

## Instructions: Eco-Challenge Calculator

Welcome to the New Brunswick Eco-Challenge calculator. Here you will find four calculators that have been designed and built specifically for the New Brunswick Eco-Challenge.

The calculators include the:

- Home Energy Calculator
- Daily Transportation Calculator
- Waste Calculator
- Water Use Calculator

This document provides instructions on what data users will need to input into the various calculators that are part of the Eco-Challenge.

## Timing Considerations and Instructions

The Family Eco-Challenge will be launched on January 9, 2012 and will conclude June 1<sup>st</sup>, 2012. Participants are expected to input the energy consumption totals from utility bills into the calculators on a monthly basis during this period (i.e. in January, participants would input for the month of December, etc).

Users of the calculator must enter in data for each month for each calculator. Once users enter their data, the calculator will be complete for that month.

## Data Inputs Associated with Home Energy Calculator

### Step 1 – Home Heating

**Field 1:** Specify the heating degree days for the month being analyzed

To determine the Heating Degree Days (HDDs) for the month (actual):

1. Select the closest weather station in the above list from the following map: [http://weatheroffice.gc.ca/forecast/canada/index\\_e.html?id=NB](http://weatheroffice.gc.ca/forecast/canada/index_e.html?id=NB)
2. Click on the name of the weather station and then scroll down until you see the Historical Weather associated with that specific weather station.
3. Click on More Info and then Historical Data. Here you will see the HDDs associated with the month of data that you are interested in.
4. Input the observed HDDs for the month you are analyzing (e.g. February) into the input box on the [Home heating analysis page](#).
5. Select the weather station closest to your dwelling (the same one used on the Weather office site) on the [Home heating analysis page](#). The calculator will then compare this to the average temperatures usually experienced in your area.

**Field 2:** Select the closest weather station from the drop down list

**Field 3:** Specify the electricity consumption total for the month (kWh)

**Field 4:** Specify the natural gas consumption total for the month (litres)

**Field 5:** Specify the dwelling type (using drop down menu)

**Field 6:** Specify the year the dwelling was built (using drop down menu)

**Field 7:** Specify the dwelling size (in square metres or square feet)

**Field 8:** Specify if your dwelling has space cooling (i.e. an air conditioner)

**Field 9:** Specify the number of hours/week you use the air conditioner – this should be the average for the month under consideration

**Field 10:** Specify if your dwelling has a dehumidifier

**Field 11:** Specify the number of hours/week you use the dehumidifier – this should be the average for the month under consideration

**Field 12:** Specify if your dwelling has any ceiling fans (using the drop down menu)

**Field 13:** Specify the number of hours/week you use the ceiling fan – this should be the average for the month under consideration

**Field 14:** Specify the hot water tank size (using the drop down menu)

## **Step 2 - Kitchen**

**Field 1:** Specify the refrigerator type (using drop down menu)

**Field 2:** Specify the dishwasher type (using drop down menu)

**Field 3:** Specify the dishwasher usage in hours/week– this should be the average for the month under consideration

**Field 4:** Specify the freezer type (using drop down menu)

**Field 5:** Specify the range usage in hours/week– this should be the average for the month under consideration

**Field 6:** Specify the oven usage in hours/week– this should be the average for the month under consideration

## **Step 3 - Laundry**

**Field 1 and 2:** Specify the brand and model of the washing machine used (using drop down menus)

**Field 3:** Specify if your household uses a dryer (using drop down menu)

**Field 4:** Specify the washing machine energy type (using drop down menu)

**Field 5:** Specify the dryer energy type (using drop down menu)

**Field 6:** Specify the washing machine usage in loads/week– this should be the average for the month under consideration

**Field 7:** Specify the dryer usage in loads/week– this should be the average for the month under consideration

#### **Step 4 - Lighting**

**Table:** Specify usage of the different types of lights per week – this should be the average for the month under consideration

#### **Step 5 – Home entertainment**

**Field 1:** Add the type and usage of home entertainment devices in your dwelling – this should be the average for the month under consideration

#### **Step 6 – Home energy summary**

Provides total emissions from energy use and a summary pie chart of emissions by end use

### ***Data Inputs Associated with Daily Transportation Calculator***

Users of the calculator can estimate the emissions associated with all of the daily travel undertaken for each month that is part of the Eco-Challenge. Two options are available for helping to determine the kilometers traveled with any trip purpose:

1. Allowing the calculator to estimate this using Google Maps
2. Providing the kilometers associated with each trip type

Users should first identify the trip purpose, the travel mode, and then if distance will be calculated by the calculator or inputted manually into the calculator.

*If the distance is calculated by the calculator:*

**Field 1:** Departing address

**Field 2:** Arriving address

**Field 3:** One way or two way trip

**Field 4:** Trips per month under consideration

*If the distance is manually inputted in the calculator:*

**Field 1:** Kilometres traveled per month

## **Step 2 – Summary**

Provides total emissions from transportation energy use and a summary by trip purpose

## **Data Inputs Associated Waste Management Module**

### **Step 1 – Emissions associated with waste management**

The data inputs required for this module include the disposal and management of waste. There are three input fields required:

**Field 1:** amount of waste generated each week (number of bags). This includes **both** waste disposed in landfills **and** waste recycled. Defaults are provided based on per capita waste generation data available from Statistics Canada. It is assumed that the average bag of garbage put out on the curb equals 15 kgs.

**Field 2:** What components of the waste stream are recycled and if organics are composted. The calculator provides the ability to understand the emission impacts of recycling and composting the following waste streams:

*In terms of recycling:*

- Newsprint
- Cardboard and boxboard
- Other paper
- Metals (including aluminum and metal cans, etc).
- Glass
- Plastics

*In terms of composting:*

- Food scraps
- Yard waste

**Field 3:** Over the course of a period, the quantity and waste disposal methods of the following household items:

- Personal Computers (recycled or disposed in landfill)
- Televisions (recycled or disposed in landfill)
- Microwaves (recycled or disposed in landfill)
- VCRs (recycled or disposed in landfill)
- Tires (recycled or disposed in landfill)

\*It is important to note, the “net emissions” that include the full lifecycle emissions and emission reductions associated with recycling can be negative. This reflects the fact that recycling takes away from the need to produce virgin material. For many waste streams, this results in a significant upstream reduction in energy requirements and emissions since it means that often energy intensive manufacturing processes are not required. For example, pulp and paper production is an energy and emission intensive process. Many pulp mills in Canada have the ability to produce paper from recycled content, a process which requires significantly less energy than producing paper from virgin content. Nonetheless, it is recognized that some recycled material are not in fact recycled in Canada, but transported overseas to lower cost centres or to regions where there is higher demand for these inputs into the manufacturing process.

### **Step 2 – Summary**

Provides total emissions from waste management use and emission reductions attributed to recycling

### ***Data Inputs Associated with Water Use Calculator***

There are five input fields required to generate estimates of water use associated with a dwelling:

**Step 1:** Specification of water use technologies. Use the input box to specify the water use technologies used in the dwelling

**Step 2:** Specification of kitchen water use behavior

**Step 3:** Specification of bathroom water use behavior

**Step 4:** Specification of laundry water use behavior

### **Step 5 – Summary**

Provides total water usage for time period