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# WELCOME TO A GREENER WORLD

## THE ENVIRONMENT

The air we breathe, the water we drink, the food we eat, and the energy we consume are our most precious and limited resources.

That's why it's so important that we all do whatever we can to reduce the

impact we have on the planet. We must make wise choices about the food we eat, the vehicles we drive, how we heat our homes, and how we use electricity.

## SMALL CHANGES MAKE A BIG DIFFERENCE

It may not seem like it, but every effort you make to reduce your energy use, no matter how big or small, does make a difference. When all of our individual

efforts are combined, it has a huge impact on the environment – and that's good for everyone.

## USING THIS BOOKLET

**Reducing energy use and lowering your energy bills is important to us all.**

This booklet was designed to provide you with a handy, easy to follow guide to saving energy year-round at home or work. We've given you ideas on what to do both inside and outside your home, and included a season-by-season guide.

A number of tips, such as using energy efficient lighting, have been listed repeatedly throughout the booklet. That's because they are among the best ways to reduce your energy costs and play a key role no matter which subject area you would like to concentrate on.

The hundreds of tips contained in this booklet have been compiled from a variety of reliable sources and are intended as a general guide. Whenever you undertake a major project to reduce your energy use, always do your homework before you begin, including seeking help or advice from a reputable contractor or Welland Hydro. Please note that the energy savings listed with the tips in this booklet are estimates only and results will vary.

*If you have any questions, look at the back of the booklet for information on how to contact us. We're here to help.*

## WELLAND HYDRO'S CONSERVATION PROGRAMS

Welland Hydro offers a full suite of conservation programs for its residential, commercial, institutional and industrial customers.



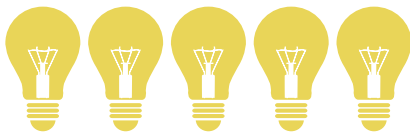
To find out more, visit our website at [wellandhydro.com](http://wellandhydro.com).

## WHAT ON EARTH IS A KILOWATT HOUR?

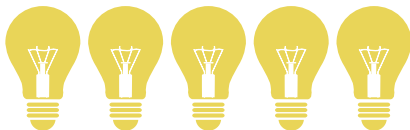


### Good question!

Most people don't know exactly what a kilowatt hour (kWh) is. A kWh is a unit of measure which represents the amount of electricity consumed or used over a period of time. One kWh is equal to 1,000 watt hours or equivalent to leaving ten 100 watt bulbs turned on for one hour.



**TURNED ON FOR ONE HOUR = 1 kWh**



## THE SKINNY ON SMART METERS

Today, every home and small business in Ontario is equipped with a smart meter, providing consumers with an important tool to help manage their electricity use.

Smart meters measure how much energy you use on an hourly basis and what time of day you used it. Your electricity bill will show how much electricity was used within each time-of-use (TOU) period.

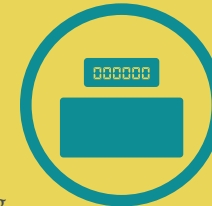
A smart meter has a number of significant benefits for consumers:

- A smart meter automatically records your hour-by-hour consumption and securely sends the information to

Welland Hydro wirelessly. You get a precise measurement of your electricity use to help you take action to conserve energy during periods of peak demand in your home.

- You can reduce your energy costs by shifting some electricity usage to periods when the TOU rates are lower. For example you could simply: do laundry on weekends, turn the dishwasher on during off-peak hours, and set the air conditioning to shut off or to come on at a higher temperature when you are not at home during the day.

More information on smart meters, including money and energy saving tips, is available on Welland Hydro's website ([www.wellandhydro.com](http://www.wellandhydro.com)), from the Ministry of Energy's smart meter website ([www.smartmetersontario.ca](http://www.smartmetersontario.ca)) and from the Ontario Energy Board ([www.oeb.gov.on.ca](http://www.oeb.gov.on.ca)).



Time-of-use billing divides a consumer's electricity into three different time periods: on-peak, mid-peak and off-peak. Each time period has a corresponding rate that is charged for electricity used during that time. On-peak periods, which usually occur during business hours Monday through Friday, will have the highest rate. Mid-peak periods, usually fall just before and just after on-peak periods Monday through Friday, have a slightly lower rate than on-peak. Off-peak periods, have the lowest rate and are in effect during evenings, weekends and statutory holidays. The TOU periods and rates vary by season. Please visit Welland Hydro's website at [www.wellandhydro.com](http://www.wellandhydro.com) for the most up-to-date information.

# TOP TEN

## FASTEST, EASIEST, AND BEST EVER MONEY-SAVING TIPS

This booklet contains hundreds of ways you can reduce your energy use – but these top 10 tips are a great way to get started:

### 1 Use CFL or LED Bulbs

One compact fluorescent light bulb (CFL) or light emitting diode (LED) can save you three times its purchase cost in electricity. CFLs last up to 10 times longer than incandescent bulbs and can use up to 75% less electricity. You can replace an incandescent 100W light bulb with an 18W – 23W compact fluorescent and still get the same amount of light.

### 2 Install a Programmable Thermostat

During the heating season, set your programmable thermostat to automatically lower the heat by a few degrees at night or when you are away. If you have air conditioning, you can use your programmable thermostat during the cooling season to automatically turn it off or increase the temperature when you are not at home. Your energy savings will easily pay for the cost of the thermostat in the first year.

### 3a Replace Your Old Refrigerator or Freezer

Refrigerators and freezers are two of the biggest electricity users in your home – these old, inefficient appliances can cost well over \$10/month in electricity. When purchasing a new one, be sure to check the EnerGuide label and look for the ENERGY STAR® symbol so you are certain of energy savings when making your buying decision.

### 3b Get Rid of Your Second Refrigerator

It may be convenient having an extra refrigerator, but those cold beverages are costing you every day...up to \$125 per year.

### 4 Wash Your Laundry in Cold Water

You can save energy and money by washing all of your laundry in cold water. If you currently both wash and rinse in warm water, and you switch entirely to cold, you could save over \$14 a month (based on electric water heating). There are many laundry detergents designed specifically for cold water washing.

### 5 Look for the ENERGY STAR® Label

ENERGY STAR® is an international symbol that identifies many energy efficient products. The ENERGY STAR® symbol helps businesses and consumers identify products that are at the “top of their class” in terms of energy efficiency.

### 7 Install Insulation

You can save energy and money by increasing the amount of insulation in your home, to keep it warmer in the winter and cooler in the summer. The attic and basement are good places to start, because those areas represent as much as 15% - 30% of your home's overall heating and cooling losses. Upgrading insulation levels is one of the smartest energy saving investments you can make.

### 8 Use Motion Sensor Switches and Timers

To avoid leaving your outside lights on for long periods of time, install a motion sensor that turns the lights on automatically when someone approaches the house and then turns the lights off after a pre-set period of time. Install timers on selected lights to avoid leaving lights on around the clock and to make your home look occupied when you are away.

