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Choosing and Using Appliances With EnerGuide

Includes ENERGY STAR® qualified appliances

ENERGY STAR
HIGH EFFICIENCY
HAUTE EFFICACITÉ

Canada

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Choosing and Using Appliances With EnerGuide

More and more frequently, smart consumers are taking energy efficiency into consideration when buying new appliances. They have been using EnerGuide for years as a reliable reference for comparing the energy consumption of major electric household appliances and for identifying models that meet the ENERGY STAR® specifications for energy efficiency. By doing this, they are helping reduce the emission of greenhouse gases and air pollution, and lowering the cost of running their homes.

EnerGuide is the official Government of Canada mark associated with the testing, rating and labelling of major electrical appliances, heating and cooling equipment, new homes and vehicles. The EnerGuide label for major appliances and room air conditioners is regulated under Canada's *Energy Efficiency Regulations.* Products that are the most energy efficient in their class are identified with the ENERGY STAR symbol. Both EnerGuide and ENERGY STAR are part of the Government of Canada's ecoENERGY initiatives, administered by Natural Resources Canada's Office of Energy Efficiency.

For more information, **visit the OEE home page** or call 1 800 O-Canada (1-800-622-6232), TTY: 1-800-926-9105 (teletype for the hearing-impaired).

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What is EnerGuide?

EnerGuide rates the energy consumption and efficiency of household appliances, heating and cooling equipment, new homes and vehicles, and makes related information available to the public. Administered by the Office of Energy Efficiency (OEE) of Natural Resources Canada (NRCan), EnerGuide helps Canadian consumers make more energy-efficient choices.

EnerGuide's goals are

- to help conserve energy resources, which helps Canadians enjoy cleaner air and a healthier environment by reducing the emissions of pollutants and greenhouse gases (GHGs) that contribute to climate change
- to help Canadians spend less money on energy

Canada's *Energy Efficiency Regulations* (the Regulations) require that all new major electrical household appliances bear the EnerGuide label. Using the label and this guide will help you to make informed buying decisions by comparing the energy performance of different products. Ask your retailer for EnerGuide information about any new appliance that does not have the label **or search NRCan's online database** for product information.

The environment, EnerGuide and ENERGY STAR®

Many electrical utilities across Canada burn fossil fuels, such as coal, oil and natural gas, to produce energy. Using less electricity lowers the demand for power, and as a result, less fossil fuel is burned to generate electricity. The combustion of fossil fuels by electric utilities releases GHGs such as carbon dioxide and particulates into the atmosphere. These gases contribute to the global problem of climate change and release contaminants that cause air pollution. By choosing energy-efficient products, you help to reduce these emissions. Because major appliances consume up to 14 percent of the energy used in your home, energy efficiency helps you reduce your environmental footprint and saves you a significant amount of money on your energy bills.

The EnerGuide label and guides like this one provide information about the energy efficiency of various products that meet Canada's federal minimum standards for energy efficiency. By virtue of **the Regulations**, Canada has set minimum energy efficiency standards for a range of residential, commercial and industrial products and equipment. At home, household appliances, heating and ventilation equipment, and air conditioners must meet minimum energy efficiency standards. If a regulated product does not meet the minimum Canadian standard, it cannot legally be sold in Canada. Products bearing the EnerGuide label must first meet the minimum energy efficiency requirements.

The ENERGY STAR symbol goes a step further. It identifies the top energy performers in their class. You can expect long-term savings from your ENERGY STAR qualified products because they use less energy than standard products. To become ENERGY STAR qualified, an appliance must not only meet Canada's minimum standards for energy efficiency first, but also meet or exceed higher ENERGY STAR technical specifications. Manufacturers voluntarily place the ENERGY STAR symbol on qualified products after they have been certified as meeting those higher standards.

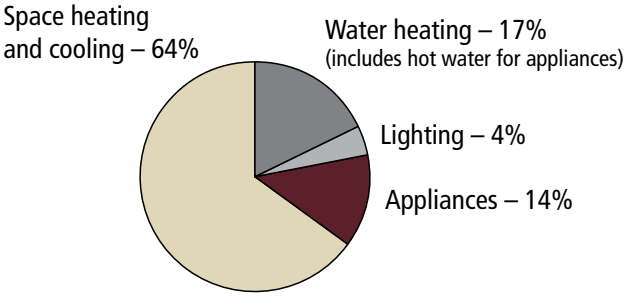
ENERGY STAR qualified products are identified by a star (★) in the **model listings**.

Improvements in appliance energy efficiency

In response to both energy efficiency regulations and the influence of initiatives such as EnerGuide and ENERGY STAR, today's manufacturers strive to increase the energy efficiency of their appliances.

But these improvements are also due to the efforts of consumers like you. By demanding efficient and environmentally friendly choices, you create a market in which manufacturers use technology and innovation to continuously improve energy performance. Innovation has paved the way to improved energy performance; for example, new refrigerators in 2010 used an average of at least 70 percent less energy than models produced in 1990.

