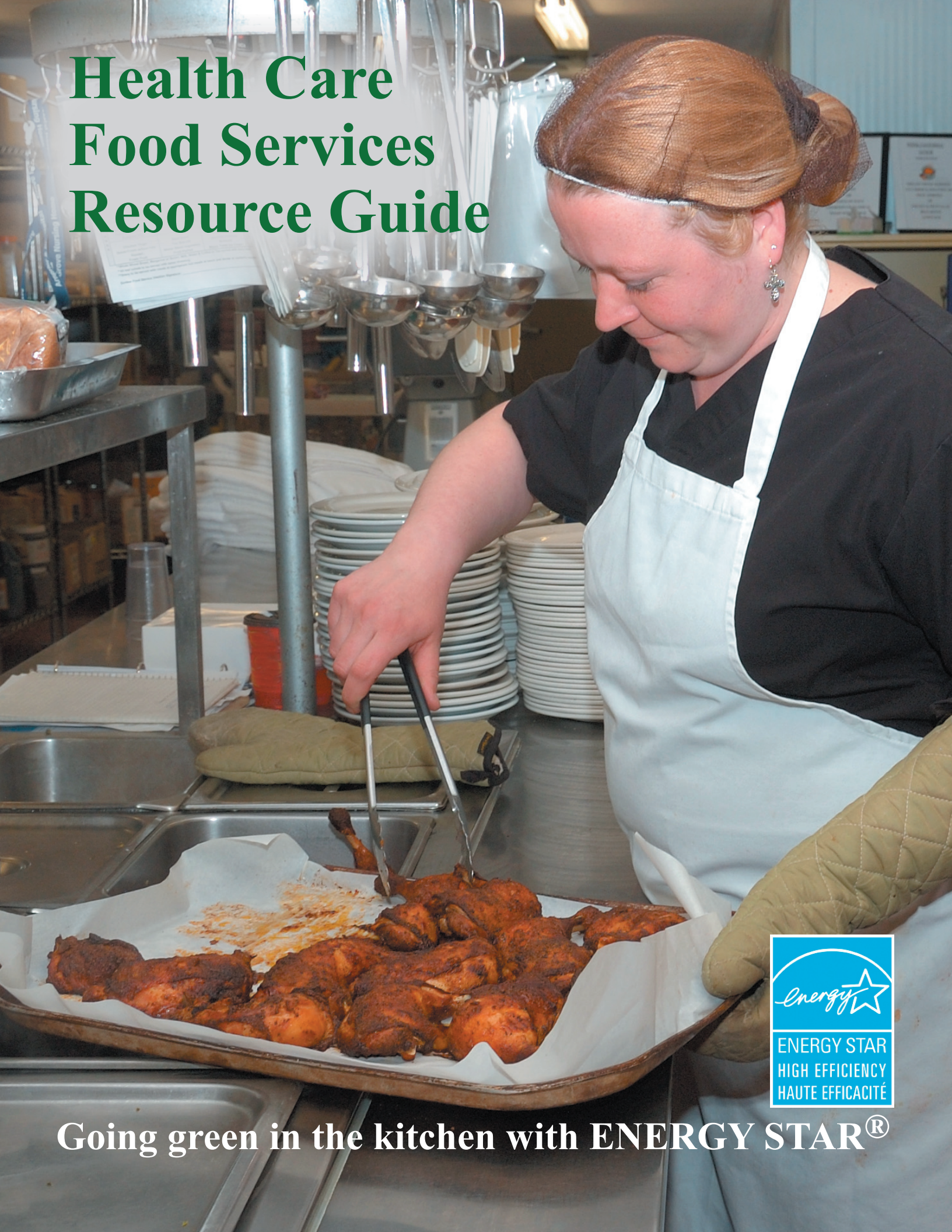


# Health Care Food Services Resource Guide



Going green in the kitchen with ENERGY STAR®

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## Project Team

**My Sustainable Canada** ([www.mysuscan.org](http://www.mysuscan.org)) is a national not-for-profit organization with a mission to advance knowledge and cooperation on sustainable consumption and to build greater understanding and support among decision-makers.

The **Canadian Coalition for Green Health Care** (CCGHC [www.greenhealthcare.ca](http://www.greenhealthcare.ca)) is an alliance of committed Canadian health service organisations, associations and environmentally focused business associates that promotes the adoption of environmentally friendly and sustainable health care service delivery to complement the compassionate delivery of health care.

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Dylan Dingwell (Project Researcher) is the Green Products and Services Researcher for the Canadian Coalition for Green Health Care.

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Kent Waddington (Project Manager) is a founding director of the Canadian Coalition for Green Health Care, editor of the *Canadian Journal of Green Health Care*, and has spent the last thirteen years helping to green Canada's health services landscape.

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## Health Care and Energy Use

Canada's health care facilities consume extremely large quantities of energy. A 2005 Natural Resources Canada report indicates that energy intensity in the hospital sector is the second highest of all the commercial and institutional facilities listed, with energy intensities of 2.83 GJ/m<sup>2</sup>. This high energy intensity represents significant costs to the Canadian health care sector and to taxpayers.

In Ontario, for example, utility costs can represent up to 3% of a hospital's net operating budget. A large downtown urban hospital could easily spend close to \$8 million per year on their utility costs and know that these costs will continue to rise.

Our health care facilities, of which there are over 3,500 in Canada, operate 24 hours a day, 7 days a week, and demand for utilities is constant, resulting in a national health care energy bill that has been estimated to exceed \$1 Billion dollars annually.

When proactive health care organisations embrace environmental responsibility through policies and actions, such as specifying and purchasing ENERGY STAR qualified equipment, they end up enhancing the quality of life for employees, clients, patients and those in the surrounding communities they serve.

In addition to energy and operating cost decreases, there are many secondary and tertiary benefits to environmental responsibility, including a more comfortable workplace, improved employee health and morale, reduced sick days, a stimulated local economy, improved overall facility infrastructure, enhanced employee knowledge and skills, and increased employee awareness.

Beyond looking for the ENERGY STAR symbol when purchasing equipment, a procurement officer should also be informed about and provide to their material manager or client(s) product life-cycle information, and know what types of questions to ask regarding the life-cycle (i.e. energy and water consumption, how the item is manufactured, what the service life is, end-of-life options, and whether the organisation really needs the product in the first place) of the proposed new equipment. It is important to note that ENERGY STAR is not a 'cradle-to-grave' program but this important stewardship concept should also be considered when purchasing new products.

If one is looking for products that feature superior environmental performance in addition to energy efficiency, then the Environmental Choice Program (ECP) with its EcoLogo is an excellent resource.

Founded in 1988 by the Government of Canada but now recognized world-wide, EcoLogo is North America's largest, most respected environmental standard and certification mark which now appears on over 3,000 products and services.

While ENERGY STAR helps buyers identify the most energy-efficient products, ECP is more extensive in its review considering energy efficiency, harmful emissions, recycled content, water use and many other environmental factors. The program also integrates product life-cycle (production, disposal and recycling). Visit them at [www.environmentalchoice.ca](http://www.environmentalchoice.ca).

Another well respected certification program is LEED (Leadership in Energy & Environmental Design). Under LEED, accreditation points can sometimes be awarded for the implementation of energy efficient equipment and lighting. For details visit the Canada Green Building Council at: [www.cagbc.org](http://www.cagbc.org).





The ENERGY STAR name and the ENERGY STAR symbol are registered trademarks of the United States Environmental Protection Agency and are used with permission.

## About this Guide

Calling all environmental champions! If you are a food service manager or director, procurement officer, energy manager or environmental team leader, IT professional, financial officer or a member of your health care facility's green team, this Resource Guide will be of interest to you.

As an ever increasing number of researchers show the inextricable link between the environment and human health, it becomes even more important for our places of health care and healing to do their part for a healthier environment and more sustainable health service delivery.

Buying and promoting ENERGY STAR qualified equipment is a great way to be proactive in helping to reduce greenhouse gas emissions, improve the health of our environment and save energy dollars that are better spent on direct patient care.

Adopting ENERGY STAR purchasing practices makes good financial sense, good environmental sense and is a wise choice for those seeking climate-friendly alternatives in the movement to upgrade Canada's aging health facility infrastructure.

Readers will be introduced to Canada's ENERGY STAR program as administered by Natural Resources Canada's Office of Energy Efficiency and learn about ENERGY STAR options available to them for incorporation into health care kitchens, cafeterias, kitchenettes, and administrative and common areas.

Other topics include:

- » ENERGY STAR Frequently Asked Questions
- » Auditing for ENERGY STAR Potential
- » Eligible ENERGY STAR Qualified Products
- » Making the Business Case for ENERGY STAR
- » The ENERGY STAR Simple Savings Calculator
- » Before You Buy Checklist
- » Sample Procurement Language

We also wanted to share in this ENERGY STAR Resource Guide a number of Environmentally Responsible Food Service Tips to help raise awareness of sustainable food service practices among staff, patients, clients and others.

Learn about  
**ENERGY STAR**  
options in: kitchen,  
cafeteria,  
kitchenettes,  
administrative and  
common areas.

Download a PDF version of this document by visiting the Resources/Publications page at either the Canadian Coalition for Green Health Care ([www.greenhealthcare.ca](http://www.greenhealthcare.ca)) or My Sustainable Canada ([www.mysustainablecanada.org](http://www.mysustainablecanada.org)).

# Introduction to ENERGY STAR

ENERGY STAR is the international symbol of premium energy efficiency and has been adopted by governments throughout the world thanks to international cooperation agreements.

ENERGY STAR in Canada is administered and promoted by Natural Resources Canada's Office of Energy Efficiency which enrolls participants in the program as well as promotes and monitors the use of the ENERGY STAR symbol across Canada.

Only manufacturers whose products pass ENERGY STAR testing are allowed to display the ENERGY STAR symbol.

Typically a product must be among the top 25 percent of all makes and models on the market in terms of energy efficiency to be awarded the ENERGY STAR symbol. A company must prove that at least one of their products meets the ENERGY STAR technical specifications before it can participate in the program.

Those who purchase ENERGY STAR qualified products save money because these products use less energy than conventional alternatives yet offer the same or better performance. From an environmental perspective, improving energy efficiency reduces air emissions that contribute to smog and climate change.

The ENERGY STAR symbol appears on approximately 50 types of products including ceiling fans, compact fluorescent lights, televisions and entertainment equipment, computers and monitors, dishwashers, fax machines, refrigerators and freezers, printers, scanners, air conditioners, and washers and dryers. To learn more visit the following sites:  
<http://oee.nrcan.gc.ca/residential/personal/new-appliances.cfm>

<http://oee.nrcan.gc.ca/residential/business/businesses-organisations.cfm?attr=0>

<http://oee.nrcan.gc.ca/residential/business/energystar/procurement/commercial.cfm?attr=12>

ENERGY STAR has also been adopted by commercial equipment manufacturers and is found on many appliances and products commonly found in health care food service departments and dining areas. These can include, but are not limited to, commercial dishwashers, freezers and refrigerators, electric fryers, hot food holding cabinets, ice machines and water coolers. Some appliances, such as electric and gas-fired commercial steam cookers, also carry the ENERGY STAR symbol.

Look for the ENERGY STAR symbol when making your purchasing decisions.



## Canada's ENERGY STAR<sup>®</sup> Market Transformation Awards

### Celebrating ENERGY STAR Achievements

Canada's ENERGY STAR Market Transformation Awards recognize companies and organizations that have surpassed the competition in offering Canadian consumers the most energy-efficient product, technology or service available on the market.

Winners of Canada's ENERGY STAR Market Transformation Awards gain the recognition and respect of their peers, employees, clients and all Canadians.

They also receive a plaque commemorating their achievements and are featured in OEE marketing materials such as the website and newsletters.

### Are you a Winner in Canada's ENERGY STAR program?

Visit [www.energystar.gc.ca](http://www.energystar.gc.ca) and search "ENERGY STAR Market Transformation Award"



# Frequently Asked Questions

## What is ENERGY STAR?

ENERGY STAR is an international symbol of energy efficiency forming part of a dynamic government and industry partnership aimed at educating buyers about environmentally sound purchasing practices as it relates to consumer and commercial appliances. The ENERGY STAR symbol helps buyers to quickly and easily identify major appliances and other energy-using equipment that save energy, save money and help protect the environment. ENERGY STAR identifies products as the top high efficiency performer in their category.

## What is ENERGY STAR in Canada?

ENERGY STAR in Canada is a voluntary arrangement between Natural Resources Canada's Office of Energy Efficiency and organisations that manufacture, sell or promote products that meet the ENERGY STAR levels of energy performance. The program is administered by Natural Resources Canada's (NRCAN's) Office of Energy Efficiency (OEE).

The ENERGY STAR symbol is on many products sold in Canada including televisions, computers and monitors, refrigerators and freezers, ceiling fans, stoves, fax machines, dishwashers, clothes dryers, and more including many commercial appliances found in the food service and administrative areas of Canada's health care facilities.

