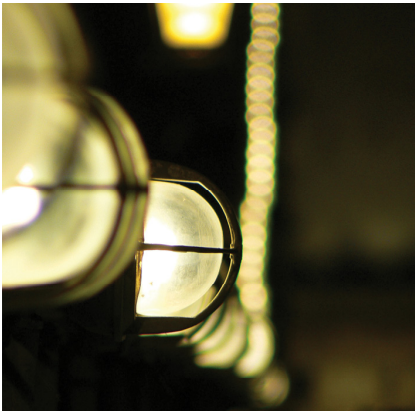


# Smart Purchases Big Impact

**Sustainable Purchasing Guide**  
**Large Appliances**

*Sustainability... your university, your world*

A stylized black tree icon with many leaves.



## Introduction

This section provides information on currently available **large appliances** that can help to move the University of Saskatchewan toward its sustainability goals. Living within the boundaries of our sustainability goals requires us to apply two main strategies:

**Dematerialization** requires that we reduce the amount of materials as much as possible; and that we continually move toward the use of 100% recycled content.

**Substitution** requires that we find less harmful materials to replace those that currently damage and are not recyclable.

**Sustainable purchasing** is about including social, environmental, financial and performance factors in a systematic way. It involves thinking about the reasons for using the product (the service) and assessing how these services could be best met. If a product is needed, sustainable purchasing involves considering how products are made, what they are made of, where they come from and how they will be used and disposed.

Finally, remember that this is an evolving document – it will change with new information as our understanding of sustainability impacts and potential solutions improves.

### Purchasing Services

Tel: (306) 966-6704  
Email: [purchasing.services@usask.ca](mailto:purchasing.services@usask.ca)

### Office of Sustainability

Tel: (306) 966-1236  
Email: [fmd.sustainability@usask.ca](mailto:fmd.sustainability@usask.ca)

**Smart Purchases  
Big Impact**

Wherever possible **CHOOSE** products that employ a combination of characteristics listed in the left hand column, and **AVOID** products that demonstrate characteristic in the right-hand column.

### CHOOSE

- Energy Star/Ecologo approved appliances
- Favourable Energuide rating

### AVOID

- Disposing of the used appliance in a landfill

### Option: Use Energy Efficient Energy Star® Labeled Equipment Strategy: Substitution – Energy Efficient (SO 1, 2, 3)

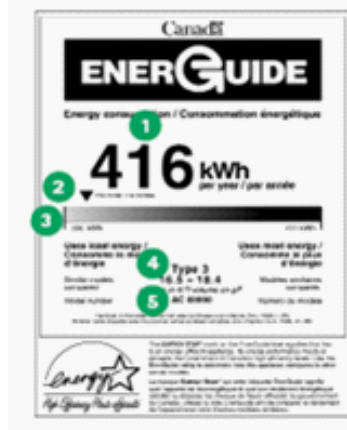
The international Energy Star symbol identifies major electrical appliances that meet or exceed technical specifications designed to ensure that they are among the most energy efficient in their class, without compromising performance. Appliances rated by Energy Star include:

- Clothes washers – rated on both energy efficiency and water use
- Refrigerators – rated on energy efficiency
- Freezers – rated on energy efficiency
- Dishwashers
- Compact dishwashers
- Dehumidifiers
- Bottled-water coolers

### Option: Choose Appliances with High EnerGuide Ratings Strategy: Substitution – Energy Efficient (SO 1, 2, 3)

Under Canada's *Energy Efficiency Regulations*, every new electrical appliance manufactured or imported into Canada must be evaluated and labeled by EnerGuide. The label indicates the amount of electricity used by that appliance.

The Black and White EnerGuide Label:



1. Average annual energy consumption in kilowatt hours (kWh)
2. Annual energy consumption range for models of this type and size
3. Energy efficiency of the appliance relative to similar models
4. Type and size of the model
5. Model number

## Option: Choose Recyclable Appliances

Strategy: Substitution – Recyclability (SO 1, 3)

Choose appliances from manufacturers that can document that they design for recyclability. Design for recycling means both easy disassembly and recyclable materials. New design concepts take the environment and recycling into account early in the manufacturing process to enable more convenience later in the product's lifecycle. Some signs that an appliance is recyclable include:

- Modular design with the ability to disassemble parts made of different materials
- Materials which are more easily recycled; e.g. replacing PVC with styrene resins
- Alternative assembly techniques (clips, etc.), with few screws or permanent junctions
- Mono-material as compared to hybrid components

## Option: Recycle Appliances at the End of their Life Cycle

Strategy: Dematerialization – (SO 1, 3)

Appliance recycling programs are available in many Canadian communities; consult your Yellow Pages or municipality to find out what programs exist and how appliances are collected. Ask if chlorofluorocarbons (CFCs) are removed before appliances are crushed for recycling. CFCs are the gases that cool refrigerators and freezers. If not recovered properly, CFCs escape and damage the atmosphere's ozone layer.