Residential energy use



* Based on average household appliance energy consumption in 2008

Average annual energy consumption of new major appliances (in kWh/yr)

	1990	1997	2001	2010
Refrigerators				
(467.3–521.1 L [16.5–18.4 cu. ft.])				
Standard top-mounted	1044	664	572	427
ENERGY STAR qualified	–	–	440	369
Freezers				
Standard chest	658	342	337	295[1]
Cooking appliances				
Ranges (76 cm [30-in.])				
Self-cleaning	727	759	741	530
Non-self-cleaning	786	780	786	499
Dishwashers				
Standard	1026	649	634	310
ENERGY STAR qualified	–	–	534	309
Clothes washers				
Standard (top-loading)	1218	930	905	319
ENERGY STAR qualified	–	–	304	148
Clothes dryers				
Standard	1103	887	916	928

kWh: kilowatt hour L: litre cu. ft.: cubic foot
cm: centimetre in.: inch

Source: National Energy Use Database, NRCan

[1]Freezer data are not as comprehensive as other appliance data, and therefore should be used with caution.

About *Choosing and Using Appliances With EnerGuide*

This guide provides

- links to energy consumption information for thousands of major electrical household appliances
- a method for calculating the operating costs of comparable electrical appliances
- tips for saving energy and money

The OEE maintains an **online database of all appliance models available in Canada** that includes the most up-to-date product information.

The model listings

- identify models that meet Canada's *Energy Efficiency Regulations*
- identify appliances that meet high-performance ENERGY STAR technical specifications
- list only models that manufacturers and distributors indicate as being available for sale in Canada

Except for dehumidifiers, each appliance is sorted by

- capacity or size
- features
- brand name
- model number
- estimated annual electrical energy consumption in kilowatt hours (kWh)

There are many ways of using this guide. Here is a systematic approach that you may find helpful.

First, read the introduction to the section of the product that interests you. There you will find information on appliance types, things to consider when buying, and tips for saving energy and money. This information will help you in the next step.

Next, define your needs. Take into consideration the following:

- Consider how your living situation will change over the years and the anticipated lifetime of the appliance. Will there be little change? Will fewer or more people be depending on the appliance?
- Measure the space available where the appliance will be installed – height, width, depth – and add enough clearance room to allow for air circulation around the appliance.
- Investigate models, dimensions, features and energy savings that best suit your needs by comparing a number of products and visiting manufacturers' and retailers' Internet sites.

Then, with a clearer idea of what meets your needs, **go to the product listings** to

- Browse the relevant section and compare the operating costs of the models you are considering with ones you may have overlooked. ENERGY STAR qualified models are identified by a star (★).
- Calculate the **"second price tag,"** which is an estimate of the cost of the energy that the product consumes over time. Understanding this will help you make a more informed decision.

The EnerGuide label

Canadians are familiar with the EnerGuide label, which has appeared on products for more than 25 years.

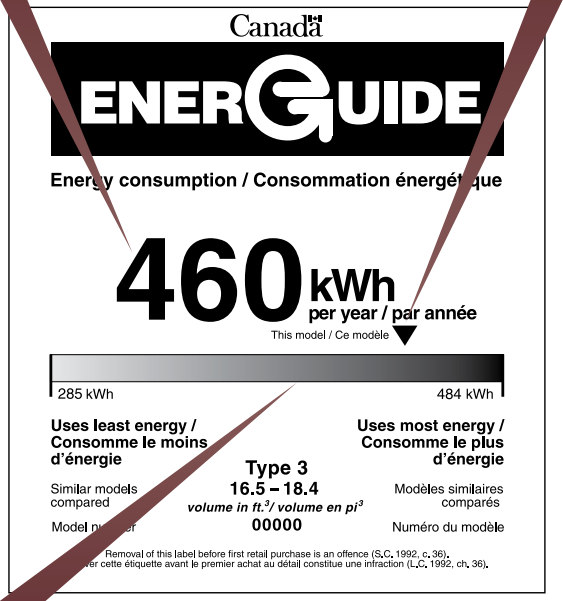
The EnerGuide label is not a "seal of approval." It simply states verified facts about the energy performance of the unit and affirms that the unit meets Canada's minimum energy efficiency standards.

Shoppers and retailers use the information on the label to calculate and compare energy performance. Choosing a model on the lower end of the EnerGuide label's energy consumption scale can really add up!

Example of an EnerGuide label

Estimated annual energy consumption in kilowatt hours per year.

Where the unit stands compared with similar models in terms of energy consumption. When the arrowhead is near the *left* end, the model is among the *most* energy-efficient.



Energy consumption range of comparable models with lowest consumption on the left and highest on the right.

What is a kilowatt hour?

The power utility measures electrical consumption in kilowatt hours. One kilowatt hour is the amount of electrical energy supplied by one kilowatt over a one-hour period. For example, a 100-W light bulb over 10 hours uses 100 × 10 = 1000 Wh, or 1 kWh. A three-minute hot shower also uses about 1 kWh of energy.

Using energy-efficient appliances saves kilowatt hours:

- Saving 50 kWh is enough to run your dishwasher 35 times.
- Saving 100 kWh is enough to give you four free loads of laundry a week for a year!

