

# Water Conservation

CO<sub>2</sub>RE Home\$avers



Take Action on Climate Change



**CO<sub>2</sub>RE**  
Carbon Dioxide Reduction Edmonton  
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# About CO<sub>2</sub>RE

## **Created *by* Edmontonians *for* Edmontonians...**

Carbon Dioxide Reduction Edmonton (CO<sub>2</sub>RE) is the City of Edmonton's community-based strategy to permanently reduce local greenhouse gas (GHG) emissions.

The CO<sub>2</sub>RE strategy was developed by representatives from the residential, business, industrial, institutional sectors and not-for-profit organizations that worked with the City to develop a single, coordinated plan. The group, known as the CO<sub>2</sub>RE Team, consulted extensively with many local groups and organizations to develop a consensus on the best approach and strategies. CO<sub>2</sub>RE was launched to the public in 2004.

The CO<sub>2</sub>RE mission is to work with Edmonton residents, businesses, institutions, non-profits and industry to provide services, programs and initiatives to assist in reducing energy use, thereby reducing the levels of the GHG emissions that are responsible for climate change.

### **The original CO<sub>2</sub>RE goals include:**

- up to a 6% reduction in GHG emissions (from 1990 levels) by the year 2010 and
- a 20% reduction in GHG emissions (from 1990 levels) by the year 2020.

### **Current Status**

Edmonton's GHG emissions increased from 13.9 million tonnes in 1990, to 18.2 million tonnes in 2008 (the most recent year of data), an increase of approximately 38%. Much of this increase is attributable to Edmonton's 24.3% population growth, as well as significant economic growth during this period.

On a per capita basis, GHG emissions appeared to have peaked in 2001 at 29 tonnes of CO<sub>2</sub> per person per year. Since then, per capita emissions have continued to fall.

## Do your part...

We can do many things to reduce our emissions – and that includes making our homes and lifestyles more energy-efficient. The publications in this series are a first step, providing Edmonton with specific how-to guides on improving home energy efficiency, saving money and reducing GHG emissions.

For more ideas on how to become more energy-efficient, log onto our website at [www.edmonton.ca/co2re](http://www.edmonton.ca/co2re).

## Free Membership

Why get a membership? Becoming a CO<sub>2</sub>RE member is free and the more people who join us in taking action on climate change, the faster we will achieve our goals.

CO<sub>2</sub>RE is working with local companies to offer incentives on energy-efficient products and programs to further assist residents. You'll also receive a regular newsletter with new ideas and updates. Sign up today at [www.edmonton.ca/co2re](http://www.edmonton.ca/co2re).

Organizations or individuals in the industrial, commercial and institutional sectors can contact our commercial coordinator by calling 311.

# Introduction

Did you know that the water we use every day requires large amounts of electrical energy to treat and deliver, then remove the wastewater (sewage) from our homes? Approximately 59%\* of Alberta's electricity is generated by burning coal, a major contributor of the greenhouse gases (GHG) responsible for accelerating climate change.

**Reducing your water use will not only save you money, it will reduce the amount of greenhouse gas emissions created by treating your water and wastewater.**

The amount you pay on your monthly water bills goes toward the cost of current water and wastewater treatment and toward the ongoing creation and maintenance of treatment facilities. This booklet outlines a number of actions you can take to reduce your indoor water use including:

- Low-cost modifications to existing fixtures, and
- Installing new plumbing fixtures and appliances.

Figure 1 shows a breakdown of average water usage for Edmonton-area homes.

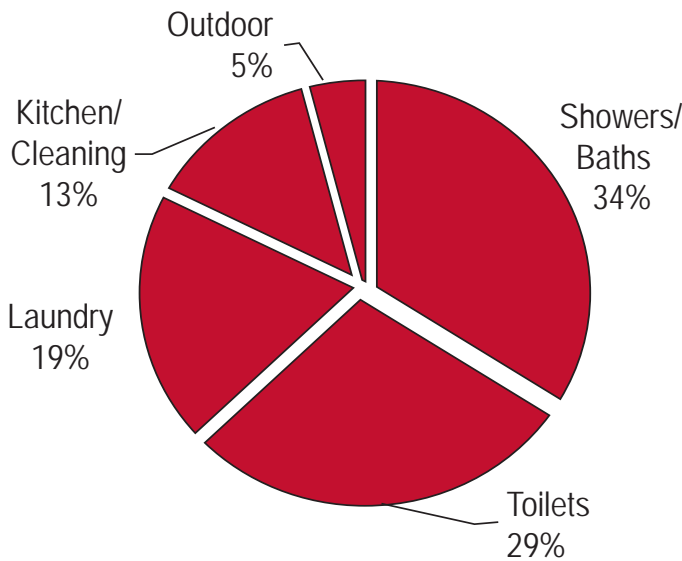


Figure 1  
(Approximate averaged usage figures courtesy of EPCOR, 2008)

\* Alberta's Energy Resources Conservation Board (ERCB) ([http://yearinreview.ercb.ca/reserves\\_coal.htm](http://yearinreview.ercb.ca/reserves_coal.htm))

# Conserving Water

Increasing your understanding of your water usage and knowing how to change usage habits can achieve significant savings.

