

# **Newfoundland and Labrador Vehicle Efficiency and Cost Calculator (VECC)**

## **Methodology Report**

Department of Municipal Affairs and Environment  
Government of Newfoundland and Labrador  
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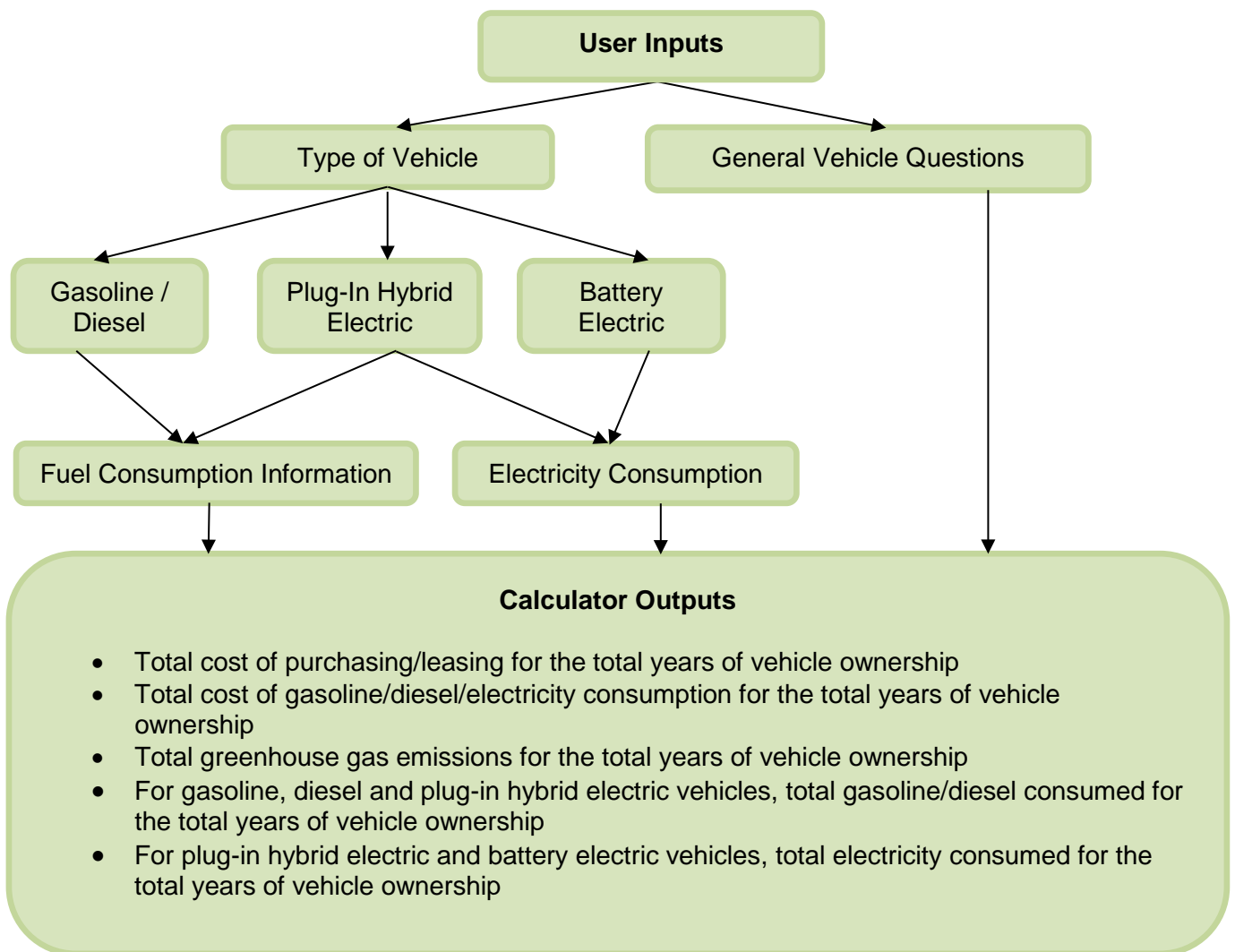
# 1. Introduction

This document outlines the data sources and calculation methodology that have been used in the vehicle efficiency and cost calculator (“the calculator”).

## 1.1. Structure

Figure 1 shows a flow chart representation of the route through the calculator.

Figure 1: Calculator Flowchart



## 2. Required User Inputs

The cost and greenhouse gas (GHG) emission estimates produced by the calculator are based on user inputs. In the interests of accessibility and transparency, the calculator has been designed to be user friendly, with as few data inputs as possible. Exact questions from the calculator can be found in Appendix A.