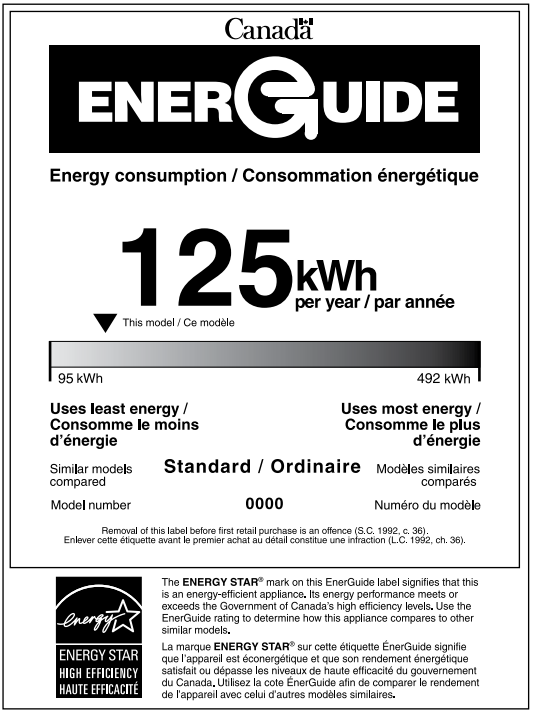
Canada's Regulations require that the EnerGuide label appear on all new major electrical household appliances, except for dehumidifiers, until their first retail sale. They also require that all appliances be verified using standardized test procedures by a third-party verification agency approved by the Standards Council of Canada to ensure that they meet Canada's minimum energy efficiency standards.

If a new appliance does not have an EnerGuide label, ask your retailer for EnerGuide information.

The EnerGuide label with the ENERGY STAR symbol

The ENERGY STAR symbol and information may be incorporated into an EnerGuide label and identify appliances that meet ENERGY STAR technical specifications and are therefore among the most energy-efficient performers.

Example of an EnerGuide label with the ENERGY STAR symbol



ENERGY STAR

ENERGY STAR
HIGH EFFICIENCY
HAUTE EFFICACITÉ

The ENERGY STAR symbol is an international mark of premium energy efficiency that appears on products that demonstrate they meet strict energy efficiency technical specifications.

The OEE promotes the international ENERGY STAR symbol in Canada and monitors its use. ENERGY STAR specifications in Canada are harmonized with those of **the United States Environmental Protection Agency (EPA)**.

The ENERGY STAR symbol can appear as the bottom part of the EnerGuide label, separately or possibly printed directly on the unit. It also appears in brochures, catalogues, in advertising and on Web sites. Manufacturers are not required to identify ENERGY STAR qualified products; they do it voluntarily.

Find more information on **the ENERGY STAR initiative and up-to-date lists of ENERGY STAR qualified products**.

ENERGY STAR Most Efficient

The ENERGY STAR Most Efficient initiative, piloted by the EPA and NRCan in 2010 and 2011, is now a full-fledged offering in 2013. The ENERGY STAR Most Efficient designation identifies and advances products in the marketplace in a number of categories and recognizes the most efficient products among those that qualify for the ENERGY STAR symbol. These exceptional products represent the leading edge in efficiency, often consuming as little as half the energy of a non-qualified model.

Look for the ENERGY STAR Most Efficient graphic, in stores and on promotional material, to identify these products.

ENERGY STAR specifications

As markets and usage change and as technologies improve, **ENERGY STAR technical specifications** are updated. ENERGY STAR Most Efficient specifications are reviewed, and if required, revised annually.

The "second price tag"

Calculating lifetime operating costs

The first price tag is familiar. It is the sticker price – the amount you pay for an appliance. The second price tag is equally important. It is the operating cost – the amount you pay to the power company to operate an appliance.

Here is an easy way to calculate the second price tag

Multiply the estimated annual energy consumption – the large kWh per year number on the EnerGuide label – by the cost of electricity per kWh (see the rate on your utility bill).

The result of this calculation is an estimate of how much it will cost you to operate the appliance for one year.

EnerGuide rating (kWh/yr) × **local electricity cost** ($/kWh)

= ANNUAL ELECTRICITY COST

Now multiply this annual electricity cost by the estimated life expectancy of the appliance, as noted in the table below, to calculate the estimated total operating cost.

annual electricity cost ($/yr) × **appliance life** (yr)

= LIFETIME ELECTRICITY COST

This method should be used for comparison only. It is not accurate for estimating the actual cost because it does not take into account the rise in energy prices over the lifetime of the appliance, nor other variables, such as changes in the way you use the appliance.

Life expectancies of major appliances (in years)

Source: *Appliance Magazine*, July 2012

Second price tag savings: a comparison

Let's use the EnerGuide label to compare two standard clothes washers.

Model X, with the most efficient energy consumption rating, uses 95 kWh/yr.

Model Y, with the least efficient energy consumption rating, uses 492 kWh/yr.

Model X uses at least five times less electricity than model Y. What does this mean in actual dollars when the average electricity cost is 10 cents/kWh?