## What is the connection between ENERGY STAR and EnerGuide?

EnerGuide provides comparative information on the energy performance of different products, including major household appliances and heating and cooling equipment. Although EnerGuide provides buyers with the ability to compare energy performance ratings for different models, ENERGY STAR goes one step beyond to identify products that meet or exceed

premium levels of energy efficiency. This makes it easier for buyers to choose the most energy-efficient products sold in the Canadian marketplace – they simply need to look for the ENERGY STAR symbol on the product, its packaging or in the product literature.

## Which ENERGY STAR qualified products are labeled and promoted in Canada?

Major appliances, residential heating, cooling and ventilation equipment, office equipment and consumer electronics, windows and doors, lighting and commercial equipment.

## What commercial equipment qualifies under the ENERGY STAR program?

Over two dozen categories of ENERGY STAR qualified equipment are available for commercial uses. They include ceiling fans, compact fluorescent lights (CFLs), commercial dishwashers, commercial freezers, commercial refrigerators, computers, copiers, dishwashers, electric and gas fryers, electric and gas steam cookers, fax machines, freezers, hot food holding cabinets, ice machines, multi-function devices (MFDs), monitors, printers, refrigerator-freezers, non-incandescent residential light fixtures, scanners, telephones including cordless, combination phones and answering machines, vending machines, vent fans and range hoods, and water coolers.

## How do products qualify for the ENERGY STAR mark?

ENERGY STAR qualified products must meet and exceed minimum Canadian federal energy efficiency standards according to a prescribed performance level for each product area. Most products, but not all, that qualify in the U.S. automatically qualify in Canada



## Why should we buy ENERGY STAR qualified products for our food service area?

ENERGY STAR qualified products help lower energy bills and reduce air pollution without sacrificing the features, versatility or style expect from high-performing products. The money you save can be redirected to patient care.

## Where can I find ENERGY STAR qualified products?

ENERGY STAR qualified products are found in retailers' showrooms, product dealers and from commercial food service equipment suppliers across Canada. Look for the ENERGY STAR symbol on product packaging, literature, product advertising and, of course, on the products themselves – in some cases, you may also find it on the EnerGuide label. If you do see the symbol, ask your salesperson for details.

## Who manufactures ENERGY STAR qualified products?

ENERGY STAR qualified products are made by many major manufacturers and can be purchased from retailers and dealers across Canada. The OEE website lists the manufacturers and retailers that have joined the ENERGY STAR initiative in Canada.

A full listing of current Canadian ENERGY STAR qualified products can be found at:  
<http://oee.nrcan.gc.ca/residential/business/manufacturers/qualified-products.cfm?attr=12>

**Do ENERGY STAR qualified products cost more?**  
Prices of products vary, but the ENERGY STAR label does not make the product more costly. Ultimately you will save money on utility bills over the long term. To encourage the purchase of ENERGY STAR qualified products, some retailers or utilities may offer incentives.

**How much money will I save by using ENERGY STAR qualified products?**

Savings will vary but you can use the simple energy cost calculator located on the ENERGY STAR website to determine what energy and cost savings you can expect. Refer to ENERGY STAR Simple Savings Calculator on page 17.

**What makes ENERGY STAR qualified products better?**

In addition to costing less to operate, ENERGY STAR qualified products are better from an environmental perspective. They use less energy to do the same job as non-ENERGY STAR qualified products, thereby creating fewer greenhouse gas emissions - the major cause of climate change. They also help reduce other pollutants that contribute to problems such as urban smog and acid rain.

**Do manufacturers have to pay to use the ENERGY STAR label?**

Manufacturer must pay for the costs of demonstrating that their product meets ENERGY STAR specifications. Many products are regulated under Canada's Energy Efficiency Regulations and they must exceed the minimum performance standard set out in the Regulations to qualify for ENERGY STAR. Products not covered by the Regulations must achieve similar premium levels of energy efficiency.

**Do the products have to be tested to ensure they meet the specifications?**

Yes. The manufacturer must provide proof that the product meets the specifications.

**Are ENERGY STAR specifications revised from time to time?**

Yes. This ensures that ENERGY STAR qualified products represent the top energy performers. Some may even be suspended if national energy efficiency levels catch up to the ENERGY STAR levels. So, always check the website for the most current qualifying specifications at [www.energystar.gc.ca](http://www.energystar.gc.ca).

**How should I specify ENERGY STAR when ordering from a manufacturer?**

You can require that the product "shall meet the ENERGY STAR specification for energy efficiency" and include complete details in your procurement documents. See "Sample Procurement Language" on page 28 of this guide.

**Where can I get more information on purchasing ENERGY STAR qualified products?**

Detailed information on purchasing ENERGY STAR qualified products can be found on the OEE website under procurement information.

## Join ENERGY STAR®

*Join Canada's ENERGY STAR Program and promote energy-efficient products within your organisation.*

Gain the recognition and respect of your peers, employees, and clients for your commitment to environmental stewardship and sound purchasing policies.

Be part of a recognized international endorsement initiative.

Use the internationally recognized ENERGY STAR symbol to heightened public awareness of your leadership in addressing environmental challenges such as climate change and air pollution.

Engage in joint marketing and promotional campaigns.

Access training workshops, participant updates, case studies and ready-to-print marketing material.

Receive support for implementing an energy efficiency initiative in your organisation, thereby saving money and reducing greenhouse gas emissions.

Visit [www.energystar.gc.ca](http://www.energystar.gc.ca) to learn how your health care organisation can join ENERGY STAR and make a difference.



# Eligible ENERGY STAR Qualified Products

Large energy savings can be realized through the procurement of ENERGY STAR qualified products for the storage, preparation, distribution and administration of food and food services in health care facilities. These can be purchased or leased for use in kitchens, cafeterias, employee kitchenettes, food services administration areas, and some common areas of hospitals and long-term care facilities.

Kitchens and cafeterias present an opportunity for some of the most substantial energy savings through the purchase of ENERGY STAR qualified alternatives. Commercial refrigerators, freezers, dishwashers, as well as hot food holding cabinets, ice machines, fryers, steamers, and range hoods can all qualify under the ENERGY STAR program.

Smaller kitchen equipment, including standard refrigerators, freezers, dishwashers, and water coolers, may also be found in kitchens or cafeterias, and in smaller lunch rooms and kitchenettes.

Administration areas usually include computers, monitors, telephony, and other office equipment including scanners, fax machines, copiers, printers, and multi-function devices (MFDs), all of which can qualify for relevant ENERGY STAR standards.



Other ENERGY STAR qualified equipment, such as compact fluorescent light (CFL) bulbs and various residential light fixtures (RLFs), and ceiling fans, may be found in any of the above food services areas and also in common areas utilized for food consumption. Vending machines are often found in common areas. See elsewhere in this guide for details on how the ENERGY STAR qualification applies to vending machines.

See the "CATEGORY-LOCATION MATRIX" below for help in locating the energy-consuming equipment in your facility.

## Auditing for an ENERGY STAR Food Service Future

CATEGORY-LOCATION MATRIX

CATEGORY	KITCHEN	CAFETERIA	KITCHENETTE	ADMINISTRATIVE	COMMON
Ceiling Fans	■	■	■	■	■
CFLs	■	■	■	■	■
Commercial Dishwashers	■	■			
Commercial Freezers	■				
Commercial Refrigerators	■				
Computers	■	■		■	
Copiers				■	
Dishwashers	■	■	■		
Electric Fryers	■	■			
Electric Steam Cookers	■	■			
Fax Machines	■	■		■	
Freezers	■	■			
Gas Fryers	■	■			
Gas Steam Cookers	■	■			
Hot Food Holding Cabinets	■	■			
Ice Machines	■	■	■		
Multifunction Device (MFD) integrating scan, print, fax or copy functions.	■	■		■	
Monitors	■	■		■	
Printers	■	■		■	
Refrigerator-Freezers	■	■	■		
Residential Light Fixtures (RLF) non-incandescent	■	■	■	■	■
Scanners				■	
Telephony (cordless, combination, answering machines)	■	■	■	■	■
Vending Machines		■	■	■	■
Vent Fans (range hoods)	■	■			
Water Coolers	■	■	■	■	■

Diagram 1

The CATEGORY-LOCATION MATRIX above outlines possible locations where energy-consuming products can be found. It also is a guide to where ENERGY STAR qualified products could be substituted for conventional models. Note that this is only a starting point for you to begin your audit and equipment upgrading initiative.

Performing an audit of your energy-consuming food service equipment and appliances is the first step in determining the energy and water savings possible through ENERGY STAR qualified products.

A quick walk-through of your facility, recording relevant details of each product such as energy demand, hours of operation, volume or capacity, gas vs electric, and other distinguishing features, will provide you with the basic data with which to calculate your potential utility savings through the ENERGY STAR Simple Savings Calculator.

The information you collect is required by the downloadable online calculator to provide estimates of financial, greenhouse gas (GHG) emissions and water savings from the use of ENERGY STAR qualified products over conventional alternatives.

The following page contains a **Sample Audit Worksheet** to help you gather basic information on the equipment in your food service areas. To access Canada's ENERGY STAR Simple Savings Calculator visit: <http://oee.nrcan.gc.ca/residential/business/energystar/procurement/calculator.cfm?attr=12>.

# Sample Equipment Audit Worksheet

Auditor Name		Title/Position	
Date		Audit ID	

Item Name	
Location	
Purpose of Item	
Overall Product Description <i>(i.e. gas or electric; solid or glass door; laptop or desktop)</i>	

	Units	Existing Item	ENERGY STAR Replacement
<b>Cost Measures</b>			
*Initial cost per unit (\$)	\$		
Labour cost to replace bulb	\$		
<b>Energy Consumption Measures</b>			
Energy consumption (annual)	kWh/year		
Energy consumption (daily)	kWh/day		
Percentage of units turned 'off' at night	%		
Power consumed per unit in 'active' mode [Watts - W]	watts (W)		
Power consumed per unit in 'idle' mode [W] - Computers Only	watts (W)		
Power consumed per unit in 'sleep' mode [W]	watts (W)		
Power consumed per unit in 'off' mode [W]	watts (W)		
Sleep settings activated? Y/N	Yes or No		
Wattage (W) (rating)	watts (W)		
Preheat energy	(BTU/preheat) <i>(British thermal unit)</i>		
Idle energy rate	(BTU/hour)		
Cooking energy efficiency (%)	%		
<b>Volume Measures</b>			
*Number of Items	# to replace or purchase		
Pages per Minute	PPM		
Harvest Rate (ice)	kg/day		
Capacity of holding cabinet	cubic feet		
Number of pans (steamer)	# of pans		
<b>Usage Measures</b>			
Operating hours per day	hours/day		
Operating days per year	day/year		
Daily food load	kg/day		
<b>Product Features/Limitations</b>			
*Assumed product lifetime	Years		
Airflow	cfm <i>(cubic feet per minute)</i>		
Rated lifetime per bulb	hours		
Volume of fresh compartment	cubic feet		
Volume of freezer compartment	cubic feet		
Water consumption	m <sup>3</sup> /year		

This "Sample Equipment Audit Worksheet" will assist you in recording all relevant details during your food service equipment audit. Use a separate Worksheet for each item. The left column lists the information required to complete a more accurate comparison of conventional and ENERGY STAR qualified equipment using the ENERGY STAR Simple Savings Calculator. Line items preceded by an asterisk "\*" are the most important as those values will heavily impact your calculated results. Column two (Units) describes the units of measurement the Calculator requires - collect your data with these units in mind. Record the audit data for each piece of existing equipment in column three. Column four (ENERGY STAR Replacement) is used to record product specifications for the new ENERGY STAR qualified alternative you are considering. Data collected in columns three and four can be input into the Calculator to achieve a more accurate estimate of the potential energy, water, and greenhouse gas savings.

# Equipment Audit Worksheet - EXAMPLE

Auditor Name	<i>Nick Kheener</i>	Title/Position	<i>Food Services Auditor</i>
Date		Audit ID	<i>Main Cafeteria Audit #2</i>

Item Name	<i>Commercial dishwasher</i>
Location	<i>Main floor cafeteria kitchen, south wall (next to the walk-in freezer)</i>
Purpose of Item	<i>Cleans customer dishes/cutlery, small kitchen equipment</i>
Overall Product Description <small>(i.e. gas or electric; solid or glass door; laptop or desktop)</small>	<i>Single conveyor-belt unit, uses low temperature water. Occasionally leaks water on the floor. 'Rhinoceros' brand no longer exists.</i>

	Units	Existing Item	ENERGY STAR Replacement
<b>Cost Measures</b>			
*Initial cost per unit (\$)	\$	<i>\$12,000</i>	<i>\$14,000</i>
Labour cost to replace bulb	\$		
<b>Energy Consumption Measures</b>			
Energy consumption (annual)	kWh/year	<i>Unknown. Use defaults</i>	<i>23,900 (manufacturer estimate)</i>
Energy consumption (daily)	kWh/day		
Percentage of units turned 'off' at night	%		
Power consumed per unit in 'active' mode [Watts - W]	watts (W)		
Power consumed per unit in 'idle' mode [W] - Computers Only	watts (W)		
Power consumed per unit in 'sleep' mode [W]	watts (W)		
Power consumed per unit in 'off' mode [W]	watts (W)		
Sleep settings activated? Y/N	Yes or No		
Wattage (W) (rating)	watts (W)		
Preheat energy	(BTU/preheat) <small>(British thermal unit)</small>		
Idle energy rate	(BTU/hour)		
Cooking energy efficiency (%)	%		
<b>Volume Measures</b>			
*Number of Items	# to replace or purchase	<i>1</i>	<i>1</i>
Pages per Minute	PPM		
Harvest Rate (ice)	kg/day		
Capacity of holding cabinet	cubic feet		
Number of pans (steamer)	# of pans		
<b>Usage Measures</b>			
Operating hours per day	hours/day		
Operating days per year	day/year		
Daily food load	kg/day		
<b>Product Features/Limitations</b>			
*Assumed product lifetime	Years	<i>Purchased 19 years ago</i>	<i>Expected 20 years</i>
Airflow	cfm <small>(cubic feet per minute)</small>		
Rated lifetime per bulb	hours		
Volume of fresh compartment	cubic feet		
Volume of freezer compartment	cubic feet		
Water consumption	m <sup>3</sup> /year	<i>670 (approximate)</i>	<i>450 (manufacturer estimate)</i>

**Overall Product Description:** The leak will not affect Nick's calculations in the tool, but may be an additional reason for replacing the unit. The fact that this dishwasher uses a single conveyor belt system and low-temperature water will be used by the Calculator to generate more accurate results.