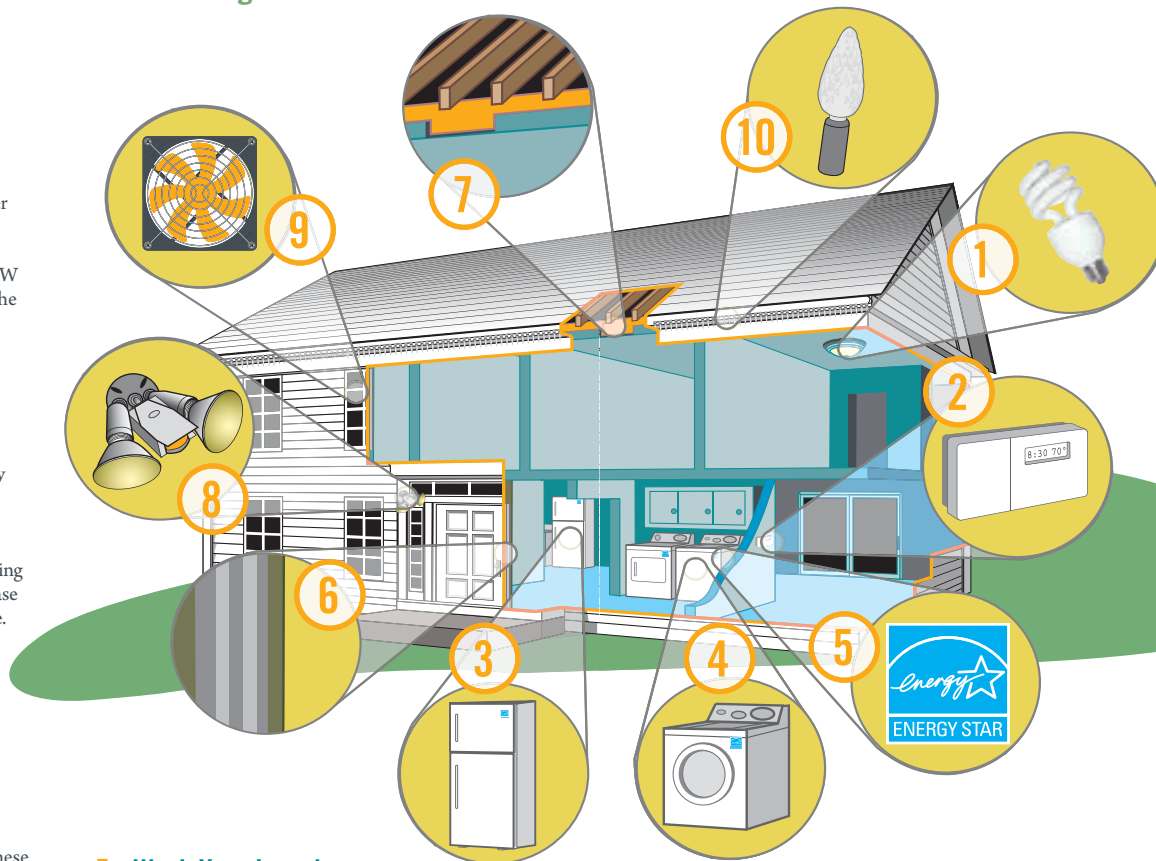
### 9 Rely on Your Fans

Use fans instead of air conditioning when possible. Ceiling and portable fans cost pennies to operate and can lower the temperature in the room by up to 2°C.

### 10 Use LED Seasonal Lighting

Using LED lights both inside and outside your home, during the holiday season, is a great way to conserve energy and save money. LED lights use up to 95% less energy and last at least seven times longer than regular lights. There are no filaments or glass bulbs to break, and they produce very little heat.

Seasonal LED bulbs come in a variety of shapes and colours.



### 6 Eliminate Drafts in Your Home

Air leakage around windows, doors, vents and electrical outlets can account for as much as 25% of your total heating costs. That means there are significant savings available if you caulk and weather-strip windows, doors, dryer and other vents, and install insulated plates on electrical outlets.

# OVER 100 REALLY, REALLY GREAT WAYS TO CONSERVE ENERGY AND SAVE MONEY.



## LIGHTING

On average, lighting in your home represents 17% of your total monthly energy costs. Over the course of a year the savings will add up if you look very closely at how you are lighting each room, including the fixtures or lamps being used and the type of bulbs. The easiest way to conserve

energy is to simply remember to turn lights off when not in use.

### ENERGY SAVING TIPS:

- Replace your incandescent light bulbs with ENERGY STAR® compact fluorescent light bulbs (CFLs). They last up to 10 times longer and can use up to 75% less electricity.
- Compared to incandescent, halogen bulbs are more expensive to purchase, but they produce a whiter light, last 2 to 4 times longer, and use about 40% less energy to produce the same light. Halogens are a good replacement for outdoor flood and spotlights.
- Be aware that incandescent bulbs known as “long-life” or “extended life” do last a long time but give 30% less light while using the same amount of energy.
- Avoid using multiple-light fixtures. Four 25W light bulbs give off only 2/3 of the light of one 100W bulb yet use the same 100W of energy.
- Replace standard on/off switches with dimmer switches. They reduce light level, save energy and extend bulb life (special dimmable CFLs are now available).
- Install timers on selected lights to make your home look occupied when you are away and avoid leaving lights on around the clock.
- Light-emitting diode (LED) light bulbs are the newest technology on the market. They offer an effective and efficient alternative to CFLs, halogens, and incandescent bulbs.

## TIP

Lighting represents a big part of your monthly energy costs. Turning off lights and replacing old bulbs with energy efficient options is an easy way to save energy.

## APPLIANCES

It's estimated that over 45% of the electricity consumed in an average home is used by the six major appliances – refrigerator, freezer, electric stove/oven, dishwasher, clothes dryer and washer.

If you are shopping for a new major appliance, be sure to consider the cost of energy to run it. That cost can represent thousands of dollars over the life of the appliance, so it's important to choose appliances that are as energy-efficient as possible. While these appliances may cost a bit more up front, you will save money over the long run.



**Look for the EnerGuide label:** EnerGuide is a Government of Canada program designed to give consumers information on the energy-efficiency of household appliances on

the market. The EnerGuide label will tell you the amount of electricity in kilowatt hours (kWh) that the appliance is expected to use in one full year, and shows where the model you are considering ranks in comparison to appliances of similar size and type. Simply having an EnerGuide label does not mean an appliance is efficient, you must read the label to see how it compares to others in its class.