Model X	**Model Y**
Annual electricity cost calculation: 95 kWh	Annual electricity cost calculation: 492 kWh
×	×
$0.10/kWh	$0.10/kWh
= $9.50	**= $49.20**
Lifetime electricity cost calculation: $9.50	Lifetime electricity cost calculation: $49.20
×	×
life expectancy (11 years)	life expectancy (11 years)
= $104	**= $541**

Subtract the cost of Model X to calculate the difference:
$541 – $104 = $437

If you purchased Model X instead of Model Y, you would save at least $437 in lifetime operating costs. This is a low estimate; the $0.10/kWh energy rate will rise over the years and the differences between models will increase. Clearly, your most economical choice is also energy-wise and environmentally sound.

Appliance recycling

Be sure to choose an environmentally friendly method of disposing of your old appliances. Many municipalities have recycling programs that include pickup; call or visit your municipality's Web site to find out what programs exist in your area.

Ask if CFCs (chlorofluorocarbons) and switches are removed before appliances are crushed for recycling. CFCs are the gases that cool refrigerators and freezers. If not recovered properly, CFCs will escape and damage the atmosphere's ozone layer.

Model listings, buying guide and tips for saving energy and money

This section provides information on each category of appliance, including product types and their energy consumption, things to consider when buying an appliance, and tips to save energy and money.

The OEE online database includes the latest product information for all appliance models available in Canada.

A note on model numbers

An asterisk (*) at the end of a model number represents a variable feature such as colour, which does not affect energy consumption. For example, if models 1234AG and 1234BG have the same features and EnerGuide ratings, these models may be listed as 1234** or 1234*.

The number/pound sign (#) and the plus sign (+) appear in some model numbers as part of the manufacturer's code. The pound sign and plus sign have no significance in terms of a product's energy consumption rating.

Refrigerators

Average annual energy consumption of new refrigerators (in kWh/yr)

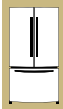
467.3–521.1 L (16.5–18.4 cu. ft.)	1990	1997	2001	2010
Standard top-mounted	1044	664	572	427
ENERGY STAR qualified	–	–	440	369

Today's refrigerators are much better energy performers than older models. Superior design, more efficient compressors, and better insulation and door seals have all helped to improve energy efficiency.

ENERGY STAR qualified refrigerators

The most energy-efficient refrigerators are ENERGY STAR qualified – as indicated by a star (★) in the model listings. ENERGY STAR qualified residential refrigerators are available in every size and type.

The energy efficiency of standard and compact refrigerators has to exceed Canada's minimum regulated standard by 20 percent or more to be qualified.



Refrigerator types

EnerGuide categorizes refrigerators as standard without automatic defrost, standard with automatic defrost, compact, wine chillers with manual defrost, and wine chillers with automatic defrost.

Refrigerators without automatic defrost

Includes standard-size refrigerators and refrigerator-freezers without automatic defrost (Types 1 and 2 on the EnerGuide label)

Refrigerators with automatic defrost

Includes standard-size refrigerators, refrigerator-freezers and all-refrigerators (with no freezer) with automatic defrost (Types 3 to 7 on the EnerGuide label)

Compact refrigerators

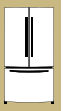
Includes refrigerators and refrigerator-freezers (Types 11 to 15 on the EnerGuide label) with total refrigerated volumes of less than 219.5 litres (L) (7.75 cubic feet [cu. ft.]) and overall heights of less than 91.4 centimetres (cm) (36 inches [in.])

Wine chillers with manual defrost

Includes wine chillers with manual defrost (Type 19 on the EnerGuide label)

Wine chillers with automatic defrost

Includes wine chillers with automatic defrost (Type 20 on the EnerGuide label)



EnerGuide label refrigerator types

Refrigerators without automatic defrost

Type 1 Refrigerators and refrigerator-freezers with semi-automatic or manual defrost

Type 2 Refrigerator-freezers with partial automatic defrost (a system in which only the refrigerator portion of the appliance defrosts automatically and the freezer compartment must be defrosted manually)

Refrigerators with automatic defrost

Type 3 Refrigerator-freezers with automatic defrost, with top-mounted freezer, without through-the-door ice service and all-refrigerators (with no freezer) with automatic defrost

Type 4 Refrigerator-freezers with automatic defrost, with side-mounted freezer, without through-the-door ice service

Type 5 Refrigerator-freezers with automatic defrost, with bottom-mounted freezer, without through-the-door ice service

Type 5A Refrigerator-freezers with automatic defrost, with bottom-mounted freezer, with through-the-door ice service

Type 6 Refrigerator-freezers with automatic defrost, with top-mounted freezer, with through-the-door ice service

Type 7 Refrigerator-freezers with automatic defrost, with side-mounted freezer, with through-the-door ice service

Refrigerators – compact

Type 11 Compact refrigerators and refrigerator-freezers with semiautomatic or manual defrost

Type 12 Compact refrigerators and refrigerator-freezers with partial automatic defrost

Type 13 Compact refrigerator-freezers with automatic defrost and top-mounted freezer and compact all-refrigerators (with no freezer) with automatic defrost

Type 14 Compact refrigerator-freezers with automatic defrost and side-mounted freezer

Type 15 Compact refrigerator-freezers with automatic defrost and bottom-mounted freezer

Wine chillers

Type 19 Wine chillers with manual defrost

Type 20 Wine chillers with automatic defrost

Buying considerations

- Top-freezer models are more energy-efficient than side-by-side or bottom-freezer models.
- Automatic icemakers and through-the-door or internal water dispensers use more energy.

