

# Vancity carbon footprint report 2008

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**Vancity**

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# 1. Summary

Vancity is Canada's largest credit union. Formed in 1946, we have \$14.5 billion in assets, more than 400,000 members, and over 60<sup>1</sup> branches located throughout Greater Vancouver, the Fraser Valley, Squamish and Victoria. Vancity and our business partners, known collectively as the Vancity Group, are guided by a commitment to corporate social responsibility and to improve the quality of life in our communities.

For Vancity, corporate social responsibility (CSR) goes beyond donating money or volunteering time to worthy causes. It's about operating in a way that is responsible to our members, and our staff, that is respectful of the environment and that is supportive of the communities where we live and work.

A few years ago, we made the commitment to become Carbon Neutral by 2010. In April of 2008 we announced that we had achieved this goal two years early. This report provides readers with an account of the Vancity Group's GHG emissions inventory for the fiscal year 2008. It includes information on the design and development of our GHG emissions inventory, emissions quantification methodology and base year selection. In addition, it discusses the actions we have taken to reduce our GHG emissions, a section on assessing and reducing uncertainty, and the processes we have in place to ensure quality management of our GHG emissions inventory.

In 2008, the Vancity Group's carbon footprint was 5,305 tonnes CO<sub>2</sub>e, of which 450 tonnes are direct emissions (Scope 1), 380 tonnes are from energy indirect emissions (Scope 2), and 4,475 tonnes are other indirect emissions (Scope 3).

This Carbon Footprint Report is prepared by management in accordance with ISO 14064-1, *Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*. The information contained in this report has been verified by InterPraxis, an independent third party.

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<sup>1</sup> Includes Citizens Bank locations in Vancouver, Calgary and Toronto.

## 2. Organization Profile

Founded in 1946 to provide financial services to people from all walks of life, Vancouver City Savings Credit Union has grown to become the largest credit union in English-speaking Canada, with \$14.5 billion in assets. Vancity serves more than 400,000 members through over 60 branches located throughout Greater Vancouver, the Fraser Valley, Squamish and Victoria. In addition, we employ more than 2,500 employees.

Vancity's reputation for environmental excellence is well-known within British Columbia's borders and beyond. Through our climate change strategy, Vancity supports innovative partnerships involving public transportation and green building projects and invests in organizations doing climate change work, for example, through our grant programs and Climate Change Mortgage. Vancity achieved our target of being the first carbon neutral financial institution in North America in 2008 by way of a combination of retrofits, reductions and carbon offsets, and have already saved \$2 million by cutting our power use by 50 per cent per employee.

Vancity has also introduced a number of innovative programs and products such as the Clean Air Auto Loan, that allow Vancity members the opportunity to reduce their own environmental footprint. As well, Vancity's enviroFund VISA program donates five per cent of its profits to support local environmental projects with the areas of focus being voted on by cardholders. More than \$2.3 million has been awarded to local groups since enviroFund was established in 1990.

Vancity is comprised of ten business partners and subsidiaries that are collectively referred to as the Vancity Group. These include: Citizens Bank of Canada, Inventure Solutions Inc., Inhance Investment Management, Vancity Capital Corporation (VCC), Vancity Enterprises (VCE), Vancity Insurance Services (VISL), Vancity Investment Management (VCIM), Vancity Community Foundation (VCF) and Squamish Savings. (See Figure 1)

For the locations of all Vancity group facilities (both owned and leased) by province, refer to Appendix A.

### 3. GHG Inventory Design and Development

#### 3.1 Organizational Boundary

The Vancity group (Vancity) encompasses ten business partners and subsidiaries (see Figure 1). ISO 14064-1 recommends that: “Where possible, organizations should follow the organizational boundaries already in place for their financial accounting, provided these are explicitly explained and followed consistently”. Following this recommendation, Vancity selected the Operational Control approach, to define our organizational and operational boundaries. Vancity includes in our emissions inventory all sources and sinks associated with the organizations we exercise operational control over. These include: Citizens Bank of Canada, Inventure Solutions Inc., Inhance Investment Management, Vancity Capital Corporation (VCC), Vancity Enterprises (VCE), Vancity Insurance Services (VISL), Vancity Investment Management (VCIM), Vancity Community Foundation (VCF) and Squamish Savings.

