

ABOUT SAVING ENERGY

We use energy every single day. Every time we switch on a light, turn up a thermostat, or turn on a television, we use energy. Whether you're at home or at school, it would be difficult to find a room that doesn't have at least one energy-using product.

In Newfoundland and Labrador, and all around the world, energy use is going up. That's why it's more important than ever to save energy.

INCREASE IN COMMON HOUSEHOLD ELECTRONICS (1970-2010)



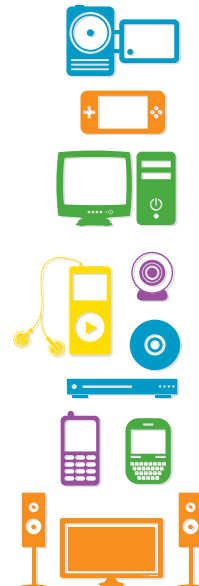
1970



1980



1990



2000



2010

WHAT CAN YOU DO?

CONSERVE ENERGY by making small changes in your everyday routine to save energy.



Turn off the lights when you leave a room.

Unplug electronics when they are fully charged.



Turn down the heat before you go to bed.



BE ENERGY EFFICIENT by using products or technologies that use less energy, like ENERGY STAR appliances and electronics.



TVS AND COMPUTERS



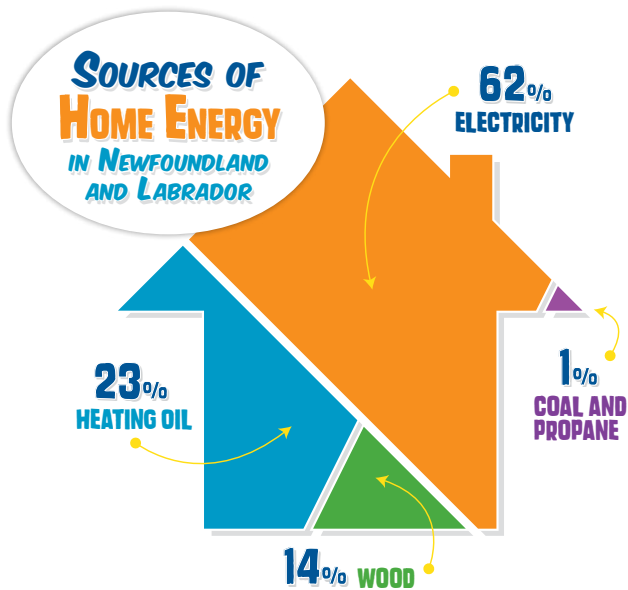
DISHWASHERS, WASHERS AND REFRIGERATORS

WHERE DOES ENERGY COME FROM IN NEWFOUNDLAND AND LABRADOR?

SOURCES OF ENERGY

The energy we use comes from a variety of sources. We use energy to run our cars, trucks and buses. This energy is usually generated by burning gasoline or diesel. We also use a lot of energy in our homes. This includes burning oil and wood for heating, as well as using electricity for heating and to run appliances.

Electricity is by far the largest source of energy used in our homes.



SOURCES OF ELECTRICITY

HYDROELECTRICITY is a renewable energy source that comes from hydroelectric plants built throughout our province. It's one of the cleanest sources of energy, which is good because hydroelectricity provides 89% of our province's electricity! This will increase to 98% when the Muskrat Falls Project is completed in 2017/18 and the Holyrood Thermal Generating Station is decommissioned.

OIL is burned at the Holyrood Thermal Generating Station on the Avalon Peninsula to generate electricity. This station provides between 15–25% of the island of Newfoundland's electricity. However, once the Muskrat Falls Project comes in-service, this station will be decommissioned.

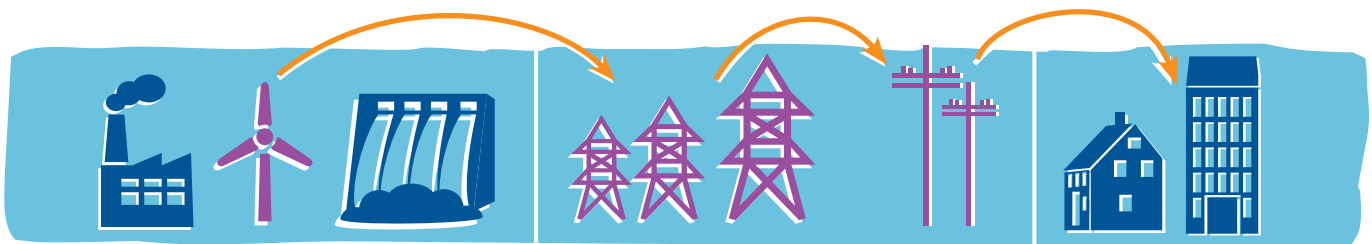
DIESEL FUEL is burned to generate electricity for communities that are not connected to the Labrador or island electricity grids. It is also burned to generate backup electricity and to provide voltage support.