Often a few simple, inexpensive steps can reduce water consumption by 10 to 20%. More substantial actions such as upgrading to ultra low flow toilets and showerheads, combined with simple usage changes, can produce savings in the 20 to 40% plus range.

In 2008\* the average Edmonton single-family household (2.4 people) used approximately 18.5 m<sup>3</sup> (cubic metres) monthly, with the average person using 230 litres per day. The average total yearly residential single-family usage, including outdoor use, was 222 m<sup>3</sup> yearly, or over 608 litres per day.

The table below shows the 2008 indoor water usage costs for the average Edmonton single-family homeowner based on current charges and rates (fixed charges are not included). See *Note on Water Costs and GHG Emissions* for rates used in calculations.

Total Usage	Water	Sewer	GST	Total
222 m <sup>3</sup> / Year	\$352	\$258	\$30	\$640

A 20% reduction would save you \$128 per year

A 40% reduction would save you \$256 per year

+ greenhouse gas (GHG) reductions of 80 to 160 kg per year

The average family (of 2.4 people) using a total of 222 m<sup>3</sup> of water per year is responsible for the production and release of 400 kilograms of greenhouse gases (GHGs) per year.

## Note on Water Costs and GHG Emissions

In Edmonton, water costs to users are based on metered consumption. EPCOR's residential water rates in 2010 were \$1.5870/m<sup>3</sup> for the first 60 m<sup>3</sup> and \$1.6404/m<sup>3</sup> for use over 60 m<sup>3</sup> per month. Sewage charges are \$1.1628/m<sup>3</sup> of incoming water for a combined cost of \$2.75/m<sup>3</sup>. Average residential customer water usage is approximately 18.5 m<sup>3</sup> per month.

Each cubic metre of water used, including wastewater, produces approximately 1.8 kg of GHG emissions.

### Imperial and metric equivalents:

- 1 Imperial gallon = 4.54 litres
- 1 cubic metre (m<sup>3</sup>) = 1,000 litres
- 1 cubic metre (m<sup>3</sup>) = 220 Imperial gallons

\* 2008 usage figures & costs provided by EPCOR

## Water Use

Most of your household water simply flows down the drain. Showers and baths, followed by toilet flushing, are the biggest indoor uses for water. In the summer, residential water use increases 5 m<sup>3</sup> per month, mostly due to lawn watering.

**The average single-family Edmonton household of 2.4 people uses 590 litres of water indoors daily.** About 179 litres is used for the toilet and another 210 litres used for showering and baths.

**The average person will use about 246 litres per day (indoors),** with 75 litres for the toilet and 88 litres for showers and baths.

## Low Cost Changes

**First, locate and repair any leaks in your water system.**

**The average household loses 14% of its water due to leaks.\*** A dripping faucet at a rate of one drip per second can waste over 8,000 litres of water per year.

**Most faucet leaks can be easily repaired by simply replacing the washers.**

**A leaking toilet can double or even triple your household water bill.**

- If you hear the sound of running water or a faint hissing or trickling, your toilet may need repairs.
- Water often flows through the tank silently, causing many leaks to be overlooked. Check your toilet for slow leaks by putting some liquid food colouring in the toilet tank and waiting 15 minutes without flushing. If the colour appears in the bowl, your toilet has a leak.
- Leaks occur at the plug or flapper (Figure 2) when it begins to wear out. Check for cracking or colour from the flapper marking your fingers when you touch it.
- Damage or mineral deposits on the flapper, plug or valve seat may prevent a watertight fit. Remove deposits with fine steel wool or a plastic scouring pad and check for leaks. **In most cases it is more effective to simply replace the entire flapper valve assembly.**
- A flapper valve that doesn't seat properly can cause a constant leak. Adjust the lift wires, chain and other parts of the mechanism.
- A leak may result when the intake valve doesn't close completely. Adjust the float (if your toilet has one) to be lower in the water.
- Leaks can flow silently into the overflow tube. The water in most tanks should be at 1" below the overflow tube for best operation.