### 2.1. Vehicle Type

Users can choose among four vehicle types:

- Gasoline (including hybrid vehicles that do not plug in to recharge);
- Diesel;
- Plug-in Hybrid Electric; and
- Battery Electric

Please note that although conventional hybrids use both an internal combustion engine and an electric motor, the battery is charged from the engine during driving and it cannot be plugged in to an external electricity source. Users with conventional hybrids can use either the gasoline fuel type for their calculations.

### 2.2. Type of Purchase

The two options available to users are 'Cash Purchase' and 'Finance or Lease'. If users purchase a vehicle with all of the payment upfront and no additional payments, they should choose 'Cash Purchase'. If the user purchased the vehicle via a financing or leasing agreement (where they commit to making a series of payments for the vehicle over time and may or may not have made an initial down payment) they should choose 'Finance or Lease'.

### 2.3. Payments

#### For Cash Purchase

Users should provide the total amount paid for the vehicle at the time of purchase, including all fees and taxes. For cars with no purchase price, such as gifts, insert '1' in this field.

#### For Finance or Lease

- Amount:
  - Down Payment: Users should provide the down payment amount (if applicable), including all fees and taxes. If there was no down payment required, they can provide a value of '0' in this field.
  - Periodic Payments: Users are required to include the dollar amount of their periodic payments for the vehicle.

- **Frequency:** Users must choose the frequency of these periodic payments as weekly, biweekly or monthly.
- **Years of Payments:** Users must choose the number of years they expect to be paying for the vehicle, selecting a value from 1 year to 8 years from a drop-down menu.

## 2.4. Driving Habits

- **Years of Ownership:** Users must provide the number of years that they expect to own the vehicle, selecting a value from 1 year to 12 years from a drop-down menu.
- **Annual Kilometres:** Users must provide the number of kilometres they expect to drive each year in the vehicle.
- **Percent of City Driving:** Users are asked what percentage of their annual driving is done in ‘city’ conditions, as defined in Natural Resource Canada’s (NRCan’s) Fuel Consumption Guide.<sup>1</sup> By contrast, ‘highway’ driving represents a mix of open highway and rural road driving. The default values for city and highway driving correspond to those used by NRCan for its ‘combined’ fuel rating (55 percent city and 45 percent highway). However, users may enter any value from 1 to 100. Based on the value provided, the percent of highway driving is calculated and displayed for the user.

## 2.5. For Gasoline / Diesel / Plug-in Hybrid Vehicles

### **Gasoline/Diesel Consumption**

Users must provide both the city and highway fuel consumption value (in litres per 100 kilometres) for their specific vehicle. To help users obtain this information, a link to the NRCan Fuel Consumption Ratings Search Tool for Conventional Vehicles is provided. In addition, a pdf file is provided containing additional explanatory information to guide users through the search tool to direct them to the appropriate information.

### **Cost of Gasoline/Diesel**

Users must provide an estimated average price per litre of gasoline or diesel in their local area (including all taxes). For example, as of August 3, 2017, the maximum price per litre set by the Public Utilities Board<sup>2</sup> for the Avalon Peninsula for regular self-serve gasoline was \$1.238 per litre.”

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<sup>1</sup> Available online at: <http://www.nrcan.gc.ca/energy/efficiency/transportation/cars-light-trucks/buying/7487>

<sup>2</sup> Available online at: <http://www.pub.nf.ca/ppoprices.htm>

## 2.6. For Plug-in Hybrid Electric and Battery Electric Vehicles

To support users in obtaining information required for electric vehicles, a link to NRCan's Advanced Technology Vehicles webpage is provided. In addition, there are links to various pdf files for additional explanatory information to direct users to the appropriate information.

### **Electricity System**

The calculator estimates GHG emissions and electricity consumption cost based on which electricity power system is used in the user's primary community of residence. The user can choose among the following types of communities:

- Newfoundland (Interconnected/Non Diesel Generator Community)
- Newfoundland (Diesel Generator Community)
- Labrador (Interconnected/Non Diesel Generator Community)
- Labrador (Diesel Generator Community)
- Labrador Straits (L'anse au Loup System)

A list of diesel generator communities is provided for reference purposes (see Appendix B).

### **PHEV-Specific Information**

**Combined Electricity Consumption Rating:** Users must provide the combined electricity consumption rating (in kilowatt hours per 100 kilometres) for their specific vehicle.

**All-Electric Kilometres:** Users must enter the total number of all-electric kilometres they expect to drive each year, which is a function of their vehicle's all-electric range. If the user regularly drives less than their daily range, they are primarily using the all-electric mode. In Advanced Technology Vehicles testing by NRCan, most vehicles did not use any gasoline for electric mode operation. However, depending on how users drive the vehicle, they may use gasoline during electric mode operation following a full charge. This calculator assumes that no gasoline is used for electric mode operation. This is consistent with the methodology used by NRCan.