Saving energy and money

- Be sure to read the owner's manual. It includes helpful hints on how to operate refrigerators at optimum efficiency.
- Position the refrigerator at least 5 to 7 cm (2 to 3 in.) from the wall so air can move freely around it. Refrigerator motors and compressors generate heat, which requires sufficient space around your refrigerator for continuous airflow. If heat cannot escape, the refrigerator's cooling system has to work extra hard and uses more energy.
- Clean the condenser coils regularly so air can circulate. When dust and pet hair build up on a refrigerator's coils, air does not circulate freely so the motor works harder and uses more electricity.
- Position refrigerators away from heat sources such as ovens, dishwashers, direct sunlight and heating vents.
- Set your refrigerator's temperature between 1.7° and 3.3°C (35° and 38°F) and the freezer at –18°C (0°F) for maximum efficiency and food safety.
- Do not hold the door open longer than necessary.
- Do not place warm food or containers in the refrigerator; wait until they cool.
- A full refrigerator is a fine thing, but do not overfill it. Restricted air circulation inside reduces energy efficiency.
- Make sure the door seals are clean and tight. They should hold a slip of paper snugly. If the paper slips out easily, replace the seals. Another way to check the seals is by performing the flashlight test: Place a lit flashlight inside the refrigerator and close the door. If you can see light around the door, the seals need to be replaced. Use the flashlight test for your freezer and oven as well.
- Unplug an older, second refrigerator if you are not using it; it probably uses twice as much energy as your newer one.
- Use municipal pickup and recycling services where available to get rid of old refrigerators. Some jurisdictions have "refrigerator roundup" programs with free pick-up of old, inefficient refrigerators for recycling.

Freezers

Average annual energy consumption of new freezers (in kWh/yr)

	1990	1997	2001	2010
Standard chest	658	342	337	295

Note: Freezer data are not as comprehensive as other appliance data and therefore should be used with caution.

ENERGY STAR qualified freezers

The most energy-efficient freezers are ENERGY STAR qualified – as indicated by a star (★) in the model listings.

To be ENERGY STAR qualified, standard-size freezers must have energy efficiency levels that are 10 percent or more above Canada's minimum regulated standard, and compact freezers must exceed the standard by at least 20 percent.

Freezer types

Freezers come in various standard and compact sizes and with a variety of features, many of which affect energy consumption.

Upright freezers

Includes manual or automatic defrost (Types 8 and 9 on the EnerGuide label)

Chest freezers

Includes standard chest freezers (Types 10 and 10A on the EnerGuide label)

Compact freezers

Includes upright and chest models with manual or automatic defrost (Types 16 to 18 on the EnerGuide label) and compact freezers with freezer compartment volumes of less than 219.5 L (7.75 cu. ft.) and overall heights of less than 91.4 cm (36 in.)

EnerGuide label freezer types

Freezers – upright

Type 8 Upright with manual defrost

Type 9 Upright with automatic defrost

Freezers – chest

Type 10 All chest freezers and all other freezers (not defined as Type 8, Type 9 or Type 10A)

Type 10A All chest freezers with automatic defrost

Freezers – compact

Type 16 Compact upright with manual defrost

Type 17 Compact upright with automatic defrost

Type 18 Compact chest and all other freezers (not defined as Type 16 or Type 17)

Buying considerations

- Chest freezers are generally more energy-efficient than upright models because only a small amount of cold air flows out when you open them. Upright freezers lose more cold air because it flows down and out of the freezer when the door is opened.
- Freezers with automatic defrost use more energy than models with manual defrost.

Saving energy and money

- Be sure to read the owner's manual. It includes helpful hints on how to operate a freezer at optimum efficiency.
- Make sure the door seals are clean and tight. They should hold a slip of paper snugly. If the paper slips out easily, replace the seals. Another way to check the seals is by performing the flashlight test: Place a lit flashlight inside and close the door. If you can see light around the door, the seals need to be replaced. Use the flashlight test for your refrigerator and oven as well.
- Set the freezer temperature at –18°C (0°F) for maximum efficiency and food safety.
- Do not place warm food or containers in the freezer; wait until they cool.
- Position the freezer at least 5 to 7 cm (2 to 3 in.) from the wall so air can move freely around it. Freezer motors and compressors generate heat, which requires sufficient space around your freezer for continuous airflow. If heat cannot escape, the freezer's cooling system has to work extra hard and uses more energy.
- Position a freezer away from heat sources, such as ovens, dishwashers, direct sunlight and heating vents.
- Defrost and clean the food compartment at least once a year.
- Clean the condenser coils regularly so air can circulate. When dust and pet hair build up on the coils, air does not circulate freely so the freezer works harder and uses more electricity.

Cooking appliances
(ranges, ovens and cooktops)

Average annual energy consumption of new ranges (in kWh/yr)

76 cm (30 in.)	1990	1997	2001	2010
Self-cleaning	727	759	741	530
Non-self-cleaning	786	780	786	499

Note: There are no ENERGY STAR specifications for cooking appliances.