WIND ENERGY is generated at three wind farms in Newfoundland and Labrador, creating enough electricity to power over 12,300 homes every year.

BIOMASS (including wood chips) is used in Corner Brook to generate electricity.

WHAT'S AN ELECTRICITY GRID?

Before electricity reaches our homes or schools, it travels through a complex system of transmission and distribution lines known as an **electricity grid**. In Newfoundland and Labrador, there are over 18,000 km of transmission and distribution lines, which is long enough to stretch from St. John's to Vancouver, and back again.



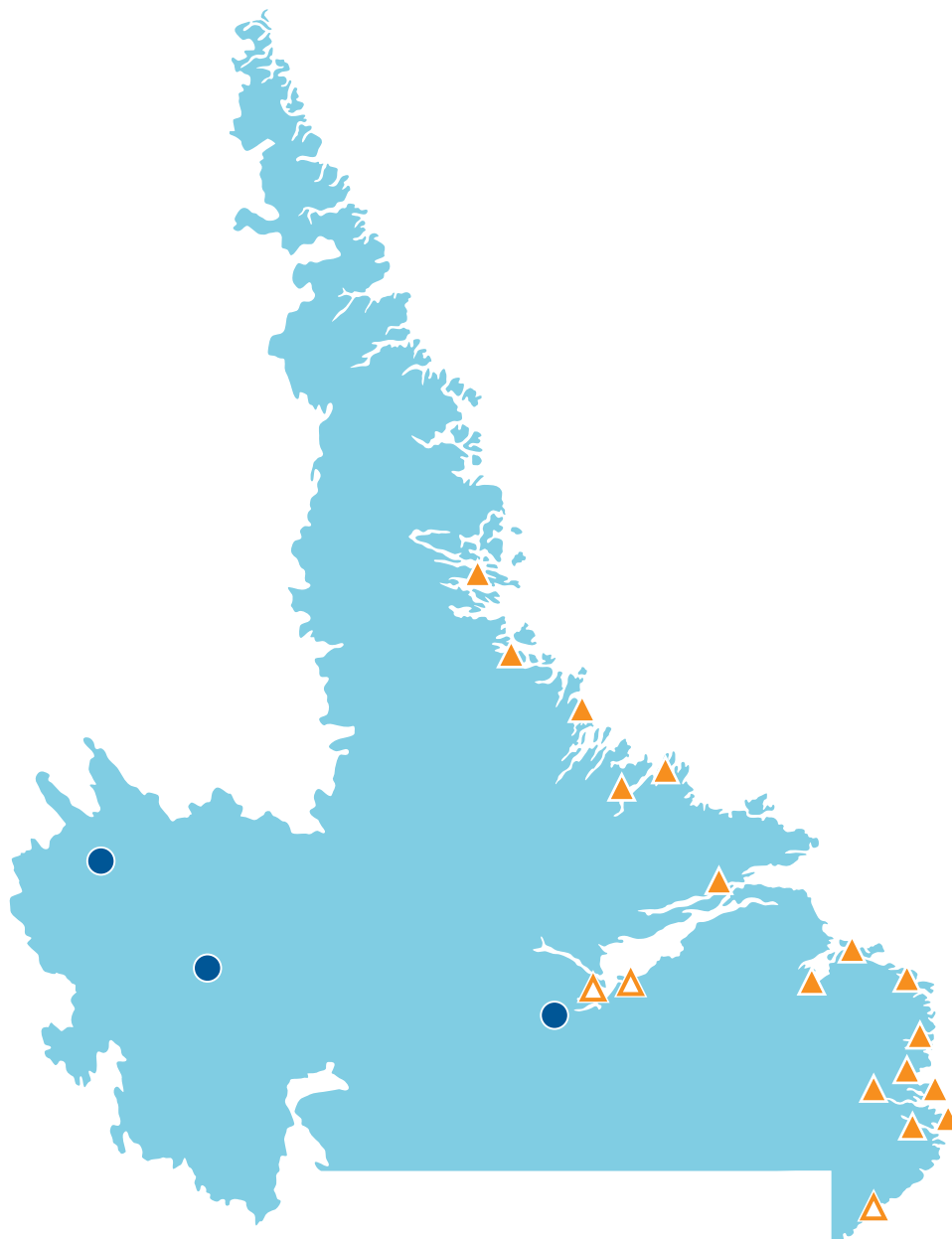
ELECTRICITY SOURCES IN LABRADOR

WHERE IS ELECTRICITY GENERATED IN LABRADOR?

