LIFE ON THE BAY

A STEWARDSHIP GUIDE FOR EASTERN GEORGIAN BAY AND INLAND LAKES

United Nations Educational, Scientific and Cultural Organization

GEORGIAN BAY BIOSPHERE MNIDOO GAMII

Worksheet #11 - Lowering Your Energy Bill

Use this worksheet to find out how to improve your energy efficiency at home and at the cottage.

Why Should You Be Concerned?

- Increasing energy costs mean that the average homeowner will have to pay more for energy use in their homes. This includes heating and cooling, as well as energy use to power appliances.
- As the world's demand for energy continues to increase, so will the cost of energy. To protect yourself against growing costs, invest in homes, vehicles, appliances, electronics, and practices that consume less energy.
- Home energy use contributes to greenhouse gas (GHG) emissions. Increasing global GHG emissions leads to worsening effects from climate change.
- Climate change will affect many aspects of our everyday lives with more extreme weather events, changes to seasons and growing patterns, even altering water levels on Georgian Bay.

Get Involved!

Learn about your GHG emissions by using the Georgian Bay Biosphere's Carbon Calculator!

Learn more: www.gbbr.ca/carbon-calculator

What Can You Do?

1. Improve energy efficiency in your home or cottage to reduce the amount of energy you are using and the GHG emissions you produce. Doing so also saves you money!
2. Learn how small changes can have a cumulative effect in protecting our environment, including air and water quality.
3. Ensure that your home is tightly-sealed, properly insulated, and that all mechanical systems such as heating and cooling are operating efficiently.
4. Have a professional conduct a home energy audit of your house and ensure that heating/cooling systems receive regular maintenance.
5. Choose energy efficient appliances and electronics such as those with the Energy Star label.
6. Reduce the amount of driving that you do, especially in urban areas, and choose the most fuel-efficient vehicle for your needs or consider the long-term benefits of an electric vehicle.

Lowering Your Energy Bill: How Do You Rate?

Topic	Best 4	Good 3	Fair 2	Poor 1	Your Rating
BUILDINGS					
1. Heating and cooling units	Use the most energy-efficient heating and/or cooling units for your needs that carry the Energy Star label, upgrading if necessary.	Use energy-efficient heating and/or cooling units for your needs, upgrading if necessary.	A window air conditioning unit is used but it is removed during the winter. If it is fixed in place, the window air conditioner is sealed with caulking or tape and covered with an airtight, insulated jacket for winter.	Heating or cooling unit is inefficient, older than 15 years, and/or no upgrading planned.	☐
	Heating and cooling units are serviced yearly by a licensed heating contractor. Furnace filters are cleaned or replaced every two months and air conditioner filters are replaced monthly (central air filters are cleaned or changed at the beginning of the warm season each year).	Heating and cooling units are serviced yearly by a licensed heating contractor. Furnace and air conditioning filters are cleaned or replaced occasionally.	Heating and cooling units are serviced immediately when malfunctioning or when a problem is suspected.	Heating or cooling units are seldom maintained. Filters are not changed nor cleaned as per energy efficiency recommendations.	☐
	Regularly check that vents, air intakes, and chimneys are not blocked and that seals around them are intact. Retrofit fireplaces or older woodstoves with a new advanced combustion model.	All chimneys are cleaned and inspected annually. Pilot lights of gas fireplaces or wall heaters are turned off in the summer.	Occasionally check that vents, air intakes, and chimneys are not blocked.	Fireplace dampers are left open when not in use. Inefficient fireplaces or older woodstoves are used regularly.	☐

