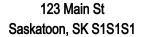
RENOVATION UPGRADE REPORT







Best energy performance 0 130 Rating in GJ/year house Rating in GJ/year

Year built: 1965

Assessment date: November 06, 2023 Evaluated by: Jane Doe 306 555 5555 Quality assured by: EnerGuide SO

Report date: November 6, 2023

This report identifies your home's energy savings opportunities by providing you with recommended renovation upgrades. It complements your EnerGuide label and your homeowner information sheet.

Next steps:

- Review your customized action plan below to improve the energy efficiency of your home;
- You may be eligible for **financial incentives** to support your energy-efficient upgrades. Please visit www.canada.ca/greener-homes-grant to view the financial incentives available.
- ⚠ Need help getting started? Go to our resources www.nrcan.gc.ca/kthi.

YOUR ENERGY EFFICIENCY ROADMAP

Your energy advisor has prioritized your recommended upgrades based on the potential energy savings, the life expectancy of your home components, the interactions between systems, your potential renovation plans and the costs to perform the upgrades.





By implementing all upgrades, you are helping to fight climate change and could reduce GHG emissions by up to 3.1 tonnes per year.

RECOMMENDED ENERGY EFFICIENCY UPGRADES

A customized plan to improve the energy efficiency of your home is found below:



1. Perform air sealing

☐ Improve the airtightness of your house by 10% to achieve 2.20 air change(s) per hour at 50 pascals.

This upgrade could increase the energy consumption of your house by 3 gigajoules per year.

Did you know?

Air leakage accounts for 22 percent of the estimated annual heat loss of your house.

Useful tips

Air sealing is one of the most cost-effective energy-saving measures you can undertake. It is typically performed before and during other upgrades to ensure optimal benefit. Air sealing can help to minimize potential moisture damage and improve comfort by reducing drafts, heat loss, dust and outdoor noise in your home.

Consult our **resources** <u>www.nrcan.gc.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/15768</u> to learn more and take action.

Air leakage locations identified by your energy advisor are listed below:



- ☐ Through the Canada Greener Homes Grant initiative, a grant between \$550 and \$1000 is available for improving the airtightness of your home based on the level achieved. This is one of the most cost-effective energy-saving measures you can undertake.
- An air-sealing grant is available if the airtightness of your home is improved to achieve or exceed the air change rate target proposed above. Achieving any of the targets defined for your home typically requires that the work be performed by an air-sealing professional.
- In particular, the connection of the bay window areas at the floor were quite leaky, as well as around the back door, electrical outlet and lightswitch penetrations, and the main floor header area in the basement. Sealing these areas are a low-cost way of improving energy efficiency in your home.



2. Insulate attic

- ☐ Increase the insulation value of your attic (Attic 2nd Gable) by RSI 5.64 (R-32.0).
- ☐ Increase the insulation value of your attic (Attic 1st Gable) by RSI 5.64 (R-32.0).

This upgrade could reduce the energy consumption of your house by 4 gigajoules per year.

Did you know?

Ceilings account for 8 percent of the estimated annual heat loss of your house.

Useful tips

The following are some of the items to consider before insulating the attic:

- Ensure the roof does not leak.
- □ Ensure electrical work is up-to-date and that all desired ceiling fixtures have been installed.
- Look for opportunities to air seal before insulation is added.
- □ Ensure adequate attic venting is installed and that it is not blocked by insulation.
- □ Ensure all exhaust fans and ducts penetrating the attic are sealed and vented to the outside.

Consult our **resources** <u>www.nrcan.gc.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/15768</u> to learn more and take action.

Your energy advisor's comments



ATTIC / CEILING INSULATION

The Canada Greener Homes Grant offers grants of up to \$1,800 for increasing home insulation in attics, cathedral ceilings and flat roofs. The amount you are eligible for will depend on factors such as what insulation is currently in your home, how much insulation you add and type of attic/ceiling your home has. Insulation slows the rate of heat loss, resulting in improved energy use and can help save money. Installing insulation in an attic, cathedral ceiling or flat roof is eligible for a grant, as long as minimum levels of insulation and coverage are achieved. If your house consists of more than one roof or roof type, the grant amount will be prorated or calculated based on roof type and area.

The insulation in your attic was assessed at R28. Because the amount of insulation in your attic has been assessed as greater than R-25 but less than or equal to R-35, a grant of up to \$250 is available through the Canada Greener Homes Grant initiative for adding insulation to reach R-50 or more.