The Labrador electricity grid is supplied with electricity from hydroelectric plants, with backup electricity and voltage support fueled by diesel. Some areas of Labrador use only electricity generated from diesel fuel because they are not connected to the electricity grid.

Hydroelectricity from Labrador will also provide electricity to the island of Newfoundland when the Muskrat Falls Project is completed in 2017/18.

This map shows where electricity is generated in Labrador.



● HYDROELECTRICITY

- Churchill Falls
- Menihek
- Muskrat Falls (by 2017/18)

▲ DIESEL FUEL

- Black Tickle
- Cartwright
- Charlottetown
- Hopedale
- Makkovik
- Mary's Harbour
- Nain
- Natuashish
- Norman Bay
- Paradise River
- Port Hope Simpson
- Postville
- Rigolet
- St. Lewis
- William's Harbour

△ DIESEL FUEL (BACKUP/VOLTAGE SUPPORT)

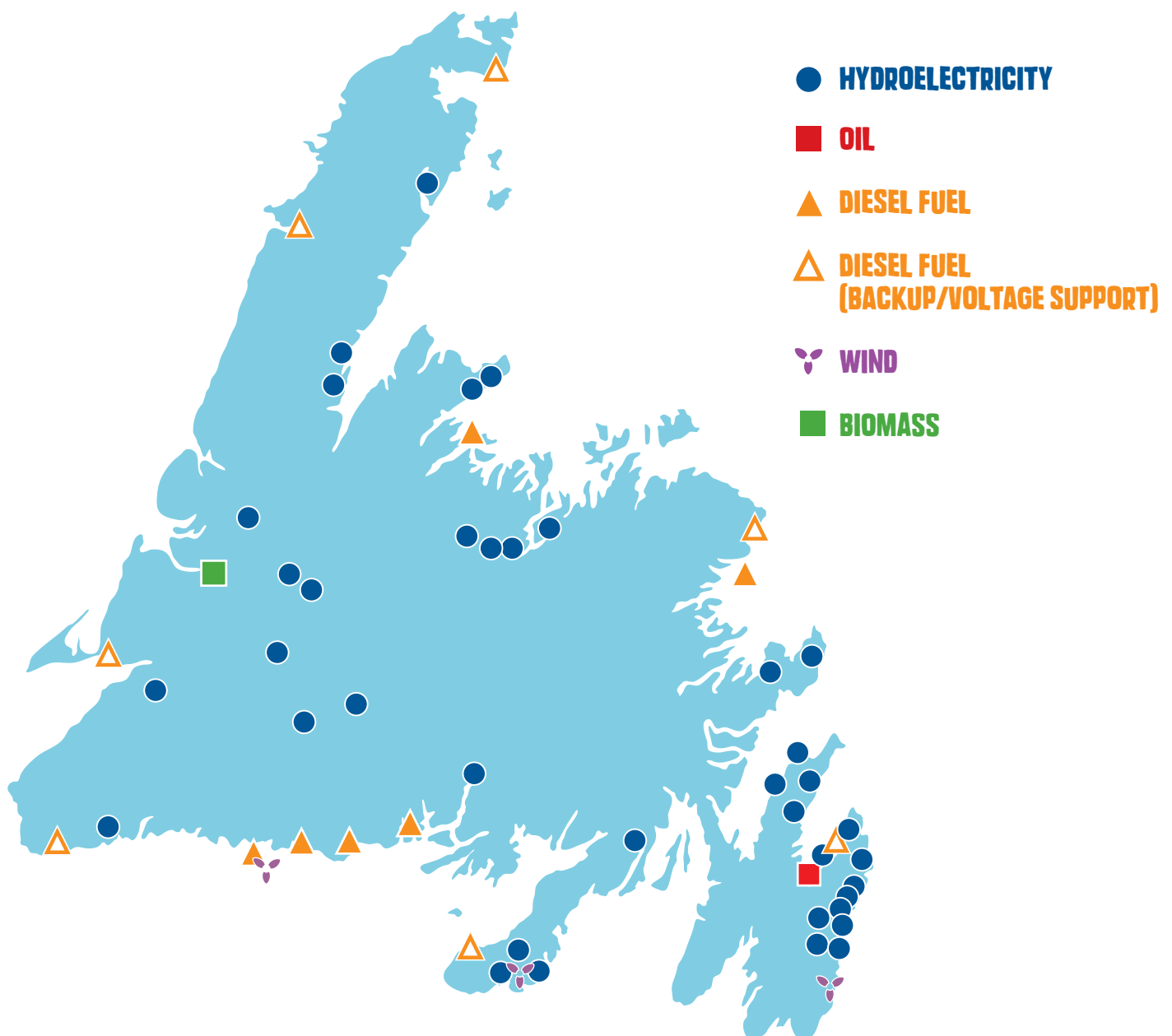
- Happy Valley – Goose Bay
- L'Anse-au-Loup
- Mud Lake

