

managing electricity at home



ATCO
EnergySense

atcoenergysense.com

Helping Albertans make wise energy choices

introduction

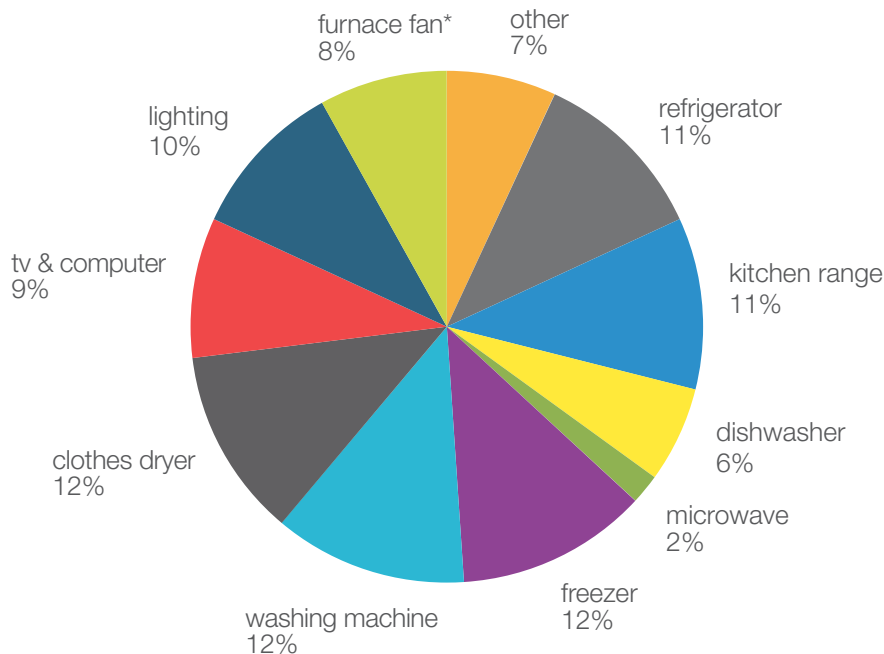
electricity consumption in the home

Reducing electricity consumption is one of the easiest ways to lower the total amount of energy you use.

This guide will help you understand electricity consumption and the most effective actions to reduce your energy use. This includes knowing what to look for when buying electric appliances and devices, and understanding how to use them efficiently.

The average Alberta home uses about 600 kilowatt hours (kWh) of electricity each month.

Typical Alberta home electrical consumption



Data from ATCO Gas and Alberta Energy. Based on a natural gas furnace and hot water heater. Percentages will vary depending on the age of appliances and how they are used.

*Energy-efficient A/C (alternating current) furnace fan on automatic operation.

understanding electricity consumption

Many of us don't realize the intricate processes behind generating, transmitting and distributing electricity, but understanding just a little bit about how electricity is consumed can go a long way toward understanding how to be more efficient.

Peak load

Did you know that by being selective about when to use major appliances, you can save money on your electricity bill?

Peak load is a period of time when electricity systems experience the highest demand. In Alberta, peak load periods usually occur between 6 - 9 a.m. and 6 - 9 p.m. During these times, people are using more electricity than usual preparing for the day, making meals or doing household chores. We should be mindful of peak load hours and make efforts to use as little electricity as possible during these times.

Why does this matter to you?

It keeps the price of electricity down.

Large amounts of electricity cannot be stored efficiently, so electricity is generated as needed. Electricity market administrators will use the lowest-cost generators first, but as demand increases and more electricity is required, market administrators will rely on more expensive generators to cover the shortfall. This drives up the price per kilowatt hour.

The more electricity we use during peak load hours, the more expensive it becomes. The less we use, the less we pay.

An easy way to do this is by not using major appliances such as washing machines, dishwashers and air conditioners during peak load hours.

standby power

Just because you've turned "off" an electric device doesn't mean it has stopped using electricity.

Many devices continue to use electricity when turned off or not performing their primary function. This is known as standby power. It may also be referred to as phantom power or vampire power.

Typically, devices that use standby power have a remote control, internal clock, continuous display or charging function.

