

2009

# ENERGY SAVERS TIPS FOR RURAL ALASKA



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



## SAVING ENERGY AT HOME

With increasing energy prices across rural Alaska, we need to focus on what can be done in the short term, and in the long term, to lower energy bills. Long term goals, such as developing sustainable community energy plans and increased investment in renewable resources, are necessary, but we also need to focus on what we can do in the short term.

According to Steve Haagenson, Executive Director of the Alaska Energy Authority, rural Alaskan residents spend up to 60% of their income on energy costs. Within this, 81% of these costs are attributed to home heating and electricity usage. By addressing heating and electricity usage first, we can quickly lower energy costs and save money.

This booklet has been developed specifically for rural Alaska and has tips that can be acted upon now, at little or no cost, to lower energy consumption and thus lower energy bills. However, creating an energy-efficient lifestyle and home is not a change that can be made overnight. First, we need to change behaviors on how we conserve energy. This can be done through a series of small changes made every day and in every part of our homes. The potential for large savings in energy costs is real.

### ENERGY EFFICIENCY MEANS:

- Getting the most use out of each unit of energy you purchase
- Using energy wisely
- Eliminating the ways your home wastes energy

### MAKING YOUR HOME MORE EFFICIENT WILL:

- Make it more comfortable
- Make it safer
- Save you money



# YOUR ENERGY BILL:

## WHERE DOES THE MONEY GO?

The average rural Alaskan family's annual energy bill was estimated at \$11,840 in 2008 according to Alaska Energy Authority staff. But energy bills don't come itemized showing you which appliances and systems use the most energy.

### ANNUAL RURAL 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: .....	5%
 TOTAL:	 100%

Source: Village Appliance Usage Spread Sheet, October 2008. University of Alaska Fairbanks' Cooperative Extension Service (UAF CES).



# LIGHTING

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

There's an easy way to reduce that: switching to COMPACT FLORESCENT (CFL) BULBS. Start by deciding which lights you use most often – and change those first. Any light you use more than two hours per day is a good candidate for a CFL.

INSTEAD OF THIS:



USE THIS:



## COMPACT FLORESCENT BULBS:

- **Make more light with less electricity.** A CFL can turn one watt of electricity into 100 lumens of light; regular light bulbs create just 15 lumens of light with one watt of electricity.
- **Last longer.** CFLs can last up to 10,000 hours. That's 10 times as long as an incandescent bulb.
- **Save Money.** CFLs cost more than regular bulbs, but they save so much electricity that you can save \$20 at four hours of use a day per year for every 60-watt bulb you replace with a CFL.



## WHAT YOU CAN DO:

### **TURN OFF THE LIGHTS**

Why? One 100-watt bulb left on overnight for 8 hours costs \$87.60 per year.

### **SWITCH TO COMPACT FLORESCENT BULBS**

Why? According to the U.S. Environmental Protection Agency, the typical American household can save \$80 per year by switching to CFLs. In rural Alaska, where costs are nearly three times that of the Lower 48, the savings can really add up.

### **GET THE RIGHT BULB**

Why? Bulbs on dimmer switches, three way sockets, and specialty lamps and fixtures need special CFLs.

### **BUY ENERGY STAR LIGHT FIXTURES AND LAMPS**

Why? They use one quarter of the energy traditional fixtures use.

### **KEEP LIGHTS CLEAN**

Why? Dust can cut a bulb's light output by 25 percent.

**DISPOSING CFLS-** Like paint, batteries, and thermostats, CFLs should be disposed of properly. **DO NOT THROW AWAY IN YOUR HOUSEHOLD TRASH.** If possible, deposit at a hazardous waste facility in your community.

### **USE LED CHRISTMAS LIGHTS**

Why? They use 90% less energy, and are 10 times brighter than standard Christmas lights. They also last longer. Through the long, dark Alaskan winters, the cost of leaving these lights on can add up.

Source for cost numbers: Village Appliance Usage Spread Sheet, October 2008. UAF CES.



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

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

One reason: you use a lot of water. Another reason: You actually pay twice for water. If on a municipal system, you pay one bill for the cost of the water itself; 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 usually heated to 140°F; turning it back will save between 6 percent and 10 percent on your energy bill, according to the U.S. Department of Energy.
- **Prevents scalding** from hotter water.
- **Slows buildup** of minerals and corrosion in the water heater and in the pipes.