### **BEV-Specific Information**

Users must provide both the city and highway electricity consumption rating (in kilowatt hours per 100 kilometres) for their specific vehicle.

### 3. Calculator Outputs

#### 3.1. Purchase and Fuel/Electricity Consumption

The calculator provides users with the total cost of purchasing and fuel/electricity consumption for the total number of years that users plan to own the vehicle (outlined in User Required Inputs above).

##### 3.1.1. Purchase Costs

If the vehicle is purchased outright with cash, the cost includes the full initial cash payment only, with no discounting (since it occurs in the present). Each example below (gas/diesel, PHEV and BEV) used.

For vehicles that are financed or leased, the cost includes the down payment value, with no discounting and the present value (using a 10 per cent annual discount rate, discussed below) of the total number of payments. Payments that are made weekly or biweekly are converted to monthly payments and discounted on a monthly basis in the calculator for simplicity.

##### Vehicle Scenarios

Each example below (gas/diesel, PHEV and BEV) will use the following common values, which will contribute to final values noted in Section 3.3

##### Two Purchase Cost Scenarios

- Cash Purchase Scenario: \$5,000 one-time cash payment **OR**
- Financing/Leasing Scenario: \$500 down payment, biweekly payments of \$300 for 5 years

**Years of Ownership:** 5 years

**Total Annual KM:** 20,000

**Annual Percentage of City Driving:** 60% (0.60)

**Annual Percentage of Highway Driving:** 40% (0.40)

##### 3.1.2. Discount Rate

The use of a 10 per cent discount rate represents the relative importance that consumers may give to costs and benefits in different years in the future. It is not meant to reflect the cost of borrowing, but rather to reflect the rate at which a consumer, whose

consumption path is assumed to be constant over time, must be paid to substitute future consumption for present consumption and still remain indifferent.

Lower discount rates are generally assigned to larger entities and durable capital spending, such as a government constructing a road, and higher discount rates are generally assigned to households and for spending where cost recovery is a key consideration, such as for a household purchasing a vehicle. Consumers' preferences will vary; however, for purposes of this calculator, a 10 per cent discount rate is applied.

### 3.1.3. Gasoline/Diesel Costs

Please note that while the approach to calculating final cost values is discussed and calculations for intermediate steps (e.g., yearly fuel costs) are noted, only final total costs are displayed to users in the calculator.

#### Gasoline/Diesel Vehicles

For gasoline and diesel vehicles, the yearly amount of gasoline/diesel is calculated using the city and highway consumption, as inputted by the user (with a link to NRCan's Fuel Consumption Ratings Search Tool to help users locate this information) and the split of total annual kilometres provided by the user between city and highway driving.

#### Gasoline/Diesel Example:

City Fuel Consumption (L/100KM): 9.9 L/100KM

Highway Fuel Consumption (L/100KM): 7.9 L/100KM

Cost Per Litre of Gasoline/Diesel: \$1.20

- **Yearly Fuel Amount** = (City Fuel Consumption / 100 x Annual Percentage of City Driving x Total Annual KM) + (Highway Fuel Consumption / 100 x Annual Percentage of Highway Driving x Total Annual KM)

Example:  $(9.9/100 \times 0.60 \times 20,000) + (7.9/100 \times 0.40 \times 20,000) = 1820$  Litres

- **Total Fuel Amount** = Yearly Fuel Amount x Years of Car Ownership = 1820L x 5 years = 9100L

- **Annual Fuel Cost** (in year one) = Yearly Fuel Amount x Cost per Litre

Example: 1820 Litres x \$1.20 = \$2184.00



- **Total Fuel Cost** = Present Value of Annual Fuel Cost for the Number of Years of Ownership, using the cost per litre amount provided by the user, and a 2 per cent inflation rate and a 10 per cent discount rate for each year after year one. Please note that given the variability of gasoline and diesel pricing, the actual value may vary significantly.

Example: = \$9443.01

### **Plug-in Hybrid Electric Vehicles**

For PHEVs, the yearly amount of gasoline/diesel is calculated using the city and highway fuel consumption, as inputted by the user. The estimated total annual kilometres using fuel is based on information provided by the user on their all-electric kilometers driven, and the split between city and highway driving.