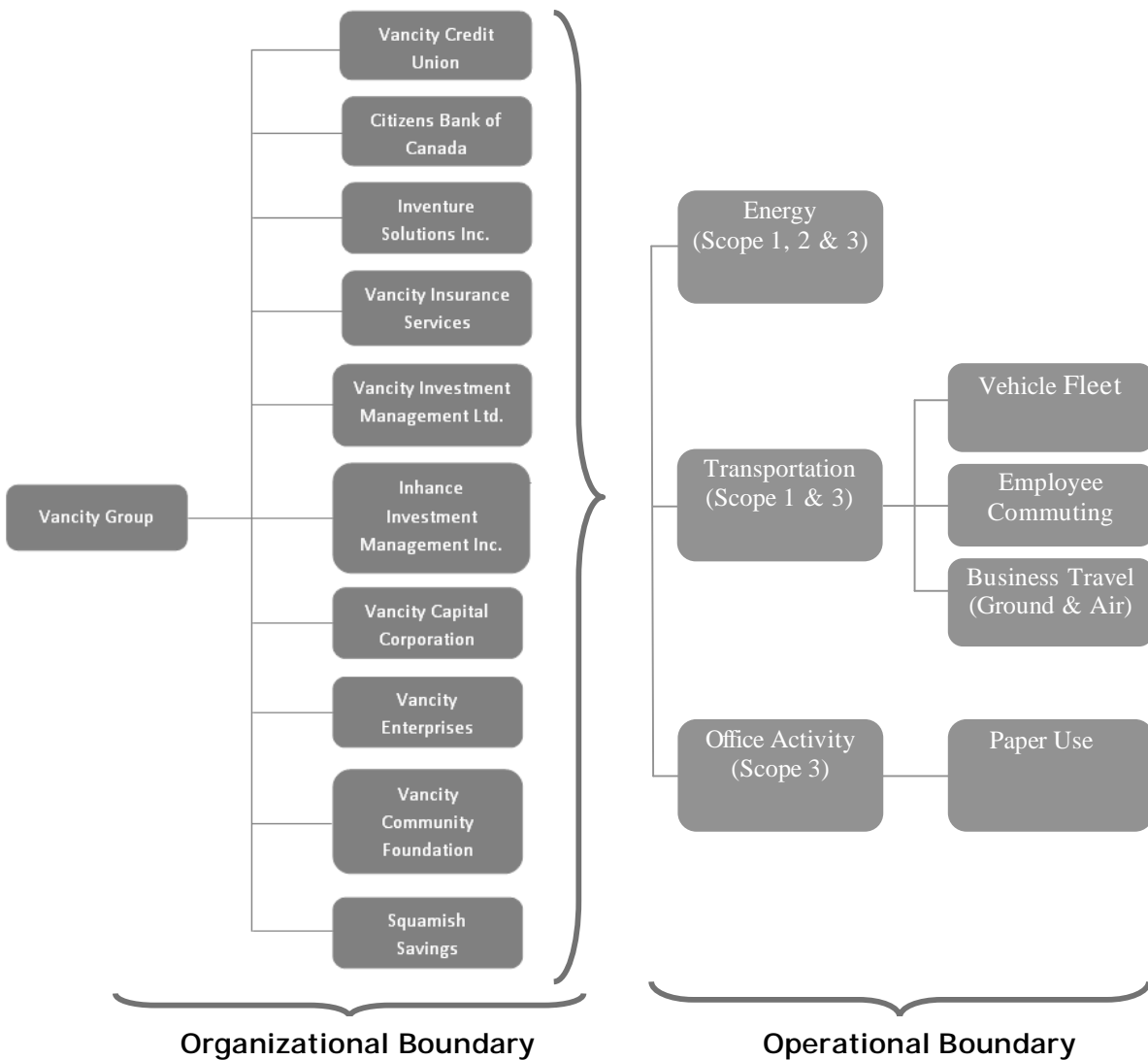


Figure 1 - Vancity's Organizational and Operational Boundaries

### 3.2 Operational Boundary

As discussed in the previous section, Vancity uses the operational control approach to define our organizational and operational boundary. Vancity includes in our inventory all sources and sinks for which we have operational control over and for which are practically and economically feasible to assess (see Figure 1). As a financial institution Vancity has few sources of direct (Scope 1) greenhouse gas emissions. They include a small fleet of light duty vehicles and the operation of boilers and other fuel consuming appliances at our facilities. Vancity controls a range of facilities including office buildings and branches to serve our customers. Energy – delivered either in the form of electricity or natural gas - is required to operate these facilities. Emissions associated with this energy, except where the natural gas is burned in an appliance operated by Vancity, makes up Vancity’s Energy Indirect (Scope 2) emission sources. Vancity has identified a number of Other Indirect (Scope 3) emission sources which are pertinent to our business operations and which are reasonable and cost effective to quantify. In 2007 Vancity established an operational boundary with regards to Other Indirect emission sources. The sources identified are considered to be within operational control and are thus consistent with Vancity’s objective of reducing or holding constant our greenhouse gas emissions (excluding growth through mergers and acquisitions). It should be noted that both ISO 14064-1 and the GHG Protocol standards consider the reporting of Other Indirect (scope 3) emissions optional [1, 2]. Table 1 describes Vancity’s operational boundary, listing the emission sources and sinks Vancity includes in our inventory.

	Source	Classification / Scope	Description
Energy	Electricity Use	Energy Indirect/2	Vancity uses electricity to heat, cool, light, and run appliances at its facilities.
	Natural Gas Combustion	Direct/1 & Energy Indirect/3	Vancity burns natural gas to heat, cool, and supply hot water to its facilities. If the gas is burned in an appliance operated by Vancity the associated emissions are classified as Direct (Scope 1) otherwise they are classified as Energy Indirect (Scope 3).
Transportation	Vehicle Fleet	Direct /1	Vancity leases and operates a small fleet of light-duty vehicles.
	Employee Commuting	Other Indirect/3	Vancity employees commute from their residences to various Vancity facilities.
	Business Related Air Travel	Other Indirect/3	Vancity employees travel by air to conduct business activities.
	Business Related Vehicle Travel	Other Indirect/3	Vancity employees travel by private vehicle to conduct business activities.