Only leave your water heater thermostat at 140°F if you have an older dishwasher with no booster heater. Consult your owner's manual or call the manufacturer to see if yours has a booster heater.

If you will be on vacation, turn down the thermostat even further. If there is no risk of freezing, you can turn it off completely when you will be away for several days.



## WHAT YOU CAN DO:

### **INSTALL LOW-FLOW SHOWERHEADS**

Why? They use one-third to one-half the water that regular showerheads use.

### **TURN THE WATER HEATER THERMOSTAT DOWN, TO 120°F**

Why? You will save money and save yourself from scalding accidents.

### **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 SHORT SHOWERS**

Why? They use less hot water than baths.

### **FIX LEAKY WATER FAUCETS**

Why? Thirty drops of water per minute can waste up to 19 gallons of water per month.

### **INSTALL LOW-FLOW AERATORS ON THE FAUCETS**

Why? They reduce the amount of water that flows from your faucet, saving both water and energy.

### **INSULATE YOUR HOT WATER HEATER**

Why? If manufacturer recommends it, install an insulating blanket.



# LAUNDRY

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

Don't look for the same designation with clothes dryers, though. Most dryers use similar amounts of energy, so the program does not certify them.



## ENERGY STAR WASHING MACHINES:

- **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).
- **Save an average of 7,000 gallons of water** each year, according to the Department of Energy. For Alaskans, savings could be twice this amount.
- **Come in two designs:** front-load washing machines and redesigned top-loading machines. Neither have a central agitator.
- **Have a faster spin speed**, to remove more water from your clothes. That helps clothes dry faster.

# WHAT YOU CAN DO:

## Hand Washing Clothes

### WASH IN COOL TO WARM WATER

Why? Hot water costs much more

### USE WASHING TUBS

Why? This keeps the hot water from running.

### RINSE CLOTHES IN FULL SINKS OR TUBS

Why? This also keep the hot water from running.

### DRY OUTDOORS IF POSSIBLE

Why? Lowering indoor humidity that may cause mold and other health issues. Sunlight is free!

### WRING CLOTHES BEFORE HANGING

Why? This removes as much water as possible for faster drying and lowers the humidity in the house, if drying indoors.

## Machine Washing Clothes

### WASH AND DRY ONLY FULL LOADS

Why? The machines use roughly the same amount of water and energy to wash one item as they do to wash a full load.

### SEPARATE FAST-DRYING CLOTHES FROM SLOW-DRYING ONES

Why? It helps you use the dryer only as long as you need to.

### CLEAN THE LINT FILTER

Why? Clogged filters can prevent your dryer from doing its job.

### CHOOSE ENERGY STAR WASHING MACHINES AND DRYERS

Why? They use less than half the water and energy of standard machines.

### USE HIGH-SPEED SPIN CYCLES IN WASHERS

Why? They extract more water, so your laundry won't need to dry as long.



In rural areas it costs \$400 a year to run a fridge and \$50 a year to power a coffee maker according to the UAF Cooperative Extension Service. An electric space heater will set you back \$600 a year.

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

The kitchen has many high use appliances, so using them as efficiently as possible will help your savings add up quickly!

## REFRIGERATORS: A BIG PART OF YOUR ENERGY BILL

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.

### To save energy:

- Stick to the right temperature. Keep your fridge between 36° and 38°F. Set your freezer between 0° and 5°F.
- Keep the freezer full. It works more efficiently full than empty.
- Defrost manual-defrost models to keep them efficient.
- 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.
- When buying a new fridge, choose an Energy Star model. It will be at least 15 percent more efficient than regular models.
- Check door seals, clean regularly, and if they are loose replace them. Check by closing a dollar bill in a door, and if it comes out easily your gasket should be replaced.

# WHAT YOU CAN DO:

## **IF WASHING DISHES BY HAND, DON'T LET THE WATER RUN**

Why? You will save money on heating water, and conserve a lot a water.