**Look for the ENERGY STAR® label:** ENERGY STAR® is an international symbol that identifies energy efficient products. The ENERGY STAR® symbol helps businesses and consumers identify products that are at the “top of their class” in terms of energy efficiency. Only the best EnerGuide rated appliances also get the ENERGY STAR label



### REFRIGERATORS AND FREEZERS

- It may be convenient having an extra refrigerator, but old, inefficient refrigerators can cost over \$10 a month in electricity to operate. So there is substantial energy savings available by getting rid of an old second refrigerator (same applies to old freezers too).
- The temperature in your refrigerator should be between 2°C and 5°C.
- The refrigerator should be full but not overloaded because it needs air circulation to operate efficiently.
- Keep a space of at least five centimetres all around your refrigerator and freezer so heat will be able to move away from the compressor and condensing coil.
- Vacuum any dust off your refrigerator's coils (back) and air intake grill (below the doors) every 3 months.
- The temperature of your freezer should be at -18°C. It will use almost 2% more electricity for each degree below -18°C.
- Freezers are most efficient when they are full, but not overloaded. Keep them well defrosted. Regularly vacuum up the dust on the back and underneath your freezer.
- A faulty door seal can cost you hundreds of kilowatt-hours in electricity a year. Test the seal on a regular basis by closing the fridge door over a piece of paper. If you can pull the paper out easily, the door seal needs to be fixed or replaced.

## STOVES

- Turn the oven off a few minutes before the cooking time is over. The remaining heat will finish the job.
- About 20% of an oven's heat is lost when you open the door, so make use of the stove's window to check cooking progress.
- It is only necessary to preheat your oven when baking and then only for about 7 minutes.
- Microwave ovens, toaster ovens, and slow cookers use less energy than electric stoves for cooking small amounts of food.
- Stoves with the convection feature can be an energy saver. They still require a heating element, but they also incorporate a fan that blows air around inside the oven. This method means shorter cooking times at lower temperatures.
- Self-cleaning ranges are more energy efficient than regular models because they have more oven insulation. Use the self-cleaning feature right after cooking when the oven is already hot.
- An electric kettle uses half the energy required to boil water compared to using a stove element.
- Use the stovetop element that matches the size of the pot or pan you are using and use lids that fit snugly.

## MICROWAVES

- There are many tasks a microwave can do better, faster and with less energy than the stove, such as cooking smaller portions of food.
- Microwaves do not require preheating, which saves a lot of energy.
- Because cooking with a microwave won't heat up your kitchen, it will reduce the amount of air conditioning you will need on hot summer days.



- To ensure the microwave operates efficiently, leave sufficient space at the top, side and back for the air vents.
- Clean the microwave on a regular basis and make sure the door seals are in good condition.
- For large quantities of liquids, like soups or stews, the stovetop element is twice as efficient as the microwave.

## CLOTHES WASHERS AND DRYERS

- A high efficiency front load clothes washer can use as much as 50% less energy and 35 – 50% less water per load than the average conventional model.
- Wash your laundry in cold water. If you're currently washing and rinsing in warm water and you switch entirely to cold, you could save over \$14 a month, based on electric water heating. The vast majority of energy used for washing clothes is to heat the water.
- Choose a washer/dryer with a delayed start feature, so you can do your laundry during off-peak (less expensive) hours.
- Wash full loads. The same amount of energy is needed for a full load as a single item.
- Dry full loads in your dryer, but don't overload because it makes the dryer work longer and wastes energy.
- Use a clothesline to dry your clothes instead of a dryer and reduce your electricity costs.

- Sort clothes into heavy, medium and lightweight loads. The lighter loads will dry faster than mixed loads.

- Before putting heavier, thicker items in the dryer, give them an extra spin in the washer to remove moisture.
- Do consecutive loads to take advantage of the retained heat in the dryer.



- Clean the lint filter after every load because a clogged lint filter can increase energy use by up to 30%.
- Check the dryer vent regularly to ensure there is no debris restricting the air from being exhausted outdoors.
- If you are purchasing a new dryer, look for a model with a temperature sensor that shuts the dryer off when it senses that the clothes are dry.

## DISHWASHERS

- Approximately 5% of household water is used for washing dishes and running dishwashers. Wait until the dishwasher is full before you wash.
- Less energy is used if the drying cycle is eliminated. Look for an energy-saver switch that turns off the heating element allowing the dishes to air dry.
- Choose a dishwasher with a delayed start feature, so you can wash dishes during off-peak (less expensive) hours.
- About 85% of a dishwasher's electricity is used to heat the water so use a short-cycle or econowash feature.
- To ensure the dishwasher is working efficiently, clean the drains and filters on a regular basis.

## WATER HEATER

The water heater is the second largest energy user in your home and accounts for approximately 11% of an average energy bill.

- If purchasing a new water heater, or arranging a rental, look for a highly insulated tank, for natural gas hot water tanks, look for a high efficiency rating
- Wrap the hot water pipes with pipe insulation. It will reduce the conduction of heat through the pipes and allow you to lower the temperature of the tank which results in energy savings.
- Have your tank serviced on a regular basis by a qualified technician to ensure its operating efficiently.
- Installing a special tank jacket over an electric water heater can reduce its electricity use.

## COMPUTERS AND AUDIO VISUAL EQUIPMENT

If you think about all of the audio-visual equipment around your home it's easy to see why the energy consumption by televisions, home theatre systems, sound systems, game players, DVD and Blu-ray machines, computers and printers all have an impact on your overall energy costs.

- The best way to reduce the energy used by the entertainment and computer equipment in your home is to turn them off when they are not in use. But remember that most of the equipment continues to draw power even when switched off because they go into "standby" mode. As much as 20% of the electricity used by electronic equipment is lost while they are sitting in the "standby" mode.
- Your TV, DVD and Blu-ray player, game console, cable/HD/satellite box, and audio system(s) represent approximately 60% of the standby electricity losses in your home.
- In order to save the energy used in the "standby" mode, turn off the source of the electricity that powers the unit, unless retaining a memory, timer or clock is important. Keep the on-off switches to power bars accessible so the equipment can be shut off when not in use. Or you can install on-off timers.
- Laptop computers use substantially less energy than standard desktop computers.
- Turn both your computer and monitor off when not in use. The screen-saver doesn't save energy. It's estimated that a continuously running computer and monitor could cost approximately \$250 per year.
- If you don't want to turn your computer off then make sure the "sleep" mode is enabled which cuts energy use to less than half. Be sure to at least shut off the monitor because it uses 60% of the power used by a computer!
- Size does matter - the bigger the monitor, the more energy it consumes.

# TIP

Many electronic devices left plugged in, even when turned off, still draw power. This is known as "phantom power" (or standby power) and it can account for up to 15% of the device's energy while turned off.