The five biggest users of standby power in a typical home are:

1. Digital cable box with personal video recorder (PVR) (\$34/year in standby losses)
2. Subwoofer (\$8/year in standby losses)
3. Audio mini-system (\$7/year in standby losses)
4. Television (rear projection) (\$5/year in standby losses)
5. DVD/VCR (\$4/year in standby losses)

It's estimated that standby power accounts for up to 10% (60 kWh per month) of electricity usage in the average home. Here are some solutions to reduce or eliminate standby power in your home:

- Plug electrical devices into power bars, especially computers and entertainment systems. Once you're finished using them, turn off the power bar. This eliminates standby power. Even better, purchase a power bar with a timer feature so you don't have to remember.
- Unplug devices that aren't in use—especially if you're going on vacation.
- Check the operations manual to make sure you're taking advantage of any energy saving features, especially on items such as your television or computer.

advances in energy efficiency

Significant advances have been made in the energy efficiency of major electric appliances. The latest models of televisions, refrigerators, washing machines and even light bulbs use significantly less operating and standby energy.

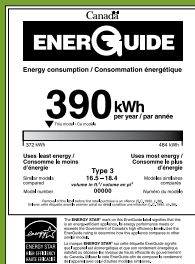
And while replacing everything may not be a viable solution, small changes you make today can save money in the future.

Consider upgrading these five appliances before others since they use the most electricity and will result in the greatest energy savings:

● washer ● freezer ● refrigerator ● electric range ● lighting

EnerGuide and ENERGY STAR®

The next time you are shopping for major appliances, look at the EnerGuide label to compare the energy consumption of similar models. The lower the kilowatt-hour rating, the less electricity the appliance uses. Look for the ENERGY STAR symbol to identify models that are the most energy efficient in their class.



The EnerGuide label indicates the annual amount of electricity used by an appliance and compares the energy performance to other models. The lower the number, the better, so use this as a comparison tool.



The international ENERGY STAR symbol, displayed alone or as part of the EnerGuide label, identifies major electrical appliances that meet or exceed technical specifications designed to ensure they are among the most energy efficient in their class, without compromising performance.

How to read the EnerGuide label:

1. The large number is an appliance's estimated annual energy consumption measured in kWh.
2. The shaded bar scale displays the energy consumption range for the appliance models of this type and size.
3. An arrow just above the bar scale shows where the appliance ranks relative to similar models. The closer to the lighter end of the scale, the better.

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lighting

an easy way to reduce electricity

Lighting is an easy way to reduce electricity costs and there are many options available, from bulbs to dimmer switches.

Compact fluorescent light (CFL) bulbs last longer and use up to 75% less energy than incandescent bulbs – light-emitting diodes (LED) will save even more. And dimmer switches do more than create mood lighting. By allowing you to adjust light levels, dimmers will reduce electricity consumption.

The chart below identifies many common forms of lighting and a suggested energy-efficient retrofit option. For additional options, please visit atcoenergysense.com or call us toll free at **310-SAVE (7283)**.

Please note: replacing fixtures, switches and other controls should be done by a qualified electrician. Before replacing bulbs, ensure they are the correct size, voltage and base type.

existing lighting	recessed fixture	track lighting	incandescent light bulb	under-cabinet lighting	outdoor incandescent light bulb
retrofit option	compact fluorescent light (CFL) bulb with reflector	install a dimmer switch	CFL bulb	light emitting diode (LED)	cold-rated CFL bulb or LED bulb



Use task lighting instead of lighting the entire room. For instance, turn on a desk lamp if you're reading or working at a computer and turn off the lights for the rest of the room.

To determine the wattage of CFL with which to replace your incandescent bulb, visit atcoenergysense.com/CFLwattage and atcoenergysense.com/CFLsavings to calculate your savings.

electricity and natural gas

Electricity is an important form of energy in the home that has many uses. However, in Alberta it's cheaper to operate appliances using natural gas than electricity. Also, natural gas is the cleanest burning fossil fuel.

