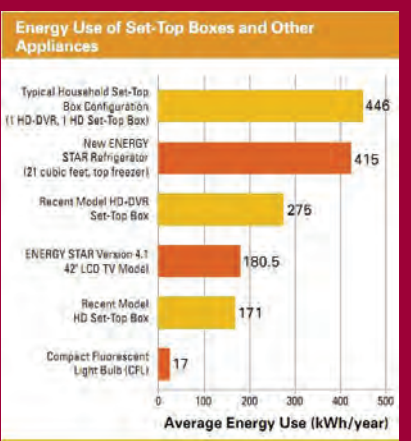
USE THE SLEEP FUNCTION
An average household can cut 60 percent of the energy their electronics use by using the sleep mode.

UNPLUG POWER ADAPTERS AND CHARGERS
When warm to the touch, cell phone, digital camera and laptop chargers continue to draw power when not charging. Unplug!

CHECK YOUR HEAT DISTRIBUTION
If it is blocked by furniture or drapes, the air you pay for will not circulate properly causing your heating system to run longer and use more energy. Be sure to also keep interior doors open to help with heat flow through the entire house.

CABLE BOXES

Set-top cable boxes actually use more electricity in a year than your refrigerator. To find your exact costs, multiply the kWhs by your local electric rate. To read more about this go to: www.nrdc.org/energy/files/settopboxes.pdf



Source: Better Viewing, Lower Energy Bills, and Less Pollution: Improving the Efficiency of Television Set-Top Boxes

Photos courtesy of Rebekah Lührs and Danny Brown

KITCHEN

In rural areas it can cost $400 a year to run a fridge 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 fridge, 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 AND CROCKPOTS TO COOK
For small meals, they use less energy than the stove or oven.

MICROWAVE
Keep the inside clean as it improves the efficiency. Also microwaves with digital clocks have much higher phantom loads.

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 5,000 gallons of water each year and $120 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 REFRIGERATOR

The fridge accounts for almost 7 percent of the average home's utility bill, according to the U.S. Department of Energy.

Older models cost a lot more to run. Fridges made before 1980 cost $150 more a year to operate than new Energy Star models, according to the Department of Energy. Since this is a National average, the potential for Alaskans to save is much greater.

WHAT YOU CAN DO:

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

KEEP THE FREEZER FULL
It works more efficiently full than empty.

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

SECOND FRIDGE
If you have a second fridge, unplug it. It can cost between $200 and $400 a year to operate, according to UAF Cooperative Extension Service.

REPLACING YOUR FRIDGE
When buying a new fridge, choose an Energy Star model. It will be at least 15 percent more efficient than regular models.

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

Photos courtesy of Rebekah Lührs

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, too. They can cut utility bills by an average of $150 per year. That's a total of $750 saved over 5 years, less than half the life span of a washing machine (UAF CES). As for dryers they are not Energy Star rated.

WHAT YOU CAN DO:

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

DRY 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. Your clothes will dry faster by cleaning this before each use.

Photo of Deering Washeteria courtesy of Dan Lung

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 or backhaul 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

$AVE

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

- Use low expansion foam around windows and door frames to seal leaks and cracks.
- 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.
- Switch bulbs from incandescent to CFL.

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.
- Purchase a Kill-A-Watt meter to monitor energy usage.
- Fix leaky faucets.

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. With a few simple calculations, you can figure out how much you spend on each electronic when on and off. Check out the Kill-A-Watt section on pg 27.

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 even 40%?

Monitoring Kits

The Alaska Energy Authority (AEA) has Tool Kits available for loan at no cost. Available for Alaskans across the state.

For more information visit:
http://www.akenergyauthority.org/eec-toolloankit.html

AEA Tool Kit

Pictured Left; 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 and install additional safety features like carbon monoxide 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 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 buy the safest space heater possible and always think about safety while using it.

Make sure your space heater:

- Meets the latest safety standards, as recommended by the manufacturer.
- 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, odorless gas. This gas can be produced by combustion appliances, such as heating systems. Installing an alarm will alert you to this dangerous situation.

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 appropriate moisture levels if not, mold can become an issue. See page 5 for details.

PROPER VENTILATION
This will also help keep your family and your home healthy. See page 5 for more details.

FIRE EXTINGUISHERS
Be sure to have these near stoves and heating systems.

WOOD BURNING SAFETY
The smell of smoke from your wood stove means that 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

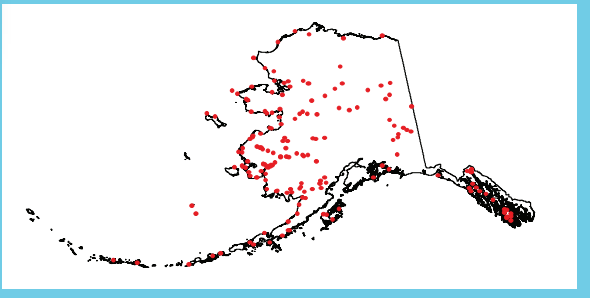
Helps Alaskan households pay a portion of their home heating expenses. Eligibility is based on gross monthly income and family size, which has recently been expanded to include more Alaskan households.