## **SCRAPE DISHES INSTEAD OF PRE-RINSING THEM**

Why? If doing dishes by hand, this will keep the water cleaner longer, thus saving energy from not having to keep refilling the sink.

## **USE YOUR DISHWASHER IF YOU HAVE ONE**

Why? You can save 5,000 gallons of water each year and \$120 in utility costs by using a dishwasher instead of washing dishes by hand, according to Energy Star.

## **WASH ONLY FULL LOADS IN DISHWASHERS**

Why? It costs exactly the same to wash one dish as it does to wash a full load of dishes.

## **CHECK YOUR REFRIGERATOR TEMPERATURE**

Why? You lose money if you keep it too cold. To check, put one thermometer in a glass of water in the center of the refrigerator and another between packages in the freezer. Read them after 24 hours. Temperature should be between 36 and 38 degrees Fahrenheit.

## **USE THE AIR-DRY OPTION ON DISHWASHERS**

Why? It saves energy and keeps the machine from using a heating element to bake your dishes dry.

## **USE MICROWAVES AND CROCKPOTS TO COOK SMALL MEALS**

Why? They use less energy than the stove or oven.

## **KEEP THE INSIDE OF YOUR MICROWAVE CLEAN**

Why? It improves the efficiency of your microwave.

## **USE LIDS WHEN COOKING**

Why? They keep steam in and help food cook more quickly, which saves energy.

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.

Choosing the most energy-efficient appliances will help reduce operating costs. A yellow 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.

## 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 the program 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

# WHAT YOU CAN DO:

## **WHEN POSSIBLE BUY ENERGY STAR APPLIANCES**

Why? They are more efficient than other appliances – and they will cost less to operate.

## **THINK ABOUT SHAPE**

Why? It matters. Fridges with freezers on top are most efficient. Front-loading washers are more efficient than top-loading machines.

## **LOOK AT THE ENERGYGUIDE LABEL WHEN BUYING APPLIANCES**

Why? It will show the appliance's second price tag – its operating costs. It will also give comparisons to similar machines.

## **DON'T JUST LOOK AT ONE APPLIANCE**

Why? It's better to compare the differences in how efficient different machines are than to only look at one option.

## **GET THE RIGHT SIZE**

Why? Oversized appliances waste energy. Choose an extra-large dishwasher or fridge only if you have a large family that needs it.

## **LOOK FOR HIGH-EFFICIENCY FEATURES**

Why? Things like soil-sensing detectors on dishwashers and automatic shutoffs on clothes dryers save energy and money.

## **IF POSSIBLE RECYCLE OLD APPLIANCES**

Why? It reduces waste. Fridges and other appliances can be used for scrap metal or other uses.



{ Alaskans spend more money powering home audio systems and DVD machines when they are off than when they are actually in use.

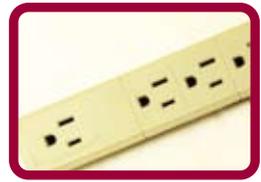
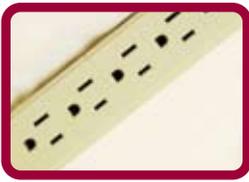
Living rooms are home to most of the electronics in your house. Your family watches TV, turns on computers and picks up the phone in your living area – and these phantom loads add costs because they continue to draw power when electronics are not in use.

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

## **POWER STRIPS: A SMART WAY TO SAVE**

Your electronics can draw energy even while they are off – and that costs you money. Power strips help prevent that.

- **Plug electronics into a power strip.** Flip the switch on the strip 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!
- **Putting your TV on a power strip.** Though many TVs need to be reprogrammed if they are completely turned off, they still carry the largest phantom loads when left plugged in. Having them on a power strip may be an inconvenience, but it will save you money.



## WHAT YOU CAN DO:

### **TURN OFF THE TV WHEN NO ONE IS WATCHING IT**

Why? It's the easiest way to save.

### **USE THE SLEEP FUNCTION**

Why? An average household can cut 60 percent of the energy their electronics use by using the sleep mode.

### **UNPLUG POWER ADAPTERS AND CHARGERS**

Why? When cell phones, digital cameras or laptops are done charging, the charger still draws energy unless you unplug it.

### **CHECK YOUR HEATING SYSTEM**

Why? If they are blocked by furniture or drapes, the air you pay to heat won't reach the rest of the room.