Consider switching fuel sources and save. Check out some of the potential savings:

	monthly electricity cost	monthly natural gas cost
water heater		
standard	\$44.66	\$16.50
high-efficiency	\$42.35	\$11.00
electric water heaters: roughly 3.3 x more expensive to operate		
clothes dryer		
1997 model	\$8.14	\$1.75
current model	\$8.36	\$1.80
electric clothes dryers: roughly 4.7 x more expensive to operate		
range		
self-cleaning (1997)	\$6.93	\$1.50
self-cleaning (current)	\$4.84	\$1.04
electric ranges: roughly 4.6 x more expensive to operate		
	hourly electricity cost	hourly natural gas cost
fireplace		
5 kWh/21,250 BTU output	\$0.55	\$0.13
electric fireplaces: roughly 4.2 x more expensive to operate		

*calculated based on \$0.11/kWh and \$6.60/GJ

by the numbers

electricity consumption

How much electricity do appliances and devices use?

Determine the wattage of each device and use this formula to calculate the cost per month:

$$\begin{aligned} \text{Watts}/1,000 \times \text{hours/day} \times \text{days/month} &= \text{kWh/month} \\ \text{kWh/month} \times \text{\$/kWh} &= \text{\$/month} \end{aligned}$$

For example, to determine the monthly cost of a 60 watt light bulb that is operated for eight hours each day, the calculation would be:

$$\begin{aligned} 60\text{W}/1,000 \times 8 \text{ hours/day} \times 30 \text{ days/month} &= 14.4 \text{ kWh/month} \\ 14.4 \text{ kWh/month} \times \$0.11/\text{kWh} &= \$1.584 \end{aligned}$$

Your 60 watt light bulb is costing you \$1.58 per month to operate for eight hours a day.

This formula will work for most household items that will draw the same amount of power 100% of the time. However, it does not apply to items that cycle, or draw different amounts of electricity at different times, such as a refrigerator. If you have any questions relating to an appliance's energy usage, please contact us toll-free at **310-SAVE (7283)**.

Following is a breakdown of common appliances and devices in your home and their typical usage and cost. The operating cost is based on \$0.11 per kWh and an average amount of time the appliance or device is used. This information is meant as a guideline only. For a more exact calculation, use the above formula with exact cost and usage data.

Watt (W): measure of energy
1,000 watts = 1 kilowatt (kW)

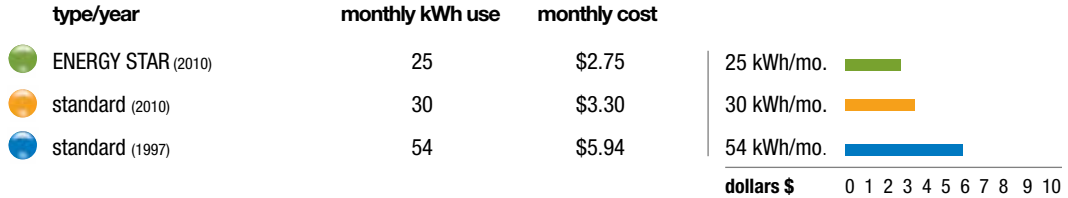
Kilowatt hour (kWh): measure of electrical energy used over a period of time.

*energy rates may fluctuate monthly, which could result in increased or decreased operating costs

kitchen

dishwasher

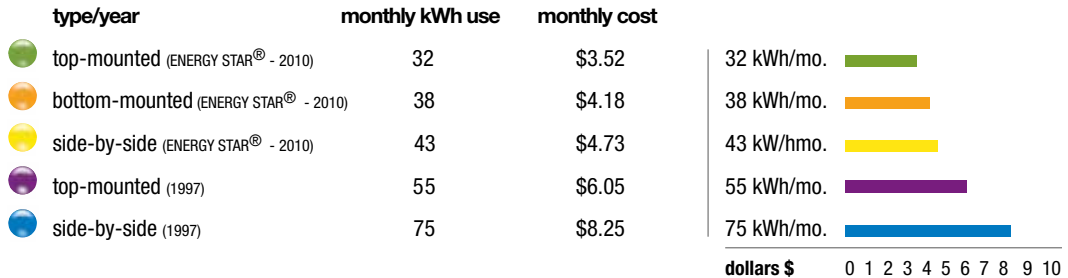
Based on 18 loads per month



In addition to electricity savings, ENERGY STAR® dishwashers also reduce water consumption and water heating costs.