ELECTRICITY SOURCES IN NEWFOUNDLAND

WHERE IS ELECTRICITY GENERATED IN NEWFOUNDLAND?

The island electricity grid is supplied with electricity from a combination of sources, including large- and small-scale hydroelectric generation, the oil-burning Holyrood Thermal Generating Station and wind energy. Most communities that are not connected to the island electricity grid are supplied with electricity generated from diesel fuel. The community of Ramea gets its power from a unique wind-hydrogen-diesel system.

This map shows where electricity is generated on the island of Newfoundland.



ELECTRICITY SOURCES IN NEWFOUNDLAND

WHERE IS ELECTRICITY GENERATED IN NEWFOUNDLAND?

The following is a list of sites where electricity is generated on the island of Newfoundland, as shown on the map on the previous page:

● HYDROELECTRICITY

- Bay d'Espoir
- Bishop's Falls
- Buchans
- Cape Broyle
- Cat Arm
- Deer Lake
- Fall Pond
- Grand Falls
- Granite Canal
- Heart's Content
- Hinds Lake
- Horsechops
- Lawn
- Lockston
- Lookout Brook
- Mobile
- Morris
- New Chelsea
- Paradise River
- Petty Harbour
- Pierre's Brook
- Pitman's Pond
- Port Union
- Rattle Brook
- Rattling Brook
- Rocky Pond
- Roddickton
- Rose Blanche
- Sandy Brook
- Seal Cove
- Snooks Arm
- Star Lake
- Topsail
- Tors Cove
- Upper Salmon
- Venams Bight
- Victoria
- West Brook

■ OIL

- Holyrood

▲ DIESEL FUEL

- Francois
- Grey River
- Little Bay Islands
- McCallum
- Ramea
- St. Brendan's

▲ DIESEL FUEL (BACKUP/VOLTAGE SUPPORT)

- Greenhill
- Hardwoods
- Hawkes Bay
- Port aux Basques
- St. Anthony
- Stephenville
- Wesleyville

✿ WIND

- Fermeuse
- Ramea
- St. Lawrence

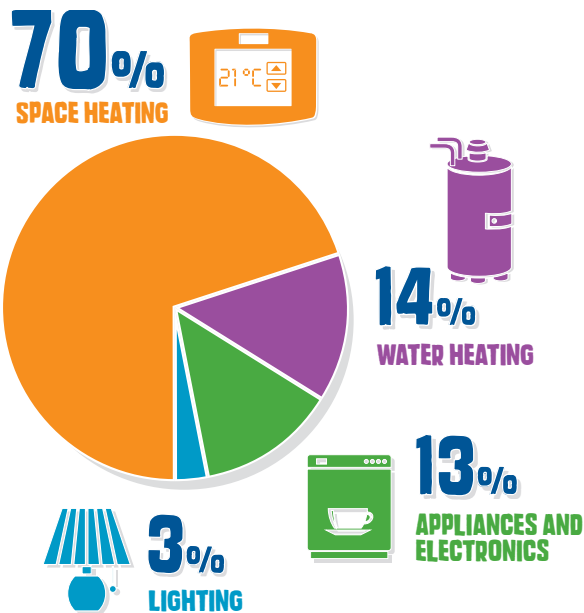
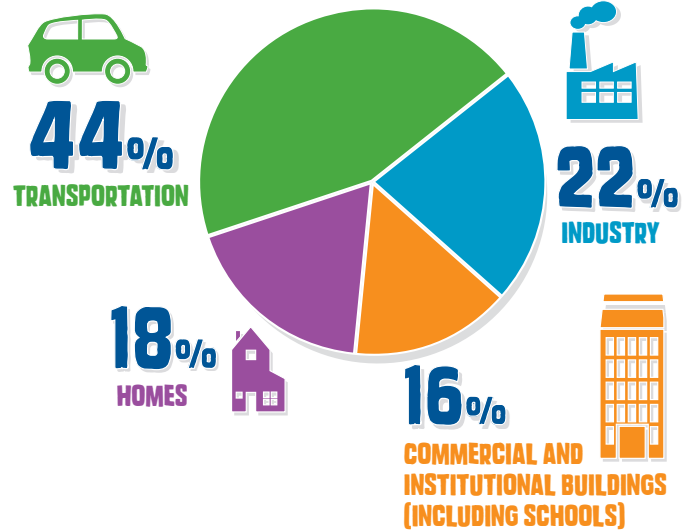
■ BIOMASS