#### **PHEV Example:**

City Fuel Consumption (L/100KM): 7.2 L/100KM

Highway Fuel Consumption (L/100KM): 6.5 L/100KM

Community (Power System): Newfoundland (Interconnected/Non-Diesel Generator Community)

Combined Kilowatt Hour Consumption (kwh/100KM): 23.2kwh/100KM

Annual All Electric Driving KM: 9000 (estimated based on a 25km all-electric range)

Cost Per Litre of Gasoline/Diesel: \$1.20

- **Total Annual Fuel KM** = Total Annual KM - Annual All Electric Driving KM  
Example: 20,000 – 9,000 = 11,000
- **Yearly Fuel Amount** = (City Fuel Consumption / 100 x Annual Percentage of City Driving x Total Annual Fuel KM ) + (Highway Fuel Consumption / 100 x Annual Percentage of Highway Driving x Total Annual Fuel KM)  
Example: (7.2/100 x 0.60 x 11,000) + (6.5/100 x 0.40 x 11,000) = 761 Litres
- **Annual Fuel Cost** and **Total Fuel Cost** are calculated in the same way as for gasoline/diesel vehicles noted above.  
Example: Annual Fuel Cost = \$913.44 and Total Fuel Cost = \$3949.46

### 3.1.4. Electricity Costs

#### Plug-in Hybrid Electric Vehicles

For PHEVs, the yearly amount of electricity used is calculated using the combined electricity consumption, as inputted by the user (Note: NRCan does not provide a city/highway split for electricity consumption for PHEVs), and the total all-electric annual kilometres provided by the user.

- **Annual Electricity Amount** = Total Annual All-Electric KM x Combined Electricity Rating per 100KM / 100

Example: 9000 km x 23.2 kwh/100 = 2088 kwh

- **Annual Electricity Cost** = Total kwh x Price/kwh

The electricity cost calculations for each power system uses the rates submitted to the Public Utilities Board for approval, to come into effect April 1, 2017, plus Harmonized Sales Tax (HST). For 2018, 2019 and all years after 2020, the calculator assumes a 2 per cent annual inflation rate and 10 per cent annual discount rate. The only exception is the 2020 price for the NL Interconnected System. The rate used is \$0.214/kwh plus HST, based on [publicly available information](#) from Nalcor. For the Labrador Diesel Communities and the L'anse au Loup System, the rates used incorporate the Northern Strategic Plan subsidy.

Example: 2088kwh x \$0.1239 = \$258.70

**Table 1 - Price Per Kilowatt Hour by Community Power System**

Year	NL Interconnected	NL Diesel	Lab Interconnected	Lab Diesel	L'anse au Loup
2017	0.1239	0.1489	0.0407	0.0769	0.0748
2018	0.1264	0.1519	0.0415	0.0784	0.0763
2019	0.1289	0.1549	0.0423	0.0800	0.0778
2020	0.2461	0.1580	0.0432	0.0816	0.0794
2021	0.2510	0.1612	0.0441	0.0832	0.0810
2022	0.2560	0.1644	0.0449	0.0849	0.0826
2023	0.2612	0.1677	0.0458	0.0866	0.0842
2024	0.2664	0.1710	0.0468	0.0883	0.0859
2025	0.2717	0.1745	0.0477	0.0901	0.0876
2026	0.2771	0.1779	0.0486	0.0919	0.0894
2027	0.2827	0.1815	0.0496	0.0937	0.0912
2028	0.2883	0.1851	0.0506	0.0956	0.0930

- **Total Electricity Cost** = Present value of each of the Annual Electricity Cost rates from the table above multiplied by the Annual Electricity Amount, for the Number of Years of Ownership, using a 10 per cent discount rate after year one.

Example = \$1465.09

### **Battery Electric Vehicles**

For BEVs, the yearly amount of electricity used is calculated using city electricity consumption, highway electricity consumption, and the total all-electric annual kilometres provided by the user.

#### **BEV Example:**

City Electricity Consumption (kwh/100KM): 17.0 kwh/100KM

Highway Electricity Consumption (kwh/100KM): 20.7 kwh/100KM

Community Power System: Newfoundland Interconnected System

- **Annual Electricity Amount** = (City Electricity Consumption / 100 x Annual Percentage of City Driving x Total Annual KM ) + (Highway Electricity Consumption / 100 x Annual Percentage of Highway Driving x Total Annual Fuel KM)

Example:  $(17.0/100 \times 0.60 \times 20,000) + (20.7/100 \times 0.40 \times 20,000) = 3696$  kwh

- **Annual Electricity Cost** and **Total Electricity Cost** are calculated in the same way as for PHEVs noted above, using the rates in Table 1 above.