Topic	Best 4	Good 3	Fair 2	Poor 1	Your Rating
BUILDINGS					
2. Lights	Minimize light bulb use by maximizing use of natural lighting. Lights are turned off when not in use. All incandescent light bulbs are replaced with Energy Star certified fluorescent light or LED bulbs.	Lights are turned off when not in use. Motion detectors or automatic timers are installed on outdoor lights.	Attempt to minimize light bulb use. Energy Star certified compact fluorescent light bulbs are used in the most commonly used areas.	Everyday practices do not attempt to minimize light bulb use. Lights are left on for a prolonged period of time such as overnight or while occupants are away.	☐
3. Building components	Hire a professional to conduct an energy audit, then develop and implement an energy plan for your home. Inform yourself of alternative energy options such as solar power and wind energy.	Check regularly for drafts or leaks around doors, windows, baseboards, ducts, attic hatches, air conditioning units, and outlets/switches. Immediately take the appropriate action to fix the situation.	Check occasionally for drafts or leaks throughout the building.	Seldom check for drafts or leaks. Condensation or frost appears on windows.	☐
	All ductwork is located in heated and/or cooled space within the building and has weather stripping in place.	All ductwork is located in heated and/or cooled space within the building.	Some ductwork is located in unheated and/or uncooled space (e.g. attic, garage).	Ducts are not insulated. Ducts have no weather stripping around joints.	☐
4. Building design	Construction meets passive house standards for building practices and technologies.	Energy efficiency practices and technologies are used in building design and layout.	Energy efficiency is a consideration in building design and layout.	Building is difficult to heat in winter and difficult to cool in summer.	☐

Topic	Best 4	Good 3	Fair 2	Poor 1	Your Rating
BUILDINGS					
5. **Heating and cooling practices**	A programmable system is used. During the winter, thermostat is lowered at night and while you are away during the day.	A programmable system is used.	During the winter, thermostat is lowered at night and while you are away during the day.	Heating and cooling systems are not adjusted to the time of day or activity within the space.	☐
	During the summer, the building is naturally cooled by closing blinds/shutters/ drapes, and by using awnings and strategically placed shade trees outside.	A ceiling fan is used, especially in rooms with high ceilings or with electric baseboards to help circulate the air. During winter, blade direction pushes warm air downwards.	During the summer, the air conditioner is set to 24°C (75°F) while you are at home and is raised when you leave.	No attempt is made to adopt practices that minimize energy use.	☐
WATER HEATING AND USE					
6. **Hot water use**	All laundry is washed and rinsed using cold water.	Most laundry is washed and rinsed using cold water.	Cold water is sometimes used to rinse laundry.	No attempt to minimize the amount of hot water that is used in laundry.	☐
	Length of showers is minimized and a low flow showerhead is used.	Length of showers is minimized.	Hot or warm water is left running while bathing.	No attempt to minimize the amount of hot water that is used in showers.	☐
7. **Water Heaters**	High efficiency, on-demand water heater. Water heater is turned off when the building is not in use for a prolonged period of time.	Non-plastic hot water pipes are insulated for the first two metres of pipe from the water heater.	An electric water heater is used, but it is insulated.	Water heater tank is inefficient or not insulated. Water heater is left on year-round regardless of use.	☐

Topic	Best 4	Good 3	Fair 2	Poor 1	Your Rating
WATER HEATING AND USE					
8. Hot tubs and pools	No pool or hot tub.	Location optimizes the use of natural wind shelter or shade from climatic factors. Water is heated with solar panels. Water is covered with a thermal blanket to trap heat.	Water is not heated with solar panels. Pump timers are used to regulate the temperature and duration of water heating.	No actions taken to ensure that heat energy is not lost from water when air temperatures drop. Pump timers are not used.	☐
APPLIANCES AND ELECTRONICS					
9. Energy efficiency	Always purchase high energy efficiency Energy Star appliances, especially the refrigerator, dishwasher, stove/oven, washer, and dryer. Electronics such as computers and printers are unplugged or turned off at the power bar when not in use.	Always turn off and unplug appliances that are not in use, especially older, inefficient appliances. Minimize the use of appliances and electronics.	Locate the refrigerator or freezer away from heat sources (including other appliances) or windows. Keep the refrigerator between 1.7-3.3°C (35-38°F) and the freezer unit at -18°C (0°F).	Energy efficiency is not considered when purchasing appliances or electronics. No action is taken to improve the energy efficiency of appliances or electronics.	☐
	During hot weather, all baking, washing, drying, and ironing are done early in the morning or in the evening.	Dishwasher is used but always runs full and is set to the 'no heat' or 'air drying' option.	Dishwasher is used but always runs full.	No consideration is given to actions or practices that minimize energy waste.	☐
	Laundry loads are always full and done on cold water settings. Whenever possible, clothes are hung to dry.	Clothes washer/dryer are almost always run full and cold settings are used most of the time.	Clothes washer/dryer is almost always run full and cold settings are used often.	No consideration is given to actions or practices that minimize energy use.	☐

Topic	Best 4	Good 3	Fair 2	Poor 1	Your Rating
APPLIANCES AND ELECTRONICS					
10. Maintenance	Check appliances regularly to ensure that seals remain in good condition, especially refrigerators and freezers.	Appliances are sometimes checked to ensure that seals remain in good condition, especially refrigerators and freezers.	Appliances are rarely checked to ensure that seals remain in good condition.	Appliances are never checked to ensure that seals remain in good condition.	