Run your dishwasher only when it's full and allow dishes to air-dry instead of using the heat cycle.

refrigerator



"top-mounted" = freezer on top, "bottom-mounted" = freezer on bottom



Do you have a second refrigerator? Unplug it when it's not needed! This may be your single largest waste of electricity, especially considering most secondary refrigerators are older models.

range

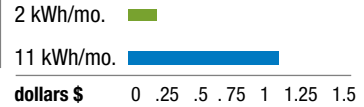


office

computer & LCD monitor

In use for two hours per day, in sleep mode for 22 hours per day

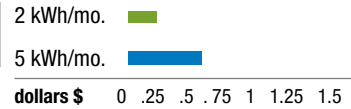
item	monthly kWh use	monthly cost
 monitor	2	\$0.22
 computer*	11	\$1.21



computer & LCD monitor

In use for two hours per day, off for 22 hours per day

item	monthly kWh use	monthly cost
 monitor	2	\$0.22
 computer*	5	\$0.55



*Based on computer no more than three years old.









For additional electricity savings during operation, reduce the brightness of your screen.



basement

freezer

type/year	monthly kWh use	monthly cost	
 chest (ENERGY STAR)	30	\$3.30	30 kWh/mo. 
 chest (2010)	33	\$3.63	33 kWh/mo. 
 chest (1997)	44	\$4.84	44 kWh/mo. 
			dollars \$ 0 1 2 3 4 5 6 7 8 9 10



The optimal freezer temperature for food preservation and energy efficiency is -18°C .

water heater

type	monthly kWh use	monthly cost	
 high-efficiency	385	\$42.35	385 kWh/mo. 
 mid-efficiency	406	\$44.66	406 kWh/mo. 
			dollars \$ 0 5 10 15 20 25 30 35 40 45

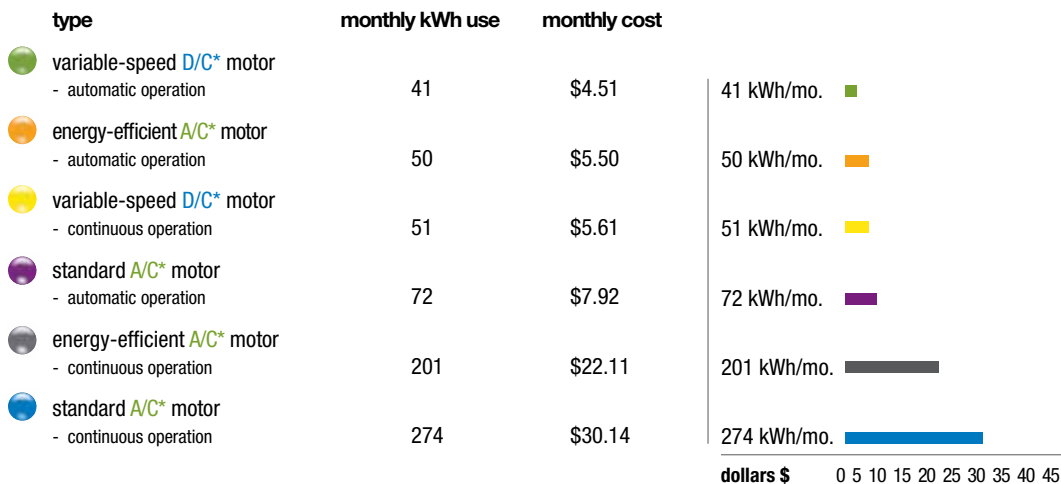


Typically in Alberta, natural gas is used to heat water because of its abundance, accessibility and low cost.

If leaving on vacation, set your water heater to vacation mode to save energy.



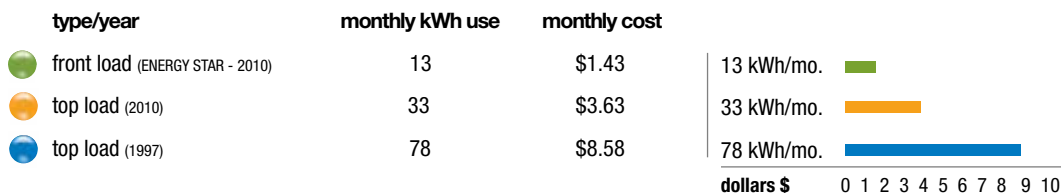
furnace fan



*D/C = direct current *A/C = alternating current

washing machine

Assumes 33 loads per month



A front-loading ENERGY STAR washing machine uses 50% less water. It also has a high-speed spin cycle. This removes more water from clothes, which means less drying time.