## IN AND AROUND THE HOUSE

There are many more ways (in addition to what has already been mentioned) to make the most efficient use of energy both inside and outside your home. Here are some of the most effective ones:

- Have a home energy audit done by a licensed energy auditor which will provide you with a detailed action plan and related costs to help make your home as energy efficient as possible.
- Plant trees. Mature deciduous trees (leafy ones) on the south and west side of your home will help lower the temperature during the summer months. Use coniferous trees (ones without leaves) on the north and east sides to protect your home from winter's cold winds.
- Only use energy efficient-rated appliances, electronics and tools. Where possible look for the ENERGY STAR® label.
- Install lights with motion sensors at the front and back of the house for security and so the outside lights will only go on when required.
- Consider installing an on-demand hot water heater
- Use solar power for outside lighting needs, including ponds and fountains, sidewalks and patios, and storage sheds. Consider installing solar panels to help offset lighting and heating costs inside your home.
- Make sure all exterior walls, ceilings and attics are insulated to meet or exceed government standards. There are a number of different types of insulation available on the market, including batt, blown, and spray foam. Each offers unique benefits, so shop around for the solution that best fits your needs.
- If you can afford it, upgrade the windows in your home with ENERGY STAR® high-efficiency windows.
- In the summer, keep your curtains closed to block the summer heat out. In the winter, open them on sunny days to take advantage of solar heat.
- Have your furnace and central air conditioner serviced by a qualified technician every year to ensure it's working efficiently.
- Fireplaces and wood burning stoves can reduce your home heating costs, but care must be taken to ensure they are installed and used properly. Ensure that your fireplace or wood stove, when not in use, isn't allowing a draft into the house. Even a closed damper lets a small amount of air into the house, so you may want to consider inserts or glass doors. Don't burn green, wet, pressure-treated, or painted wood, or particleboard, plywood or cardboard.
- If you have a pool and/or hot tub, install a timer so the pump runs only during off-peak hours. Use a combination of a solar heat and solar blanket to keep the water warm.
- Recommended indoor heating temperatures are 20°C (68°F) during the day and 18°C (64°F) at night. For cooling, they are 25°C (77°F) during the day and 23°C (73°F) at night.



## APARTMENT / TOWNHOUSE / CONDOMINIUM

If you rent or lease your living space, you may be responsible for the utility costs. If so, many of the tips throughout this booklet will be helpful in reducing your monthly expenses. Even if utility costs are included in your rent, doing whatever you can to save energy is good for the environment and helps lower your property owner's overall costs, which ultimately impacts on the rental rates charged. Talk to your fellow tenants and the property manager about how everyone can work together to reap the benefits of energy conservation.

Here are some tips to keep in mind:

- Turn off lights when not in use and replace incandescent light bulbs with compact fluorescents.
- Make sure there are good curtains and shades on the windows that can be used to reduce or block sunlight and heat during the summer, and keep the heat in during the winter.
- If your apartment or townhouse has a thermostat that allows you to control the heat in your unit, it provides a great opportunity to conserve energy. Consider talking to the property manager about installing a programmable thermostat. If the type of heating in your unit leaves the air very dry, use a humidifier because properly humidified air feels warmer and allows you to turn your thermostat down.
- If your unit has radiators, keep them clean because dirt and dust absorb heat. Radiator covers should be removed when radiators are in use because the covers absorb heat and block the flow of air through the radiator.
- Check the windows and the outside door to your unit to make sure they're draft proofed. If the windows are not properly weatherproofed, talk to the property manager to see if you can work together on a solution that saves energy and reduces heating and cooling costs.
- Window and wall mounted air conditioners, if not properly sealed, let in outdoor air during the winter. If you can't remove the unit and close the window, use an outdoor air conditioner cover. If you can't safely reach the outside of your unit, use an indoor cover. During the summer, use a fan instead of an air conditioner whenever possible.
- A kitchen exhaust fan allows warm air to escape, so if your unit has one, use a cover when the exhaust is not in use.
- It may be difficult to do if you live in a small unit, but if possible arrange the furniture so that it's not blocking or obstructing heat vents, radiators, or baseboard heaters. If forced air enters your apartment through a register that has to be under a piece of furniture because of space restrictions or required layout, attach an air deflector to the vent to direct the air where you need it.
- If you are renting, paying for utilities, and don't own the appliances, check how old they are. Older stoves and refrigerators can use up to twice the power of newer, energy-efficient models. Talk to the property manager to see if newer appliances can be installed.

## AT WORK

Does your place of work have someone who is responsible for energy conservation? Is there an energy conservation team or committee? If not, suggest it and perhaps volunteer to help out. Offices, industries and businesses require a lot of energy to operate and it's important that everyone, no matter what position they hold, do their part to conserve energy, particularly during periods of peak demand. Here are some general tips for the workplace:

- Take public transit or car pool to work.
- Whenever possible, use the stairs instead of the elevator. You would be doing your part to save energy and exercising at the same time!
- Turn off the lights when an area is no longer in use, such as a meeting room. Turn off all unnecessary lights when you leave for the day.
- Unless they are required to stay on, turn off office equipment such as computers, monitors, printers and fax machines when not in use and during weekends. Make sure the "sleep" mode is enabled on computer monitors so they will power down when not used for a pre-set period of time.  
*Remember:* the screen saver does not save energy.
- If you are involved or have any input into purchasing new equipment, encourage purchases of ENERGY STAR® rated equipment.
- Many businesses still use a lot of paper unnecessarily, so a lot of energy can be saved if everyone prints what's only required. Use recycled paper. Print double-sided whenever possible.
- Recycle whatever you can. If there's no recycling container in your work area or office, the copy room, cafeteria or break rooms, ask for one. If your workplace doesn't have a recycling program, suggest it and perhaps volunteer to get it started.
- Make sure the coffee machines are turned off at the end of the workday. Get your own mug, plate and utensils and re-use them instead of using disposable cups and plastic knives, forks and spoons.



## WHILE ON VACATION

It's holiday time and while it's nice to get away, it would also be nice to be able to save some money on the energy bill when no one is home. Here are some tips to help you reduce energy use when you are going to be away from home for an extended period of time:

- The refrigerator is the largest user of electricity in both vacant and occupied homes. If you have a second, older refrigerator you should consider getting rid of it because it could be costing as much as \$10 a month to run. If not, empty and unplug it while you're away.
- Use timers on various lights, set to different on/off times, for both security and to avoid leaving lights on around the clock. If an internal light must be kept on all the time while you are away, use a compact fluorescent or LED bulb. Install motion sensors at the front and rear of your home for security.
- If you're away during the winter, program the thermostat to hold at 16-18°C (60-64°F). In the summer, turn off the air conditioner or set it at 28°C (82°F)
- Check the instructions for your water heater because some units have a "vacation" setting.
- All of the electronics and appliances in your home (e.g. TV, DVD player, computer, coffee maker, battery charger) draw a small, constant amount of electricity, even when they are turned off. Unplug as many as you can.
- If you have a pool or a hot tub, make sure they are covered and there are timers on the pumps.
- While away on vacation, don't forget to take your energy conservation habits with you. If everyone does their part, no matter where they are, it all adds up.

## WATER CONSERVATION

Conserving electricity is very important, but reducing your water use is also a good way to do your part for the environment. If you properly manage your water use it will help lower your overall household costs.