- Corner Brook

HOW DO WE USE ENERGY?

ENERGY USE IN NEWFOUNDLAND AND LABRADOR

Trucks, cars, ferries and other vehicles use 44% of the energy consumed in our province. Industries, like oil refining, use a lot of energy too, as well as homes and buildings.

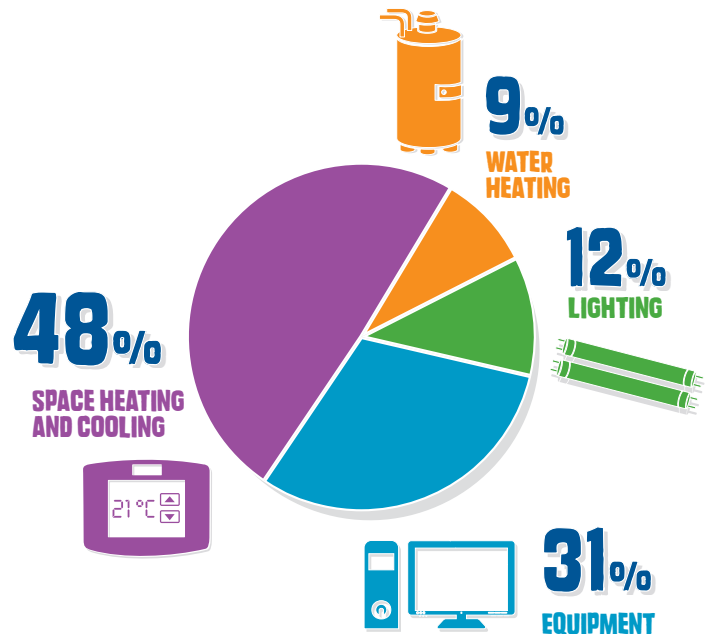


ENERGY USE AT HOME

You know how cold winters can get in Newfoundland and Labrador, so it's no surprise that heating our homes is the single largest source of energy use—a whopping 70%.

ENERGY USE IN SCHOOLS

Keeping students and staff warm in the winter and cool in the summer accounts for 48% of the energy used in our schools. Powering this heating and cooling equipment, along with all the other electronics and appliances found in schools, uses another 31%.



BENEFITS OF SAVING ENERGY



IT'S GOOD FOR THE ENVIRONMENT

Burning fossil fuels (like oil and gasoline) to create energy releases carbon dioxide. Carbon dioxide is a greenhouse gas, which means it traps heat in the atmosphere. Humans release billions of tonnes of carbon dioxide into the atmosphere each year by burning fossil fuels and global temperatures have started to increase as a result. When we save energy, we're helping protect our environment.

IT'S GOOD FOR THE AIR

Saving energy can reduce the amount of pollutants in the air. These pollutants include chemicals (like sulphur dioxide), which are harmful to our health. When we save energy, we're helping keep our air clean.

IT'S GOOD FOR SAVING MONEY

Homes and businesses pay for every litre of oil burned in a furnace and every kilowatt of electricity used. Saving energy can save homes and businesses a lot of money.

IT'S GOOD FOR OUR ECONOMY

The development of the Muskrat Falls Project provides Newfoundland and Labrador with the opportunity to export energy that is beyond what is needed to serve the people of the province. By saving energy, the province has additional clean energy available to sell into other markets.

IT'S GOOD FOR YOUR HOME COMFORT

It takes a lot less energy to heat homes that are well insulated. These homes are more comfortable and often have better ventilation systems, which can improve indoor air quality.

HOW CAN YOU CONSERVE ENERGY?

MAKING SMALL CHANGES EVERY DAY CAN ADD UP TO BIG SAVINGS.

TURN BACK THE HEAT

The largest source of energy use in our homes is heating. Turning back the thermostat by 3°C while you're sleeping can save a lot of energy.