### **CONSIDER YOUR WINDOW COVERINGS**

Why? They should be open during the day in summer to let the heat in and closed during the day in winter to keep heat in. Also, use thermal shades or blinds at night to reduce window heat loss.

### **SHUT THE FLUE ON YOUR FIREPLACE OR WOOD STOVE**

Why? An open flue lets air escape from your home, wasting energy. If you never use the fireplace, have it sealed up permanently.

### **WEATHER-STRIP WINDOWS AND DOORS**

Why? Windows and doors are a common location for air leaks. Seal them up with weather-stripping or caulk for a more efficient home.



Heating your home accounts for 38% of a rural Alaskan's home energy bill – the single biggest energy expense in your home.

A number of homes in rural Alaska use a furnace, oil stove or boiler as their primary heating system. These systems are regulated by a thermostat, which tells the system how much energy to produce and controls the temperature of your home.

Set your thermostat between 62°F and 68°F in the winter and turn it off in the summer to save energy.

Also think about replacing old heating systems, especially if yours is older than 15 years. New high-efficiency heating systems are far more efficient than older versions.

## PROGRAMMABLE THERMOSTATS

Programmable thermostats automatically adjust your home's temperature to maximize your savings by turning down the heat while you are away during the day and while you sleep at night.

Used properly, they can save up to \$150 a year, according to Energy Star. They can save even more in rural Alaskan households.

When using a programmable thermostat, 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 back the heat during the day if no one will be home for four or more hours.

The thermostat will let you change the schedule. But don't do this too frequently or you won't save as much money as you should.

# WHAT YOU CAN DO:

## **TURN DOWN THE THERMOSTAT FIVE DEGREES**

Why? Turning it down one degree saves about 2 percent on your heating bill. Turning it down five degrees saves about 10 percent. Install a programmable thermostat and it will do the work for you.

## **HAVE A PROFESSIONAL TUNE UP YOUR HEATING SYSTEM**

Why? Oil-burning stoves should be checked every year. Gas-burning ones should be checked every two years.

## **USE SPACE HEATERS SPARINGLY**

Why? They use a lot of electricity. Depending on the model you have, a space heater running for 5 hours a day can cost anywhere from \$45 to \$67 a month in rural Alaskan households, according to UAF CES. They also can be very dangerous. Make sure to turn them off when you sleep and use them only in open areas.

## **CHECK FILTERS**

Why? Forced-air furnaces and air heat exchangers have filters that need to be cleaned or replaced monthly.

## **CHECK AIR VENTS, RADIATORS AND REGISTERS**

Why? If they are blocked by furniture or drapes, heat won't get into the rest of your home.

## **CLEAN THE AREA AROUND YOUR HEATING SYSTEM**

Why? It decreases the chance of fire and improves airflow.

## **WEAR A SWEATER INSTEAD OF TURNING UP THE HEAT**

Why? Turning your thermostat up decreases your savings.

## **NEVER USE THE ELECTRIC STOVE TO HEAT YOUR HOME**

Why? First, it's very dangerous! Electric ovens are not designed to heat large areas – doing so is a fire hazard. Second, it is not economic in rural Alaska.

## **USE ENERGY APPROPRIATELY**

Why? Elderly people and people with medical conditions can have greater heating needs - and should adjust their thermostat to meet them.

# WOOD HEATING

Many Alaskans heat their homes with wood. Though this may be a more economic heat source, there are ways to get the most out of the wood you do burn.

**NEVER BURN** gasoline, kerosene, charcoal, or liquid starters in home stoves. Also, don't burn garbage, plastics, cardboard, or Styrofoam. Burning treated and painted wood should also be avoided. Burning these, releases poisons.

**NEVER BURN** wood that has been taken from salt water. Chlorine combines with the smoke to produce dioxins and furans, which are dangerous carcinogens.

**NEVER BURN** wood that has been treated with varnishes or sealants. Also never burn wood sprayed with pesticides or wood that has been pressure-treated, as they may contain toxic chemicals.

Source:

Burn it Smart and Safely Fact Sheet, 2007. Canadian Renewable Energy Network.