	Car Allowance	Other Indirect/3	Vancity employees travel by private vehicle to conduct business activities. Car allowances are used to compensate those employees who travel frequently.
Office Activity	Paper Use	Other Indirect/3	Vancity consumes paper as a result of its business operations and advertising campaigns.

**Table 1 - Greenhouse Gas Sources and Sinks**

### **3.3 Quantification Methodology**

As it is neither practical nor in many cases possible to directly measure greenhouse gas emissions from the sources identified in the Operational Boundaries section, emissions were estimated using a model. The model is of the form:

$$Total\ Emissions = \sum_{Sources} ((Emission\ Factor) \times (Activity\ Level))$$

For all emission sources an emission factor was identified. The emission factor specifies the amount of emissions per unit of activity. Activity data was collected or estimated to quantify the activity level. The methodologies and procedures described in Section 3.4 have been adopted from various sources including the WRI guides [3, 4].

### **3.4 GHG Emissions Sources, Factors, Activity Data and Procedures**

#### **3.4.1. Energy**

##### ***Facilities***

Vancity owns and/or leases both office space and retail space to service our members, and energy related emissions are associated with the operation of these facilities. Information on each facility is collected on an annual basis in order to estimate these emissions.

##### ***Electricity***

##### ***Emission Factors***

The majority of Vancity's facilities are located in the province of British Columbia and thus Vancity purchases the bulk of our electricity from BC Hydro. Prior to 2005, BC Hydro directly reported the greenhouse gas intensity (emission factor) of the electricity it domestically generated and distributed. BC Hydro no longer reports a specific intensity in part because of a controversy over how electricity imports and exports are incorporated [5]. BC Hydro is a net importer of electricity and the electricity it imports has a significantly higher emission factor than the electricity it domestically generates. There are indications that BC Hydro is revising its methodology although no official announcements have been made at this time. Any revision that incorporates imports and exports would significantly increase the emission factor. Despite this controversy, Vancity will adhere to BC Hydro's past methodology until such time as it is revised by BC Hydro. For facilities located outside of BC, the latest emission factors were obtained from Canada's most recent National Inventory Report. Although it will be slightly dated and may differ from the provincial power authority's estimates, there is no value in refining these emission factors at this time, as the electricity use in facilities outside of BC is small in comparison to those located in BC.