Example: Annual Electricity Cost = \$457.93 and Total Electricity Cost = \$2593.38

## **3.2. Greenhouse Gas Emissions**

### **3.2.1. Gasoline/Diesel Greenhouse Gas Emissions**

For all gasoline/diesel greenhouse gas emissions, annual emissions are calculated by using the annual fuel amount multiplied by the appropriate greenhouse gas coefficient. For gasoline, the coefficient is 2.3kg/L, while for diesel, it is 2.7kg/L. The calculation for PHEVs uses the coefficient for gasoline.

- **Annual Fuel Greenhouse Gas Emissions (in tonnes)** = Annual Fuel Amount x GHG coefficient / 1,000

Examples:

Gasoline =  $1820L \times 2.3kg/L / 1,000 = 4.186$  tonnes

Diesel =  $1820L \times 2.7kg/L / 1,000 = 4.914$  tonnes

PHEV (Gas)  $761\text{L} \times 2.3\text{kg/L} / 1,000 = 1.750$  tonnes

- **Total Fuel Greenhouse Gas Emissions (in tonnes)** = Annual Fuel Greenhouse Gas Emissions (in tonnes) x Number of Years of Vehicle Ownership

Examples:

Gasoline:  $4.186$  tonnes x 5 years =  $20.93$  tonnes

Diesel:  $4.914$  tonnes x 5 years =  $24.57$  tonnes

PHEV (Gas):  $1.750$  tonnes x 5 years =  $8.75$  tonnes

### 3.2.2. Electricity Greenhouse Gas Emissions

The GHG emissions associated with electricity use varies by the source of the electricity and the amount of fuel required to run the electricity power system.

**For All Communities Except 'NL Interconnected/Non-Diesel Generator Community' for Both PHEV and BEV**

- **Annual Electricity Greenhouse Gas Emissions (in tonnes)** = Annual Electricity Amount x GHG coefficient
- **Note:** the GHG coefficients for electricity are in tonnes/kwh

PHEV Examples:

Newfoundland (Diesel Generator Community) =  $2088\text{kwh} \times 0.000780\text{t/kwh} = 1.6286$  tonnes

Labrador (Diesel Generator Community) =  $2088\text{ kwh} \times 0.000786\text{t/kwh} = 1.6412$  tonnes

Labrador (Interconnected/Non-Diesel Generator Community) =  $2088\text{kwh} \times 0 = 0$  tonnes (Note: this system uses hydroelectric power, which has no emissions)

Labrador L'anse au Loup System =  $2088\text{kwh} \times 0.000864\text{t/kwh} = 1.8040$  tonnes

BEV Examples:

Newfoundland (Diesel Generator Community) =  $3696\text{kwh} \times 0.000780\text{t/kwh} = 2.8829$  tonnes

Labrador (Diesel Generator Community) =  $3696\text{kwh} \times 0.000786\text{t/kwh} = 2.9051$  tonnes

Labrador (Interconnected/Non-Diesel Generator Community) =  $3696\text{kwh} \times 0 = 0$  tonnes (Note: this system uses hydroelectric power, which has no emissions)

Labrador (L'anse au Loup System) =  $3696\text{kwh} \times 0.000864\text{t/kwh} = 3.1933$  tonnes

- **Total Lifetime Electricity GHG Emissions** = Annual Electricity Greenhouse Gas Emissions (in tonnes) x Number of Years of Vehicle Ownership

PHEV Example:

Newfoundland (Diesel Generator Community) = 1.6286 tonnes x 5 years = 8.143 tonnes

Labrador (Diesel Generator Community) = 1.6412 tonnes x 5 years = 8.206 tonnes

Labrador (Interconnected/Non-Diesel Generator Community) = 0 tonnes x 5 years = 0 tonnes (Note: this system uses hydroelectric power, which has no emissions)

Labrador (L'anse au Loup System) = 1.8040 tonnes x 5 years = 9.020 tonnes

BEV Example:

Newfoundland (Diesel Generator Community) = 2.8829 tonnes x 5 years = 14.415 tonnes

Labrador (Diesel Generator Community) = 2.9051 tonnes x 5 years = 14.526 tonnes

Labrador (Interconnected/Non-Diesel Generator Community) = 0 tonnes (Note: this system uses hydroelectric power, which has no emissions)

Labrador (L'anse au Loup System) = 3.1933 tonnes x 5 years = 15.967 tonnes

**NL Interconnected/Non-Diesel Generator Community**

The electricity system for NL Interconnected/Non-Diesel Generator Communities is primarily powered by hydroelectric power, but currently relies on the Holyrood Generating Station for approximately 25 per cent of its power. However, as the facility is phased out and Muskrat Falls power comes online, this proportion will decline with total phaseout expected by 2021. The fuel used at Holyrood currently has a GHG coefficient of 0.000768t/kwh and as noted below in Table 2, the calculator assumes that the percentage of Holyrood Power within this system will reduce to zero by 2021 as per an assumed schedule. The assumed schedule may not align with operational decisions to be made by Newfoundland and Labrador Hydro.