**Initial Cost:** Nick went through some old records to find the initial cost, and even adjusted the number for inflation (given it was purchased 19 years ago).

**Energy Consumption (annual):** Nick does not know how much electricity is used by this aging unit as there are no indicators on the unit and information about this product is not available (manufacturer no longer exists). Rather than worry about this, he will make due with a default electricity-usage value provided by the Calculator.

**Water Consumption:** Nick is aware of the amount of water used by this dishwasher due to a 'Water Saver' decal on the front of the unit. The decal advertises a water usage rate in gallons, which he then converted into cubic metres for use in the Calculator.

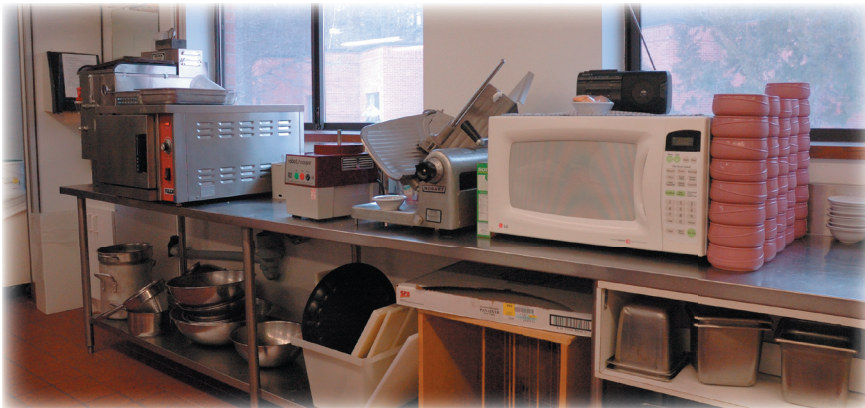
# Spotting the ENERGY STAR Opportunities

Each and every health care food service area has the potential to introduce new ENERGY STAR qualified products. Whether you are thinking major appliances such as stoves, ovens, grills and refrigerators or smaller products such as fax machines, printers, scanners and telephones, there is a growing list of ENERGY STAR qualified items available in the marketplace. On the following pages we take you on a quick visual tour of some health facility food service areas, kitchenettes, and cafeterias to introduce you to the ENERGY STAR potentials that may exist in your sites.

The **ENERGY STAR Scenarios** section of this guide (page 21) shows the financial savings possible if many of the appliances in these images were upgraded to ENERGY STAR.



The Garland 280 Series gas range (above), Garland G22 Series gas griddle and Vulcan gas steamer all have a life expectancy of about twenty years. Buying energy efficient replacements will help save money and the environment. Effective January 2011, commercial ovens and griddles became eligible for the ENERGY STAR designation in Canada. As of the writing of this guide, the ENERGY STAR Simple Savings Calculator did not yet list ovens and griddles. For more details visit: [www.energystar.gc.ca](http://www.energystar.gc.ca).



While not every piece of equipment or appliance in your food service area has an ENERGY STAR qualified alternative, it makes good financial and environmental sense to seek out the most energy efficient replacements when upgrading your kitchen. Pictured above at far left, the Bunn hot water tank has a life expectancy of 25 years. By nature of its design, it operates 24 hours a day. Similarly, the Vulcan steamer and Hobart meat slicer have 25 year life expectancies. Purchasing the most energy efficient units at replacement time means many years of energy savings. Be sure you ask about ENERGY STAR qualified products when replacing your steamer.



The ENERGY STAR Simple Savings Calculator can be used to determine the energy savings for a wide range of fridge types including full-sized and compact models as shown at left.

ENERGY STAR qualified compact refrigerators have been available in Canada since January 2003. To meet ENERGY STAR performance levels, these appliances must exceed minimum Government of Canada energy efficiency standards by at least 20 percent.

Compact refrigerators and refrigerator-freezers (Types 11 to 15 on the EnerGuide label) have total refrigerated volumes of less than 219.5 L (7.75 cu. ft.) and overall heights of less than 91.4 cm (36 in.).



Today's ENERGY STAR qualified refrigerators incorporate many advanced features, including better insulation, high-efficiency compressors, improved heat-transfer surfaces and more precise temperature and defrost mechanisms.

Only air-cooled ice machines that produce cubed ice are eligible for ENERGY STAR. Ice machines that use water-cooled technology as well as flake and nugget ice machines currently do not qualify. Visit the ENERGY STAR website for a list of qualified commercial ice machines - <http://oee.nrcan.gc.ca/residential/business/manufacturers/commercial-products.cfm?attr=12#ice>



Can you smell those fresh-baked oatmeal raisin cookies? The ovens and griddle in this typical food service area might bake cookies or grill patties more efficiently if they were ENERGY STAR qualified.

As of January 2011, ENERGY STAR specifications for ovens and griddles are available in Canada. For more details visit: [www.energystar.gc.ca](http://www.energystar.gc.ca).



Solid-door commercial refrigerators, such as this one shown above, can offer substantial electricity savings if they are ENERGY STAR qualified. Remember to ask your vendors about the ENERGY STAR program when purchasing new kitchen equipment, especially when that equipment is large enough to incur significant energy or water costs.



The Vulcan convection oven pictured above and below is expected to remain in service for twenty years. ENERGY STAR labels are usually prominently displayed on ENERGY STAR qualified products. Look for the bright blue label as you conduct an audit of your equipment. The ENERGY STAR label on the upper left hand corner of this appliance indicates it is ENERGY STAR qualified.



Commercial dishwashers offer tremendous opportunities for electricity and water savings. ENERGY STAR qualified models can save an organisation hundreds of dollars per year and thousands of dollars over the product lifetime due to lower operational costs.





Kitchenettes and lounge areas provide staff or visitors with a number of food preparation appliances for their convenience. In the photo (left), microwaves offer an energy efficient option for heating food and drinks but can waste energy if the door is left open and the interior light glowing. The cappuccino and ice machines can be used to refill personal reusable drink containers and mugs, thereby reducing disposable cup use. Facilities can post friendly, unobtrusive signage outlining best practices for common-use equipment, encourage environmentally conscious choices, and provide mugs, spoons, and other reusable items to reduce solid waste generation.

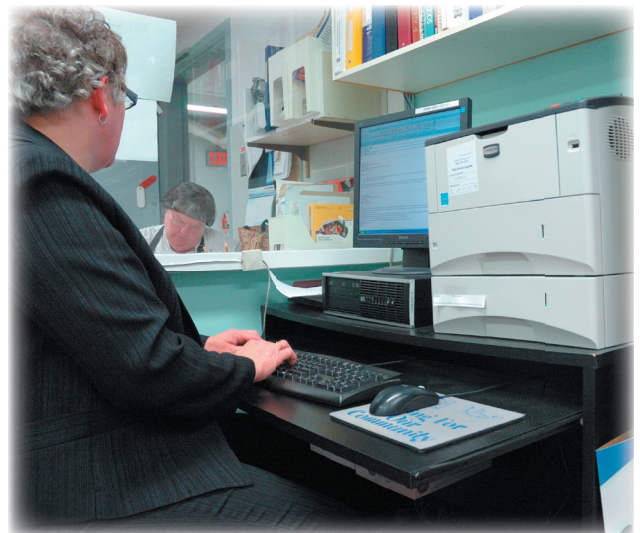
Save electricity and greenhouse gas emissions by ensuring your equipment has features that are suitable for your requirements and that any energy-saving capabilities are enabled. The glass door refrigerator in the photo (right) is not ENERGY STAR qualified, unlike solid-door refrigerators or glass-door freezers; however, in a cafeteria or server environment, it may save energy (and improve the experience) if customers are able to select food items without opening the fridge door. A solid door fridge may be ENERGY STAR qualified and have much lower energy requirements, but solid doors have drawbacks that also need to be considered. Keep your requirements in mind and always ask vendors for energy efficient features, even if ENERGY STAR is not available.



Office equipment should not be overlooked when auditing your food service area. It is usually home to at least one computer, monitor, printer and possibly other peripherals such as scanners and external hard drives. Each one eats into your energy budget.

Seek out ENERGY STAR qualified replacement products when you upgrade your office and ensure that ENERGY STAR is specified in your sourcing request or tender document.

For more hints on improving the energy efficiency of your office, check out ENERGY STAR for Office Equipment - Simple Steps to an Energy-Smart Office by visiting: <http://oe.nrcan.gc.ca/publications/infosource/home/index.cfm?act=category&category=13&attr=8>



### Sample Procurement Language

"The vendor must provide products that are qualified to use the ENERGY STAR symbol and meet the ENERGY STAR specifications for energy efficiency. Complete product specifications and an up-to-date list of qualified products are available at [www.energystar.gc.ca](http://www.energystar.gc.ca)."



## ENERGY STAR and Vending Machines

While ENERGY STAR is a voluntary labelling program, Canadian regulations mandate that all new vending machines meet ENERGY STAR requirements so as a result can be considered energy efficient.

To comply with the regulations, new beverage vending machines sold in Canada must have a low-power mode to reduce energy use during times of inactivity - and this feature *must* be enabled when the product is shipped.

Vending machines manufactured prior to the introduction of the January 2008 regulations may be 'rebuilt' to meet the ENERGY STAR qualification.

If you are purchasing a rebuilt or refurbished vending machine look for the ENERGY STAR symbol to ensure it is energy efficient.

Current models can save building and business owners more than 1,700 kWh/year, or \$150 annually on utility bills, compared to conventional (non-energy efficient) models built prior to 2008.

For more information on ENERGY STAR and vending machines, please visit the NRCan Purchasing Toolkit website at <http://oee.nrcan.gc.ca/residential/business/energystar/procurement/vending-machines.cfm>



Natural Resources  
Canada

Ressources naturelles  
Canada

### **Dollars to \$ense Energy Management Workshops**

Since 1997, over 15,000 representatives of Canadian Industrial, Commercial and Institutional organisations have enrolled in Dollars to \$ense energy management workshops offered by Natural Resources Canada's Office of Energy Efficiency.

Choose from one of four standard workshops or have one customized to meet your facility's needs.

*Energy Management Planning*  
*Spot the Energy Savings Opportunities*  
*Energy Monitoring*  
*Energy Efficiency Financing*

Learn energy-saving tips to help your organisation lower operating costs, reduce greenhouse gas emissions, increase operational efficiency and create a healthier patient care environment.

<http://oee.nrcan.gc.ca/industrial/training-awareness/index.cfm>

# ENERGY STAR Simple Savings Calculator

## Introduction and Instructions

Canada's ENERGY STAR Simple Savings Calculator is a Microsoft Excel-based tool that uses a combination of default values and user-inputs to calculate the annual and lifetime financial costs, greenhouse gas emissions in CO<sub>2</sub>e (carbon dioxide equivalent), water consumption, and more, resulting from the transition from conventional equipment to ENERGY STAR qualified alternatives. See below for basic instructions on the use of this tool. Check the tool's 'Introduction' tab for more info. *NOTE: Basic Excel skills are required to access and use this tool.*

## 1. Set Up

You will need to register on the Natural Resources Canada website before downloading the tool. Follow the instructions at: <http://oee.nrcan.gc.ca/residential/business/energystar/procurement/calculator.cfm?attr=4>

Once you have opened the Excel document, an alert will inform you that 'Macros' are required. Select 'Enable Macros' to enable full functionality of the tool.

When the tool has completed loading, you will be presented with a 'Terms of Use,' which must be read and accepted to continue. You will then have the option of going to 'Introduction,' 'Instructions,' or 'Table of Contents' tabs.