Procedure
The electricity emission factor is measured in Metric Tonnes per Gigawatt Hour (t/GWh).
The electricity emission factor is obtained directly from BC Hydro's Annual Report or if not available calculated by dividing the total greenhouse gas emission (in Metric Tonnes) listed in the Section "Report on Performance" subsection "Environment" by the total <b>domestic generation/sales</b> (GWh) listed in the Section "Financial Results" subsection "Financial and Operating Statistics". Note BC Hydro often reports its emission in kilotonnes.
The methodology used by BC Hydro to calculate the electricity emission factor is reviewed each reporting period. If the methodology changes then the emission factors used for the base year is recalculated and the base year inventory recalculated.
If BC Hydro does not release its annual report (it is released in summer of the following year) before Vancity is required to report its emissions inventory then the previous year's emission factor is used. Once BC Hydro releases its annual report, the emissions factor is revised and the emissions inventory recalculated.
For every province excluding BC that Vancity operates a facility in, an electricity emissions factor is obtained from the most recent National Inventory Report (e.g. [6]): Greenhouse Gases Sources and Sinks in Canada (Annex 9) authored by Environment Canada.

### Activity Data

Electricity consumption is metered at many Vancity facilities. At non-metered facilities consumption is estimated using a model. The model estimates an average energy use per unit area for all metered Vancity facilities, categorizes these facilities, and then assumes that similar non-metered facilities use approximately the same energy per unit area (see Appendix B).

Procedure
Electricity consumption is measured in Kilowatt Hours (kWh).
Electricity consumption measurements for all metered Vancity facilities shall be collected at a minimum of once a reporting period. The province the facility is located in is also recorded so that the appropriate emission factor can be selected.
Where there is no meter at a facility or it is otherwise infeasible to measure electricity consumption, the model described in Appendix B is used to estimate consumption. Note that for facilities located outside of BC, estimates from Natural Resources Canada are used (see Appendix B for details).
The model described in Appendix B is reviewed each reporting period to ensure that the underlying assumptions are valid and the estimates up to date for the current reporting year.

## Natural Gas

### Emission Factor

Combustion of natural gas releases three greenhouse gases, CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O. As a result of the Canadian Government's reporting requirements under the United Nations Framework Convention on Climate Change, the Government commissioned a report on CH<sub>4</sub>, and N<sub>2</sub>O emission factors and uncertainties [7]. Because the emission factors associated with these gases are both comparatively small (less than 1% of the total CO<sub>2</sub>e emissions factor after incorporating GWPs<sup>2</sup>) and highly uncertain, emissions of CH<sub>4</sub>, and N<sub>2</sub>O shall not be included in our emissions inventory. There are also emissions associated with natural gas distribution. However, as distribution emissions are small (about 1% based on Terasen Gas' 2005 estimate of 0.539 kg/GJ) they shall not be included [8].

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<sup>2</sup> Global Warming Potential (GWP)

Procedure
The natural gas emission factor is measured in Metric Tonnes / Cubic Metre (t/m <sup>3</sup> )
The natural gas emission factor for CO <sub>2</sub> is obtained from the most recent National Inventory Report (e.g. [6]): Greenhouse Gases Sources and Sinks in Canada (Annex 12) authored by Environment Canada. The emission factors for "Residential, Construction, Commercial/Institutional, Agriculture" is used.
The natural gas emission factor is reviewed each reporting period. Should the emission factors change, the base year inventory is recalculated.

### Activity Data

The majority of Vancity facilities are located in the province of British Columbia and thus Vancity purchases the bulk of our natural gas from Terasen Gas. At this time there is not sufficient gas consumption outside of BC to justify refining the conversion factor for other provinces and therefore the BC conversion factor is used in all cases. Natural gas consumption is metered at most Vancity facilities. At non-metered facilities consumption is estimated using a model. The model estimates average gas use per unit area for all metered Vancity facilities, categorizes these facilities, and then assumes that similar non-metered facilities use approximately the same amount of gas per unit area.