*\* Residential End Uses of Water, American Water Works Association (AWWA) Research Foundation, 1999*

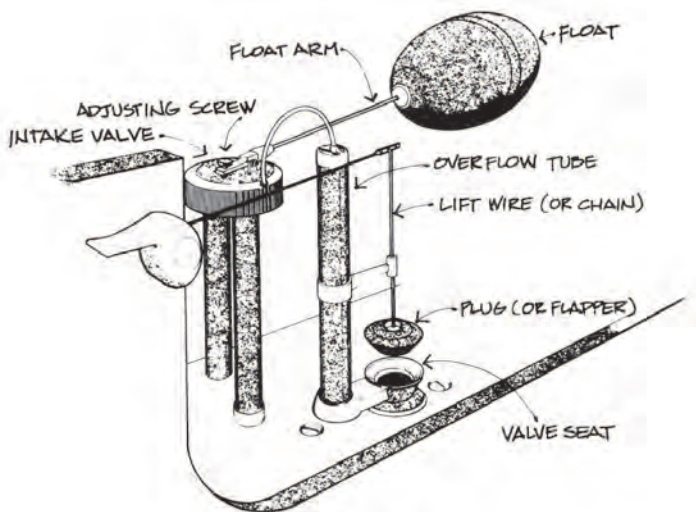


Figure 2

**Become water wise** and train yourself and your family to be aware of water usage and waste:

- Turn off the tap while brushing your teeth. When shaving, partially fill the sink/tub with about an inch of water to rinse your razor, and turn the tap off.
- On average, a 10 minute shower uses less water than filling a bath tub.
- Turn off the shower while soaping up to save even more water.
- Don't use the toilet for tissue and small waste item disposal; use a waste basket.
- Wash full loads of laundry or adjust the water level to suit the load size. Use cold water washes and detergents whenever possible and rinse with cold water.
- Partly fill the sink with water to clean and scrub vegetables, then rinse before use.
- Instead of running the tap to get cold water, keep a container of cold water in the fridge for drinking.
- Incorporate native, drought-resistant plants and use mulches to reduce outdoor water use.
- Water the lawn in the morning or in the evening (i.e. when the temperature is cooler) to reduce water lost to evaporation. Single deep waterings (25 mm or 1 inch, once every 7-10 days) are more effective than several light waterings.
- Use a cistern or rain barrel to capture and store rainwater for watering plants.
- Sweep the driveway clean with a broom instead of spraying it with the hose.

## Toilets

A standard, older model toilet uses 20 litres per flush. Newer low flush toilets use 13 litres per flush and new ultra-low flush (ULF) models use 3-6 litres.



The following table shows the yearly water usage and total costs for an average single-family household of 2.4 people for 20L, 13L and 6L toilets.

Water Usage (2.4 users)	Size	Total Costs (including GST)	GHG emissions (kilograms)
88 m <sup>3</sup>	20L	\$254	158
57 m <sup>3</sup>	13L	\$165	103
26 m <sup>3</sup>	6L	\$75	47

The average family (of 2.4 people) replacing a 20L toilet with a 6L ULF toilet could **save approximately \$179 (based on 5 flushes per day per person) and reduce personal GHG emissions by 111 kg per year.**

Per person, that equals a savings of \$74.58 and a reduction of 46 kg of GHG emissions per year.

The average family replacing a newer 13L toilet with a 6L ULF model would still save approximately \$90 a year and reduce personal GHG emissions by 56 kg yearly (or a savings of \$37.50 and reduction of 23 kg of GHG emissions per person per year).

Since January 1, 2008, all new house construction and permitted residential renovations have been required to install water efficient fixtures (Bylaw #14571) including low flush toilets (maximum 6 litres per flush), low flow showerheads (maximum 9.5 litres per minute) and low flow faucets (maximum 8.3 litres per minute).

If replacement of a standard toilet with a ULF model is not an option at this time, there is a wide variety of water conservation devices available that can provide a short-term fix for existing toilets, as described below.

The cost savings by reducing toilet flush volumes are considerable compared to the cost of various water saving devices. However, some devices can affect the performance of your toilet so it is essential to purchase the correct unit for your toilet and install them to the manufacturer's directions.

**Once in place, these devices require periodic checks and adjustments to ensure that the toilet flushes properly.**

Although these devices can be effective when properly installed, they often have limited life spans and should be considered a short-term water conservation strategy.

Examples are included for 2 types of water conservation products, a set of toilet dams and a floating flush saver.

## Toilet Water Savers

**Toilet dams** (Figure 3) can reduce the water volume per flush by 20 to 30%, depending on your toilet model and design, while maintaining the depth (water head) needed for effective flushing. Good quality dams that can maintain a long-term seal and proper installation are essential for good performance.