Cooking-appliance categories

Ranges

Ranges are categorized as self-cleaning or non-self-cleaning.

Ovens

Ovens are categorized as single or double units. EnerGuide calculates the energy consumption of double ovens as an average of the two units, rather than their total energy use.

Cooktops

CT Conventional top
MT Modular top
SS Solid surface
ST Smooth top
TH Tungsten halogen

Note: The EnerGuide rating for cooking appliances does not include

- modular cooktops with magnetic induction elements
- units made for a 120-volt power supply
- gas-fired cooktops and ovens

Buying considerations

- Look for the lowest EnerGuide rating.
- Convection ovens cook more evenly and quickly and use less energy because a fan moves heat around inside the oven throughout the cooking process.
- Buy an oven with a window so you do not have to open the door to check cooking progress. Every time the door is opened, at least 20 percent of the heat is lost.

Saving energy and money

- Be sure to read the owner's manual. It includes helpful hints on how to operate ranges, cooktops and ovens at optimum efficiency.
- Match pots to the size of the cooking element. The bottom of a pot should just cover the cooking ring. When a pot is too small, energy is lost around the outside.
- Use flat, smooth-bottomed pots that make full contact with the element so that most of the energy goes directly into the pot.
- Use the self-cleaning feature infrequently and only immediately after you use the oven, while it is still hot.
- Make sure the oven door seals are clean and tight. They should hold a slip of paper snugly. If the paper slips out easily, replace the seals. Another way to check the seals is by performing the flashlight test: Cover the oven window with opaque material. Place a lit flashlight inside the oven and close the door. If you can see light around the door, the seals need to be replaced. Use the flashlight test for your refrigerator and freezer as well.
- Lower the heat! A fast boil is no hotter than a slow boil. Once boiling has begun, turn down the heat to the lowest setting needed for the job at hand.
- Minimize conventional oven preheating. Except for breads and pastries, most foods do not need a preheated oven.
- Turn off heating elements before the food is fully cooked – a few minutes, a minute or even just 30 seconds ahead. The heating element, the pot and the latent heat in the food will often finish cooking the food without using more electricity.
- Use lids on pots.
- Use pressure cookers.
- Whenever possible, use the cooktop, toaster oven or microwave oven instead of the larger oven to cook or heat smaller quantities of food.

Dishwashers

Average annual energy consumption of new dishwashers (in kWh/yr)

	1990	1997	2001	2010
Standard	1026	649	634	325
ENERGY STAR qualified	–	–	534	322

The EnerGuide rating for dishwashers is based on 215 loads a year or an average of 4 loads per week. The energy performance rating takes into account the amount of

- energy used by the water heater for an average cycle
- electricity the dishwasher uses in standby mode or while the appliance is idle

Soil-sensing dishwashers are also tested for the average energy used for loads with light, medium or heavy soil.

ENERGY STAR qualified dishwashers

The most energy-efficient dishwashers are ENERGY STAR qualified – as indicated by a star (★) in the model listings.

ENERGY STAR qualified models use about 70 percent less energy than those built in 1990, so replacing an old one can save a lot of water and energy.

ENERGY STAR qualified dishwashers also use 20 to 50 percent less energy and 35 to 60 percent less water than standard models.

To qualify for the ENERGY STAR, standard dishwashers must achieve energy efficiency levels that are at least 17 percent higher than Canada's minimum regulated standard. Compact dishwashers must be at least 15 percent more efficient.

Many ENERGY STAR dishwashers use "smart" sensors that match the wash cycle and the amount of water to the size of each load. They may also have an internal heater to boost the temperature of incoming water.

Dishwasher types

The EnerGuide label classifies dishwashers as built-in (standard and compact) or portable (standard and compact).

Built-in dishwashers

Built-in dishwashers are permanently connected to water and electrical supplies.

Portable dishwashers

Portable dishwashers are not permanently connected to water and electrical supplies and can be moved around.

The terms "standard" and "compact" refer to capacity:

- The capacity of a **standard** dishwasher is equal to or greater than eight place settings and six serving pieces.
- The capacity of a **compact** dishwasher is less than eight place settings and six serving pieces.

Buying considerations

- Match size to your typical use. Compare standard, compact and larger models to minimize under- or over-use.
- Look for "energy-saver," "light" and "short-wash" cycles. More efficient cycles use less water and save energy. A no-heat drying option has also become common.
- Some models have sensors that measure the dirt on dishes and determine how much water is called for. There is no wasted water, no wasted energy.

Saving energy and money

- Read the owner's manual. It includes helpful hints about operating the dishwasher at optimum efficiency.
- Clean the filter regularly.
- Run the dishwasher only when it is full, and use the setting that offers the best wash in the least amount of time. Check the manual to determine the most appropriate settings.
- Select the no-heat drying cycle (also called "air dry").
- There is no need to rinse dishes before putting them in the dishwasher. Rinsing, especially in hot water, wastes energy. Just scrape off the excess food, and let the dishwasher do the job you bought it to do.