Procedure
Natural gas consumption is measured in Cubic Metres (m <sup>3</sup> ).
Natural gas consumption measurements for all metered Vancity facilities are collected at a minimum of once a reporting period.
Natural gas is usually reported by the gas company in Gigajoules (GJ) not m <sup>3</sup> . If this is the case a conversion factor from GJ to m <sup>3</sup> is obtained from either the gas company or Natural Resources Canada.
Where there is no meter at a facility or it is otherwise infeasible to measure natural gas consumption, the model described in Appendix B shall be used to estimate consumption. Note that for facilities located outside of BC, estimates from Natural Resources Canada are used (see Appendix B for details).

## 3.4.2. Transportation

Vancity has a number of transportation related greenhouse gas emission sources within our operational boundary. These primarily include work related travel by air and by vehicle and employee commuting to and from work. ISO 14064-1 requires that emissions inventories be estimated at the facility level (i.e. emissions inventories must be estimated for each Vancity facility); however, business travel (air or ground) is often not associated with a specific facility but is instead associated with a business unit such as a subsidiary within the overall organization. To address this issue, emissions resulting from business travel are associated with the head office of the corresponding subsidiary with the exception of employee commuting emissions which are tracked at the facility level.

### Vehicle Travel

There are a number of categories of vehicle travel within Vancity's operational boundary. For each of these, total fuel consumption (the activity data) is estimated or measured and a set of emission factors are obtained to estimate emissions. Only gasoline and diesel fuel types are modeled as they make up the overwhelming majority of fuel types currently in use [9]. Blended fuels such as biodiesel or ethanol are considered equivalent to the fuel they are blended with (e.g. diesel or gasoline) as the (non-lifecycle) greenhouse gas emissions are nearly equivalent. Furthermore, the emissions associated with other fuel types are often low or zero.

### *Emission Factor*

Although emissions of CH<sub>4</sub> and N<sub>2</sub>O are released by internal combustion engines they are comparatively small (less than 8% of the total CO<sub>2</sub>e emissions factor in the worst case after incorporating GWPs) and highly uncertain [7]. The uncertainty stems from the fact that these emissions factors are both highly dependent on engine and emissions control technology and actual operating conditions. As a result, emissions of CH<sub>4</sub> and N<sub>2</sub>O associated with vehicle travel are not included in the emissions inventory.

<b>Procedure</b>
Vehicle travel emission factors are measured in Grams per Litre (g/L) of fuel.
Vehicle travel emission factor for CO <sub>2</sub> shall be obtained from the most recent National Inventory Report: Greenhouse Gases Sources and Sinks in Canada (Annex 12 – Mobile Combustion) authored by Environment Canada. Because CO <sub>2</sub> emission factors are generally independent of current emissions control technology but dependant on the fuel type, emission factors for both gasoline and diesel fuel are obtained.
Vehicle travel emission factors (gasoline and diesel) are reviewed each reporting period. Should the emission factors change the base year inventory shall be recalculated (see Section 3.5).

### *Activity Data*

For the purpose of estimating greenhouse gas emissions, vehicle travel activity data is measured in fuel consumption. Ideally actual fuel consumption would be directly measured; however, it is often not tracked and therefore must be estimated. As the distance travelled by a vehicle is often known or can be estimated, fuel consumption can be estimated by multiplying the distance travelled by an appropriate estimate of fuel economy. There is some uncertainty associated with fuel economy because it is dependent on many factors including age and vehicle operating conditions; nevertheless this provides the most reasonable estimate of total fuel consumption when it is not directly measured. Fuel economy estimates are obtained from Natural Resources Canada (NRCan). They provide estimates for both specific vehicles and vehicle groups.

### *Travel Survey*

For some vehicle travel sources neither fuel consumption nor distance travelled is directly tracked. For these sources a travel survey is used to estimate distance travelled and ultimately total emissions. Vancity has developed a travel survey in cooperation with Acure Consulting. The survey is used to estimate emissions associated with employee commuting, car allowances, and estimate the percentage of diesel and gasoline vehicles.

<b>Procedure</b>
The travel survey is reviewed once a reporting period to ensure correctness (e.g. facility and subsidiary names are up to date).
The travel survey is conducted at a minimum of once a reporting period
The travel survey must have a minimum response rate of 30%

### *Vancity Vehicle Fleet*

Vancity leases and operates a small fleet of vehicles. Actual fuel consumption is not tracked at this time; however, both the type of vehicle and the distance travelled is tracked.