\$63

TURNING BACK THE THERMOSTAT BY 3°C EVERY NIGHT CAN SAVE THE AVERAGE FAMILY \$63 EVERY WINTER.

SWITCH OFF THE LIGHTS

Here's an easy way to save: just turn off the lights when you leave a room or when there's enough natural light coming in through the windows.

TAKING A SHORT SHOWER INSTEAD OF FILLING THE BATHTUB CAN REDUCE HOT WATER USE BY 21%.

21%

BE SMART WITH APPLIANCES

Our home appliances use a lot of energy. Conserve energy by:

- Not leaving the refrigerator door open
- Washing clothes in cold water
- Uncrumpling clothes before they go in the dryer
- Only running the dishwasher when it's full
- Using the oven's light instead of opening the door

10%

STANDBY POWER CAN ACCOUNT FOR UP TO 10% OF YOUR ELECTRICITY BILL.

EVERY TIME YOU OPEN THE OVEN DOOR, AS MUCH AS 20% OF THE HEAT ESCAPES AND THE OVEN USES MORE ENERGY TO REPLACE IT.

20%

SAVE HOT WATER

Save hot water by taking short (five-minute) showers instead of baths.

UNPLUG

Many electronics (like TVs and cable boxes) use energy even when they're turned off. Chargers for laptops, cell phones and other electronics draw power when they're plugged in, even if they're not connected to a device. Save energy by unplugging electronics and chargers when not in use.



AVOID STANDBY POWER: USE A POWER BAR WITH ELECTRONICS AND TURN OFF EVERYTHING WITH ONE SWITCH



HOW CAN YOU BE ENERGY EFFICIENT?

ENERGY-EFFICIENT PRODUCTS USE A LOT LESS ENERGY. MAKE THE SWITCH AND SAVE!

1. GO ENERGY STAR

Look for the ENERGY STAR label on appliances and electronics. This label identifies the most energy-efficient products. You'll find it on laptops, TVs, home theatre systems, household appliances (like dishwashers, clothes washers and refrigerators) and more.

2. SWITCH ON THE SAVINGS

Energy-efficient light bulbs save a lot of energy. For example, a LED (which stands for "light-emitting diode") uses 85–90% less energy than an incandescent bulb. Installing motion sensors that automatically shut off outside lights when no movement is detected can also save energy.

3. DON'T HEAT THE OUTDOORS

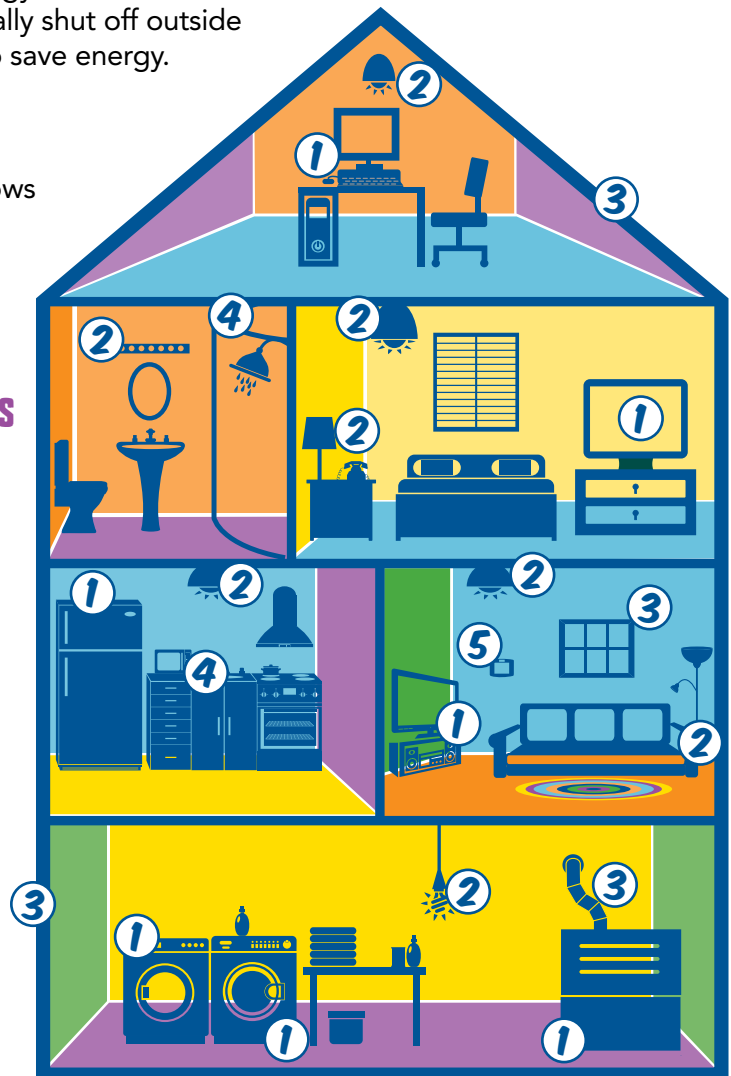
Insulating your home, installing efficient windows and sealing air leaks can save a lot of energy and money. For example, a basement without insulation can account for 20–35% of the total heat loss in a home.