Consider adding insulation to your attic space, as long as you have room without covering any eave venting. R60 to R80 is a good target to aim for.



3. Insulate main walls

- ☐ Increase the insulation value of your main walls (Cathedral Gable) by RSI 1.51 (R-8.6).
- ☐ Increase the insulation value of your main walls (Cathedral Pony) by RSI 1.51 (R-8.6).

This upgrade could reduce the energy consumption of your house by 3 gigajoules per year.

Did you know?

Main walls account for 28 percent of the estimated annual heat loss of your house.

Useful tips

Main walls can be insulated from the interior, exterior or both using a variety of materials and methods. Refer to your energy advisor's comments to determine the best approach.

Consult our **resources** <u>www.nrcan.gc.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/15768</u> to learn more and take action.

Your energy advisor's comments



Through the Canada Greener Homes Grant initiative, a grant of up to \$5,000 is available for adding insulation to exterior wall area of your home. Insulation grants are based on the percentage of wall area to which the insulation has been added and the amount of insulation added. A minimum of 20% of the exterior wall area of your home, excluding foundation walls, must be insulated in order to qualify for a grant.

Re-insulating and adding vapour barrier/air sealing to the pony walls in the second floor area with the sloped ceiling will improve both energy use and comfort, and will ensure there is no migration of moisture inside the wall.

If you are really ambitious, you can also re-insulate the exterior of your main-floor and second floor walls (this is best done when you plan to re-side). This is a challenging upgrade, but has significant energy savings.



4. Upgrade windows

□ Replace 3 windows with ENERGY STAR certified models.

This upgrade could reduce the energy consumption of your house by 1 gigajoules per year.

Did you know?

Windows account for 14 percent of the estimated annual heat loss of your house.

Useful tips

Replacing windows can improve aesthetics, reduce noise from outside, reduce maintenance, increase property resale value, improve comfort and reduce condensation during cold weather. ENERGY STAR certified windows, patio doors and skylights are among the most energy efficient in the marketplace.

Consult our **resources** <u>www.nrcan.gc.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/15768</u> to learn more and take action.

Your energy advisor's comments



Through the Canada Greener Homes Grant initiative, grants of either \$125 or \$250 per window rough opening are available when an ENERGY STAR certified or ENERGY STAR certified Most Efficient window is installed to replace an existing window. Replacing old, damaged or leaky windows with new ENERGY STAR certified products can help you save on energy, improve comfort and reduce noise. To determine eligibility of the product you are seeking to purchase, confirm that it is included on the list of eligible equipment as found on the Canada Greener Homes Grant webpage.

Replace all double-pane windows with triple pane (you can verify which are which by shining a flashlight and counting the number of reflections, corresponding to the number of panes). Also consider replacing the two panes on the rear-facing bay windows that have aluminum spacers between the edge of the panes, rather than insulating spacers, as these let much more heat escape.



5. Insulate foundation

□ Increase the insulation value of 10% of your basement walls (Foundation - 1) from the interior by RSI 2.18 (R-12.4).

This upgrade could reduce the energy consumption of your house by 10 gigajoules per year.

Did you know?

Your foundation accounts for 27 percent of the estimated annual heat loss of your house.

Useful tips

Assess the status of your foundation for water leaks, cracks and flooding and remediate these issues before beginning any insulation job. Foundations can be insulated from the interior, exterior or a combination of both depending on accessibility and the complexity of the building. Refer to your energy advisor's comments to determine which would be best suited for your foundation.

Consult our **resources** <u>www.nrcan.gc.ca/energy-efficiency/homes/make-your-home-more-energy-efficient/keeping-the-heat/15768</u> to learn more and take action.

Your energy advisor's comments

The Canada Greener Homes Grant initiative offers grants of up to \$1500 for adding insulation to basement walls. Insulating basement walls can reduce energy costs and improve comfort. Grants are based on the RSI/R-value of the added insulation and the percentage of wall area insulated. The current amount of insulation does not affect the grant amounts. A minimum of 20% of the exterior basement wall area must be insulated.

Adding insulation to the inside of your uninsulated foundation wall will help reduce heat loss from yoru basement. This area is noted in the air sealing section, but looking to improve the air sealing and insulation in your floor header is a great way to reduce draftiness and cold spots as well.



6. Upgrade hot water system

Install a new ENERGY STAR certified, electric heat pump water heater with an energy factor (EF) of 3.15.