Procedure
Vehicle fleet activity is measured in Litres (L) of fuel.
For every vehicle in the fleet the VIN, license plate number, make, model, year, fuel type, and subsidiary it is associated with is obtained.
Natural Resources Canada publishes an annual <a href="#">Fuel Consumption Guide</a> (e.g. [10]). For every vehicle in the fleet, the highway and city fuel economy in L/100km is obtained from this guide.
Where the vehicle operating modes are not known an average fuel economy is calculated for each vehicle in the fleet. The following formula, obtained from Natural Resources Canada's Fuel Consumption Guide, is used to calculate average fuel economy: Average Fuel Economy (L/100km) = (0.55)x(City Fuel Economy) + (0.45)x(Highway Fuel Economy)
The odometer reading (km) is obtained from the employee responsible for the vehicle at a minimum of once a reporting period in the last quarter of the reporting period and at the same interval from year to year.
Annual distance travelled is calculated by subtracting the last reading in the current reporting period by the last reading from the previous reporting period. For example, to calculate the 2008 distance travelled the 2008 Q4 reading is subtracted from the 2007 Q4 reading.
For every vehicle in the fleet fuel consumption (L) is calculated using: Fuel Consumption (L) = (Annual Distance Travelled (km)) x (Average Fuel Economy (L/100km))/100
Based on the fuel type, the appropriate emission factor (diesel or gasoline) is used to calculate total emissions.
Both the methodology Natural Resources Canada uses to estimate fuel economy and the weighting between city and highway driving is reviewed each reporting period. If significant changes are made the base year inventory may need to be recalculated.
The vehicle fleet inventory is reviewed once per reporting period to ensure it is accurate.

### ***Business Vehicle Travel***

Vancity compensates employees for use of their private vehicles for business related travel using two methods: (1) mileage reimbursement (referred to as business vehicle travel) and (2) car allowances. The following procedures describe how activity data is estimated in the case of mileage reimbursement.

Procedure
Business vehicle travel activity is measured in Litres (L) of fuel.
The total mileage reimbursed (\$) for the reporting period, the reimbursement rate (\$/km), and the subsidiary the travel is billed to is obtained.
Total distance travelled (km) is calculated using: (Total Mileage Reimbursed (\$)) / (Reimbursement Rate (\$/km))
An average fuel economy is obtained from Natural Resources Canada (see Appendix E) for details on sources) for each fuel type (gasoline and diesel). Note that a change in average fuel economy does <b>not</b> trigger a recalculation of the base year inventory.
The percentage of gasoline and diesel vehicles is obtained from the Travel Survey. It is assumed that on average the annual distance travelled by diesel and gasoline fuelled vehicles is equivalent.
Total fuel consumption (L) is calculated for each fuel type (gasoline and diesel) using: Total Fuel Consumption (L) = (Total Distance Travelled (km)) x (% Vehicles of the Fuel Type) x (Average Fuel Economy of the Fuel Type (L/100km))/100
Based on the fuel type, the appropriate emission factor (diesel or gasoline) is used to calculate total emissions.

### ***Car Allowance Travel***

The following procedures describe how activity data associated with car allowances is estimated.

**Procedure**

Car allowance travel activity is measured in Litres (L) of fuel.

The total number of employees with car allowances is obtained.

The average annual fuel price for regular gasoline and diesel is obtained from Statistics Canada (Table [326-0009](#)) for each region Vancity has operations in up to the month the Travel Survey was conducted.

The subsidiary, facility name, average spending on fuel per week, % of work related travel, and fuel type is obtained from the Travel Survey for each respondent who indicates they are receiving a car allowance.

For each applicable response from the previous step the average annual fuel consumption is estimated using:

$$\text{Total Fuel Consumption (L)} = (\% \text{ Work Related Travel}) \times (\text{Average Spending on Fuel per Week}(\$)) / (\text{Average Annual Fuel Price for the Fuel Type} (\$/\text{L})) \times (\text{Number of Working Weeks in a Year})$$

Based on the fuel type, the appropriate emission factor (diesel or gasoline) is used to calculate total emissions.

The number of employees who have car allowances but did not respond to the survey is calculated by subtracting the total number of employees with car allowances by the total number of respondents indicating they were receiving car allowances.

Average emissions per car allowance are calculated by dividing the total estimated emissions of respondents by the total number of respondents.