4. LOW-FLOW SHOWERHEADS = BIG TIME SAVINGS

14% of all the energy we use in our homes is for heating water. Installing energy-efficient products—such as low-flow showerheads and aerated faucets that mix air with water—can save a lot of hot water and energy.

5. DIAL UP THE SAVINGS WITH PROGRAMMABLE THERMOSTATS

Programmable thermostats can save energy by automatically turning down the heat while you're at school, work or sleeping, and turning it back up before you return home or wake up, so you're always comfortable and always saving.



SCHOOLS ARE BECOMING MORE ENERGY EFFICIENT

Today, everyone has to work hard to reduce energy use—and that includes our schools. That's why new schools in Newfoundland and Labrador are being built with new energy-efficient features, and some existing schools are being renovated to be more efficient.

HOW ARE SCHOOLS BECOMING MORE ENERGY EFFICIENT?

HEAT PUMPS

Heat pumps are being installed in new schools. These devices save energy by warming a school with heat from the ground. They can also cool a school by taking heat from inside a school and transferring it underground.

BUILDING ENVELOPE

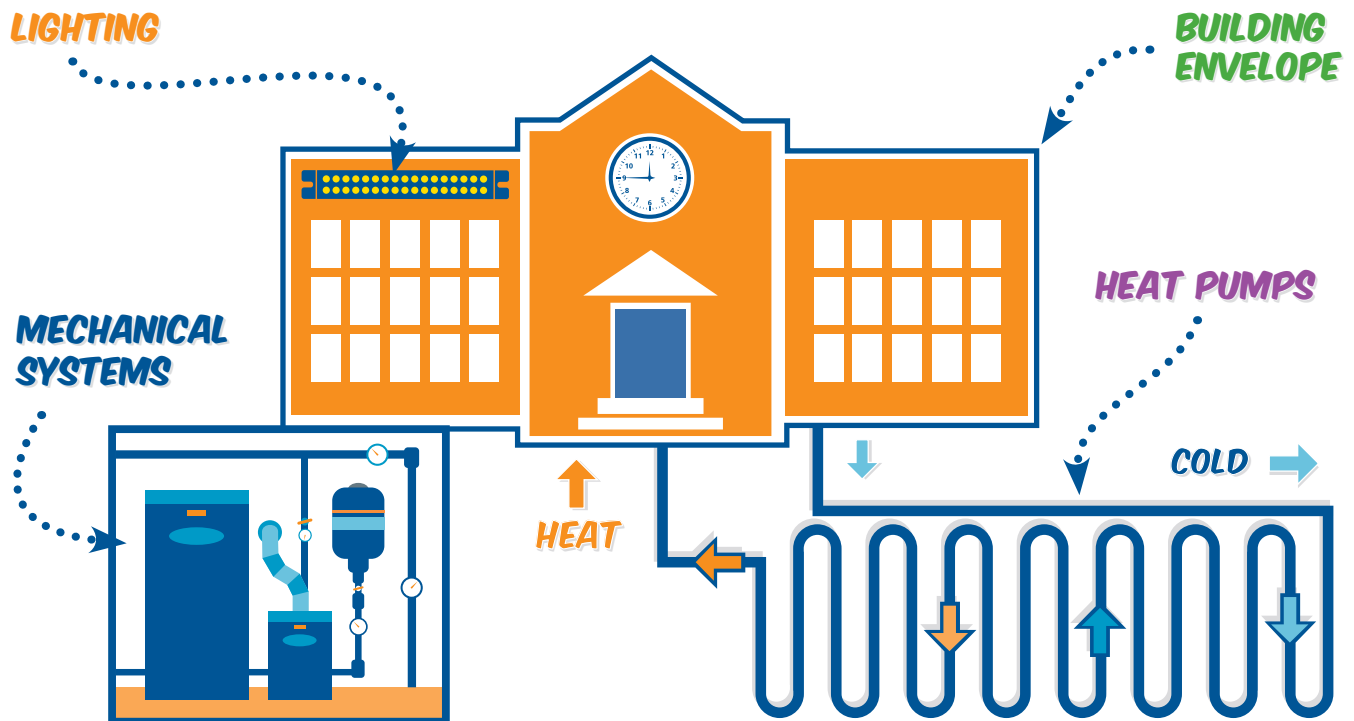
A building's outside walls and roof are called its "envelope" because they separate the inside from the outside environment. New schools have improved insulation and more efficient windows, which makes them easier to heat and cool.