## WOOD BURNING SAFETY TIPS

The smell of smoke from your wood stove means that it is not venting properly. It is a fire hazard and releases deadly carbon monoxide.

Alaskan villages have the highest mortality rate from CO poisoning than anywhere in the USA, according to UAF CES.

Maintain proper clearance between your wood stove and your wood, along with other combustible household items, such as drapes, furniture, newspaper and books.

Have carbon monoxide detectors and smoke alarms installed.

Keep a fire extinguisher near the stove, and install a stovepipe thermometer to ensure that the stove is operating at the right temperature.

Source: Getting the Most out of your Wood Stove, 2007. Canadian Renewable Energy Network.



## WHAT YOU CAN DO:

### **USE A HIGH-EFFICIENCY WOOD STOVE**

#### **BURN SMALL, HOT FIRES**

They produce much less smoke than ones that are left to smolder. A stable fire is always made up of at least three pieces of wood. Also, use smaller pieces rather than fewer pieces per load.

#### **DON'T BURN WET WOOD**

It is also not as efficient and it produces significantly more smoke and can lead to the creation of creosote in the stack. Firewood should be seasoned for at least six months.

**SPLIT WOOD** into pieces that are 10–15 cm (4–6 in) in diameter. Fires burn better with more surface area exposed to the flame.

**STORE WOOD** outside, off the ground and covered. Bring it into your home as needed to limit moisture.

**MAINTAIN** your stove and chimney. They should be cleaned at least once a year.

**REMOVE ASHES** regularly from a stove or fireplace, and put them in a covered metal container and store them outside in a safe area, away from the house. If you burn only wood, add the ashes to your garden to add nutrients.

Source:

Burn it Smart and Safely Fact Sheet, 2007. Canadian Renewable Energy Network.



# INSULATE

{ Sealing and insulating your home can reduce your heating costs by as much as 60%, according to UAF CES.

Heat naturally flows from warm areas to cool ones. If your home isn't well sealed, the air you pay to heat can flow right out of your home.

Several areas are prone to air leaks, including the attic, basement, windows, doors, baseboard moldings, electrical outlets, and dropped ceilings above bathtubs and cabinets.

## HOW TO FIND AIR LEAKS

A home's biggest air leaks are usually in big areas, like your basement or attic. But small leaks also add up.

To find air leaks, look for daylight around the frames of windows and doors. If you see light, it means there is an air leak.

You can also light a stick of incense and use it to locate leaks. Hold it in areas you think are drafty. Moving air makes the smoke waver, showing you where there is an air leak. However, be careful not to place lit item near flammable materials. You can also put water on your hand and hold it near potential air leaks; the water will make you more sensitive to cool air.

# WHAT YOU CAN DO:

## **CAULK CRACKS AND GAPS LESS THAN ¼ INCH WIDE**

Why? Caulk is flexible and a good way to seal air leaks.

## **WEATHER-STRIP DOORS AND WINDOWS**

Why? It is an easy way to seal leaks. Compression and V-strip weather-stripping are good for windows. For doors, either replace the threshold or attach a door sweep to seal the air gap at the bottom of the door.

## **USE INSULATING BLINDS, SHADES OR CURTAINS**

Why? Windows are a frequent source of air leaks. Interior window cellular shades can reduce the draft and increase the insulation when they are drawn closed.

## **LOOK INTO APPLYING FOR (AHFC) PROGRAMS**

Why? The Alaska Housing and Finance Corporation offers weatherization programs for Alaskans of all income levels. For more information, see next page.

## **INSULATE YOUR WATER HEATER TANK**

Why? If your water heater uses a tank, it can easily lose heat through the walls of the tank.

## **KNOW HOW MUCH INSULATION YOU HAVE**

Why? If you do not have enough, you can add more. If you can see your rafters, you need more insulation.

## **INSULATE PIPES**

Why? Insulating water pipes will conserve heat energy and cost you less from the heat loss in pipes.

## **REPAIR OR REPLACE WINDOWS**

Why? Cracks in windows let cold air into your home. Install weather-stripping if your window has drafts. If windows are older than 1980, consider replacing with energy star windows.



## ALASKA STATE PROGRAMS

The Alaska Housing Finance Corporation (AHFC) now has three programs to help Alaskans reduce energy bills on their homes.