Clothes washers

Average annual energy consumption of new clothes washers (in kWh/yr)

	1990	1997	2001	2010
Standard (top-loading)	1218	930	905	319
ENERGY STAR qualified	–	–	304	148

ENERGY STAR qualified clothes washers

The most energy-efficient clothes washers are ENERGY STAR qualified – as indicated by a star (★) in the model listings.

To be ENERGY STAR qualified, clothes washers must be standard size – with a minimum tub capacity of 45 L (1.6 cu. ft.) – and at least 59 percent more efficient than Canada's minimum energy performance standard. There is no ENERGY STAR specification for compact clothes washers.

ENERGY STAR qualified clothes washers must have advanced design features that use less energy and 35 to 50 percent less water than ENERGY STAR qualified washers made before January 1, 2007. Features include a spin cycle that extracts more water from clothes, thus shortening the time needed in a clothes dryer and reducing the energy needed for drying.

Clothes washer types

EnerGuide lists clothes washers as standard or compact. They come in various sizes and configurations and with a selection of features, many of which affect energy consumption.

Standard-size clothes washers

Standard-size clothes washers include top- and front-loading models. Only standard models are ENERGY STAR qualified.

Compact clothes washers

Compact clothes washers include top- and front-loading models with capacities of less than 45 L (1.6 cu. ft.). ENERGY STAR does not qualify compact clothes washers.

Buying considerations

- ENERGY STAR qualified front-loading and top-loading clothes washers use substantially less energy and water. They do not typically have an agitator post in the middle of the tub. Front-loading washers tumble clothes through a small amount of water instead of rubbing clothes against an agitator in a full tub. Advanced top-loading washers flip or spin clothes through a reduced stream of water. They also have high-efficiency motors that spin the drum at high speed to extract even more water in the final spin cycle, which reduces the demand on dryer energy.
- Some washers, including a number of ENERGY STAR qualified models, can be stacked with a dryer on top or installed under a countertop, providing useful space-saving opportunities. This guide does not identify these features, so check the manuals and consult the manufacturers.

Saving energy and money

- Be sure to read the owner's manual. It includes helpful hints on operating the washer at optimum efficiency.
- Do not overload, as overloading can cause mechanical failure and reduce the effectiveness of the spin cycle.
- Go cold! Studies show that clothes rinsed in cold water come out just as clean as those rinsed in warm water. Your water-heating bill will drop considerably.
- When cold water will not do the job, wash in warm, rather than hot water, and rinse in cold water. You will use about 50 percent less energy.
- For ENERGY STAR qualified units, always use High Efficiency detergents. Many are available specifically for cold water washing. Regular detergents can create too many suds, which can lead to soils not being completely rinsed out of both the laundry and the washer.
- Use a minimal amount of detergent, as residue can build up and cause mechanical failure.
- Extra-dirty clothes? Instead of washing twice, use the presoak option.
- If your machine does not have an automatic water-level selector, set the water level to suit the size of each load.
- When possible, install your washer close to the water heater to reduce the amount of heat lost through the pipes. Even when the water heater is nearby, insulate exposed pipes, especially when they are close to cold walls.

Clothes dryers

Average annual energy consumption of new clothes dryers (in kWh/yr)

	1990	1997	2001	2010
Standard	1103	887	916	928

ENERGY STAR qualified clothes dryers

Currently, there is no ENERGY STAR specification for clothes dryers, however ENERGY STAR is currently developing one so that consumers will soon be able to use ENERGY STAR as a criterion in their buying decisions.

Clothes dryer types

Clothes dryers come in various sizes, and size affects energy consumption. The EnerGuide label categorizes clothes dryers as either standard or compact.

Standard clothes dryers

Standard clothes dryers include all standard-size front-loading models.

Compact clothes dryers

Compact clothes dryers include both 120- and 240-volt (V) models with capacities of less than 125 L (4.4 cu. ft.).

Buying considerations

- Many dryers have sensors that shut the dryer off when the clothes are dry. This saves both energy and wear and tear on clothes.
- One secret of getting the most out of your dryer is in the washer. The spin cycle takes less energy than the dryer to remove the same amount of water from clothes. Buy an ENERGY STAR qualified clothes washer that does an exceptional job of spin drying. Clothes will be drier as you take them out of the washer, thereby reducing the time they need in the dryer.

Saving energy and money

- Be sure to read the owner's manual. It includes helpful hints for operating your dryer at optimum efficiency.
- Do not put dripping wet clothes into your dryer; it will have to work extra hard and extra long and use more energy. Dryers are designed to handle damp, not wet, clothes. Wring out wet clothes or spin them in the washer first.
- Avoid drying partial loads.
- Fill but do not overfill, because too much clothing blocks airflow, lengthens drying time and overworks the machine.
- Sort clothes by thickness before washing. A shirt will dry much faster than a towel, especially if it is partly synthetic. Put thin, quick-drying items in one load and thicker items, such as towels, in another.
- Use the dryer continuously, one load right after another. This way, the dryer remains warm, does not have to re-heat and saves energy.
- Do not run the dryer too long. Over-drying not only uses more electricity but also increases shrinking, wrinkles and wear. Most loads dry in 40 to 60 minutes.
- Watch out for unintentional over-drying. It may mean that the humidity sensors are no longer accurate and the dryer needs servicing.
- To save money and reduce shrinking, use the "cool down" cycle. Here, the heat is off for the last few minutes and drying continues as unheated air is blown through tumbling clothes.
- Clean the lint screen before or after each load. A full screen can cause your dryer to consume up to 30 percent more energy.
- Keep your dryer's outside exhaust vent clean. A clogged vent makes the blower work longer and harder, thereby increasing energy consumption.
- Lint build-up in the exhaust duct and outside vent is a potential fire hazard. Inspect and clean them at least once a year – mark it on your calendar and refer to your owner's manual for guidance.