- Check every faucet carefully to make sure it is not leaking. A dripping faucet could leak as much as 100 litres of water over a 24 hour period, or 3,000 litres a month. It's been estimated that one leaky tap could waste enough water in one year to fill two swimming pools!
- Check for leaks in your toilet tank. Put some food colouring in the tank. If, without flushing, colour appears in the bowl, you have a leak that should be repaired immediately. A silent toilet leak can waste up to 45L/hr.
- The toilet uses a lot of water. Using a low-flow, 6 litre per flush model, a family of four can save up to 80,000 litres of water a year, which is a 20% reduction in household consumption. There are high efficiency models that will save even more. If you can't afford a new toilet, a toilet dam or water displacement device will help reduce the amount of water used with each flush.
- Use an aerator and/or a water-flow reducer in your sink faucet.
- When hand washing the dishes, or vegetables, don't run the water continuously. Wash in a partially filled sink and then rinse under the tap or use the spray attachment.

- Keep a jug or bottle of drinking water in the fridge instead of running the tap until the water gets cold.
- Install low-flow showerheads and reduce your shower time. If you shorten your shower time from 10 to 5 minutes or less while using a low-flow showerhead, you could save as much as 40 litres of water each time you shower.
- When washing, shaving or brushing your teeth, don't run the water continuously.
- Rain barrels can be used to collect and store rainwater from your rooftop, which can be used later for watering plants and gardens.
- Reduce the use of the sink garbage disposal because it consumes hundreds of litres of water a week to send matter down the drain. Compost as much kitchen waste as possible, either by putting it in a backyard compost unit or by putting it out for organic collection, if available in your area.
- Washing machines use anywhere between 100 to 200 litres of water per load. Always use the washing machine at full capacity. If your machine has a "suds-saver" feature, use it because it reuses the clean rinse for the next load.
- Dishwashers use large volumes of water, about 60 litres of water per load, so always operate the dishwasher at full capacity or set the water level to match the size of the load.

## Kid Power!

Teach your kids about saving energy at <http://oee.nrcan.gc.ca/calendar-club/activity/17105> or visit Eco Kids at [www.ecokids.ca](http://www.ecokids.ca)

## NATURAL GAS CONSERVATION

There are many ways to reduce the amount of natural gas you use. In most cases, the ways you would reduce standard energy use, such as installing a programmable thermostat, eliminating air leaks and installing insulation will reduce natural gas as well. Here are a few more ways you can save:

- Consider replacing your old gas furnace and hot water tank with an ENERGY STAR® rated one.
- Your furnace needs to 'breathe'. Keep the door open to the furnace room and make sure walls, boxes and other objects are well away from the furnace so that airflow is not restricted.
- Turn down the temperature on your water heater. The ideal temperature for your water heater is 54°C.
- If you have a wood burning fireplace, close the damper when the fireplace is not being used.
- Wrap heating and cooling ducts with duct wrap.
- Make sure your thermostat is in a "neutral" location away from drafts or direct sunlight.
- Turn down the heat! Try setting the thermostat to 20°C during the day and 18°C at night.
- Keep vents and air returns free from obstructions. Furniture, dust and pet hair will reduce airflow and the effectiveness of your furnace.

# TIP

Change your furnace's air filter every 2-3 months in order for it to run efficiently



# EARNING YOUR ENERGY-SAVING DEGREE: THE ADVANCED ENVIRONMENTALIST

## ALTERNATIVE ENERGY

Why not use a natural source to help reduce your energy use? As the options for alternative ways to power and heat homes grows in popularity, so too does the amount of information, research and products available to consumers who are considering using the technology.

## SOLAR

There is a wide variety of solar-powered products on the market for use in and around the house. Solar lights can be used along driveways, sidewalks and gardens. They will light up the patio area and the backyard shed. You can also use a combination of a solar heater and a solar blanket to keep the water in the swimming pool warm. In addition, solar power can be used to pre-heat your home's hot water.

## GEO-THERMAL HEATING

Geo-thermal heating allows you to heat and cool your home from an energy source you already own: your own land or water. It's a efficient, cost effective and environmentally-friendly way to control your temperature year-round and reduce energy use.

## GET ON YOUR BIKE

Try leaving your car in the driveway for just one trip a week. Walking or taking your bike is a fast, easy way to get around town – and it's good for you, too. You'll also save a lot on gas and auto maintenance.

## LAWNS AND GARDENS

One of the key ways we can do our part to help the environment and reduce energy use is how we care for our lawns and gardens:

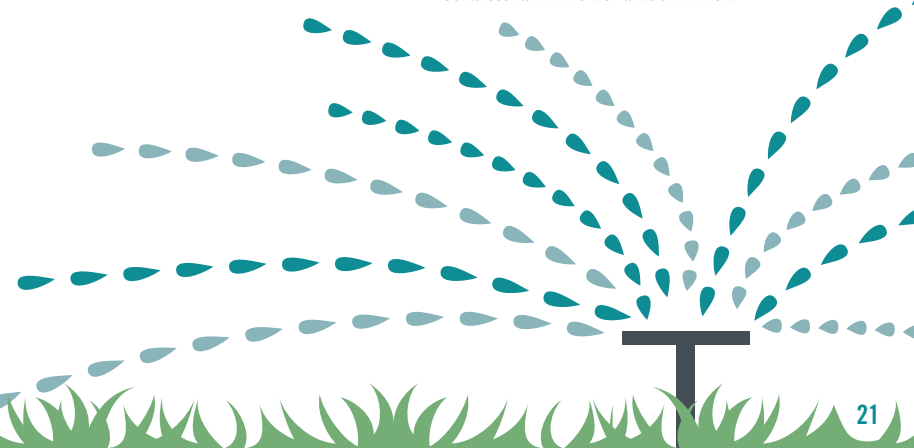
- Avoid watering your lawn. Using potable water for this purpose is an enormous waste. If you absolutely must water your lawn, do it in the early morning. Watering during the day is very ineffective since almost all of the water will simply evaporate before entering the lawn. Watering in the evening is slightly better than during the day, however, the grass blades get most of the water, instead of the soil.
- Use a low-flow nozzle on your garden hose.
- If you're doing some landscaping, use drought-tolerant plants, flowers and mulch to hold in moisture. If you cover your garden soil with mulch, such as woodchips, you will prevent the majority of the moisture being lost to evaporation.
- Use the material from a backyard composter on lawns and in the garden.

Many municipalities offer free compost.

## TIP

Get a rain barrel made of recycled plastic and place it under the eaves-trough or downspout to collect rainwater for use in the garden

- During the summer, your lawn only needs 2.5 cm (1 inch) of water every week. Use a tuna can or rain gauge to measure how much you are receiving.
- Don't cut your grass too short because the roots will have to work harder and you will have to water more frequently. Your lawn will be healthier if the grass is not cut lower than 7 – 8 cms (approximately 3 inches). Leave the grass clippings on the lawn for added nutrients.
- Use organic lawn fertilizers and make sure you follow the manufacturer's directions on how to use. Many experts say organic maintenance involves three tasks: aerating, top dressing and fertilizing.
- Many municipalities have banned the cosmetic use of pesticides. There are organic pest control products available or you can consult with a lawn care specialist who provides organic solutions.
- They're not for everyone, but using one of the new style push mowers to cut your lawn means no gas fume pollution and no electricity use. If not, consider using a cordless lawn mower and trimmer.