### **HOME ENERGY REBATE PROGRAM**

homeowners who want to make their own energy-efficiency improvements to their home can receive a rebate for some or all of their expenditures. The Home Energy Rebate Program has no income requirements.

### **THE EXPANDED WEATHERIZATION**

**PROGRAM** is available to Alaskans who meet certain income guidelines.

### **THE SECOND MORTGAGE PROGRAM**

**FOR ENERGY CONSERVATION** is where borrowers apply to AHFC for financing to make cost-effective energy improvements on owner-occupied properties.

A full description of each of these programs can be found on the AHFC web site at [http://www.ahfc.state.ak.us/energy/weatherization\\_rebates.cfm](http://www.ahfc.state.ak.us/energy/weatherization_rebates.cfm)

### **POWER COST EQUALIZATION (PCE)**

Most rural households are covered under the PCE program. This program subsidizes and attempts to equalize the cost you are paying for power with that of the Railbelt and Juneau. PCE is only applied to the first 500 kilowatt hours (kWh) you use a month, if you exceed this amount you will have to pay the full cost for electricity (50 to 60 cents a kWh). Keeping your household usage under 500 kWh is an easy way to lower your electric bill.

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

# WHAT YOU CAN DO:

## MONITORING YOUR USE:

Todd Hoener, *Golden Valley Electric Association*

**It is about time...Do you know what your electricity is doing? How can you tell? The meter. Check the meter...**

Take pencil and paper and write these down, starting at the bottom of the page or log:

(1) date (2) day (3) time a.m. or time p.m. (4) the current readings (kilowatts) on the meter (5) the major things you did in the house today involving electricity.

Repeat this activity every 24 hours. Graph these numbers associated with dates and activities. Learn why the numbers get larger and smaller and what does and does not affect the increase or decrease. Compare this with the total amount of electricity for which you are billed. That is, how much electricity did your family use in the last month as reported on the bill? Divide the number of billing period days into that read of total kilowatt-hours for the month. This is your average daily kWh number, or what your family averages in using kilowatt-hours over the past so many days. How does that compare to your daily log – sometimes over average, sometimes under average. Now you are getting a sense of what you use.

Remember energy end use management is (1) monitoring energy, (2) energy efficiency, (3) energy conservation (choice or behavior, the way you do things) and (4) energy end-use education – **SPREAD THE WORD.**

*Todd Hoener is the Energy Efficiency Specialist at Golden Valley Electric Association in Fairbanks.*



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 conservation techniques can add up to big savings.

### COST TO YOU: FREE

- Turn down the thermostat. Lowering the thermostat five degrees at night and 10 degrees during the day when you're out can cut as much as 20 percent off your heating costs.
- Keep radiators, wood stoves, and vents clear of furniture and drapes.
- Turn off the lights when leaving the room.
- Turn down the thermostat on the water heater to 120°F.
- Keep the refrigerator door closed.
- Clean the gaskets on the refrigerator and freezer doors so they shut securely. Vacuum the dust off the coils underneath the refrigerator for efficient operation.
- Check the temperature inside both refrigerator and freezer to make sure it is not too cold.
- Use your dishwasher on normal setting.
- Use the shortest time when washing or drying dishes or clothes in machines.
- Set washer loads for "cold" wash instead of hot.
- Clean the lint trap on your clothes dryer.
- Use heat tape only when necessary. A 50ft strip of heat tape that is left on for 10hrs could cost you \$27 a month (assuming 6 watts per foot at 30¢ a kwh). Put tape on a thermostat or timer, or disconnect when not needed.
- Put vehicle engine block heaters on a timer. Leaving them plugged in all night can significantly increase your electric bill.



# WHAT YOU CAN DO:

## LESS THAN \$5

- Install foam gaskets under switch plates and outlets on exterior walls.
- Use plastic transparent window film on drafty windows.
- Use power strips to reduce phantom loads for your electronic equipment.
- Stop leaks by replacing washers in sink faucet (especially on hot water faucets).
- Make a draft dodger by filling an old sock or fabric tube with sand or small beans and place against the bottom of exterior doors.