Combination washer-dryers

Includes

- "stacked" or "over-under" washer-dryers - in which the dryers are built on top of the washers on one frame or are separate and can be placed on top of washers
- "combination" washer-dryers, also referred to as "ventless," "integrated," "all-in-one," "condensed air" and "condensing"

Washer-dryer categories

Washer-dryers are available in various sizes, which affect energy consumption.

Standard washer-dryers

Includes dryer components with capacities of at least 125 L (4.4 cu. ft.); washer capacities must be at least 45 L (1.6 cu. ft.).

Compact washer-dryers

Includes 120- and 240-V dryer components with capacities of less than 125 L (4.4 cu. ft.); washer capacities are less than 45 L (1.6 cu. ft.).

Standard combination washer-dryers with condensing or gas dryers

Includes standard combination washer-dryers for which there are energy efficiency data only for the washer components. The dryer components of these appliances are either condensing or gas units; therefore, they are not rated under EnerGuide.

Avoid washing partial loads because combination washer-dryers work at peak efficiency when full. For more tips on saving energy and money, see the sections on **clothes washers** and **clothes dryers** above.

For information and tips on operation, refer to the owner's manual.

Dehumidifiers

Dehumidifiers are frequently used in basements to control dampness and in upstairs areas where moisture from everyday activities cannot vent to the outdoors through the house envelope or there is no mechanical ventilation. Cooking, laundry, showers and dishwashing by a family of four can release up to 80 L (2.8 cu. ft.) of water into the air each week, most of which must be removed by dehumidification if it cannot escape through other means.

It is important to find the source of any excess moisture and correct any problems because the resulting mould and mildew may pose health risks and damage the house. A wet basement, for instance, may be evidence of foundation cracks or drainage problems. Windows with excessive condensation may be a symptom of poor ventilation. Renovated and new homes may suffer high humidity problems due to moisture in the building materials. In fact, moisture problems are common in today's well-insulated homes, which trap moisture as they keep in heat.

Portable dehumidifiers are ideal for addressing minor moisture problems but they are not an alternative for proper ventilation, such as air-to-air heat exchangers and heat- and energy-recovery ventilators that are common in modern homes and are standard new-home equipment in some jurisdictions. Talk to an HVAC (heating, ventilating and air-conditioning) specialist to determine what is best for your home.

The model listings include only ENERGY STAR qualified portable plug-in models that can be easily moved to areas of greatest need.

EnerGuide labels are not required for dehumidifiers. ENERGY STAR qualified products, however, will continue to be voluntarily labelled with the ENERGY STAR symbol.

Use the following table when selecting a standard-capacity dehumidifier for residential use.

Area to be dehumidified	Humidity conditions* (moisture accumulation per day) (L)		
	Damp[1]	Wet[2]	Very wet[3]
46 m^2 (500 sq. ft.)	6	7	8
93 m^2 (1000 sq. ft.)	8	9	11
139 m^2 (1500 sq. ft.)	10	12	14
186 m^2 (2000 sq. ft.)	12	15	18
232 m^2 (2500 sq. ft.)	15	18	21
279 m^2 (3000 sq. ft.)	18	22	24

[1] Damp – An area that feels damp and where a musty odour prevails, especially in humid weather. Damp spots may appear on the walls and floor.

[2] Wet – The space feels and smells wet, walls or floor sweat, or seepage is present.

[3] Very wet – Walls sweat, and the floor is almost always wet.

*If capacity is not measured in metric units, remember that two pints are equivalent to approximately 1 L.

ENERGY STAR qualified dehumidifiers

A dehumidifier energy factor (EF) is related to the water removal capacity of the unit. The higher the EF, the more energy-efficient the unit. To qualify for ENERGY STAR, a dehumidifier must have an EF of 1.20 to 2.50, depending on its water removal capacity.

As of October 1, 2012, the performance criteria for ENERGY STAR qualified dehumidifiers are as follows.

Water removal capacity		Energy factor (L/kWh)
(L/day)	(pints/day)	
<35.5	<75	≤ 1.85
35.5 to ≤ 87.5	75 to ≤ 185	≤ 2.80

Additional resources

Publications from the Office of Energy Efficiency

The OEE of NRCan offers many publications that will help you understand home heating systems, home and office energy use and transportation efficiency. These publications explain what you can do to reduce energy use and maintenance costs as you increase your comfort and help protect the environment.

To view or order any of these free publications, visit the **OEE's energy publications virtual library**.

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