Category	Value	Data Source
<b>Default Values</b>		
Choose your province / territory:	National Average	
Electricity rate:	\$0.100759283714286 \$/kWh	
Commercial demand cost of electricity:	\$7.42929 \$/kWh	
Natural gas price (\$/GJ):	\$7.39000 \$/GJ (Nat. Average)	Canadian Gas Association "Post-Season Heating Update" April, 2009
Furnace oil price (\$/L):	\$0.76400 \$/L (Nat. Average)	Prices for Furnace Oil in 2009 in Canada
Water price:	\$2.20 \$/m <sup>3</sup> (\$/1,000 litres)	
<b>Discount Rates</b>		
Discount rate (real)	8.0%	The Canadian Cost-Benefit Analysis Guide ( <a href="http://www.regulation.gc.ca/documents/gd-ld/analyse/analyse10-eng.asp?ToC178397874">http://www.regulation.gc.ca/documents/gd-ld/analyse/analyse10-eng.asp?ToC178397874</a> ) recommends a discount rate of 8% for the evaluation of regulatory interventions in Canada.
<b>Conversions</b>		
HVAC equipment oversizing factor	1.25	
Btu per gigajoule	948,170 Btu/GJ	
Litres per cu.ft.	28.316846712 L/cu.ft	
Pounds per kilogram	2.204622622 lb/kg	
Energy content of heating oil (fuel oil #2/diesel)	0.03988 GJ/L	NRCan, 1999, Canada's Emissions Outlook: an Update.
U.S. gallons per cubic metre	264.172051242 USgal/m <sup>3</sup>	
<b>CO2-equivalent Emissions Factors</b>		
Electricity CO2 equivalent emissions factor (kg kWh)	0.200 kg kWh	

Figure 1

It is recommended that you click on the Defaults tab (Figure 1) to specify your province. At the top of this spreadsheet there is a dropdown menu with the default value of 'Canada'. Select your province to receive more accurate cost and environmental impact estimates. Other values can also be edited further down on the spreadsheet – these are indicated by their blue border and grey background colour. This is useful if you would like to use your actual cost(s) of electricity, natural gas and/or water instead of relying on provincial or national averages.

## 2. Use - Inputs

A specific product category can be accessed most easily through the 'Contents' tab. Select the product you wish to evaluate and the relevant spreadsheet will display itself automatically. Take note of the four buttons at the top of every product page – these allow for easy access to the 'Instructions,' 'Table of Contents,' and 'Defaults.' The fourth button, labelled 'Notes,' provides product category-specific references and assumptions, which is for your reference.

The first enclosed area on any product category page (Figure 2) is where you input your own values (a full list of necessary values for each product category is located in the Audit Worksheet). You input values in boxes that are outlined in blue and coloured grey. Other cells are protected and cannot be edited.

The tool allows you to compare one non-ENERGY STAR qualified product against up to three qualified products. When you have entered all of the necessary data, scroll further down on the page to view the results. Please note that the blue-outlined input boxes will already contain values – these are 'default' values which you can use if you do not have more exact data of your own.

COMPUTERS				
	Non-ENERGY STAR Unit	ENERGY STAR 1	ENERGY STAR 2	ENERGY STAR 3
<i>(Please insert the relevant figures in the grey boxes.)</i>				
Type of product	Desktop Computers (not incl. separate monitor)			
Number of units	10	10	10	10
Percentage of units turned 'off' at night*	36%	36%	36%	36%
Initial cost per unit (estimated retail price)	\$600	\$600	\$600	\$600
Assumed product lifetime [yrs]	4	4	4	4
Power consumed per unit in 'active' mode [W]	0.0	0.0	0.0	0.0
Power consumed per unit in 'idle' mode [W]	68.8	46.2	46.2	46.2
Power consumed per unit in 'sleep' mode [W]	3.4	2.3	2.3	2.3
Power consumed per unit in 'off' mode [W]	1.7	1.5	1.5	1.5
* In commercial settings a default of 36% as the percentage of computers turned off each night, and 8% of computers with power management features enabled is assumed based upon 2004 Lawrence Berkeley National Lab Report entitled "After-hours Power Status of Office Equipment and Inventory of Miscellaneous Plug-Load Equipment".				
OPERATING COSTS FOR 10 COMPUTER(S)				
	Non-ENERGY STAR Unit	ENERGY STAR 1	ENERGY STAR 2	ENERGY STAR 3
Annual Operating Costs†				
Energy cost	\$412	\$277	\$0	\$0
Energy consumption, kWh (annual)	4,084	2,751	0	0
Annual emissions (tCO <sub>2</sub> e) in each mode				

Figure 2

### 3. Use – Outputs

In the box labelled 'OPERATING COSTS', (Figure 3) you can view a breakdown of the total annual operating costs and life-cycle costs for all non-ENERGY STAR and ENERGY STAR products. Please note that lifecycle costs will be greatly affected by the value entered in 'Assumed Product Life-time [yrs]' in the data input section above.

Further down in the box labelled 'BENEFITS OF ENERGY STAR', you can view a summary of the financial and greenhouse gas savings ENERGY STAR qualified products can offer. The 'Detailed Summary' at the bottom of the spreadsheet provides values that are mostly presented above; however, if you desire actual estimates of the greenhouse gas emission savings in kilograms of CO2e (carbon-dioxide equivalent), these values are presented in this section only.

OPERATING COSTS FOR 10 COMPUTER(S)				
	Non-ENERGY STAR Unit	ENERGY STAR 1	ENERGY STAR 2	ENERGY STAR 3
<b>Annual Operating Costs<sup>1</sup></b>				
Energy cost	\$412	\$277	\$0	\$0
Energy consumption, kWh (annual)	4,084	2,751	0	0
Annual energy use [kWh] in each mode:				
In 'active' mode	0	0	0	0
In 'idle' mode	4,027	2,704	0	0
In 'sleep' mode	15	11	0	0
In 'off' mode	42	36	0	0
Maintenance cost	\$0	\$0	\$0	\$0
<b>Total annual operating costs</b>	<b>\$412</b>	<b>\$277</b>	<b>\$0</b>	<b>\$0</b>
<b>Life-Cycle Costs<sup>2</sup></b>				
Lifetime operating cost (energy & maintenance)	\$1,363	\$918	\$0	\$0
Energy costs (lifetime)	\$1,363	\$918	\$0	\$0
Energy consumption, kWh (lifetime)	16,336	11,005	0	0
Maintenance costs (lifetime)	\$0	\$0	\$0	\$0
Purchase price for 10 unit(s)	\$6,000	\$6,000	\$0	\$0
<b>Total life-cycle costs</b>	<b>\$7,363</b>	<b>\$6,918</b>	<b>\$0</b>	<b>\$0</b>
<small><sup>1</sup> Please note that all costs, except initial cost, are discounted over the products' lifetime. Annual costs exclude the initial purchase price.</small>				
BENEFITS OF ENERGY STAR FOR 10 COMPUTER(S)				
Number of units	10	0	0	0

Figure 3

BENEFITS OF ENERGY STAR FOR 10 COMPUTER(S)			
Number of units	10	0	0
Additional investment	\$0	\$0	\$0
Approximate savings (over product lifetime)	\$445	\$0	\$0
<b>Net Savings</b>	<b>\$445</b>	<b>\$0</b>	<b>\$0</b>
Simple pay back of the initial investment (includes annual maintenance and energy savings)	0.0	NEVER	NEVER
<small>Note: The message "NEVER" in the payback cell indicates that the unit does not pay back its initial investment over its useful life. The message 0.0 means that the payback is immediate or less than one year.</small>			
<b>Equivalent in CO2 emissions to:</b>			
eliminating approximately this many automobiles:	0.1	0.0	0.0
planting approximately this many trees:	29	0	0
<b>Detailed Summary</b>			
ENERGY STAR price premium	\$0	\$0	\$0
Total cost savings (annual)	\$134	\$0	\$0
Total cost savings (lifetime)	\$445	\$0	\$0
Total energy savings, kWh (annual)	1,333	0	0
Total energy savings, kWh (lifetime)	5,331	0	0
Total energy bill savings (annual)	\$134	\$0	\$0
Total energy bill savings (lifetime)	\$445	\$0	\$0
Total CO2 equivalent savings, kg (annual)	267	0	0
Total CO2 equivalent savings, kg (lifetime)	1,066	0	0
CO2 equivalent in the number of cars taken off the road (annual)	0	0	0
Number of trees needed to sequester annual CO2 emissions	29	0	0
<small>Please keep in mind that this analysis provides a simple estimate of product savings.</small>			

Figure 4

### 4. Final Results

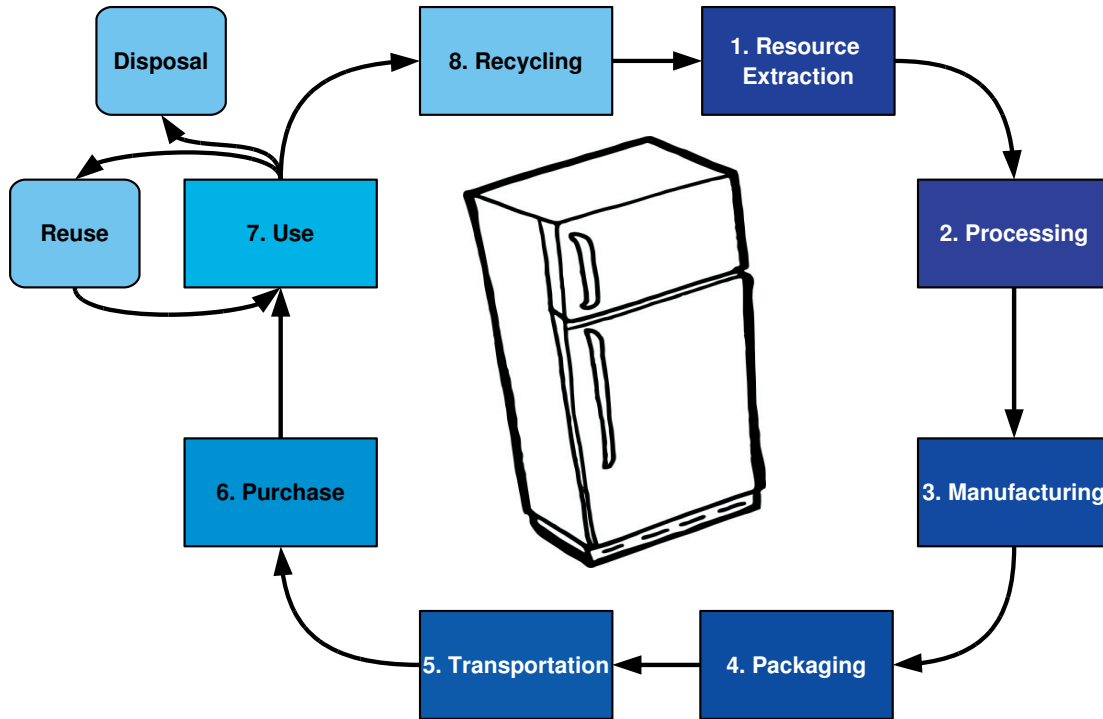
To output your results (Figure 4) from the ENERGY STAR Simple Savings Calculator for use in reports or presentations, you will need to copy and paste the results manually.

For further instructions, please refer to the Instructions tab within the tool, or visit <http://oee.nrcan.gc.ca/residential/business/energystar/procurement/calculator.cfm?attr=4>.



The ENERGY STAR symbol identifies products that meet or exceed stringent energy efficiency criteria without compromising performance.

# Life-Cycle Assessment of a Typical Refrigerator



As with almost every product we use or purchase, a refrigerator's life-cycle begins with raw material extraction from the ground. Metals, plastics, and chemicals are developed by processing raw materials such as oil and iron ore. These processed materials are then used in the manufacturing process, which consumes energy to further process and manipulate the materials into a finished refrigerator.

The refrigerator is then packaged for customer appeal and protection from shipping damage using paper and plastic products - hopefully with high recycled content. Then it is transported a great distance to a retail outlet or warehouse, and finally shipped to the end user, using fossil fuel energy.

The use of the refrigerator also consumes electricity, which varies depending on how it was designed in the processing and manufacturing stages, and on the habits and needs of the user.

ENERGY STAR qualified refrigerators are designed to consume at least 20% less electricity than the regulated standard.

When the refrigerator reaches the end of its useful life, it should be responsibly recycled so as to recover some raw materials for reprocessing into new products and decrease the amount of waste entering landfills.

Performing a life-cycle assessment helps you make informed product

choices and can help change what happens at each stage of the product's life-cycle.

*How will you dispose of your appliance when its useful life is over?*

*Is the manufacturer assuming responsibility for the product's final disposal through "Extended Producer Responsibility?"*

## Extended Product Responsibility

Extended Product Responsibility (EPR) shifts the responsibility for a product's final disposal to the producers and away from the consumers and local governments. This results in an incentive for the producer to take environmental considerations into the design of the product, so it doesn't become a disposal problem. If you have ever returned a glass bottle to the store where you bought it, you have participated in EPR.

*"Consume This! Buying that Matters."  
Canadian Centre for Pollution Prevention*

I knew a little about ENERGY STAR before we purchased our last new appliance, but now that I've learned more about the program I'm realizing just how much of an impact ENERGY STAR appliances can have on lowering our energy bill.