## RECYCLING AND COMPOSTING

The three Rs – Reduce, Reuse, Recycle – are more important now than ever before as we all work together to conserve our dwindling natural resources, reduce our demand for energy produced by environmentally harmful technologies, and reduce the amount of waste going into landfills. There is ongoing research into waste conversion technologies, but ultimately not producing waste is the best bet for the environment:

- Support your local waste management program by fully participating in available curbside collection, whether it's blue box, grey box or green bin pickup. You will see a substantial reduction in the amount of garbage you put out every week headed for the landfill. The Region of Niagara will have detailed information on the curbside collection schedule in your area.
- There are special collection days or drop-off locations for items around your home that should not be thrown out with the regular waste and must be disposed of properly. This includes tires and car batteries, household batteries, electronics, paints, chemicals and CFLs.
- Reduce paper usage by signing up for paperless billing.
- Use biodegradable paper bags instead of plastic for your waste.
- When shopping, avoid using plastic bags to carry your purchases home. Ask for paper bags, if available, use a recycled cardboard box, or take along your own re-usable tote. It's been estimated that Canadians take home more than 55 million shopping bags every week!
- Did you know most bathroom waste is considered organic waste? Add a green bin in your bathroom.
- Be aware of your role in producing eWaste. eWaste is the term for the overwhelming amount of TVs, computers, printers, cell phones, entertainment equipment and home appliances that are entering landfills due to continual advancements in technology. Unfortunately, only 27% of eWaste is reused or recycled.
- In general, buy less stuff! Before purchasing an item, ask yourself do you really need it? Can you reuse something you already have? Can you borrow or rent it?



## FOOD

The food we eat, whether at home or away, takes energy to produce and to package, and has a significant impact on the environment. There are things you can do to help lessen that impact.

- A large amount of consumer food packaging is still not being recycled. Don't simply throw a food package into the garbage. Check and see if it can go in the recycling container. While shopping, check the package to ensure it's made from recycled materials.
- Help to keep our oceans healthy by choosing seafood that is green-listed "Best Choice" by Canada's Seafood Guide. Visit [www.seachoice.org](http://www.seachoice.org) for more information.



# TIP

Buy Local! Support Ontario's farmers as much as you can by buying local and organic foods that are in season directly from them or at a local farmer's market.

- Carefully read the label of all packaged food products and the product information charts posted in the store. Learn about where and how the products you normally purchase are made and packaged, or how the fruit or vegetable is grown. Are there healthier or more environmentally friendly choices that fit within your budget?
- Organically grown food is growing in popularity and is now offered at many retail outlets. The Canadian government has an Organic Products Regulation Program to regulate certification in Canada for organic products. Details are available from the Canadian Food Inspection Agency ([www.inspection.gc.ca](http://www.inspection.gc.ca)).

- Many retail outlets have information available to customers on their environmentally friendly products and you can contact local health organizations. There's information on food and food safety, as well as agricultural, environmental and energy reduction farming practices available from Health Canada ([www.hc-sc.gc.ca](http://www.hc-sc.gc.ca)) and the

Ontario Ministry of Agriculture, Food and Rural Affairs ([www.omafra.gov.on.ca](http://www.omafra.gov.on.ca)).



## TRANSPORTATION

It's well documented that our cars and other vehicles burn energy and harm the environment. Getting from one place to another is a necessity for most people, but we can all make a difference if we rethink why and how often we use our car.

- The use of fuel by the transportation we use – cars, trucks, aviation – is a major worldwide contributor of greenhouse gases. It may seem insignificant, but every avoidable trip in a vehicle you make does make a difference.
- Whenever possible walk, ride a bike, use public transit or car-pool.
- Don't leave your vehicle idling for any reason. Idling for more than ten seconds uses more gas than it would take to restart the engine.
- Avoid using the air conditioner while driving. Roll your windows down and you'll save gas – plus it's easier on your engine.
- Keeping the tires on your vehicle properly inflated makes a difference in fuel consumption. Studies done by Transport Canada show that 70% of the tires on the road are under-inflated.
- When shopping for a vehicle, carefully consider the fuel consumption – the cost of gasoline can really add up, year after year.
- Hybrid vehicles are growing in popularity. A hybrid is a vehicle that uses two or more power sources. There is a major effort underway by governments and manufacturers to get more electric vehicles on the road and at affordable prices.



# ELECTRICAL SAFETY TIPS

## SERIOUS TIPS ON STAYING SAFE



It's an unfortunate fact: too many people are injured or killed every year because they use electricity in an unsafe manner, or simply disregard the basic rules of electrical safety. The vast majority of electrical shocks are preventable. It is estimated that human error is the cause of at least 80% of all electrocution deaths in Ontario.

Electricity is safe if you treat it with respect and not become careless about how you use it.

Here are a few important tips to remember to keep you and your family safe.

## HERE'S THE BOTTOM LINE

If electricity flows through a human body, it can kill. And it doesn't take much electricity to burn or cause death. In fact, it takes less than the one amp of electricity required to make a 100-watt light bulb glow.

- Electricity always seeks the easiest and the shortest path to the ground. So if you touch an electrical wire, you become part of the electrical circuit resulting in an instant flow of electricity to the ground.
- As you already suspect, electricity travels fast... approximately 300,000 km per second (186,000 miles per second).
- All humans, metals, water and even non-metallic surfaces, like trees, can conduct electricity, and in large amounts. FYI - your body is 70% water, so you are an excellent conductor of electricity.
- You can get electrocuted without even touching a wire. Electricity can arc or "jump" across the space between a power line and a conductor like you, or your ladder. The higher the voltage, the more likely an arc can occur.
- If you had an electrical fire and decided to try and put it out with water, because electricity travels at close to the speed of light, it will travel up the steam of water as if that water was standing still.
- The fuses in your home prevent fires caused by overloaded circuits, but they do not protect you against shock.



## THE BATHROOM

Be very careful after you take a shower or a bath because your bathroom is full of moisture. That makes it an electrical shock hazard when you use an electrical appliance like a hair dryer or an electric shaver. Think before you act.

All outlets in your bathroom should have ground fault circuit interrupters (GFCI). It's common sense, but many people forget that electricity and water are a deadly combination. When you are wet, never touch electric cords, switches or appliances.

## DON'T DO IT YOURSELF!

You decide to do some wiring in your home and you're going to do it yourself. Stop and think about it. It's much safer to have a qualified electrician look at your electrical requirements and make arrangements for an electrical inspection. The law requires that all electrical work be inspected and approved by the Electrical Safety Authority.

## FUSES AND BREAKERS

If your electrical panel uses fuses, always replace the fuse with the one that is the correct amperage. If you substitute with a higher amp fuse, it's a fire hazard.

If you blow a fuse or throw a breaker, make sure that any appliances on that circuit are turned off or unplugged before you change the fuse or reset the breaker. If you have fuses that blow on a regular basis or circuit breakers that trip frequently, it's a sign that you have a potential electrical overload problem that should be investigated.