Helpful Hints

Buildings

- Seal and insulate warm air ducts.
- In winter, naturally warm your home by ensuring that sunlight can enter through all south facing windows. Close drapes or shutters in the evening.
- In summer, close windows and doors during the day, especially those along the south and southwest facing wall. Open them in the evening to catch cool breezes.
- Locate working spaces and high activity areas that need light near south facing windows so that fewer lights need to be on to meet your needs.
- Install storm windows and doors over single-pane windows and use weather stripping around all joints. Alternatively, install Energy Start certified double-glazed windows.
- In winter, lower the temperature on your thermostat. Every 1°C that a thermostat is lowered results in a 2% savings in energy costs. The most cost-effective change is to lower it by 3°C. In summer, 24°C (75°F) is the most cost-effective thermostat setting for cooling.
- Use a programmable thermostat. Save energy by only heating or cooling your home when you need it. Turn off your AC or heat when not at home.
- Ensure that your home is properly insulated and seal any air leaks to prevent drafts.

Appliances & Electronics

- Choose front-loading washing machines with the Energy Star label.
- Many appliances (TVs, computers, DVD players, cell phone chargers, stereos) consume 25% of their power when they are not even turned on! Unplug electronics when not in use or use a power bar to easily turn off multiple items.
- Use your microwave to reheat food, it is the most efficient.
- Energy Star certified recessed lighting fixtures can use up to 90% less energy than traditional models with incandescent bulbs.
- An Energy Star certified dryer can save up to 20% more energy compared to other models. Save even more energy by hanging your clothes outside to dry!
- Consider an on-demand, tankless water heater.
- Use an electric or induction stove rather than gas.
- Consider changing your home's heat source to an electric heat pump.

Resource List

Government

- Energy Star Canada
  www.nrcan.gc.ca/energy-efficiency/energy-star-canada/18953
- Government of Canada EcoAction Program
  www.ecoaction.gc.ca/index
- Climate Change Adaptation in Canada
  www.nrcan.gc.ca/climate-change-adapting-impacts-and-reducing-emissions/21442
- Get Flood Ready
  www.canada.ca/en/campaign/flood-ready.html
- Prepare for Extreme Weather
  www.getprepared.gc.ca/index-en.aspx
- Energy Efficiency for Home
  www.nrcan.gc.ca/energy-efficiency/homes/20546
- Small Changes for Your Home
  www.nrcan.gc.ca/energy-efficiency/homes/make-small-changes-add/21850

Stewardship & Conservation

- Climate Resources
  www.gbbr.ca/climate-resources
- AffordAbility Fund
  www.affordabilityfund.org
- Save on Energy Home Affordability Program
  www.saveonenergy.ca//en/For-Your-Home/Energy-Affordability-Program
- International Passive House Association
  www.passivehouse-international.org

Action Plan Worksheet #11

Lowering Your Energy Bill

Any ratings of 1 or 2 indicate areas of your household management that need some changes to reduce your energy usage. Use the information from the worksheet and the resource list to help analyze your potential problems and decide what you can do to solve or control them. Remember, this is YOUR action plan. It must suit you and your property.

Topic Number	Workshop Theme	My Rating	Short-term Action	Long-term Action
5	*Heating and Cooling Practices*	*2*	*Research appropriate tree species for your area. Install a programmable thermostat and ceiling fans in bedrooms and living room. Install window coverings to help regulate temperatures.*	*Plant deciduous trees on the south side to reduce solar gain in summer and coniferous trees on the north and west sides to reduce winter winds.*

Thank You
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The Georgian Bay Mnidoo Gamii Biosphere (GBB) is a community-based organization that builds capacity for regional sustainability in eastern Georgian Bay.

The GBB is a non-profit registered Canadian charity governed by a Board of Directors.

For more information, please visit:

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