This upgrade could reduce the energy consumption of your house by 22 gigajoules per year.

Did you know?

Water heating accounts for 12 percent of the estimated annual energy use of your house.

Useful tips

The efficiency of fuel-fired water heating equipment is expressed as the energy factor (EF), uniform energy factor (UEF) or thermal efficiency. The higher the number, the more efficient the water heater. The efficiency of storage-tank electric water heating equipment is expressed in watts of standby loss, where the lower the number, the more efficient the water heater.

Look for an energy-efficient model and ensure it is properly sized for your needs. Use manufacturers' sizing charts available from your contractor or retailer. See Natural Resources Canada's website at www.nrcan.gc.ca/energy/products/categories/water-heaters/13735 for more information.

Your energy advisor's comments



Under the Canada Greener Homes Grant initiative, a grant of \$1,000 is available for installing an eligible ENERGY STAR certified domestic hot water heat pump. Heat pump water heaters transfer heat from the indoor air to the water thereby partially reducing room temperatures which will increase heating requirements somewhat during the heating season. At the same time, the equipment will remove moisture from the air while cooling it, which can be beneficial during the non-heating season.

To determine eligibility of the product you are seeking to purchase, confirm that it is included on the list of eligible equipment as found on the Canada Greener Homes Grant webpage.



7. Upgrade heating system

- Install a new ENERGY STAR certified, forced-air, condensing, gas-fired furnace that has an annual fuel utilization efficiency (AFUE) of 96%.
- □ Install a new ENERGY STAR certified air-source heat pump that has a heating seasonal performance factor (HSPF) of 9.

This upgrade could reduce the energy consumption of your house by 75 gigajoules per year.

Did you know?

Space heating accounts for 73 percent of the estimated annual energy use of your house.

Useful tips

Perform any planned building envelope upgrades before your heating contractor begins work since a more energy efficient building envelope may mean that a smaller heating system could be installed. The contractor should first conduct a heat loss calculation before deciding on the capacity and model of your heating system.

Your *Homeowner Information Sheet* provides important details and a reference for this calculation. Inform your heating contractor of any building envelope upgrades performed since your evaluation, or that will be undertaken since these may render certain details in your *Homeowner Information Sheet* inaccurate.

Consider purchasing a system that is ENERGY STAR certified when available. Consult Natural Resources Canada's website at www.nrcan.gc.ca/energy/products/categories/heating/13740 for information on choosing a heating system.

Your energy advisor's comments



Through the Canada Greener Homes Grant initiative, a grant of \$2500 is available for smaller Air Source Heat Pumps (ASHP) or cold climate Air Source Heat Pumps (ccASHP). \$4000 is available for larger ASHPs and \$5000 for large ccASHPs, depending upon the type installed. Speak with an HVAC professional for recommendations on the type of heat pump that is best suited for your home, for example, an air-source heat pump, or if you live in a colder climate, a cold-climate heat pump.

Depending upon the region in which you live and how you heat your home today, the installation of a heat pump in your home may result in higher utility costs. Consult with an HVAC professional in this field to determine if this type of system is practical and the right choice for your circumstances.

To determine eligibility of the product you are seeking to purchase, confirm that it is included on the list of eligible equipment as found on the Canada Greener Homes Grant webpage.

The heating load of your home is: [Enter the heating load of the entire home]. Your new heat pump must be sized to supply heat to your entire home. Ask the professional to size your heat pump according to the heating load of your entire home as indicated above.

For more information: Natural Resources Canada has developed a package of materials related to air source heat pump sizing and selection, intended for use by mechanical system designers and renovation contractors. https://www.nrcan.gc.ca/maps-tools-and-publications/tools/modelling-tools/toolkit-for-air-source-heat-pump-sizing-and-selection/23558

Given your house's energy consumption, it likely doesn't make sense to convert to an air source heat pump for your primary heating. However, it would make sense to replace your air conditioner with a similarly-sized heat pump, and using this as a first-stage for heating (down to 0 or -5 degrees), and then use your furnace as a second stage heater (below 0 or -5 degrees).

You could also consider replacing your furnace with a high-efficiency condensing gas furnace.



8. Upgrade cooling system

Install a new ENERGY STAR certified air conditioner.

This upgrade could increase the energy consumption of your house by 0 gigajoules per year.

Did you know?

Space cooling accounts for 2 percent of the estimated annual energy use of your house.