## EXTENSION CORDS, POWER BARS AND OUTLET EXPANDERS

How many extension cords, power bars and outlet expanders do you have in use at home or at work? They sure come in handy when you don't have enough outlets to plug everything into, or when the outlets are too far away to plug in a floor lamp or your computer equipment. However, they can be a very serious electrical hazard if not used properly.

One of the most important electrical safety steps you can take is stop and think about how many extension cords, power bars and outlet expanders you're using, and how many things are plugged into them, both inside and outside your home. Common sense will tell you whether or not you have created an electrical hazard.

What to keep in mind:

- Never remove the third prong on an extension cord (the round one) no matter how desperate you are to plug something in. That third prong is a grounding wire and is there to provide a ground path to help prevent or minimize shocks. Instead of breaking the third prong off to fit an older electrical outlet, you should replace the outlet.
- Never use an extension cord in place of permanent wiring. They are designed for temporary use only. This includes both inside and outside your home. For example, don't use an extension cord to run power to the pump on your swimming pool.
- Never nail an extension cord to walls or floors because you could puncture the protective insulation, and never put extension cords under carpets, behind radiators or under heavy furniture.
- Do not wind extension cords tightly around any object because they are not designed for that. The stress could cause the wires inside to expose themselves.
- Do not overload extension cords. Any amount of current above the cord's rating could pose a fire hazard. In addition, use an extension cord that is an appropriate length. While it may look much neater, coiling of an extension cord can also pose a fire threat.

## YOUR LADDER

Aluminum ladders, both the step and extension type, are handy tools for both inside and outside your home. They are lightweight, easy to handle and strong.

Tragically, the aluminum ladder is also the number one tool involved in electrocution, both at home and on the job.

What to keep in mind before you use your ladder:

- Metal is an excellent conductor of electricity, so metal ladders are a serious hazard around overhead power lines. In fact, extreme caution is advised no matter what your ladder is made of because even wood ladders have some metal parts. All ladders can conduct electricity if they are dirty or wet.
- Before you even think about using a ladder, take a very careful look around for potential electrical hazards, such as overhead service wires to your home. You should always be at least 3 metres away from a power line. Consider what could happen if your ladder slips.
- When you're planning to trim a tree, clean out the rain gutters, install a satellite dish or paint your home, always remember to look up for overhead power lines before you set up the ladder.
- Plant trees well away from power lines. If you have a tree that has grown into power lines, call Welland Hydro for assistance and never attempt to prune trees around power lines by yourself.



## SIGNS, SIGNS, EVERYWHERE ARE SIGNS

There are a number of danger signs that signal you have a problem that could cause an electrical shock, including flickering lights, feeling a tingle when you touch an electrical appliance, a sizzling sound at wall switches or outlets, a burning smell coming from an appliance or wiring, or a discolouration of wall outlets. An unusually warm or hot electrical outlet may be a sign of unsafe wiring conditions. Unplug any cords to these outlets and have the wiring checked.

## OUTLETS

Avoid those “octopus outlets”. Let’s face it, you know that clusters of wires and plugs mean your electrical system can’t cope with your energy needs and you need to rewire and add circuits. Multiple power cords plugged into a single outlet are both an electrical shock and a fire hazard.

Young children in your home? Install safety plugs in all unused outlets. Doing some wallpapering? Be careful when trimming the new wallpaper around uncovered electrical switches and outlets.

## YOU NEED PROFESSIONAL HELP

Thinking about installing your own satellite dish or antenna? Get a professional to do it. If not, make sure you get someone to help you. Look around very carefully to make sure your dish or antenna will be installed well away from power lines.

Installing a swimming pool or a hot tub? Get a certified electrician to install the wiring for the filter pump and any lighting you require. Make sure all outdoor circuits have ground fault circuit interrupters (GFCI).

Always “Call Before You Dig”. Many power lines are underground, so if you are landscaping, fencing or doing major excavations, call Welland Hydro before you dig. Better to be safe than sorry.

## EXTENSION CORDS AND ELECTRICAL TOOLS

How old are your outdoor extension cords? Check them very carefully for frayed and/or cracked insulation as well as worn plugs.

Using an electric lawn mower, trimmer, or hedge clippers? Do you have the power cord safely out of the way before you hit the “on” switch?

Don't work with power tools during an electrical storm.

**KEEP AWAY**

Stay away from pad mount transformers, the green metal boxes containing the above frayed ground portion of an underground electrical installation. If you see a pad mount transformer that looks damaged or appears to have been tampered with, contact Welland Hydro.

## APPLIANCE AND TOOL SAFETY

- Check to make sure the appliance or tool has the approval seal of a recognized testing laboratory such as CSA or UL.
  - If you feel a tingling sensation when you touch an electrical appliance or a tool, or if there's a burning smell, remove the fuse or throw the breaker, and have the appliance or tool checked by a certified repair person.
  - Never put a metal object in live parts of appliances or outlets, such as using a knife to free a piece of bread stuck in the toaster.
  - Always unplug an appliance that overheats and have it checked by a qualified repairperson.
  - Keep the cords for appliances safely away from ledges because children and pets can pull them down.
  - Make sure your tools are properly grounded or double insulated. The grounded tool must have an approved three-wire cord with a three-prong plug.
  - Never use electrical tools in wet conditions or damp locations.
  - Don't tie the power cords for your electrical tools in tight knots because they can cause short circuits and shocks.
  - Never run cords for appliances or tools under rugs or furniture.
  - Never leave a space heater unattended or leave children or pets alone in a room with a space heater.
  - Use surge protectors for computers, printers and your entertainment systems such as televisions and DVD players.

**TIP**

Always unplug electrical appliances before you clean them

# TIP

Always unplug  
electrical appliances  
before you clean them



CFLs have many eco benefits, including the fact that they last for several years. However, just like batteries, compact fluorescent light bulbs (CFLs) should be disposed of safely as they contain a small amount of mercury. According to Natural Resources Canada (NRCan), the average mercury content in a CFL is about 3 milligrams, which is very little. Compare that to older home thermometers that contained from 500 to 3,000 milligrams. While individual bulbs pose little risk to anyone, if hundreds of thousands of bulbs end up in landfills there can be a devastating impact – so dispose of them safely.

Disposal programs are available in some municipalities and both CFL manufacturers and major Canadian retailers offer recycling options.

If you do accidentally break a CFL, open windows to disperse any vapours, carefully clean up the fragments while wearing gloves or using a damp paper towel, place the fragments in a sealable plastic bag and dispose of properly.



## Season-by-Season

# Energy Conservation Checklist

## SPRING

Spring is a good time to prepare your year-round plan to reduce your energy consumption. The key to a realistic energy savings program is to keep it simple to start: make a list of the easy improvements you can do by yourself at little expense. While you're at it, note the major energy saving jobs that are long term and may require expert help, such as replacing windows.