Total emissions of non-respondents are estimated by multiply the average emissions per car allowance by the number of non-respondents.

Total car allowance emissions are the sum of the estimated respondent's emissions and the estimated non-respondent's emissions.

**Employee Commuting**

Greenhouse gas emissions associated with employee commuting are very challenging to estimate and correspondingly, there is significant uncertainty associated with the estimate. The most common estimation approach is to conduct a travel survey to assess how often employees are commuting, what modes of transportation they are using, how far they are traveling, etc. Vancity uses an annual survey to collect and quantify employee commuting. It should be noted that this model only accounts for emissions from employee vehicles; emissions associated with transit and other modes of commuting are not estimated.

**Procedure**

Employee commuting emissions shall be estimated using the Employee Commuting Emissions Model described in Appendix F.

The Employee Commuting Emissions Model estimates the total emissions of greenhouse gases per employee per week for Vancity as a whole and for each Vancity Facility

Total emissions shall be calculated using:

$$\text{Total Emissions (t)} = (\text{Emissions per Employee per Week}) \times (\text{Number of Employees}) \times (\text{Number of Working Weeks in a Year})$$

**Air Travel**

*Emission Factor*

The UK [Department for Environment, Food and Rural Affairs](#) (DEFRA) publishes the most widely used air travel emission factors [11]. These emission factors are specified as a function of flight length and are based on UK flight patterns. The WRI has adopted these emission factors and reclassified the flight lengths to be compatible with the North American aviation environment. It is widely recognized that the climate change impact of aviation emissions are attributable to more than just carbon dioxide [12, 13]. Various other factors influence the overall total impact. Unfortunately, there is considerable uncertainty associated with many of these other impacts especially with regards to the formation of cirrus clouds. The Radiative Forcing Index (RFI) is the mostly widely used measure to compare impacts. The IPCC originally

estimated the ratio between total aviation impact RFI and CO<sub>2</sub> RFI (the radiative forcing factor) to be 2.7, excluding any potential impact of cirrus cloud formation [12]. Recent studies, which have been adopted by the IPCC, have estimated a ratio of 1.9 [13, 14, 15]. In line with these studies and other organizations a radiative forcing factor of 2 shall be used; however this value should be reviewed on a regular basis [15].

Procedure
Air travel emission factors are measured in Metric Tonnes per Kilometre (t/km) per person.
Flight length classifications (e.g. short, medium, or long haul) are obtained from the <a href="#">World Resources Institute</a> , specifically the “CO <sub>2</sub> Emissions from Business Travel” model.
Emission factors for each flight length classifications shall be obtained from <a href="#">DEFRA</a> (e.g. [11]) or the <a href="#">World Resources Institute</a> , specifically the “CO <sub>2</sub> Emissions from Business Travel” model, whichever is most current. Note if DEFRA emission factors are used they should be adjusted so they are compatible with the North American aviation environment (see WRI reference for details).
A radiative forcing factor of 2 is used.
Emission factors are multiplied by the radiative forcing factor.
Air travel emission factors are reviewed each reporting period. If the methodology, emission factors, or flight length classification change the base year inventory shall be recalculated.
The radiative forcing factor is reviewed each reporting period to ensure it is consistent with the most current research. If the factor is updated the base year inventory shall be recalculated.

### Activity Data

The most common method used to estimate the one way length of a flight is to calculate the great circle distance between the airport of origin and airport of destination; the shortest distance between two points on a sphere. However, as this is the shortest distance between two points, the IPCC recommends adding an additional 9-10% to account for non-direct routing and delays [11, 12].

Procedure
Air travel activity is measured in Kilometres (km) per person.
At a minimum, the Finance Officer (FO) reports all employee business air travel to the Data Collection Officer once at the end of the reporting period. The FO reports the departure, destination, and intermediate airport codes and the subsidiary the travel is associated with.
For each airport the latitude and longitude is obtained in degrees, minutes and seconds from <a href="#">world-airport-codes.com</a> . If the specific airport is not known then the nearest international airport is used.
For each flight segment the total one way distance travelled (km) is calculated using the <a href="#">great-circle distance</a> algorithm. If the flight is round trip the distance is multiplied by 2.
The flight length is multiplied by a factor of 1.09 to account for non-direct routing.
The flight length determines the flight length classification (e.g. short, medium, or long haul) and the appropriate emission factor to use (see emission factor procedures).