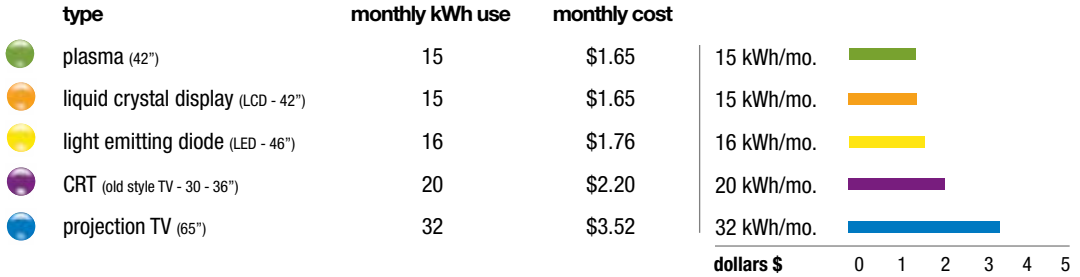
Try drying one load immediately after the other to make the most of leftover heat. Use the sensor cycle on your dryer instead of the timed dry. It will prevent over-drying and use less energy.

You may be surprised to see that we haven't included clothes dryers in our list. That's because there haven't been significant improvements in energy efficiency for dryers over the last 15 years, so the cost is still the same – roughly \$0.24 per load.

entertainment

television

Based on television on for 5 hrs/day

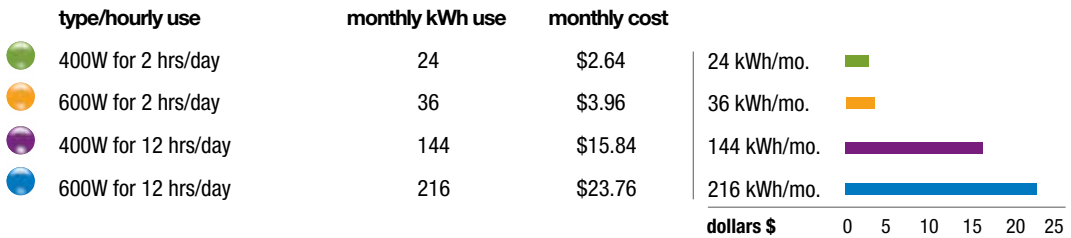


Televisions are among the highest users of standby power. Eliminate standby power by plugging your TV into a power bar and turning the power bar off when not in use.



others

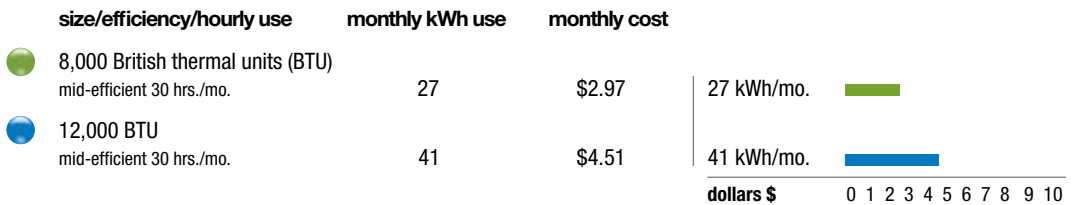
car block heater



Car block heaters are not necessary at temperatures above -15°C . Even on the coldest days, a block heater only needs to be used for two hours. Use a timer so that you can conveniently and cost-effectively operate your block heater.

air conditioner (room)

Based on air conditioning on for 30 hrs/month



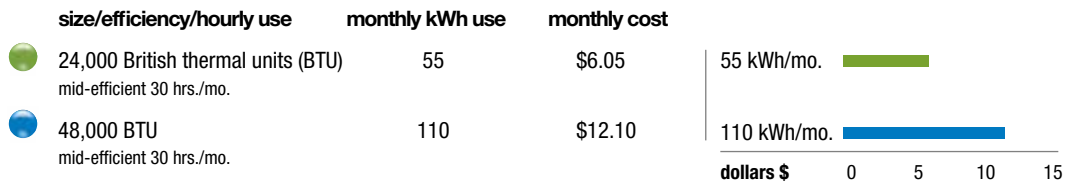
During sunny winter days, keep blinds and window coverings open to allow the sun to warm your home, but close them at night. In the summer, keep your blinds and window coverings closed during the daytime to block out the sun and keep your home cool.