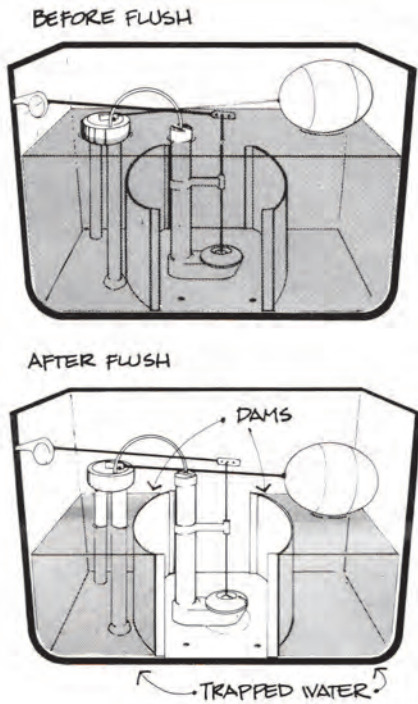


Figure 3

Other adjustable water-saving devices that attach to the fill valve assembly can save up to 30% per flush (Figure 4). You should be able to purchase them from the local hardware, plumbing or building supply store. If you install a toilet water saving device, be sure that it is the right type for your brand of toilet and that it is installed to manufacturer's directions and is adjusted so that the toilet flushes properly. Don't forget to check it every couple of months to ensure it is still operating properly.

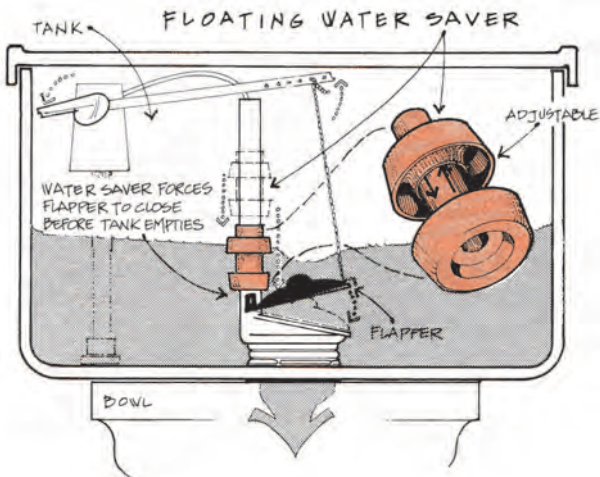


Figure 4

The table below shows the estimated water conservation savings achievable from installing a toilet water conservation device.

Figures are based on 2007 water and wastewater costs and achieving a 20% reduction in toilet water usage for the average household of 2.4.

Toilet Usage (2.4 Users)	Water	Sewer	GST	Total
88 m <sup>3</sup> per year	\$139.66	\$102.33	\$12.10	\$254
-20% = 70 m <sup>3</sup> per year	\$111.09	\$81.40	\$9.62	\$202
Cost Savings	\$28.57	\$20.93	\$2.48	\$52

The average family (of 2.4 people) could save approximately \$52 and reduce personal GHG emissions by 32 kg per year.

Per person, that equals a savings of approximately \$22 and a reduction of 13 kg of GHG emissions per year.

Although the savings are good in comparison to the purchase costs of the water saving devices available, replacing an existing toilet with a new 6 litre ULF toilet or newer dual flush 3L/6L toilet will generate the highest level of cost savings and GHG emission reductions.

### Ultra Low Flush (ULF) Toilets

Replacing your existing toilet with a new ultra low flush toilet will reduce water use by 54% (13L → 6L) to 70% (20L → 6L) per flush, depending on your existing unit. ULF toilets use 6 litres (6L) per flush and some newer models are now available that offer a 3L & 6L dual flushing feature.

The table below shows the average savings potential based on a 54% reduction in toilet water usage by upgrading from a 13L model to a 6L ULF toilet.

Toilet Usage (2.4 Users)	Water	Sewer	GST	Total
57 m <sup>3</sup> per year	\$90.46	\$66.28	\$7.84	\$164
-54% = 26 m <sup>3</sup> per year	\$41.26	\$30.23	\$3.57	\$75
Cost Savings	\$49.20	\$36.05	\$4.27	\$89

The average family (of 2.4 people) could save approximately \$89 and reduce personal GHG emissions by 56 kilograms per year.

Per person, that equals a savings of approximately \$37 and a reduction of 23 kg of GHG emissions per year.

### Showers

Conventional showerheads can deliver anywhere from 12.5 to 36 litres (2.5 to 8 gallons) of water per minute (at 60 pounds water pressure). One 10-minute shower at full flow could use between 125 and 360 L of water, of which approximately 50% would be heated water, or 180 litres (40 gallons) of hot water per shower. There are both low and moderate cost options available to reduce shower water usage.

An **inexpensive flow restrictor** (Figure 5) can be installed to reduce the flow rate by about 20 to 30% thus saving you water, sewage and water heating costs. There are two types of flow restrictors, one resembles a small washer and the other is a cylindrical device.