For more information, please visit the program's web site: http://health.hss.state.ak.us/dpa/programs/hap/

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 500 kilowatt hours (kWh) used in a month. If you exceed this amount you will have to pay the full cost for electricity. According to the Alaska Energy Authority communities on average, before PCE, are paying 50 to 60 cents a kWh, with a peak of $1.40 per kWh . After the PCE deduction, households are paying on average 22 to 30 cents per kWh. For rural residents, keeping your household usage under 500 kWh is an easy way to lower your electric bill.

2010 PCE Communities



For more information, or to see if you are covered under the PCE Program, go to http://www.akenergyauthority.org/programspce.html

Alaska Housing
FINANCE CORPORATION

The Alaska Housing Finance Corporation (AHFC) offers energy efficiency and conservation programs that serve Alaskan families and homes. The following is only a brief description of some of the programs available.

HOME ENERGY REBATE PROGRAM
This program reimburses applicable homeowners up to $10,000 for energy efficiency upgrades they complete on their home.

THE EXPANDED WEATHERIZATION PROGRAM
Homeowners and renters who meet certain income guidelines, may apply through their regional weatherization service provider.

SECOND MORTGAGE FOR ENERGY CONSERVATION
Borrowers may apply for financing to make cost-effective energy improvements on owner-occupied properties.

THE NEW HOME REBATE PROGRAM
A $7,500 rebate for those who purchase a newly constructed 5 Star Plus home - the highest energy rating a home can have.

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.

AHFC also has several loan programs such as the **ASSOCIATION LOAN PROGRAM** and the **SMALL BUILDING MATERIAL LOAN PROGRAM.**

A full description of each program can be found at AHFC's Energy Programs webpage: http://www.ahfc.state.ak.us/energy/energy.cfm

GOT ENERGY QUESTIONS?

THE AHFC RESEARCH AND 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:
http://www.ahfc.state.ak.us/energy/ric.cfm

THE COLD CLIMATE HOUSING RESEARCH CENTER (CCHRC) is located in Fairbanks and funded in part by AHFC to help meet the challenge of building energy efficient, safe and affordable homes through applied research and technologies. Please visit the center's web site for more information:
http://www.cchrc.org/

akenergy efficiency.org

VISIT AKENERGYEFFICIENCY.ORG

This site is a one stop shop for energy efficiency in Alaska. Check this site for updates on available state and federal programs, new funding opportunities, events, classes and other resources beyond residential savings.

www.akenergyefficiency.org

TOOLS AND GUIDES

CFL CALCULATOR
Discover how much you will save my switching to CFL bulbs.
www.energystar.gov/index.cfm?c=cfls.pr_cfls_savings

CFL PURCHASING GUIDE
Outlines a large variety types of CFL bulbs.
www.energystar.gov/ia/products/lighting/cfls/downloads/purchasing_checklist.pdf

KILL-A-WATT METER
This tool can be easily ordered online and helps track how much electronics cost to power in your home.
www.akenergyauthority.org/Efficiency/Kill-a-WattMetercalculationsinstructions9-28-10.pdf

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

RECOMMENDED LEVELS OF INSULATION GUIDE shows what levels of insulation are cost-effective for different climates and locations in the home.
www.energystar.gov/index.cfm?c=home_sealing.hm_improvement_insulation_table

R-VALUE INSULATION GUIDE
UAF CES recommendations for R-values.
www.uaf.edu/ces/publications-db/catalog/eeh/EEM-00954.pdf

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

HOME ENERGY CONSERVATION TOOL SHEETS:
www.uaf.edu/ces/hhfd/energyconservation/

SOURCES

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

University of Alaska Fairbanks Cooperative Extension Service **www.uaf.edu/ces**

The Southwest Alaska Municipal Conference **www.swamc.org**

Alaska Energy Authority **www.akenergyauthority.org**

Alaska building Science Network **www.absn.com**

Alaska Housing Finance Corporation **www.ahfc.us**

Cold Climate Housing Research Center **www.cchrc.org**

Bristol Bay Environmental Science Laboratory **www.uaf.edu/bbesl**

The American Council for an Energy-Efficient Economy **www.aceee.org**

The U.S. Department of Energy **www.energy.gov**

The 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**

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**

State of California's Flex Your Power campaign **www.fypower.org**

This guide has been specifically customized for Alaska by Rebekah Lührs, Energy Specialist at Alaska Housing Finance Corporation in collaboration with the Southwest Alaska Municipal Conference's Energy Taskforce. The publication of this book was made possible by contributions from the Alaska Energy Authority, the Alaska Building Science Network, and the Alaska Housing Finance Corporation. The project was funded by the Alaska Energy Authority and the Alaska Housing Finance Corporation.

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

This booklet cost 90 cents to produce based on a bulk order by AEA and AHFC.