others continued

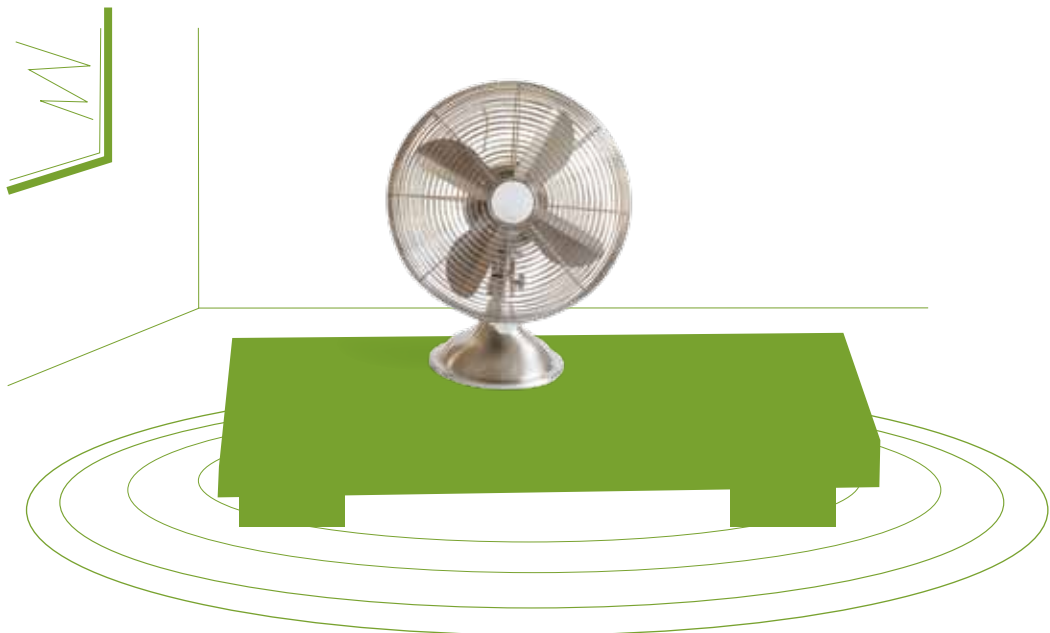
air conditioner (central)

Based on air conditioning on for 30 hrs/month



Before installing air conditioning, consider alternatives to keeping your home cool. This includes upgrading insulation levels, installing ceiling fans and making the most of window coverings and landscaping to keep your home cool.

Albertans don't experience many blistering hot summer days. If you live north of Lethbridge, do you really need air conditioning?

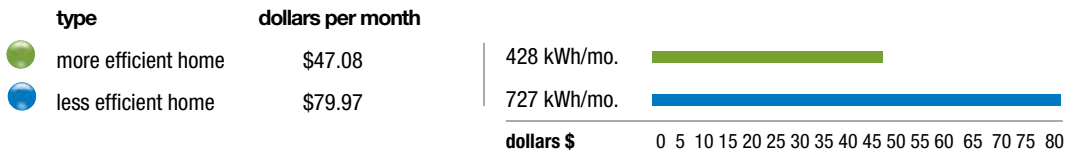


wise energy choices

Based on the information in the previous charts, the following chart is a summary comparing some of the most efficient options with some of the least efficient options. The data is based on the same cost of \$0.11 per kWh and is based on averages for major home appliances excluding water heaters, air conditioning and space heaters.

less efficient VS. more efficient home

overall operating cost



next steps

We all play a role in conserving energy. It helps the environment and saves money. ATCO EnergySense is here to help. It is our mission to provide consumers with unbiased, complimentary energy efficiency advice. Our team of dedicated professionals is ready and waiting to assist you with your energy efficiency questions.

In Alberta, call us toll-free at 310-SAVE (7283) or visit our website at atcoenergysense.com

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