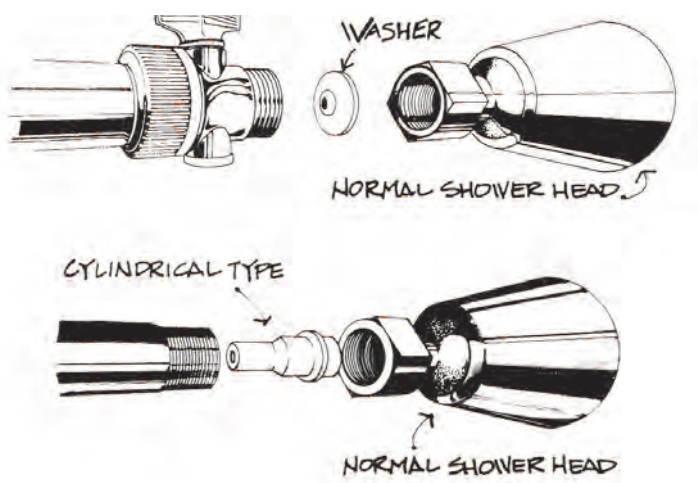


Figure 5

**Installing a low flow showerhead** is the best option, reducing hot water usage by 30 to 50% compared to a standard showerhead without significantly reducing the “feel” of the shower.

The average Edmonton family of 2.4 people uses about 76 m<sup>3</sup> yearly for showers and baths. Based on an estimated average usage of 40 m<sup>3</sup> for showers, the following table identifies the savings potential of 40% with the installation of a low flow showerhead with a flow rate of 12 litres or less per minute.

Shower Usage (2.4 Users)	Water	Sewer	GST	Total
40 m <sup>3</sup> per year	\$63.48	\$46.51	\$5.50	\$115
-40% = 24 m <sup>3</sup> per year	\$38.09	\$27.91	\$3.30	\$69
<b>Cost Savings</b>	<b>\$25.39</b>	<b>\$18.60</b>	<b>\$2.20</b>	<b>\$46</b>
*Hot Water Savings	40% of 17 GJ = 6.8 GJ		x \$10/GJ	\$68

An average family (of 2.4 people) could save approximately \$46 in water/sewer costs and \$68 in water heating costs for a total savings of \$114 per year, and a total reduction in personal GHG emissions of 375 kilograms per year.

Per person, that equals a savings of approximately \$47 and a reduction of 156 kg of GHG emissions per year.

\*Cost savings for gas water heating are based on the assumption that 30% of the average home's natural gas usage of 160 gigajoules (GJ) a year, or approximately 48 GJ, is used for domestic water heating. Of that, 35% (or 17 GJ) is used for heating water for showers. Similar water heating savings could be achievable for homes equipped with an electric water heater.

Greenhouse gas emissions from hot water heating with natural gas with an atmospheric burner are 50.9 kg for each GJ of natural gas burned.

## Faucet (Tap) Aerators

Installing low flow faucet aerators is a cost-effective way to reduce water usage in your existing kitchen and bathroom faucets (taps). Kitchen and bathroom taps account for about 14% of indoor water usage. Low flow aerators simply thread into your existing faucets and reduce the water flow by mixing it with air to maintain a good flow while reducing water usage. Always follow installation instructions.

Standard faucets can have flow rates between 9 and 13 litres per minute (2 to 3 gallons per minute). Low flow faucet aerators are available with flow rates of 6 litres per minute (1.5 gallons per minute).

Faucet water usage for the average Edmonton family (2.4) is about 31 m<sup>3</sup> yearly. The following table identifies the savings potentials (30%) with the installation of low flow faucet aerators (kitchen & bathroom taps) with a flow rate of 6 litres or less per minute (1.5 gallons per minute or less).

Faucet Usage (2.4 Users)	Water	Sewer	GST	Total
31 m <sup>3</sup> per year	\$49.20	\$36.05	\$4.26	\$90
-30% = 22 m <sup>3</sup> per year	\$34.91	\$25.58	\$3.02	\$64
Cost Savings	\$14.28	\$10.47	\$1.24	\$26
Hot Water Savings*	30% of 7 GJ = 2.1 GJ		x \$10/ GJ	\$21

**An average family (of 2.4 people) could save approximately \$26 yearly in water/ sewer costs and \$21 in water heating costs for a total savings of \$47 per year, and a personal GHG emission reduction of 123 kilograms per year.**

**Per person, that equals a savings of approximately \$20 and a reduction of 51 kg of GHG emissions per year.**

\* Cost savings for gas water heating are also included based on the assumption that 30% of the average home's natural gas usage of 160 gigajoules (GJ) a year, or approximately 48 GJ, is used for domestic water heating. Of that, 15% (or 7 GJ) is used by faucets. Similar water heating savings would be achievable with electric water heaters.

## Water Heaters

### Water Heater Performance

Most hot water tanks have factory temperature settings of 60°C (140°F), which is hot enough to cause scalding. You can lower the temperature setting for your hot water tank to 50°C (120°F), which is about as hot as your hand can tolerate.

Turning down the setting 10°C won't reduce water usage, but it will reduce your utility costs (gas or electric) for water heating.