### SPRING CHECKLIST

- ☐ Walk around the house and look for any winter damage to window caulking and sealing.
- ☐ Hot weather is on the way so make sure your air conditioner is serviced and ready to go.
- ☐ Consider installing ceiling fans to reduce the need to use your air conditioner.
- ☐ Check outdoor lighting fixtures for winter damage. Clean fixture covers and confirm you are using energy efficient bulbs.
- ☐ Install motion sensor lights or programmable timers for outdoor lights.
- ☐ Clean or replace furnace filters.
- ☐ If you have central air conditioning, seal the seams of accessible furnace ducting with duct tape to ensure more cooled air reaches its destination.
- ☐ Vacuum the condenser coils on your refrigerator and freezer.
- ☐ Turn off the power at the panel and vacuum lint from the clothes dryer motor, drum and exhaust hose.

## SUMMER

During periods of hot weather your energy usage climbs substantially, especially if you use air conditioning, a dehumidifier, or have a backyard pool. Appliances, like refrigerators, must work harder to maintain a set temperature during hot weather.



### SUMMER CHECKLIST

- ☐ Use low voltage or solar outdoor lighting for landscaping.
- ☐ The same insulation in your attic that keeps you warm in winter also keeps you cool in summer. Make sure you add attic vents so hot air can escape.
- ☐ Use curtains or blinds to shade windows. You could consider installing awnings.
- ☐ Whenever possible, use the microwave, toaster oven or barbecue instead of the stove.
- ☐ Use a ceiling or portable fan to help circulate cooled air.
- ☐ Put a timer on room air conditioners if there's no one at home during the day.
- ☐ If you have central air conditioning, maintain the temperature between 24°C (74°F) and 26°C (78°F). Install a programmable thermostat. You can set it to turn off the AC when you leave for the day and then turn it back on before you return.
- ☐ Put your swimming pool filter on a timer or turn it off on cooler summer nights.
- ☐ Use a solar blanket to keep swimming pool water warm overnight.
- ☐ Clean or replace furnace filters.

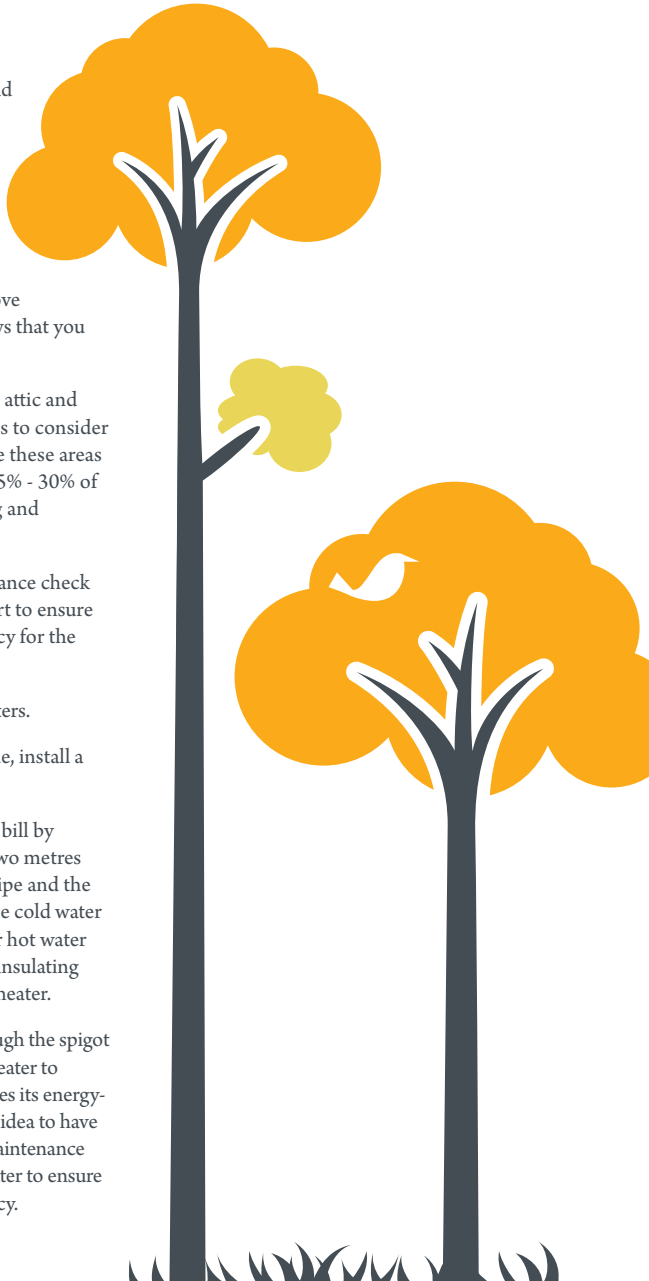


# FALL

Fall is an important time to do all of your preparations, inside and out, for the winter months ahead. When it comes to conserving energy and reducing your energy bill, the work you do in the fall to get ready for the winter may be the most important of the year.

## FALL CHECKLIST

- Caulk or seal drafts around windows, doors, air vents and electrical outlets - they can account for 25% of total annual heating costs.
- If you have mechanical ventilation, you might want to consider using heat-shrink plastic to improve the performance of windows that you are unlikely to open.
- Check your insulation. The attic and basement are the first places to consider for more insulation because these areas can represent as much as 15% - 30% of your home's overall heating and cooling losses.
- Arrange the yearly maintenance check on your furnace by an expert to ensure it's working at peak efficiency for the winter ahead.
- Clean or replace furnace filters.
- If you don't already have one, install a programmable thermostat.
- Save on your water-heating bill by insulating at least the first two metres (six feet) of the hot water pipe and the first metre (three feet) of the cold water pipe that extends from your hot water tank. You can also wrap an insulating blanket around your water heater.
- If possible, drain water through the spigot at the bottom of the water heater to remove sediment that reduces its energy-efficiency. It's always a good idea to have an expert technician do a maintenance check on your hot water heater to ensure it is working at peak efficiency.



# WINTER

As the temperature outside drops, your energy consumption will climb. Once winter weather sets in, the preparations you made during the fall will really start to pay off. There are still lots of things you can do inside to improve your home's energy efficiency.

## WINTER CHECKLIST

- Check for drafts around windows, doors and electrical outlets. Installing an outlet and switch sealer kit will prevent cold air from entering through electric outlets and switches.
- Open your curtains and blinds to let the sun warm the room, and then close them at night to reduce heat loss through windows.
- Temperature levels in your home are a matter of individual choice, but the most commonly recommended settings are 20°C (68°F) during the day, 18°C (64°F) for sleeping and 16°C (61°F) when you are away from home.
- Use a programmable thermostat to automatically adjust the temperature settings.
- Properly humidified air feels warmer and allows you to turn your thermostat down. During the heating season, the relative humidity in your home should be no higher than 30% and no condensation on your windows. In bitter cold weather, the humidity will need to fall below 30% to prevent condensation on windows.
- Replace incandescent light bulbs with compact fluorescent lights.
- Close the heat registers in unused rooms and close the door.
- An uninsulated basement has a high heat loss so adding interior insulation will help improve your home's overall energy efficiency.
- Clean or replace furnace filters.





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