Sheila Yakabuskie  
Food Service Team Leader  
St. Francis Memorial Hospital

# Before You Buy Checklist

Before purchasing any new appliances or equipment, ensure that it meets, yet does not exceed, your hospital's current and potential future food service needs. Regardless of whether the new equipment is ENERGY STAR qualified or not, properly assessing and meeting your needs will be instrumental towards reducing your use of energy, water, and other resources such as counter or floor space and employee time. Consider the following before you make any new purchases:

## Current Equipment

Look at your current equipment critically – does it currently meet your needs? Consult with the staff that use the old equipment to learn of any complaints or issues they may have and ask their advice on new equipment. Consider their comments when making your final purchase.

## Size/Volume

Properly sizing your new equipment will save you from higher-than-necessary energy and water bills, or from having to purchase additional equipment in the future. Looking at your current equipment will give you an idea of your volume needs, but plan for the future as well. The ENERGY STAR Simple Savings Calculator has default lifetime estimates that you can use to help you plan sizing needs in advance. The actual dimensions of the equipment will also determine if, or where, it can fit in your food services area. When considering floor and counter space, remember that your employees will need sufficient floor and counter space to properly do their jobs.

## Multi-Function Devices

In some cases, multiple pieces of equipment can be consolidated into a single device, thereby saving energy and space. Steamers can sometimes double as hot-food holding cabinets, and multi-function printing devices can replace your scanner, fax, copier and printer in a single device. Consider whether you need separate devices for each function – in cases where a larger volume is needed, some multi-function devices may not be suitable.

## Current Infrastructure

Your health care facility's infrastructure may be old and unable to accommodate newer equipment; for example, T5 fluorescent lights cannot be installed in fixtures that were designed for older T12 fluorescent lights, and the ballasts (fixtures) will also need to be upgraded. Depending on the size, new equipment may also need to be located differently within the kitchen and require additional wiring or plumbing. Bring new equipment manufacturer specifications to the building manager or engineer for their consideration.



√

- Consult with staff to determine their needs and requirements of any new appliance or piece of equipment.
- Anticipate future requirements and factor that into your purchasing decision.
- Gather all relevant details about existing equipment through a careful audit - include dimensions, power consumption, product life span, and other product-specific details. See audit section on page 11 above.
- Ensure that users of equipment are included in the planning process and have ample opportunity to ask questions about energy efficiency specifications, product performance, costs, ongoing maintenance, useful new features, safety and training.
- Request site visits from potential vendor representatives to gain firsthand knowledge of your department and to answer questions from staff.
- Consult with colleagues in similar facilities for feedback on successes and challenges they have faced in modernising their food service departments.
- Ensure that ENERGY STAR qualified equipment is specified, where applicable, in all procurement documents.
- Visit the ENERGY STAR website for a list of eligible ENERGY STAR qualified equipment.
- Consider consolidating various items such as fax, scanner, printer and copier into a single multi-function device to save energy, money and space.
- Determine if the physical size of new equipment poses any challenges to installation or use.
- Investigate the savings potential between electric and natural gas powered equipment.
- Consider life-cycle costs and not just initial cost.
- Calculate your energy and dollar savings using the ENERGY STAR Simple Savings Calculator outlined on page 17 above.
- Consult facility manager or engineer to determine electrical, water, heating and cooling system compatibility.
- Specify vendor will take back all packaging and properly recycle or reuse where appropriate.
- Ensure your old equipment is properly recycled through an ethical recycling organisation.
- Purchase the ENERGY STAR qualified alternative and celebrate your environmentally responsible behaviour.

# ENERGY STAR Scenarios

## ENERGY STAR Scenario 1

### St. Francis Memorial Hospital Barry's Bay, Ontario

Figure 5 shows the effects of size on St. Francis Memorial Hospital's potential savings. Larger ice machines use more energy and are also larger opportunities for savings with ENERGY STAR qualified models. Similarly, the savings of two compact refrigerators is roughly equivalent to the savings achieved by replacing one conventionally-sized refrigerator with an ENERGY STAR qualified alternative. If the hospital were to replace the non-ENERGY STAR qualified equipment in Figure 5 with ENERGY STAR qualified models, it could save roughly \$10,600 and 38,181 kg of greenhouse gases over those products' various life-cycles. In this scenario, the electric steamer and the hot food holding cabinet hold the greatest energy and greenhouse gas savings opportunities.



St. Francis Memorial Hospital	Annual		Life-Cycle	
	Cost Savings	GHG Savings (kg CO2e)	Cost Savings	GHG Savings (kg CO2e)
<b>Kitchenette</b>				
Refrigerator	\$5	15	\$50	265
Ice Machine	\$22	51	\$215	1,023
<b>Kitchen</b>				
Ice Machine	\$42	97	\$408	1,937
Electric Steamer	\$505	994	\$3,806	11,931
Refrigerator	\$5	15	\$50	265
Hot Food Holding Cabinet (large)	\$769	1,795	\$5,796	21,536
Refrigerator (compact) x 2	\$10	28	\$96	512
Hot and Cold Water Dispenser	\$22	61	\$148	609
<b>Administration</b>				
Desktop Computer (no monitor)	\$8	23	\$27	91
Computer Monitor	\$1	3	\$4	13
<b>TOTALS</b>	<b>\$1,390</b>	<b>3,081</b>	<b>\$10,600</b>	<b>38,181</b>

Figure 5

## ENERGY STAR Scenario 2

### The Grove Nursing home Arnprior, Ontario

The Grove Nursing Home in Arnprior serves fresh, nutritious and wholesome meals to its long-term-care residents and adult day program participants from a bright and spacious food service area. They have begun an upgrade initiative to replace many of their older energy-inefficient kitchen appliances. If all of their existing non-ENERGY STAR qualified appliances, as shown in Figure 6, were replaced with ENERGY STAR qualified alternatives, the Grove could save \$30,848 from their utility budget and reduce GHG emissions by 108,751 kg over the lifetime of these appliances. The largest savings potential rests with a transition to an ENERGY STAR qualified dishwasher, which saves money on both electricity and water. An ENERGY STAR qualified steamer or hot food holding cabinet could also result in substantial dollar savings and GHG emissions reductions.



Grove Nursing Home	Annual		Life-Cycle	
	Cost Savings	GHG Savings (kg CO2e)	Cost Savings	GHG Savings (kg CO2e)
<b>Kitchen</b>				
Gas Steamer	\$190	1,002	\$2,027	25,051
Dishwasher	\$2,792	3,534	\$27,412	70,687
Refrigerator	\$9	17	\$81	309
Hot and Cold Water Dispenser	\$22	61	\$148	609
Hot Food Holding Cabinet	\$501	3,774	\$903	10,835
Ice Machine	\$24	56	\$234	1,114
<b>Administration</b>				
Desktop Computer (no monitor)	\$8	23	\$27	91
Computer Monitor	\$1	3	\$4	13
Printer	\$3	9	\$12	43
<b>TOTALS</b>	<b>\$3,550</b>	<b>8,479</b>	<b>\$30,848</b>	<b>108,751</b>

Figure 6

### ENERGY STAR Scenario 3 Arnprior & District Memorial Hospital Arnprior, Ontario

The Arnprior and District Memorial Hospital has multiple food service areas containing types of appliances for which ENERGY STAR qualifying standards exist. The accompanying chart (Figure 7) compares energy use characteristics for the hospital's existing appliances with comparable new ENERGY STAR qualified alternatives. If all the conventional energy-consuming appliances in their food service areas were replaced with new ENERGY STAR qualified units, the hospital could reduce their energy bill by \$24,701 and lower their GHG emissions by 85,267 kg or just over eighty-five tonnes, based upon the varying life cycles of the appliances under comparison. The bulk of these savings originate with the installation and use of an ENERGY STAR qualified commercial dish washer. Additional savings would accrue by switching to an ENERGY STAR qualified hot food holding cabinet and gas steamer. Additional savings could be achieved by switching to an electric steamer unit.



Arnprior & District Memorial Hospital	Annual		Life-Cycle	
	Cost Savings	GHG Savings (kg CO2e)	Cost Savings	GHG Savings (kg CO2e)
<b>Kitchen</b>				
Gas Steamer	\$148	721	\$1,457	14,430
Commercial Dishwasher	\$1,982	3,004	\$16,965	45,063
Hot and Cold Water Dispenser	\$22	61	\$148	609
Commercial Refrigerator	\$39	90	\$412	2,249
Hot Food Holding Cabinet	\$611	1,425	\$4,602	17,099
<b>Cafeteria</b>				
Commercial Refrigerator	\$87	203	\$927	5,063
Hot and Cold Water Dispenser	\$22	61	\$148	609
<b>Administration</b>				
Desktop Computer (no monitor)	\$8	23	\$27	91
Computer Monitor	\$1	3	\$4	13
Printer	\$3	9	\$12	43
<b>TOTALS</b>	<b>\$2,923</b>	<b>5,599</b>	<b>\$24,701</b>	<b>85,267</b>

Figure 7



# Making the Business Case

The following equipment comparison charts show the potential energy savings and CO<sub>2</sub> avoidance to be derived from selecting ENERGY STAR qualified equipment over a conventional unit when upgrading your food service area.

All values were derived from Canada's ENERGY STAR Simple Savings Calculator. Input values were calculated using a series of assumptions outlined at right.

## Assumptions and Default Values

All assumptions and default values used were selected using the most up-to-date statistics and academic studies available, according to their own best judgment. My Sustainable Canada and the Canadian Coalition for Green Health Care do not claim any responsibility for, nor do they endorse, the accuracy of these assumptions and values. The version of Canada's ENERGY STAR Simple Savings Calculator (Version 5.2) used was last updated on December 31, 2010. Consult this version of Canada's ENERGY STAR Simple Savings Calculator for further details.

1. National Averages of electricity, water and natural gas prices and CO<sub>2</sub> equivalent emissions factors were used in the calculation of annual and lifetime costs and GHG emissions equivalencies:

- a. Electricity cost: \$0.100759285714286 \$/kWh
- b. Electricity CO<sub>2</sub> emissions: 0.200 kgCO<sub>2</sub>e/kWh
- c. Natural Gas cost: \$7.39000/GJ
- d. Natural Gas CO<sub>2</sub> emissions: 49.95kgCO<sub>2</sub>e/GJ
- e. Water cost: \$2.202857142857140/m<sup>3</sup>
- f. CO<sub>2</sub> sequestration per tree per year: 9.175 kgCO<sub>2</sub>e/yr

2. A discount rate of 8% (recommended by the Canadian Cost-Benefit Analysis Guide) was used to estimate the present value of lifetime benefits.

3. Product lifetime, costs, utilities and GHG emission estimates used as default values within the tool originate from Natural Resources Canada, U.S. EPA research or academic studies.



## OFFICE EQUIPMENT

Desktop PC (no monitor)

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	4,084.00	2,751.00
Purchase price for 10 units (PC with no monitor)	\$6,000.00	\$6,000.00
Total annual operating costs	\$412.00	\$277.00
Total life-cycle costs (4 years)	\$7,363.00	\$6,918.00
Net Savings (\$)		\$445.00
Net Financial Savings (%)		6.04%
Net Energy Savings (%)		32.64%
Savings in CO <sub>2</sub> equivalent to planting approximately this many trees:		29

Laptop

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	1,255.00	852.00
Purchase price for 10 unit(s) (laptop)	\$6,000.00	\$6,000.00
Total annual operating costs	\$126.00	\$86.00
Total life-cycle costs (4 years)	\$8,419.00	\$8,284.00
Net Savings (\$)		\$135.00
Net Financial Savings (%)		1.60%
Net Energy Savings (%)		32.11%
Savings in CO <sub>2</sub> equivalent to planting approximately this many trees:		9

LCD

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	543.00	359.00
Purchase price for 10 units	\$2,030.00	\$2,030.00
Total annual operating costs	\$55.00	\$36.00
Total life-cycle costs (4 years)	\$2,211.00	\$2,150.00
Net Savings (\$)		\$61.00
Net Financial Savings (%)		2.76%
Net Energy Savings (%)		33.89%
Savings in CO <sub>2</sub> equivalent to planting approximately this many trees:		4

Combination phones without DSS

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	344.00	127.00
Purchase price for 10 units	\$903.00	\$903.00
Total annual operating costs	\$35.00	\$13.00
Total life-cycle costs (7 years)	\$1,084.00	\$970.00
Net Savings (\$)		\$114.00
Net Financial Savings (%)		10.52%
Net Energy Savings (%)		63.08%
Savings in CO <sub>2</sub> equivalent to planting approximately this many trees:		5

## Computer Monitors

Displays, including computer monitors (including digital picture frames and professional signage) must meet stringent requirements in On, Sleep, and Off Modes in order to qualify for the ENERGY STAR. Specific requirements for 'On' power consumption vary by the size of the monitor; however, in Sleep Mode, displays must consume 2 watts or less, and in Off Mode, displays must consume 1 watt or less. Enable your display's power management features and turn it off at night in order to save electricity and increase its lifespan.

## Personal Computers

Energy-efficient features have become more common on desktop machines in recent years, the most important of which is the power management capability, which places the computer and monitor in sleep mode during idle periods to use up to 90% less energy than when running. ENERGY STAR qualified computers must include this power management capability. Consider laptop computers for even greater energy savings, as they use a maximum of 15 watts (compared with 80 to 160 watts for desktop PCs) and also include power management settings.