If you have an electric water heater, lower the temperature by shutting off the power, remove the cover plates over the elements and make the adjustments with a screwdriver. For gas heaters simply turn down the temperature control.

**Note:** The installation of add-on insulation (e.g. insulating blankets) to residential water heaters in Alberta is NOT acceptable under the Alberta Safety Codes Act.

Don't forget to drain the sediment and minerals from the bottom of your hot water tank at least once a year. The residue buildup in the bottom of the tank (Figure 6) acts as an insulator, causing your water heater to use more fuel.

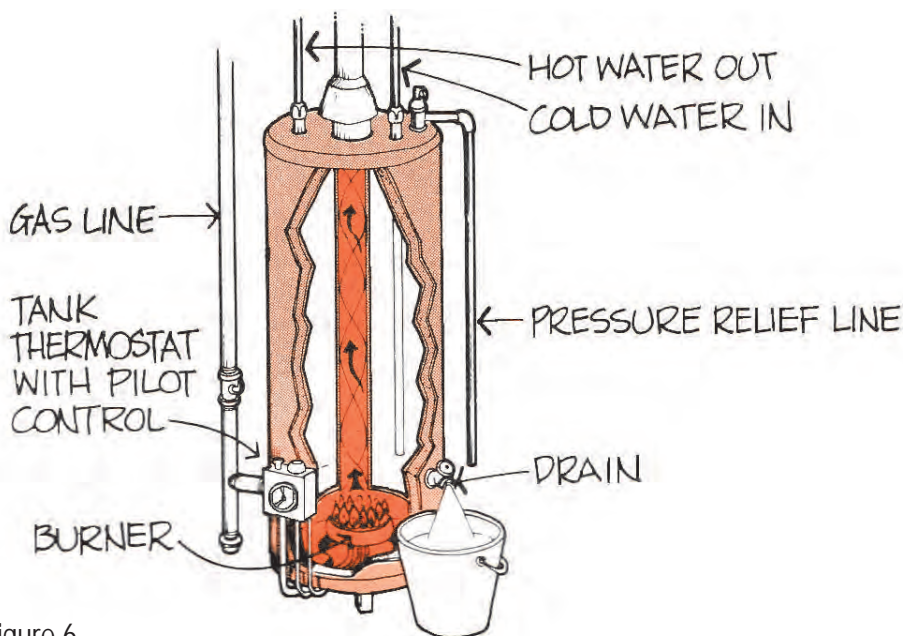


Figure 6

**NOTE:** If the drain valve does not open easily, do not force it.

### Installing a New Water Heater

**Select Water Heater Location** – To reduce heat loss through long runs of piping, locate a new hot water tank as close as possible to the areas where the most hot water is used.

**Select a New Water Heater Carefully** – Match the size of a new water heater to the needs of your family. An over-sized unit wastes energy.

Higher efficiency gas-fired hot water tanks are available. One type is a “sealed combustion” water heater (Figure 7), which vents out the side of the house eliminating the need for a standard chimney. These units offer improved performance through higher efficiencies and ensure positive exhaust flows.

Outside air enters the vent system's outer channel to supply combustion air. It has an



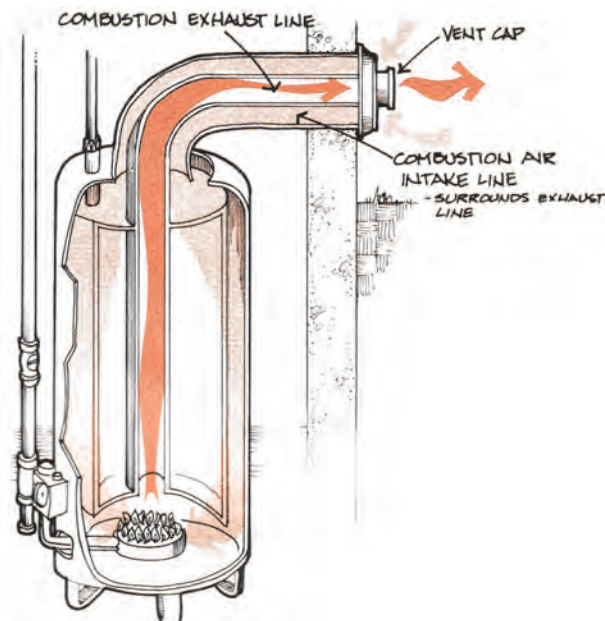


Figure 7

inner channel for venting exhaust. Manufacturers are claiming seasonal efficiencies of 75 to 80%, which is a significant improvement over conventional units with efficiencies of 50 to 55%.

The table below shows example savings achievable with a high efficiency gas water heater. Figures are based on the assumption that the average home uses approximately 48 GJ for domestic water heating.