Useful tips

Perform any planned building envelope upgrades before your contractor begins work since a more energy efficient building envelope may mean that a smaller cooling system could be installed. The contractor should first conduct a heat gain calculation before deciding on the capacity and model of your cooling system.

Your *Homeowner Information Sheet* provides important details and a reference for this calculation. Inform your contractor of any building envelope upgrades performed since your evaluation, or that will be undertaken, since these may render certain details in your *Homeowner Information Sheet* inaccurate.

Consider purchasing a system that is ENERGY STAR certified. Consult Natural Resources Canada's web site at www.nrcan.gc.ca/energy/products/categories/cooling-ventilating/13756 for more information.

Your energy advisor's comments



See air source heat pump comment in the final paragraph of the heating system upgrade comment.



9. Upgrade ventilation system

Install a heat recovery ventilator or energy recovery ventilator certified by the Home Ventilating Institute (HVI) or that is ENERGY STAR certified.

This upgrade could reduce the energy consumption of your house by 2 gigajoules per year.

Did you know?

Upgrading your ventilation system can improve indoor air quality and comfort. A heat recovery ventilator (HRV) or energy recovery ventilator (ERV) saves energy compared to conventional ventilation systems by recovering heat from stale indoor air as it is exhausted. An HRV/ERV simultaneously exhausts stale indoor air and brings in outdoor air by passing the two separate airflows through a heat exchanger.

Useful tips

When purchasing an HRV or ERV, choose a model that is certified by the Heating and Ventilating Institute (HVI) and consider models that have a high efficiency motor to help reduce electrical consumption. Ensure that the HRV or ERV system is designed, installed and balanced by a technician certified by a recognized mechanical organization. Select equipment tailored to your needs.

Keep contaminants away from the fresh air intake when your HRV/ERV is operating. For example, avoid putting trash next to the air intake, do not use pesticides and herbicides nearby and keep your barbecue downwind. If you must generate pollutants near the air intake temporarily, turn the HRV/ERV off until you complete the activity.

Consult Natural Resources Canada's publication about Heat Recovery Ventilators at www.nrcan.gc.ca/energy/products/categories/cooling-ventilating/ventilating/hrv/16197.

Your energy advisor's comments



There is no Greener Homes Grant money available for HRVs, and you already have an HRV. However, when you replace your HRV is a good opportunity to install one with higher efficiency (look for an option with 75%+ efficiency).



Additional energy advisor comments

CANADA GREENER HOMES GRANT

Through the Canada Greener Homes Grant, homeowners are eligible for up to \$600 for the cost of pre- and post-retrofit EnerGuide evaluations and up to \$5,000 total for the implementation of eligible retrofits completed after December 1, 2020.

Hiring a contractor is the recommended option in undertaking several of the home retrofits and for some retrofits it is a requirement. The contractor is responsible for complying with local bylaws and relevant provincial, territorial and federal legislation and guidelines.

ELIGIBILITY INFORMATION

For full details on eligibility requirements, eligible measures and grants for the recommended measures outlined below, please consult the Canada Greener Homes Grant website at canada.ca/greener-homes-grant or your Homeowner Information Kit.

Many eligible retrofit measures under the Canada Greener Homes Grant have certain conditions for eligibility. These include:

1. In order to be eligible for reimbursement for your retrofit, you must complete at least one retrofit that is both eligible and recommended by an energy advisor in this Renovation Upgrade Report

If you wish to undertake resiliency measures or purchase a thermostat, you must also undertake another eligible energy efficiency measure in order to qualify for a grant.

Purchased equipment such as heat pumps and windows must meet eligibility criteria and must be on the eligible product list as found on the Canada Greener Homes Grant website. This information can also be found in the Homeowner Information Kit

All mechanical and electrical systems, with the exception of thermostats, must be installed by a licensed and trained professional

It is highly recommended that you use the attestation forms found on the Canada Greener Homes Grant website and Canada Greener Homes Grant Portal (if applicable for your retrofit) confirming that:

o installation of an electrical or mechanical system has been completed by a trained and licensed professional*

o an earth-energy (ground or water) system was installed in accordance with CSA standards

o the heat pump has been sized to your entire home

*When using a licensed professional it is highly recommended that you obtain proof of their licence to install equipment in your province or territory.

All products must be purchased in Canada. Online purchases are only eligible if they are ordered from an online distributor located in Canada.

ADDITIONAL OPPORTUNITIES FOR INCENTIVES

You may access and combine grant funding from the Canada Greener Homes Grant with funding from other retrofit grant programs in your region. The sum of the funding you receive from all sources must not exceed 100% of the total cost of the pre- and post-retrofit EnerGuide evaluations and of each eligible retrofit measure.