## Telephony

ENERGY STAR qualified telephony (cordless phones, answering machines, combination units) perform much more efficiently than conventional units, using roughly one-third of the electricity. These savings are achieved by the inclusion of electricity-saving features such as switch-mode power supplies and "smart" chargers.



Always look for the ENERGY STAR symbol to identify the most energy efficient products on the market.

Colour &gt;40ppm Printer

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	27.00	16.00
Purchase price for 10 units	\$230.00	\$230.00
Total annual operating costs	\$27.00	\$16.00
Total life-cycle costs (5 years)	\$2,409.00	\$2,364.00
Net Savings (\$)		\$45.00
Net Financial Savings (%)		1.87%
Net Energy Savings (%)		40.74%
Savings in CO2 equivalent to planting approximately this many trees:		2

MFD Monochrome Laser 21-44ppm

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	405.00	151.00
Purchase price for 10 units	\$6,000.00	\$6,000.00
Total annual operating costs	\$408.00	\$152.00
Total life-cycle costs (6 years)	\$7,886.00	\$6,703.00
Net Savings (\$)		\$1,183.00
Net Financial Savings (%)		15.00%
Net Energy Savings (%)		62.72%
Savings in CO2 equivalent to planting approximately this many trees:		55

Laser Fax

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	156.00	78.00
Purchase price for 10 units	\$3,000.00	\$3,000.00
Total annual operating costs	\$157.00	\$79.00
Total life-cycle costs (4 years)	\$3,521.00	\$3,260.00
Net Savings (\$)		\$261.00
Net Financial Savings (%)		7.41%
Net Energy Savings (%)		50.00%
Savings in CO2 equivalent to planting approximately this many trees:		17

Office Scanner

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	68.00	65.00
Purchase price for 10 units	\$1,500.00	\$1,500.00
Total annual operating costs	\$69.00	\$65.00
Total life-cycle costs (4 years)	\$1,727.00	\$1,717.00
Net Savings (\$)		\$10.00
Net Financial Savings (%)		0.58%
Net Energy Savings (%)		4.41%
Savings in CO2 equivalent to planting approximately this many trees:		1

Colour &gt;40ppm Copier

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	1,371.00	1,199.00
Purchase price for 10 units	\$41,250.00	\$41,250.00
Total annual operating costs	\$138.00	\$121.00
Total life-cycle costs (6 years)	\$41,889.00	\$41,808.00
Net Savings (\$)		\$81.00
Net Financial Savings (%)		0.19%
Net Energy Savings (%)		12.55%
Savings in CO2 equivalent to planting approximately this many trees:		4

### Imaging Equipment (Copiers, Fax Machines, Printers, Scanners, Multi-Function Devices)

ENERGY STAR qualified imaging equipment includes copiers, fax machines, printers, scanners and multi-function devices (MFD). Models that meet the revised ENERGY STAR imaging equipment criteria are typically 40% more energy efficient due to standby and sleep mode power requirements, as well as maximum default delay times. All imaging equipment must not exceed 1 watt of power during standby mode in order to qualify for the ENERGY STAR. The requirements for sleep and default delay times can vary widely and are category-specific.

## VENTILATING FANS

With Light Attachment Range Hood

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	1,061.00	706.00
Purchase price for 10 units	\$3,500.00	\$3,500.00
Total annual operating costs	\$107.00	\$71.00
Total life-cycle costs (9 years)	\$4,168.00	\$3,945.00
Net Savings (\$)		\$223.00
Net Financial Savings (%)		5.35%
Net Energy Savings (%)		33.46%
Savings in CO2 equivalent to planting approximately this many trees:		1

Ceiling Fan

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	371.00	297.00
Purchase price for 10 units	\$1,000.00	\$1,500.00
Total annual operating costs	\$37.00	\$30.00
Total life-cycle costs (10 years)	\$1,251.00	\$1,701.00
Net Savings (\$)		-\$450.00
Net Financial Savings (%)		-35.97%
Net Energy Savings (%)		19.95%
Savings in CO2 equivalent to planting approximately this many trees:		2

### Ventilating Fans

Range hoods and ventilating fans are utilized to control moisture and odours within food services areas. ENERGY STAR qualified range hoods are more energy efficient and are typically quieter than conventional models, featuring high performance motors and improved blade design, providing better performance and longer life.

## LIGHTING

CFL Bulbs (8 hour/day average use)

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	1,168.00	292.00
Purchase price for 10 units	\$6.50	\$37.00
Total annual operating costs	\$151.00	\$29.00
Total life-cycle costs (8000hrs, 8hrs/day)	\$366.00	\$106.00
Net Savings (\$)		\$260.00
Net Financial Savings (%)		71.04%
Net Energy Savings (%)		75.00%
Savings in CO2 equivalent to planting approximately this many trees:		19

RLFs

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	1,170.00	300.00
Purchase price for 10 units	\$412.00	\$670.00
Total annual operating costs	\$118.00	\$30.00
Total life-cycle costs (20 years)	\$1,570.00	\$967.00
Net Savings (\$)		\$603.00
Net Financial Savings (%)		38.41%
Net Energy Savings (%)		74.36%
Savings in CO2 equivalent to planting approximately this many trees:		19

### Compact Fluorescent Lights - CFLs

ENERGY STAR qualified compact fluorescent light bulbs (CFLs) use about 75% less energy than standard incandescent bulbs and last up to 10 times longer. CFLs also produce about 75% less heat, which can indirectly cut cooling costs.

### Residential Lighting Fixtures - RLFs

ENERGY STAR qualified residential lighting fixtures (RLF) utilize fluorescent or LED (light-emitting diode) technologies to evenly and efficiently distribute light and two-thirds the electricity cost over non-ENERGY STAR qualified models. ENERGY STAR qualified RLFs often include additional energy-saving features such as dimmer switches, and are available for ceiling, wall, desktop, under-cabinet, and other applications.

*Where possible, when looking to replace an appliance in our food service or laundry areas, I run the numbers using the ENERGY STAR Calculator. It takes the guess work out of determining potential energy savings and helps put dollar savings and environmental benefit in perspective.*

JJ Arseneault  
Manager, EVS, Timmins & District Hospital

## APPLIANCES & EQUIPMENT

Water Cooler w/cooling AND heating functions

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	7,964.00	4,380.00
Purchase price for 1 unit	\$205.00	\$205.00
Total annual operating costs	\$802.00	\$411.00
Total life-cycle costs (10 years)	\$7,434.00	\$5,011.00
Net Savings (\$)		\$2,423.00
Net Financial Savings (%)		32.59%
Net Energy Savings (%)		45.00%
Savings in CO2 equivalent to planting approximately this many trees:		78

### Water Coolers

A standard water cooler with hot and cold functions can use more energy than a large refrigerator. ENERGY STAR qualified hot and cold water coolers improve the separation of hot and cold water to prevent mixing of temperatures, use more insulation to better keep heated water hot and chilled water cold, and utilize improved chilling mechanisms to save additional energy.



Refrigerators and Refrigerator-Freezers with MANUAL defrost

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	429.00	344.00
Purchase price for 1 unit	\$355.00	\$390.00
Total annual operating costs	\$43.00	\$35.00
Total life-cycle costs (18 years)	\$760.00	\$714.00
Net Savings (\$)		\$46.00
Net Financial Savings (%)		6.05%
Net Energy Savings (%)		19.81%
Savings in CO2 equivalent to planting approximately this many trees:		2

Chest Freezers and all other Freezers except Compact Freezers

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	400.00	360.00
Purchase price for 1 unit	\$800.00	\$880.00
Total annual operating costs	\$40.00	\$36.00
Total life-cycle costs (19 years)	\$1,187.00	\$880.00
Net Savings (\$)		\$307.00
Net Financial Savings (%)		25.86%
Net Energy Savings (%)		10.00%
Savings in CO2 equivalent to planting approximately this many trees:		1

### Refrigerators

Today's refrigerators use much less energy than older models. With an ENERGY STAR qualified refrigerator, you can save over \$100 per year compared to a 1980s fridge, or around \$200 per year over a 1970s fridge.

ENERGY STAR qualified refrigerators are required to use 20% less energy than models not labeled with the ENERGY STAR logo, and accomplish this through a combination of energy-efficient compressors and motors, improved cabinet design and defrost methods, and/or surface condensation controls.

### Freezers

Improvements to insulation and compressors have reduced the energy consumption of today's freezers over older models. A freezer built before 1993 costs an average \$35 more per year over recent ENERGY STAR qualified models, which use an average 10% less electricity than new, conventional models.

### Dishwashers

ENERGY STAR qualified dishwashers use advanced power and water saving features without reducing their ability to clean dishes. ENERGY STAR qualified dishwashers can save \$40 and 38 litres (10 gallons) of water per year over models built before 1994.



Dishwasher

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	356.00	324.00
Water consumption, cubic metres (annual)	6.00	5.00
Purchase price for 1 unit	\$600.00	\$600.00
Total annual operating costs	\$50.00	\$43.00
Total life-cycle costs (13 years)	\$1,103.00	\$1,022.00
Net Savings (\$)		\$81.00
Net Financial Savings (%)		7.34%
Net Energy Savings (%)		8.99%
Savings in CO2 equivalent to planting approximately this many trees:		1

*Our desire to do our part with the environment continues when equipment upgrades are required. This has resulted in the purchase of two ENERGY STAR appliances in the kitchen of our long term care facility, the Grove Nursing Home. Vendors are always requested to provide an ENERGY STAR option.*

Eric Hanna, CEO  
Annprior and District Memorial Hospital and the Grove Nursing Home

## COMMERCIAL APPLIANCES

Commercial Steamer - gas

	Not ENERGY STAR	ENERGY STAR
Energy consumption, GJ (annual)	89.00	39.00
Water consumption, cubic metres (annual)	79.00	28.00
Purchase price for 1 unit	\$7,350.00	\$11,365.00
Total annual operating costs	\$833.00	\$349.00
Total life-cycle costs (12 years)	\$13,627.00	\$13,994.00
Net Savings (\$)		-\$367.00
Net Financial Savings (%)		-2.69%
Net Energy Savings (%)		56.18%
Savings in CO2 equivalent to planting approximately this many trees:		273

Commercial Steamer - Electric

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	9241.00	4393.00
Water consumption, cubic metres (annual)	79.00	28.00
Purchase price for 1 unit	\$3,655.00	\$6,335.00
Total annual operating costs	\$1,199.00	\$548.00
Total life-cycle costs (12 years)	\$12,691.00	\$10,466.00
Net Savings (\$)		\$2,225.00
Net Financial Savings (%)		17.53%
Net Energy Savings (%)		52.46%
Savings in CO2 equivalent to planting approximately this many trees:		106

### Commercial Steam Cookers

Commercial steam cookers transfer the energy contained in steam to cook food by direct contact. ENERGY STAR qualified electric and gas steam cookers can cook more food in a shorter amount of time and reduce heat loss because of better insulation. They also meet maximum idle energy rates determined by ENERGY STAR.

ENERGY STAR qualified steam cookers also save water because they do not require water to be heated the entire time they are on.

Hot Food Holding Cabinet

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	12326.00	3944.00
Purchase price for 1 units	\$2,225.00	\$4,065.00
Total annual operating costs	\$1,367.00	\$438.00
Total life-cycle costs (12 years)	\$12,530.00	\$7,363.00
Net Savings (\$)		\$5,167.00
Net Financial Savings (%)		41.24%
Net Energy Savings (%)		68.00%
Savings in CO2 equivalent to planting approximately this many trees:		183

### Hot-Food Holding Cabinets

Commercial hot food holding cabinets are fully-enclosed, heated compartments that keep cooked food at high temperatures. ENERGY STAR qualified hot food holding cabinets typically have increased insulation levels for reduced heat loss and greater temperature uniformity, and may have other features such as magnetic door gaskets or auto-door closures.



RCU with Remote Compressor Ice Machine

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	12695.00	11219.00
Purchase price for 1 units	\$2,795.00	\$3,075.00
Total annual operating costs	\$1,408.00	\$1,245.00
Total life-cycle costs (8 years)	\$10,888.00	\$10,227.00
Net Savings (\$)		\$661.00
Net Financial Savings (%)		6.07%
Net Energy Savings (%)		11.63%
Savings in CO2 equivalent to planting approximately this many trees:		32



### Commercial Ice Machines

ENERGY STAR qualified commercial ice machines utilize electricity and water-saving features. Each ENERGY STAR qualified commercial ice machine can save about 1,200 kWh annually, or an average of \$110/year on utility bills, and may save an additional \$10/year and 9,464 litres/year (2,500 gallons) due to reduced water usage.

### Commercial Dishwasher

Commercial dishwashers must use less water than maximum per rack requirements during the final rinse in order to qualify for the ENERGY STAR, and also use less energy while idling between wash cycles. ENERGY STAR qualified commercial dish washers use an average of 25% less water and energy over conventional models.