- **Annual Electricity Greenhouse Gas Emissions (in tonnes)** = Annual Electricity Amount x Adjusted GHG coefficient / 1,000

**Table 2 Adjusted GHG Coefficient for Holyrood Power Station Emissions**

Year	Percentage of Holyrood Power for System	Adjusted GHG Coefficient
2017	25%	=0.000768t/kwh x 25% = 0.000192t/kwh
2018	15%	=0.000768t/kwh x 15% = 0.000115t/kwh
2019	9%	=0.000768t/kwh x 9% = 0.000069t/kwh
2020	5%	=0.000768t/kwh x 5% = 0.000038t/kwh
2021 & later	0% (complete phaseout)	=0.000768t/kwh x 0% = 0

- **Total Lifetime Electricity GHG Emissions (NL Interconnected/Non-Diesel Generator Communities)** = Summation of the Annual Electricity Amount x Adjusted GHG coefficient

PHEV Example:

2017: 2088kwh x 0.0001920t/kwh = 0.400896 tonnes  
 2018: 2088kwh x 0.0001152t/kwh = 0.240534 tonnes  
 2019: 2088kwh x 0.0000691t/kwh = 0.144280 tonnes  
 2020: 2088kwh x 0.0000384t/kwh = 0.0801792 tonnes  
 2021: 2088kwh x 0 = 0 tonnes  
 Total for 5 year ownership period: 0.8659 tonnes

BEV Example:

2017: 3696kwh x 0.0001920t/kwh = 0.709632 tonnes  
 2018: 3696kwh x 0.0001152t/kwh = 0.425779 tonnes  
 2019: 3696kwh x 0.0000691t/kwh = 0.255394 tonnes  
 2020: 3696kwh x 0.0000384t/kwh = 0.141926 tonnes  
 2021: 3696kwh x 0 = 0 tonnes  
 Total for 5 year ownership period: 1.5327 tonnes

**3.2.3. Total PHEV GHG Emissions**

Since PHEVs use both fuel and electricity, total GHG emissions are calculated by adding both over the lifetime of vehicle ownership.

- **Total PHEV GHG Emissions** = Total Lifetime Fuel GHG Emissions + Total Lifetime Electricity GHG Emissions

Example: 8.750 tonnes (fuel) + 0.8659 tonnes (electricity) = 9.616 tonnes

**3.3. Results and Comparisons**

Once users have provided their inputs, when they press the blue button to calculate the specific values for their vehicle, they will see results (based on the methodology described above) for:

- **Total cost of purchasing and fuel/electricity consumption for the total years of vehicle ownership**

Example	Using Cash Purchase	Using Financing/Leasing
Gasoline/Diesel	\$20,916.65	\$47,009.14
PHEV	\$14,557.33	\$40,649.82
BEV	\$10,133.90	\$36,226.39

- **Total greenhouse gas emissions for the total years of vehicle ownership**

<b>Example</b>	<b>Total GHGs</b>
Gasoline/Diesel	41.9 tonnes
PHEV	18.4 tonnes
BEV	1.5 tonnes

- **For gas, diesel and plug-in hybrid electric vehicles, total fuel consumed for the total years of vehicle ownership**

<b>Example</b>	<b>Total Fuel</b>
Gasoline/Diesel	18,200 L
PHEV	7,612 L
BEV	N/A

- **For plug-in hybrid electric and battery electric vehicles, total electricity consumed for the total years of vehicle ownership**

<b>Example</b>	<b>Total Electricity</b>
Gasoline/Diesel	N/A
PHEV	20,880 kwh
BEV	36,960 kwh

### **Scenario Analysis:**

Users can press the red 'Reset All Values' button and then input values for other vehicles for comparison or explore various scenarios for their selected vehicle.