Participants will be required to declare through the Canada Greener Homes Grant Portal funding or rebates received from other sources.

[Include in RUR if applicable]: Programs in your region that you may be eligible for include: [Energy advisor to insert the names of programs, as applicable].

Check out the City of Saskatoon's Home Energy Loan Program for opportunities to finance energy efficinecy upgrades and renewable energy up to \$60,000.

NOTES:

- Energy use reductions are calculated with each upgrade taken on its own. Combinations of upgrades may produce slightly different results.
- f negative savings are shown, please see your energy advisor's comments for an explanation.

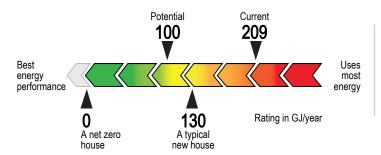
YOUR HOME'S ENERGY POTENTIAL



By implementing the recommended upgrades, you will not only see an improvement in your EnerGuide Rating but you might also reduce greenhouse gas (GHG) emissions.

Note that the energy consumption indicated on your utility bills may be higher or lower than your EnerGuide Rating. This is because the EnerGuide Rating is based on standard assumptions regarding how many people live in the home and how it is operated. Refer to your *Homeowner Information Sheet* for details on the EnerGuide Rating System standard operating conditions.

EnerGuide Rating



A **gigajoule (GJ)** is a unit of energy that can represent all energy sources found in Canadian homes such as electricity, fossil fuels and wood.

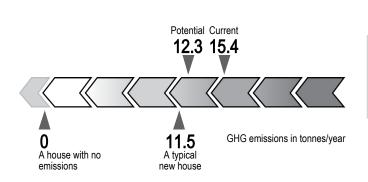
A **typical new house** is a reference point for comparing your rating to that of a similar house built to current energy efficiency requirements.

Rated energy intensity



The **Rated energy intensity** is an estimate of your home's annual energy use relative to its size. It allows you to compare the energy used by homes of different sizes on a "per square metre" basis.

Rated greenhouse gas (GHG) emissions

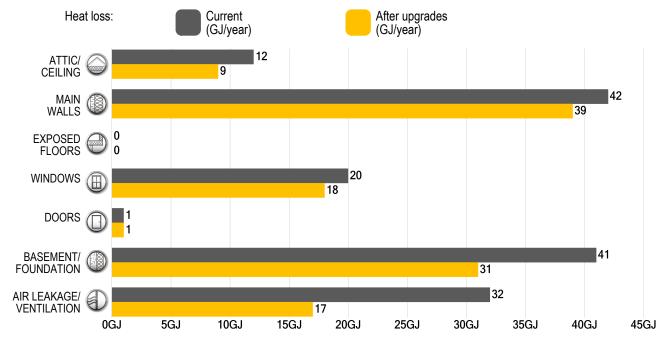


Every time we use energy from fossil fuels such as oil and gas, we produce greenhouse gas (GHG) emissions that contribute to climate change. We can reduce these emissions by making homes more energy efficient and lowering energy use.

ENERGY EFFICIENCY FORECAST - CONTINUED

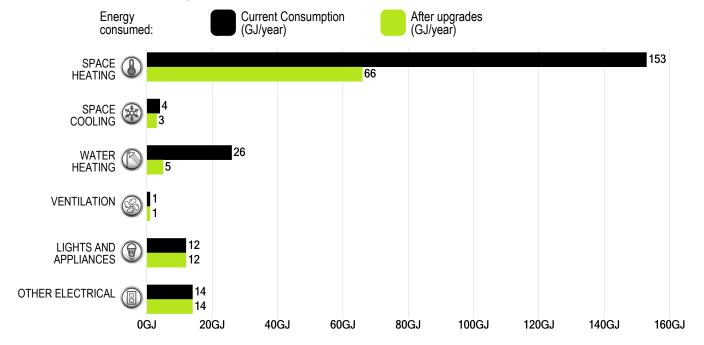
BEFORE AND AFTER: Estimated heat loss through the building envelope*

This bar chart shows where heat is lost from your house. The dark bars show the areas where you are currently losing heat. The longer the bar, the more heat you are losing. The light bars show the estimated heat loss if you were to complete all the recommended upgrades as outlined.