Dishwasher - Multi-Tank Conveyor, Low Temperature

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	46,536.00	28,864.00
Water consumption, cubic metres (annual)	809.00	432.00
Purchase price for 1 unit	\$19,355.00	\$23,655.00
Total annual operating costs	\$6,946.00	\$4,154.00
Total life-cycle costs (13 years)	\$87,549.00	\$64,437.00
Net Savings (\$)		\$23,112.00
Net Financial Savings (%)		26.40%
Net Energy Savings (%)		37.97%
Savings in CO2 equivalent to planting approximately this many trees:		385



Refrigerators with Solid Doors

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	3,523.00	2,332.00
Purchase price for 1 unit	\$2,280.00	\$2,635.00
Total annual operating costs	\$391.00	\$259.00
Total life-cycle costs (10 years)	\$4,903.00	\$4,371.00
Net Savings (\$)		\$532.00
Net Financial Savings (%)		10.85%
Net Energy Savings (%)		33.81%
Savings in CO2 equivalent to planting approximately this many trees:		26

Freezer with Solid Doors

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	1,033.00	504.00
Purchase price for 1 unit	\$2,280.00	\$2,635.00
Total annual operating costs	\$115.00	\$56.00
Total life-cycle costs (10 years)	\$3,049.00	\$3,010.00
Net Savings (\$)		\$39.00
Net Financial Savings (%)		1.28%
Net Energy Savings (%)		51.21%
Savings in CO2 equivalent to planting approximately this many trees:		12

### Commercial Refrigerators and Freezers

Commercial self-contained refrigerators and freezers are electric refrigerated cases and may have one or more interior lights to illuminate the contents. ENERGY STAR qualified commercial refrigerators and freezers utilize energy-efficient lighting, energy-efficient compressors and motors, improved cabinet design and defrost methods, and surface condensation controls. Models with solid doors use half the electricity required for glass-door models with display lighting.

Electric Fryer

	Not ENERGY STAR	ENERGY STAR
Energy consumption, kWh (annual)	18189.00	17011.00
Purchase price for 1 units	\$3,110.00	\$4,425.00
Total annual operating costs	\$2,018.00	\$1,887.00
Total life-cycle costs (12 years)	\$18,317.00	\$18,646.00
Net Savings (\$)		-\$329.00
Net Financial Savings (%)		-1.80%
Net Energy Savings (%)		6.48%
Savings in CO2 equivalent to planting approximately this many trees:		26

Gas Fryer

	Not ENERGY STAR	ENERGY STAR
Energy consumption, GJ (annual)	172.00	118.00
Purchase price for 1 units	\$3,655.00	\$6,335.00
Total annual operating costs	\$1,268.00	\$875.00
Total life-cycle costs (12 years)	\$13,213.00	\$12,927.00
Net Savings (\$)		\$286.00
Net Financial Savings (%)		2.16%
Net Energy Savings (%)		31.40%
Savings in CO2 equivalent to planting approximately this many trees:		290

### Commercial Fryers

Commercial fryers use oil to deep fry food, and may be more commonly used in cafeterias serving the public than for food served to patients. Fryers are comprised of a stainless steel outer encasing, an insulated steel fry pot and stainless steel food baskets. ENERGY STAR qualified fryers utilize advanced burner/element and heat exchanger designs, as well as increased insulation levels. Electric fryers often use induction heating and advanced controls to improve efficiency.

## STEAMER AND FRYER COMPARISONS

### Steamers – Natural Gas or Electric?

According to Canada's ENERGY STAR Simple Savings Calculator, the average ENERGY STAR qualified electric steamer costs \$3,528 less over its lifetime than an equivalent ENERGY STAR qualified gas steamer. It also emits 1,069.45 fewer kg of GHG per year.

	ENERGY STAR	
	Gas Steamer (GJ)	Electric Steamer (kWh)
Energy consumption (annual)	39	4393
Water consumption, cubic metres (annual)	28	28
Purchase price for 1 units	\$11,365.00	\$6,335.00
Total annual operating costs	\$349.00	\$548.00
Total life-cycle costs (12 years)	\$13,994.00	\$10,466.00
Net Financial Savings (\$)		\$3,528.00
Net Financial Savings (%)		25.21%
CO2e Emissions (annual, kg)	1948.05	878.6

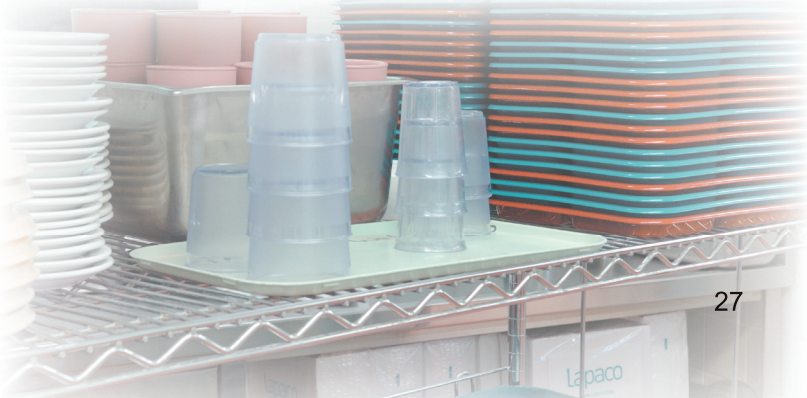
### Fryers – Natural Gas or Electric?

Despite having a higher average purchase price, ENERGY STAR qualified gas-powered fryers cost \$5,719 less over their lifetime compared to equivalent electric fryers; however, gas fryers emit 2,491.9 kg more GHG emissions. From an environmental perspective the clear winner is the electric fryer, whereas sound fiscal planning would dictate that staff purchase the gas model.

	ENERGY STAR	
	Gas Fryer (GJ)	Electric Fryer (kWh)
Energy consumption (annual)	118	17,011.00
Purchase price for 1 units	\$6,335.00	\$4,425.00
Total annual operating costs	\$875.00	\$1,887.00
Total life-cycle costs (12 years)	\$12,927.00	\$18,646.00
Net Savings (\$)	\$5,719.00	
Net Savings (%)	30.67%	
CO2e Emissions (annual, kg)	5,894.10	3,402.20

*We made it a point to specify ENERGY STAR when we purchased our last refrigerator and are now making it standard purchasing policy to investigate the energy savings available from ENERGY STAR qualified appliances.*

Sheila Yakabuskie  
Food Service Team Leader  
St. Francis Memorial Hospital



# Sample Procurement Language

Once you have made your commitment to helping the environment and saving energy through the purchase of ENERGY STAR qualified equipment, it is time to let your potential vendors know they must match their product offerings with your expectations and ENERGY STAR requirements.

Whether purchasing a single piece of equipment, making bulk purchases or entering into lease or maintenance agreements, adding suitable ENERGY STAR language to tender documents and contracts is essential.

Sample procurement language for ENERGY STAR qualified products is available on the ENERGY STAR website ([www.energystar.gc.ca](http://www.energystar.gc.ca)) under the “Information for businesses and organizations” link where you will find technical specifications and product specifics by product category.

In addition, you may find some of the following provisions helpful in wording your documents:

The vendor must

- deliver all qualified products properly configured for current ENERGY STAR specifications
- ensure that installation services include the full activation and proper configuration of any automatic energy-saving, power-down and/or power management features
- ensure that maintenance services include the full reactivation and proper reconfiguration of any automatic energy-saving, power-down and/or power management features to the terms of the current ENERGY STAR specifications at the time of service
- customize sites and train users in order to maximize the energy efficiency of installed products
- not disable power-management features except at the request of site staff
- provide ongoing customer support on all energy-saving, power-down and power management features

To encourage suppliers to remain current on ENERGY STAR, add the following paragraph to your tender documents:

*“The vendor must provide products that are qualified to use the ENERGY STAR symbol and meet the ENERGY STAR specifications for energy efficiency. Complete product specifications and an up-to-date listing of qualified products are available at [www.energystar.gc.ca](http://www.energystar.gc.ca).”*

On occasion the product you are purchasing may not be delivered for several weeks or months so find out if the ENERGY STAR specifications are scheduled to change during that period. If this is the case you will want to include the new information in your tender documents or instructions to your supplier. This will ensure your new product meets all new ENERGY STAR specifications. Notices about upcoming changes in specifications are posted on the ENERGY STAR website.

## A procurement officer should...

Be aware of and knowledgeable about all types of products that qualify for ENERGY STAR.

Understand the business case behind buying ENERGY STAR qualified products, as well as the environmental benefits these products offer.

Always be on the lookout for opportunities to increase the use of ENERGY STAR qualified products in your organization.

Use this guide and the resources on the ENERGY STAR website to compare ENERGY STAR qualified products to standard equipment.

Visit the ENERGY STAR website regularly for notices about upcoming changes in ENERGY STAR qualification criteria or the introduction of new products to the ENERGY STAR lineup.

Watch for rebates and other incentives to purchase ENERGY STAR qualified products.

Make sure both the manager and the “clients” (the people for whom they are purchasing equipment) are aware of product models that qualify for ENERGY STAR.

Request detailed specifications for ENERGY STAR qualified products from the manufacturer and share them with the manager and clients.



New products are added regularly to the ENERGY STAR qualified product roster. In addition, there are ongoing revisions to technical specifications for existing products to ensure they continue to represent only the highest energy performers on the market.

# Environmentally Responsible Food Service Tips

As a professional food service leader you have the power to put your purchasing dollars and buying expertise to good use by specifying and purchasing ENERGY STAR qualified equipment for your food service department. You also have the power to raise awareness among staff and colleagues to the many opportunities inherent in the delivery of sustainable food, above and beyond the energy efficiency component. Perhaps some of the following Environmentally Responsible Food Service Tips will be of use to you as you make your journey towards sustainable food service in your health care facility.

## KITCHEN OPERATIONS

Question your current kitchen processes to best evaluate staff and energy efficiencies.

Initiate a 'no idle' policy for food delivery vehicles.

Educate staff on the proper use and maintenance of all kitchen equipment and appliances.

## Green Cleaning

Use certified green cleaning products.

Investigate MicroFiber® cleaning technology to reduce chemicals and water use.

Be sure to put only dishwasher-safe items in your machine - many non-reusable containers such as plastic water bottles are believed to break down under heat and leach harmful chemicals. Avoid dishwashers with plastic liners for the same reason.

## Utilities and Equipment

Install solar water pre-heaters.

Install heat recovery technology on all waste water pipes to optimize use of water for rinsing, washing and clean-up and replace with ENERGY STAR qualified product if needed.

Ensure energy efficient lighting; use ENERGY STAR qualified compact fluorescent bulbs, suitable task lighting and motion sensors where safety permits. Use natural lighting wherever possible.

Use low-flow faucets and automated or foot-controlled taps where appropriate.

Ensure that gaskets/seals on all retherm and refrigeration carts are not worn or deteriorating and replace as necessary.

Wait until you have a full load before running dishwasher.

Skip the pre-rinse if your modern dishwasher is powerful enough to remove all the food waste. Eliminating the hand pre-wash saves time, money, water, detergent, and electricity.

Choose the size of dishwasher that best fits your needs and delay the start of dish washing until off-peak utility hours to take advantage of reduced rates for energy.

Install variable speed fans where appropriate.

Inspect walk-in coolers and cold rooms for air and refrigeration leaks, and ensure all filters are regularly cleaned.

Ensure window air conditioning units are regularly cleaned and maintained, and used only when necessary. When needed, replace only with ENERGY STAR qualified units.

Ensure water coolers are properly cleaned and maintained.

Inspect all fire suppression equipment and ensure it meets current standards for ozone protection.

Verify that all equipment is operating at the manufacturer's rated energy output.

Stagger electric device start-ups in order to reduce peak demand charge.

Monitor and eliminate excessive preheat times on ovens.

Ensure your ovens are properly sized for the task at hand (production capacity).

Become familiar with your ovens' idle energy rates and retherm energy efficiency.



Benchmark the performance of your retherm ovens and compare performance with those of others.

Ensure all fans and canopy hood ventilation systems are operating at peak efficiency and filters regularly cleaned.

Investigate the possibility of capturing excess kitchen heat and venting it into HVAC system.

When upgrading kitchen appliances remember to consider both gas and electric ENERGY STAR options.

Exercise caution in where you place your appliances and try to keep 'heating' and 'cooling' appliances separate.

Take advantage of natural ventilation when possible... open windows help allow fresh air to come enter and keeps stale air flowing out.



### **Waste Management**

Reduced non-recyclable packaging and request vendors/ suppliers 'take back' shipping container.

Ensure you have plenty of recycling and food waste bins near work areas.

Have your local waste hauler provide training to all staff to ensure proper source separation of waste and recyclables.

Investigate whether your site is host to lingering Halocarbon refrigerants and initiate remedial action as necessary.

### **Green Purchasing**

Investigate bulk purchases that eliminate shipping container waste.

Utilize dish washing powders and liquids that are natural, biodegradable, and free of petroleum and phosphates. Consider also products sold in bulk to reduce packaging. Powdered detergents are often lighter requiring less energy to ship.

If kitchen uniforms require dry cleaning seek out dry cleaning services that offer green cleaning technologies.

Eliminate the use of store-bought air fresheners and opt instead for boiling cloves, cinnamon, or other herbs.