### **Annual GHG Emissions for Various Vehicle Classes**

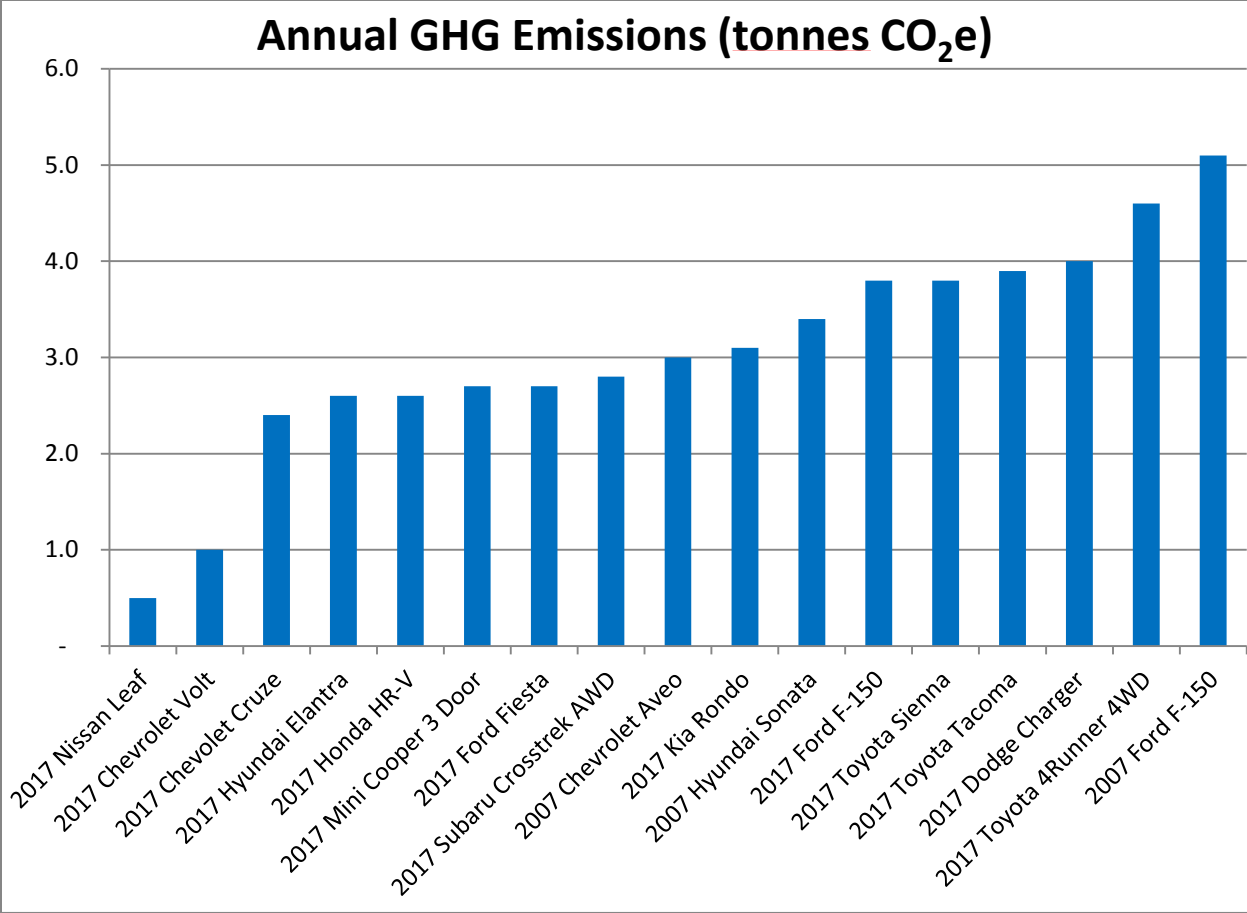
The following table and graph illustrate the associated annual emissions for various vehicle classes and models for 2017, with three 2007 models provided for comparison.

- Vehicle fuel consumption figures were from the 2017 Fuel Consumption Guide. For models with multiple configurations (e.g., different engine sizes, manual transmission, etc), the base automatic transmission figures were used.
- All calculations assumed 15,000km annual driving, using a 55 per cent city and 45 per cent highway split.

- The Newfoundland Island Interconnected System was used for battery and plug-in vehicles. GHG emissions are associated with the electricity generation from this system. As an increasing portion of the electricity generation shifts to hydroelectric power, as per an assumed operational schedule, these emissions are anticipated to be reduced further.
- The plug-in hybrid electric vehicle assumed 10,000 all-electric km annually.