# Arriving at the currently preferred options

### 1. Identify the service

Large appliances fulfill a variety of services that range from cleaning clothes and washing dishes to cooking food.

### 2. Assess the need

The University of Saskatchewan requires many of the services provided by large appliances through all aspects of its operations.

### 3. Identify the contents

**Steel** is the main component of large appliances (by weight). They also include **plastic** parts and **electronics, glass** and **rubber** or plastic tubing, depending on the machine in question.

Their operation generally consumes **water, energy** and/or **chemical detergents**.

### 4. Identify sustainability impacts

*i. ...systematically increasing concentrations of substances from the earth's crust?*

- The production and shipment of large appliances requires **fossil fuels**. Currently fossil fuels being extracted at a rate much faster than they are accumulating.
- Most large appliances use **electricity** to operate. If the electricity used to operate the device and equipment is derived from the combustion of fossil fuels, it leads to an increase in concentration of substances from the earth's crust in nature (CO<sub>2</sub>, CO and SO<sub>x</sub>). In Saskatchewan, most electrical energy is generated from the combustion of coal. This can lead to negative outcomes including climate change, acid rain and human health impacts.
- The **petroleum or natural gas** used as feedstock for any plastic components is extracted from the earth's crust at a rate much greater than it is re-deposited back into the earth's crust.

*continued on page 3...*

#### 4. Identify sustainability impacts (con't)

ii. ...systematically increasing concentrations of substances produced by society?

- Currently most appliances end-up in local landfills where many parts don't break down. This displaces land mass and therefore leads to an increased concentration of manmade products on the earth's surface. Any **plastic** components persist in the environment, contributing to an increase in concentration of complex human-made substances in nature.
- The production and use of large appliances requires energy. The combustion of fossil fuels produces a number of **chemical compounds** (e.g. nitrogen oxides) that build up in the atmosphere.

iii. ...systematically degrading nature by physical means?

- The production of large appliances requires the use of **raw materials** such as various metals and fossil fuels. If these materials are being removed from the earth's surface faster than they are being replaced this will lead to the degradation of the earth's surface.
- Millions of large appliances are sent to the **landfills** each year displacing ecosystems and natural resources.

iv. ...systematically undermining people's ability to meet their basic human needs?

- Humans are being displaced due to the large amount of space required by **landfills** where many large appliances currently end up.
- A number of the compounds produced by the combustion of fossil fuels (e.g. nitrogen oxides, carbon monoxide, sulfur oxides, particulate matter) have a negative effect on **human health**.

#### 5. Envision sustainable large appliances

In principle, sustainable small appliances would feature:

- No components that are derived from the earth's crust (e.g. petrochemicals and metals), unless those ingredients are 100% captured and reused.
- No components that are persistent in nature (e.g. plastic), unless those substances are 100% captured and reused

And a production process that:

- Does not contribute to the increased concentrations of substances from the earth's crust or the buildup of persistent compounds in nature,
- Uses only sustainable renewable energy or energy produced in a carbon-neutral manner;
- Does not rely on practices that systematically physically degrade land and ecosystems; and
- Does not rely on practices that undermine people's capacity to meet their basic needs.

#### 6. Identify and prioritize alternatives

To identify the best options to meet the services provided by furniture, review the Current Options on page one and choose the most appropriate alternative by using the following three criteria for assessment:

- Does the product or service move us in the right direction with regards to our four Sustainability Objectives?
- Does the product or service create a flexible platform for the next step toward sustainability?
- Is the decision financially viable?

## Resources and Additional Information

1. Natural Resources Canada EnerGuide Standards  
<http://oee.nrcan.gc.ca/energuide/15896>
2. Natural Resources Canada Appliance Recycling  
[www.oee.nrcan.gc.ca/residential/personal/appliances/recycling.cfm?attr=4](http://www.oee.nrcan.gc.ca/residential/personal/appliances/recycling.cfm?attr=4)



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