BEFORE AND AFTER: Estimated energy use*

This bar chart shows the potential for improving the energy performance of your house. The dark bars show your current rated consumption. The longer the bar, the more energy you are using. The light bars show the rated energy consumption if you were to complete all the recommended upgrades as outlined.



^{*}Calculated using standard operating conditions. Refer to your Homeowner Information Sheet for more information.

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HEALTH AND SAFETY INFORMATION

If your energy advisor has identified a potential health or safety concern related to insufficient outdoor air, risk of combustion fumes being drawn into the home or the presence of vermiculite, a warning has been included in your *Homeowner Information Sheet*. However, energy advisors are not required to have expertise in health and safety matters, and it is the sole responsibility of the homeowner to consult a qualified professional to determine potential hazards before undertaking any upgrades or renovations. Visit Natural Resources Canada's webpage *Health and safety considerations for energy-efficient renovations*.

A relative humidity level of between 30 and 55 percent is recommended for optimal health and comfort. For more information on assessing moisture levels in your house, visit the Canada Mortgage and Housing Corporation's website.

♠ Radon

Radon is a naturally occurring radioactive gas that is colourless, odourless and tasteless. It is formed from the radioactive decay of uranium, a natural material found in some soil, rock and groundwater. When radon is released into the outdoor air, it gets diluted to low concentrations and is not a concern. However, in enclosed spaces like houses, it can sometimes accumulate to high levels, which can pose a risk to both your or your family's health. For more information, visit Health Canada's website.

♠ Asbestos and vermiculite insulation

Vermiculite insulation installed in homes may contain asbestos. This can cause health risks if inhaled. If you find vermiculite insulation during renovations, avoid disturbing it. If you suspect the presence of asbestos in your home and plan to undertake renovations (including insulation or air sealing work) that may cause the vermiculite insulation or asbestos to be disturbed, contact professionals who are qualified to handle asbestos before you proceed with the renovations.

Combustion gases

The use of fuel-burning heating equipment can inadvertently lead to hazardous combustion gases being drawn into your home. Always consult a qualified heating and ventilation contractor when servicing or replacing this type of equipment and ensure you have a functioning carbon monoxide detector. Refer to the publication entitled *Combustion gases in your home: What you should know about combustion spillage* on Natural Resources Canada's website to learn more about combustion spillage.

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Natural Resources Canada does not endorse or make any representation of warranty as to the accuracy or applicability of the energy advisor's comments with respect to your particular home.

Natural Resources Canada does not endorse the services of any contractor, nor any specific product, and accepts no liability in the selection of materials, products, contractors nor the performance of workmanship.

The rating and potential savings in this report are based on the conditions of your home at the time of the evaluation and the use of EnerGuide standard operating conditions.

ADDITIONAL INFORMATION - CONTINUED

reduce GHG emissions: ☐ Install and set-up programmable electronic thermostats to reduce the heating temperature at night and when you are away. For each degree of setback, you can save up to 2 percent on your heating bills. ☐ When replacing appliances, electronics and office equipment, look for ENERGY STAR® certified products. ENERGY STAR certified products are among the most efficient and use up to less than half as much energy in standby mode (i.e. when they are turned "off") than non-certified products. You can also look for the EnerGuide RGY-SAVING product label to help you select the most energy efficient model. For more information, go to energystar.gc.ca. ☐ Replace your light bulbs with ENERGY STAR certified ones, such as light emitting diodes (LEDs). They last longer and use less electricity. ☐ Insulate the first two metres of the hot and cold water pipes starting from the water heater with insulating foam sleeves or pipe wrap insulation. By doing so, you will save on your water heating costs and reduce your water consumption. For a fuel-fired water heater, maintain a 15 cm (6 in.) clearance between the water piping insulation and the vent pipe. ☐ If you use a block heater for your car, use a timer. Set the timer to turn on one to two hours before you plan to start your vehicle. ☐ Replace your kitchen and bathroom exhaust fans with ENERGY STAR certified exhaust fans vented to the outside. ☐ Install a timer on your bathroom exhaust fans so that the fans are not left running for extended periods of time. ☐ Install low-flow shower heads (rated at 7.6 litres per minute or less) and faucet aerators. ☐ Fix leaky faucets and outside hose bibs. ☐ Plug your entertainment systems and office equipment into power bars that can be easily turned off when equipment is not in use.

Along with the upgrade recommendations, here are some simple actions you can take to be more comfortable, save money and

NOTES:

Questions about this report?

Please contact your energy advisor.