MECHANICAL SYSTEMS

New schools in Newfoundland and Labrador are saving energy by installing energy-efficient mechanical systems, like hot water systems and ventilation systems that use a lot less energy.

LIGHTING


New schools now include more efficient lighting systems that significantly reduce the amount of energy needed for lighting. They also have motion sensors that automatically shut off the lights when no movement is detected.



ARE YOU AN ENERGY SAVER?

You can save a lot of energy by doing these simple things every day:

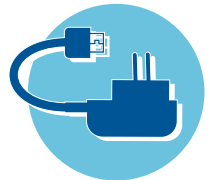
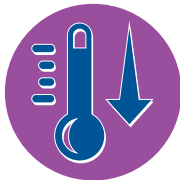
- TURN OFF LIGHTS**
- TURN OFF OR UNPLUG THE TV/COMPUTER**
- TURN DOWN THE HEAT**
- CLOSE DOORS AND WINDOWS**
- UNPLUG CELL PHONE CHARGERS**
- WASH CLOTHES IN COLD WATER**
- TAKE SHORT SHOWERS**
- DON'T LEAVE THE REFRIGERATOR DOOR OPEN**
- UNCRUMPLE CLOTHES BEFORE DRYING**



**SAVING ENERGY ADDS UP
10% = 80,000
TONNES OF GREENHOUSE GASES**

A LOT OF ENERGY USED IN NEWFOUNDLAND AND LABRADOR COMES FROM BURNING FOSSIL FUELS, LIKE OIL. WHEN THESE FOSSIL FUELS ARE BURNED THEY RELEASE CARBON DIOXIDE. CARBON DIOXIDE IS A GREENHOUSE GAS, WHICH MEANS IT TRAPS HEAT IN THE ATMOSPHERE.

IF EVERY HOME IN NEWFOUNDLAND AND LABRADOR REDUCED THEIR ENERGY CONSUMPTION BY 10%, WE WOULD PREVENT ALMOST 80,000 TONNES OF GREENHOUSE GASES FROM GOING INTO THE ATMOSPHERE EACH YEAR. THAT'S THE SAME AS GREENHOUSE GASES FROM OVER 15,000 CARS!



WORKSHEET: ENERGY SAVINGS ADD UP

The amount of electricity used by an appliance or electronic is measured in kilowatt hours (kWh). In most of Newfoundland and Labrador, homeowners pay approximately \$0.11 for every kWh of electricity used.

Appliances and electronics that have the ENERGY STAR label are the most energy-efficient options available. These products use fewer kWh compared to standard models and cost less to run as a result. When you think about all of the appliances and electronics that most homes have, investing in ENERGY STAR-certified products can add up to big savings.

The table below shows a list of appliances and electronics commonly found in homes.

QUESTION

If a home has one standard model of each appliance and electronic listed in the table, how much **energy and money** could they save each year by switching all appliances and electronics to ENERGY STAR models?

APPLIANCES & ELECTRONICS: STANDARD MODELS VS. ENERGY STAR

APPLIANCE/ELECTRONIC	ANNUAL ENERGY USE: STANDARD MODEL	ANNUAL ENERGY USE: ENERGY STAR MODEL
REFRIGERATOR	560 kWh	448 kWh
FREEZER	553 kWh	498 kWh
CLOTHES WASHER	768 kWh	484 kWh
DISHWASHER	343 kWh	285 kWh
TELEVISION (40")	161 kWh	121 kWh
TELEVISION (55")	175 kWh	131 kWh
LAPTOP COMPUTER	89 kWh	52 kWh
DESKTOP COMPUTER	285 kWh	161 kWh
AIR PURIFIER	587 kWh	196 kWh
DEHUMIDIFIER	858 kWh	695 kWh

EXTENSION

Using the list of appliances and electronics provided in the table above, identify which products are found in your home and whether they are ENERGY STAR certified. Calculate how much energy and money your home could save each year by switching all standard models to ENERGY STAR models.