## LESS THAN \$10

- Use spray foam insulation around windows and door frames to seal leaks and cracks.
- Replace weather stripping around exterior doors.
- Replace door sweep on the bottom of exterior door.
- Caulk around leaky window to prevent drafts.

## LESS THAN \$25

- Install insulating blanket on water heater (if manufacturer recommends one can be used).
- Install new threshold under worn exterior doors.
- Install low-flow shower head.
- Install a digital thermostat that can be programmed to lower the temperature at different times to meet your lifestyle.
- Fix leaky faucets.

Source: Energy Tips: Conserve and Save by: Roxie Rodgers Dinstel, Professor of Extension, Home, Health and Family Development

*Pictured Above; Nancy Gregory-Anderson*



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 some additional safety features like carbon monoxide alarms to keep your family safe at home.

## SPACE HEATERS: SAFETY FIRST!

In the US 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. These standards are often updated for increased safety measures.
- Is only used in an open area. Air needs to circulate around the space heater. Only use them on level, hard, non-flammable surfaces.
- Is at least three feet away from flammable items. Any closer is a big fire danger!
- Is vented. Unvented gas heaters are very dangerous. If you do have one, always keep the doors open when you use it to keep the pollutants from building up.

# WHAT YOU CAN DO:

## **BUY SMOKE DETECTORS**

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

## **GET A CARBON MONOXIDE ALARM**

Why? This odorless gas is deadly and can be produced by defective heaters.

## **KNOW SYMPTOMS OF CARBON MONOXIDE POISONING**

Why? It's deadly. Symptoms include dizziness, headache, nausea, irregular breathing and confusion. If you think you have the flu but get better when you leave the house, carbon monoxide could be the cause.

## **NEVER LEAVE AN ENGINE RUNNING IN AN ATTACHED GARAGE**

Why? The fumes can be toxic. Never leave a snow blower, lawn mower, car or anything else running in the garage – even if the door is open!

## **CLEAR THE AREA AROUND YOUR HEATING SYSTEM**

Why? Heating systems need air to do their job. Never store anything flammable near your furnace – it's a fire hazard.

## **OPEN WINDOWS AND USE FANS AROUND CHEMICALS**

Why? If you do not ventilate your home or garage when you are using chemicals, it can cause health problems.

## **PRACTICE PROPER MAINTENANCE**

Why? Following the manufacturer's maintenance schedule will allow for increased efficiency.

## **HEALTH SHOULD BE THE NUMBER ONE PRIORITY**

Do not allow households to be set at temperatures that are too low. Being in good health should take priority over energy bills.



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](http://www.uaf.edu/ces)

The Southwest Alaska Municipal Conference [www.swamc.org](http://www.swamc.org)

Alaska Energy Authority [www.akenergyauthority.org](http://www.akenergyauthority.org)

Cold Climate Housing Research Center [www.cchrc.org](http://www.cchrc.org)

Bristol Bay Environmental Science Laboratory [www.uaf.edu/bbesl](http://www.uaf.edu/bbesl)

Canadian Renewable Energy Network [www.canren.gc.ca/default\\_en.asp](http://www.canren.gc.ca/default_en.asp)

The American Council for an Energy-Efficient Economy [www.aceee.org](http://www.aceee.org)

The U.S. Department of Energy [www.energy.gov](http://www.energy.gov)

The U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy [www.eere.energy.gov](http://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](http://www.energystar.gov)

Alliance to Save Energy [www.ase.org](http://www.ase.org)

Rocky Mountain Institute [www.rmi.org](http://www.rmi.org)

State of Oregon's Office of Energy [www.oregon.gov/energy](http://www.oregon.gov/energy)

U.S. Consumer Product Safety Commission [www.cpsc.gov](http://www.cpsc.gov)

State of California's Flex Your Power campaign [www.fypower.org](http://www.fypower.org)

This book has been specifically customized for the use of rural Alaskans by the Southwest Alaska Municipal Conference's Energy Project Coordinator Rebekah Lührs. Production of this book would not have been possible without the hard work of the SWAMC Energy Task Force, and Garrison Collette from University of Alaska Fairbanks' Cooperative Extension Service. Production of this booklet was paid for by the Alaska Energy Authority.

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