Water Heating (2.4 users)	Yearly Usage	Costs
Standard Tank – 50% Efficient	48 GJ x \$10/GJ	\$480
High Efficiency Tank – 75% Efficient (uses 25% less natural gas)	36 GJ x \$10/GJ	\$360

An average family (2.4 people) could save approximately \$120 and reduce GHG emissions by 600 kilograms per year.

Per person, that equals a savings of approximately \$50 and a reduction of 250 kg of GHG emissions per year.

If purchasing an electric hot water tank, choose a unit with the highest insulation levels, dual heating elements and easily accessible temperature controls.

**Instantaneous or tank-less water heaters** – When a hot water tap is turned on, the cold water enters the heater and triggers the heating elements or burners to turn on; the water is then heated as it flows through the heating elements or heat exchanger. When the hot water tap is turned off, the system shuts down.

Gas-fired tank-less units have efficiencies of over 90%. Unlike conventional hot water

tanks, which must keep water hot even when not in use, tank-less or instantaneous tanks provide hot water only when needed, thereby increasing efficiency. They can generate a maximum of 19 litres per minute of hot water, which can supply two major hot water applications at the same time i.e. a shower and a washing machine.

Electric tankless units are available which manufacturers claim have an efficiency of 99%. These units generate between 7.5 and 13 litres per minute and can supply one major hot water application at a time (e.g. fill one large bath tub) or two smaller applications at once (e.g. running two sinks with hot water).

These units may be sufficient for a small family, but a large family with lots of clothes washing, dishwashing, showers and baths might find that there is not enough hot water production to meet the demand.

There are now larger whole house tank-less units available from manufacturers that claim to be able to supply all the hot water needs for an average home.

**Companion hot water tanks** are available with some high efficiency furnaces and with boiler-assisted heating systems. Hot water or glycol from the heater can be circulated through the coil in the tank to heat the water. If the heater (boiler or furnace) is a high efficiency unit, it will provide more efficient water heating than with a conventional hot water tank.

**Solar water heating systems** are another option. Performance data shows that solar collectors can contribute 30 to 50% of the annual water heating load for an average home. Solar water heating systems are becoming more affordable and are usually supplemented with a tank-less or conventional hot water system for year round use.

Additional information on solar water heating systems is available from Natural Resources Canada – Office of Energy Efficiency. Contact details are included under “Additional Resources” at the back of this publication.

## Appliances

If you do not have an energy-efficient clothes washer or dishwasher, the only actions one can take are to be water wise and develop good usage habits including:

- Wash full loads of laundry or adjust the water level to suit the load size.
- Use cold water washes and detergents whenever possible and rinse with cold water.
- Wash full dishwasher loads only.
- Use the shortest dishwasher cycle possible and use the no-heat economy drying cycle.

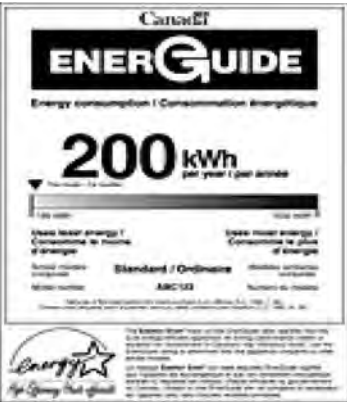
## Insulate Your Hot Tub

If you have a hot tub or spa with a gas heater, you can reduce your gas usage by approximately 40%. Use an insulated cover, add insulated skirting to built-in models and wrap the pipes with insulation.



# Purchasing New Appliances

If you are planning to purchase a new appliance, look for the “EnerGuide Label”. EnerGuide is a program from Natural Resources Canada that allows consumers to compare the energy efficiency of the many different models of household appliances sold in Canada. Check the EnerGuide rating on the appliance or in the manufacturer’s brochure – the lower the energy usage figure is (kilowatt hours per year), the lower the yearly operating costs.



## How to read the EnerGuide label

- The large number is an appliance’s estimated annual energy consumption measured in kWh per year.
- The shaded bar scale displays the energy consumption range for appliance models of this type and size. The figure at the left end of the scale indicates the lowest energy-consumption rating; the figure on the right indicates the highest.
- An arrow just above the bar scale shows where the appliance ranks relative to similar models.
- The ENERGY STAR® symbol accompanies the EnerGuide label only on appliance models that achieve premium levels of energy efficiency, based on specific criteria endorsed by Natural Resources Canada.

Canada’s EnerGuide program is now complemented by the ENERGY STAR® program and symbol which goes one step further and identifies specific models that meet or exceed premium levels of energy efficiency.



When you see the ENERGY STAR on an EnerGuide label, you can be sure that the product is among the most energy efficient currently available.