### **RETAIL FOOD SERVICE AND CAFETERIAS**

Use clear and colourful signage to let customers know 'take out' packaging is available by request only.

Post nutritional information to help customers make better informed 'healthy' choices.

Use signage to discourage customers from using disposable trays.

Promote reusable drink containers and consider offering them for sale.

### **Green Purchasing**

Learn about Fair Trade products and the rigorous system of global commerce behind the logo. [www.transfair.ca](http://www.transfair.ca)

Establish goals as to the percentage of local food and produce you feature. Many suppliers simply just need to be asked.

Create seasonal menus featuring local, fresh produce.

Consider switching to organic/fibre based take-a-way containers, cutlery and packaging.

Use napkins made from 100% post-consumer recycled paper.

Introduce your customers to organic foods by having an Organic Food Day and provide organic food literature.

### **Waste Management**

Encourage the use of china and reusable cutlery for 'eat in' meals.

Eliminate where possible plastic and polystyrene (foam) food and drink containers.

Discourage use of take-out containers by instructing serving staff to default to china cups, bowls and plates.

Maximize recycling potential with clear signage and sufficient bins. Make it obvious that you recycle.

### **CLIENT AND PATIENT FOOD SERVICE**

Conduct periodic returned food tray audits to determine what items are unused and consider ways to reduce returns that often lead to waste (i.e. unopened/unused straws, salt, pepper).

Ensure portable refrigeration units are free from damage and refrigerant leaks.

Eliminate plastic and polystyrene (foam) food and drink containers.

### **Healthy Foods**

Place nutritional information on patient trays to better allow them to make healthy food choices.

Eliminate the use of nitrate-rich luncheon meats.

Eliminate single-use drink containers such as cardboard milk cartons and plastic water bottles.

Establish an on-site garden to provide a quiet place of respite and get people thinking about local, fresh, healthy foods.

Serve more local fruits and vegetables.



### Waste Management

Properly source separate waste, compostables, and recyclables from returned patient trays.

Use colourful signage to ensure waste is properly separated.

### CATERING SERVICE

Catering conferences and on-site events are great opportunities to introduce new sustainable food initiatives to attendees, some of whom will be decision-makers able to influence additional sustainable food practices within your organisation and provide support to your greening work.

Encourage the printing of all signage and conference guides on recyclable paper using vegetable inks.

Serve cold drinks (water, juice, milk) from bulk containers and eliminate single serve packaging.

Make your event plastic-free featuring reusable napkins and table cloths, metal cutlery and china/glass drink containers.

Serve freshly-picked produce from local farms and vendors.

Introduce Fair Trade products such as coffee, chocolate, tea, rice, sugar, bananas and wines and promote these specialty items with colourful signage. Posters and consumer education materials are available from TransFair Canada. <http://transfair.ca/en/get-involved/promotional-materials>

Provide plenty of well marked recycling containers and promote through signage and announcements that you are hosting a minimal waste event.

Offer to share some of your local and seasonal food product recipes with attendees.

## Publications and Resources

Natural Resources Canada's Office of Energy Efficiency has the most up to date information on energy efficiency and ENERGY STAR qualified products, alternative energy and clean fuels. This information is available through numerous free of charge publications to help you save energy, save money and help protect the environment while reducing harmful GHG emissions that contributes to climate change.

The majority of the publications are available in print and can be easily ordered online. Most are also available in PDF and HTML for online viewing and download. To find publications of interest, visit OEE's document portal (<http://www.oee.nrcan.gc.ca/publications/infosource/home/index.cfm?language=english&attr=0>) and type a keyword such as "ENERGY STAR," "kitchen," or "energy efficiency" in the Search box or select the category of your choice in the left navigation bar. We also encourage you to review the following documents and links.

Benchmarks and Best Practices for Acute and Extended Health Care Facilities: A Guide for Energy Managers and Finance Officers  
<http://oee.nrcan.gc.ca/publications/commercial/m144-7-2003e.cfm?attr=20>

Commercial Kitchen Cooking Equipment Information on how to save energy using commercial cooking equipment  
<http://oee.nrcan.gc.ca/commercial/equipment/commercial-kitchen/cooking-equipment/index.cfm?attr=4>

Energy Efficiency Ratings Self-Contained Commercial Refrigerators and Freezers  
<http://oee.nrcan.gc.ca/residential/business/manufacturers/search/self-contained-refrigerators-freezers-search.cfm?attr=4>

ENERGY STAR – Commercial Dishwashers  
<http://oee.nrcan.gc.ca/residential/business/manufacturers/commercial-dishwashers.cfm?attr=4>

ENERGY STAR for Healthcare - ENERGY STAR US  
[http://www.energystar.gov/index.cfm?c=healthcare.bus\\_healthcare](http://www.energystar.gov/index.cfm?c=healthcare.bus_healthcare)

ENERGY STAR in Canada - NRCan  
[http://dsp-psd.pwgsc.gc.ca/collection\\_2007/nrcan-rncan/M144-145-1-2007E.pdf](http://dsp-psd.pwgsc.gc.ca/collection_2007/nrcan-rncan/M144-145-1-2007E.pdf)

ENERGY STAR Product Specifications for Commercial Steam Cookers  
<http://oee.nrcan.gc.ca/residential/business/manufacturers/specifications/steam-cookers.cfm?attr=4>



ENERGY STAR Purchasing Guide - Put ENERGY STAR to work for your organization (2009)

<http://oee.nrcan.gc.ca/publications/infosource/home/index.cfm?act=online&id=6898&format=PDF&lang=01>

ENERGY STAR Qualifying Criteria for Commercial Fryers

<http://oee.nrcan.gc.ca/residential/business/manufacturers/specifications/fryers.cfm?attr=4>

ENERGY STAR Qualifying Criteria for Commercial Hot Food Holding Cabinets

<http://oee.nrcan.gc.ca/residential/business/manufacturers/specifications/hot-food-cabinets.cfm?attr=4>

ENERGY STAR Qualifying Criteria for Commercial Ice Machines

<http://oee.nrcan.gc.ca/residential/business/manufacturers/specifications/commercial-ice-machines.cfm?attr=4>

ENERGY STAR Qualified Commercial Clothes Washers

<http://oee.nrcan.gc.ca/residential/business/manufacturers/search/household-style-commercial-clothes-washers-search.cfm?attr=4>

ENERGY STAR Qualifying Criteria for Commercial Refrigerators and Freezers

<http://oee.nrcan.gc.ca/residential/business/manufacturers/specifications/sd-refrig.cfm?attr=4>

ENERGY STAR Qualified Fixtures – 10,000 Models to Choose From

<http://oee.nrcan.gc.ca/residential/business/energystar/energy-star-qualified-fixtures.cfm?attr=9>

Environmental Purchasing Guide - Richmond BC

<http://www.richmond.ca/services/Sustainable/environment/policies/purchasing.htm>

Guide for the Purchase and Use of ENERGY STAR Qualified Commercial Fryers

<http://oee.nrcan.gc.ca/residential/business/manufacturers/fryer-guide.cfm?attr=4>

Guide for the Purchase and Use of ENERGY STAR Qualified Hot Food Holding Cabinets

<http://oee.nrcan.gc.ca/residential/business/manufacturers/cabinets-guide.cfm?attr=4>

Guide for the Purchase and Use of ENERGY STAR Qualified Self-contained Solid Door Refrigerators and Freezer

<http://oee.nrcan.gc.ca/residential/business/manufacturers/freezer-guide.cfm?attr=4>

Guide for the Purchase and Use of ENERGY STAR Qualified Steam Cookers

<http://oee.nrcan.gc.ca/residential/business/manufacturers/steamcookers-guide.cfm?attr=4>

Health Care Energy Survey: Comparing Energy Management in Canadian Health Care Facilities - NRCAN

<http://oee.nrcan.gc.ca/publications/commercial/m27-01-1732e.cfm?attr=20>

Lighting Reference Guide

<http://oee.nrcan.gc.ca/publications/equipment/lighting/index.cfm?attr=4>

Major Appliances - Update 2010

<http://oee.nrcan.gc.ca/residential/business/energystar/major-appliances.cfm>

Off-the-Shelf Equipment for Commercial/Institutional Use

<http://oee.nrcan.gc.ca/commercial/equipment/index.cfm?attr=4>

Rebuilt Refrigerated Beverage Vending Machines

<http://oee.nrcan.gc.ca/residential/business/manufacturers/search/beverage-vending-machine-search.cfm?attr=4>

Saving Money Through Energy Efficiency - A Guide to Implementing an Energy Efficiency Awareness Program

<http://oee.nrcan.gc.ca/publications/infosource/pub/ici/eii/m144-22-2003e.cfm>

Turning Energy Dollars into Health Care dollars - A Guide to Implementing an Energy Efficiency Awareness Program in a Health Care Facility

[http://canmetenergy-canmetenergie.nrcan-nrcan.gc.ca/fichier.php/codectec/En/2008\\_sbc\\_05/CommunityEnergyPlanning-Guide\\_en.pdf](http://canmetenergy-canmetenergie.nrcan-nrcan.gc.ca/fichier.php/codectec/En/2008_sbc_05/CommunityEnergyPlanning-Guide_en.pdf)

Using Energy Wisely in Your Restaurant

[http://www.hydro.mb.ca/your\\_business/kitchen/restaurant\\_energy\\_guide.pdf.1](http://www.hydro.mb.ca/your_business/kitchen/restaurant_energy_guide.pdf.1)

What products qualify for ENERGY STAR?

<http://oee.nrcan.gc.ca/residential/business/manufacturers/qualified-products.cfm?attr=12>

University Health Network believes in doing what it can to promote environmental stewardship and lessen our impact on the environment. One way we accomplish this is by sourcing appliances that are ENERGY STAR qualified. We know they help lower our energy bills and because they are more energy efficient our demand for energy is decreased allowing us more money for patient care and less for the utility company.

Edward Rubinstein  
Manager, Energy & Environment, University Health Network



# Local Food for Health Care Study

In the autumn of 2010, the Canadian Coalition for Green Health Care, together with partner organisations My Sustainable Canada, University of Guelph and Wilfrid Laurier University, St. Mary's General Hospital in Kitchener, St. Joseph's Health System in Guelph, the YMCA Eco Internship Program, ARAMARK Health-care Canada, Compass Group and Sedexo, engaged in a study funded by the Ontario Ministry of Agriculture Food and Rural Affairs to assess the practicality, cost-benefit, health and environmental benefits of incorporating more local food into patient and cafeteria meals.

The type of kitchen equipment available to prepare meals is an important consideration when evaluating a facility's capacity to prepare fresh, local food. Typically, the equipment hospitals have in their patient and cafeteria kitchens would include kettles, refrigerators and freezers, retherm units, griddles, deep fryers, hot food holding cabinets, pots and pans, steam cookers, ovens, stove tops and microwave ovens.

In general, the patient kitchens of hospitals are poorly equipped. For example, 63% of respondent facilities had equal numbers of retherm systems and stoves. It is unfortunate that vital kitchen equipment, such as stoves, ovens, and pots and pans, are not present in all hospitals.

Cafeteria kitchens in hospitals are generally better equipped than patient kitchens although patient kitchens in long-term care (LTC) facilities were very well equipped, with 100% of LTC respondents having essential kitchen equipment including stoves, ovens, steam cookers, pots/pans, fridges, and freezers. Over ninety percent of LTC respondents reported using conventional methods to prepare meals for their patients.

Study respondents were also asked to select any perceived barriers to purchasing more local food. The top barriers reported were: seasonal availability of local food, (69%); added labour needed to prepare the food, (63%); lack of availability through current suppliers (69%); lack of availability in some food groups (63%); complying with regulations (59%) and 'too expensive to purchase' (56%).

While survey respondents acknowledge the health and environmental impacts of local food, these factors do not appear to influence food purchasing decisions. Essentially, food is food. The intangible social/environmental dimensions of local food are not perceived as important to food purchasing. The implication is that local food must be equal to conventionally sourced food in price, safety (certifications), nutrition, and appeal to the senses (taste, texture, appearance, and fragrance).

Researchers determined local food movements will continue to flourish within the coming years and our health care facilities are slowly embracing local foods in their nutrition and food service departments. As food service areas are upgraded to include more essential kitchen equipment, there is a tremendous opportunity to ensure that these areas become both energy and water efficient through the sourcing and purchase of ENERGY STAR qualified equipment.

It is important to not only view the movement towards local foods as personal endeavors on the part of committed health service workers, but also as those that, if implemented correctly, will allow institutions, such as schools and hospitals, to benefit.

By implementing local foods within society we will be able to support our local economy and local farmers, decrease our carbon footprint, provide fresh and nutritious food to our community and lastly have a greater sense of pride about the food we eat, because it has been grown close to home.

To learn more about Local Food and health care, please visit: [www.greenhealthcare.ca/~greenhea/index.php/what-we-do/foods](http://www.greenhealthcare.ca/~greenhea/index.php/what-we-do/foods)



*Health Care Food Service Resource Guide: Going Green in the Kitchen with ENERGY STAR®* was produced with funding from Natural Resources Canada's Office of Energy Efficiency