<b>Vehicle Class</b>	<b>Model</b>	<b>City (L/100km)</b>	<b>Highway (L/100km)</b>	<b>Annual GHG (tonnes CO2e)</b>
Battery Electric	2017 Nissan Leaf	17.0 Kwh/100km city, 20.7 Kwh/100km highway		0.5
Plug-in Hybrid Electric	2017 Chevrolet Volt	5.5	5.6	1.0
Compact	2017 Chevrolet Cruze	19.9Kwh/100km combined		
Mid-Size	2017 Hyundai Elantra	7.9	5.9	2.4
Small Station Wagon	2017 Honda HR-V	8.3	6.4	2.6
Minicompact	2017 Mini Cooper 3 Door	8.3	6.9	2.6
Subcompact	2017 Ford Fiesta	8.8	6.8	2.7
Small Sport Utility Vehicle	2017 Subaru Crosstrek AWD	8.6	6.4	2.7
Compact	2007 Chevrolet Aveo	9.1	7.2	2.8
Mid-Size Station Wagon	2017 Kia Rondo	10.2	7.1	3.0
Full-Size	2007 Hyundai Sonata	9.9	7.6	3.1
Standard Pickup Truck	2017 Ford F-150	11.3	7.8	3.4
Minivan	2017 Toyota Sienna	12.2	9.3	3.8
Small Pickup Truck	2017 Toyota Tacoma	12.5	8.9	3.8
Full-Size	2017 Dodge Charger	12.1	10.1	3.9
Standard Sport Utility Vehicle	2017 Toyota 4Runner 4WD	13.7	9.0	4.0
Standard Pickup Truck	2007 Ford F-150	14.3	12.0	4.6
		16.8	12.6	5.1





## Appendix A – Calculator Questions

### Vehicle Efficiency and Cost Calculator

This tool will help you with your vehicle choice by calculating the purchase/lease cost, fuel/energy consumption, and greenhouse gas emissions, and is provided as a guide only. Please fill out the fields below and click the button at the bottom of the screen to see your results.

Disclaimer: This calculator is available for your convenience. The reliability of the results depends on the accuracy of the information you enter. Fuel consumption information and assumptions are derived from the Fuel Consumption Guide, and energy use information and assumptions are derived from the Advanced Technology Vehicles webpage, both of which are published by Natural Resources Canada and are based on vehicle testing and data. Actual fuel consumption may vary.

### Vehicle Information

What type of vehicle are you considering?

### Payment Information

- Do you plan to purchase the vehicle outright or will you finance or lease the vehicle?

#### For outright purchase only:

- Please enter the amount of your full cash payment. Include any applicable taxes, fees, and/or interest charges, to the nearest dollar, with no commas, spaces or symbols (for cars with no purchase price, such as gifts, insert '1' in this field).

#### For finance or lease only:

- Please enter the amount of any down payment. Include any applicable taxes, fees, and/or interest charges, to the nearest dollar, with no commas, spaces or symbols.
- Please enter the amount of your regular vehicle payments. Include any applicable taxes, fees, and/or interest charges, to the nearest dollar.
- How frequently will you be making your regular vehicle payments?
- Over how many years will you be paying for the vehicle?

### Ownership and Usage

- How many years do you expect to own the vehicle?
- Approximately how many kilometres will you drive each year?

Approximately what percentage of your yearly driving kilometres are in 'city' driving conditions (driving with frequent stops and lower driving speeds, including driving within rural communities) versus 'highway' driving conditions (few stops and higher driving

speeds)? (Please note that Natural Resources Canada uses a default split of 55 per cent 'city' driving versus 45 per cent 'highway' driving, but individual driving patterns vary greatly.)

### **Fuel Consumption Information**

#### For Gasoline, Diesel, and PHEV Only

What is your vehicle's CITY fuel consumption rating?  
What is your vehicle's HIGHWAY fuel consumption rating?  
What is the average price of gasoline/diesel in your area?

### **Electricity Consumption Information**

#### For PHEV and BEV

Please select which type of community you live in.

#### PHEV Only

What is your vehicle's combined electricity consumption rating?  
How many all-electric kilometres do you expect to drive each year?

#### BEV Only

What is your vehicle's CITY electricity consumption rating?  
What is your vehicle's HIGHWAY electricity consumption rating?

## **Appendix B – Community Power Systems**

Note: If you do not live in one of the following communities, you are either on the Newfoundland Island Interconnected System or the Labrador Interconnected System.

### **Newfoundland Diesel System Communities**

Francois

Grey River

Little Bay Islands

McCallum

Ramea (Wind Diesel)

St. Brendan's (including Dock Cove, Hayward's Cove, Penny's Cove, Shalloway Cove, Shoal Cove)

### **Labrador Diesel System Communities**

Black Tickle

Cartwright

Charlottetown

Domino

Hopedale

Makkovik

Mary's Harbour (including Lodge Bay)

Mushuau Innu First Nation (Natuashish)

Nain

Norman Bay

Paradise River

Pinsent's Arm

Port Hope Simpson

Postville

Rigolet

St. Lewis (including Frankie's Cove)

William's Harbour

### **Labrador L'anse au Loup System Communities**

Buckle's Point

Capstan Island

English Point

Forteau

Fox Cove

L'Anse Amour

L'Anse au Clair

L'Anse au Diable

L'Anse au Loup

Organ's Island

Pinware

Red Bay

West St. Modest