## Clothes Washers

When purchasing a new unit consider purchasing an ENERGY STAR qualified front-loading clothes washer. These units have advanced design features that deliver cleaning performance while using less energy and 30 to 50% less water than regular clothes washers. These washers extract more water from clothes during the spin cycle, reducing drying time, which saves energy and wear and tear on your clothes. To qualify for ENERGY STAR rating, clothes washers must have an EnerGuide energy consumption rating of less than 470 kWh a year.

Based on an average Edmonton family (2.4 people) usage of 40 cubic metres (m<sup>3</sup>) for clothes washing, the following table identifies the savings potentials (40%) achievable with the purchase of a high efficiency clothes washer.

Laundry (2.4 users)	Water	Sewer	GST	Total
40 m <sup>3</sup> per year	\$55.20	\$37.98	\$5.59	\$99
-40% = 24 m <sup>3</sup> per year	\$33.12	\$22.79	\$3.35	\$59
<b>Cost Savings</b>	<b>\$22.08</b>	<b>\$15.19</b>	<b>\$2.24</b>	<b>\$40</b>
Hot Water Savings*	40% of 4.8 GJ = 2 GJ		x \$10/ GJ	\$20

An average family (2.4) could save approximately \$40 yearly in water/sewer costs, and \$20 per year in water heating costs for a total savings of \$60 per year, and a total reduction in personal GHG emissions of 143 kilograms per year.

Per person, that equals a savings of approximately \$25 and a reduction of 60 kg of GHG emissions per year.

\* Cost savings for gas water heating are also included and are based on the assumption that the average family's natural gas usage for domestic water heating is approximately 48 GJ a year. Of that, 10% (or 4.8 GJ) is water heating for clothes washing.

### Dishwashers

If you are purchasing a new dishwasher, consider an ENERGY STAR certified unit. To qualify for ENERGY STAR rating, dishwashers must have an EnerGuide energy consumption rating of less than 455 kWh a year.

These units are at least 25% more water efficient than standard dishwashers and can save up to 20% on water heating costs by heating incoming water. The units use less hot water by using smart sensors to adjust the water cycle to match the load.

### Become Water Wise!

Reducing your water usage will not only save you money, it will reduce the amount of greenhouse gas emissions created by your water usage, wastewater treatment and water heating.

## Additional Information Sources

### Natural Resources Canada – Office of Energy Efficiency

[www.see.nrcan.gc.ca](http://www.see.nrcan.gc.ca) – The Office of Energy Efficiency offers a wide range of free publications, programs and services to help Canadians save energy and reduce the greenhouse gas emissions that contribute to climate change.

**Recommended Reading:** *Keeping the Heat In* is a comprehensive source of energy efficiency how-to information for homeowners. This free publication is available from Natural Resources Canada. Call toll free at 1-800-387-2000.

### Alberta Environment

[www.environment.alberta.ca](http://www.environment.alberta.ca) – Search for *Saving the World Begins at Home* for numerous conservation tips to practise at home.

### Canada Mortgage and Housing Corp.

[www.cmhc.ca](http://www.cmhc.ca) – CMHC is a valuable resource for information. The CMHC Order Desk is a one-stop shop for all free and priced publications, fact sheets, reports, videos and other CMHC resources. You can order online, or through their call centre at 1-800-668-2642.

### Climate Change Central

[www.climatechangecentral.com](http://www.climatechangecentral.com) – A provincial program that encourages Albertans to take action on climate change through consumer rebate programs, demonstration projects and information for homeowners, businesses, agriculture and transportation sectors.

### EPCOR

[www.epcor.ca](http://www.epcor.ca) – The website contains information on energy and water efficiency with calculators, tools and downloadable publications to assist you in reducing your energy and water consumption.

Tools include a **Home Energy Audit**, a do-it-yourself home audit with a library of resources; **EPCOR House**, an animated tour of a typical home with efficiency information; and calculators for most major appliances, plus a **simple electricity calculator** and **water audit tool**. Tools are located in the EPCOR-Customer Service drop down menus.

### Environment Canada

[www.ec.gc.ca](http://www.ec.gc.ca) – Environment Canada's website, "The Green Lane", provides weather and environmental information to help connect Canadians, exchange information and share knowledge or environmental decision making.

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# Become A CO<sub>2</sub>RE Member

We all contribute to the problem of climate change and each of us can contribute to the solutions. Become a CO<sub>2</sub>RE member.

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**CO<sub>2</sub>RE**

Carbon Dioxide Reduction Edmonton

## Home\$avers Booklets

Attic Insulation

Basement Insulation

Caulking and Weatherstripping

Condensation Concerns

Conserving Electricity

Heating Systems

Renewable Energy (online only)

Ventilating Your Home

Water Conservation

Windows

## Other Publications

General CO<sub>2</sub>RE Brochure

Eco-Landscaping

Apartments & Condominiums



## Environment

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Website: [www.edmonton.ca/co2re](http://www.edmonton.ca/co2re)