### 3.4.3. Office Activity

#### Paper Use

##### Emission Factor

There is significant uncertainty associated with estimating emissions of greenhouse gases resulting from the production and disposal of paper. The most comprehensive and relevant study to date that attempts to quantify these life cycle emissions appears to be a US based study conducted by the Paper Task Force. The study was revised in 2002 and is endorsed by the US Office of the Federal Environmental Executive. The report was commissioned by

Environmental Defense, amongst others, and was used to develop an online calculator. The calculator estimates greenhouse gases based on the amount of paper used (measured by weight), the type of paper, and the percent of recycled content. It is important to note that these are life cycle emissions and that there are in fact very few greenhouse gas emissions associated with actual paper use.

The following citation must be included in any report produced that includes values derived from the calculator: *“Environmental impact estimates were made using the Environmental Defense Paper Calculator. For more information visit <http://www.papercalculator.org>.”*

#### Procedure

Paper use emission factors are measured in Metric Tonnes per Metric Tonnes (t/t) of paper as a function of recycled content (post consumer waste).

Paper use emission factors are obtained for office paper (Uncoated Freesheet).

Paper use emission factors are obtained from [Environmental Defense's online calculator](#).<sup>1</sup>

Paper use emission factors are reviewed each reporting period. Only if the methodology used to derive the emission factors changes shall the base year inventory be recalculated.

<sup>1</sup>The calculator does not explicitly list emission factors; however, they can be extrapolated (see Appendix C for details).

#### Activity Data

Tracking paper use in a large and diffuse organization such as Vancity is difficult. Nevertheless, procedures have been developed to capture this as best as is reasonably possible. It is not feasible to track paper use at the facility level and thus paper use shall be reported at the subsidiary level; as with transportation emissions, subsidiary level emissions shall be reported against the subsidiary head office. Paper use estimation procedures have been in place for a considerable period of time at Vancity and are described in detail in Appendix D.

### 3.5 Base Year

As Vancity revised its procedures in 2007 to meet the ISO 14064-1 standards, Vancity has defined its historical base year as 2007.

## 4. GHG Inventory

### 4.1 2008 GHG Emissions Inventory

	Totals	
	(tCO <sub>2</sub> eq)	(+/- %)
<b>Scope 1</b>	450.3	2.4%
<b>Scope 2</b>	379.9	5.1%
<b>Scope 3</b>	4,475.3	4.3%
<b>Totals</b>	5,305.4	3.6%

*Table 2 – Total GHG Emissions by Scope*

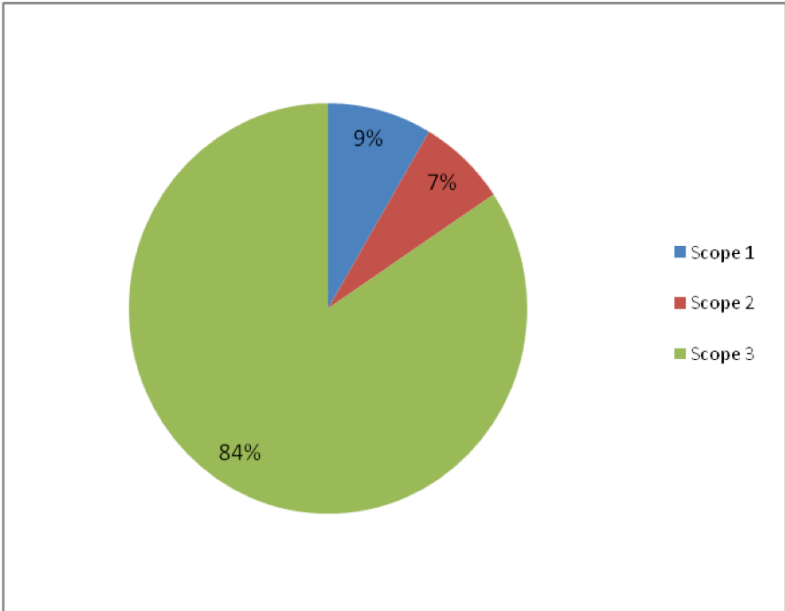
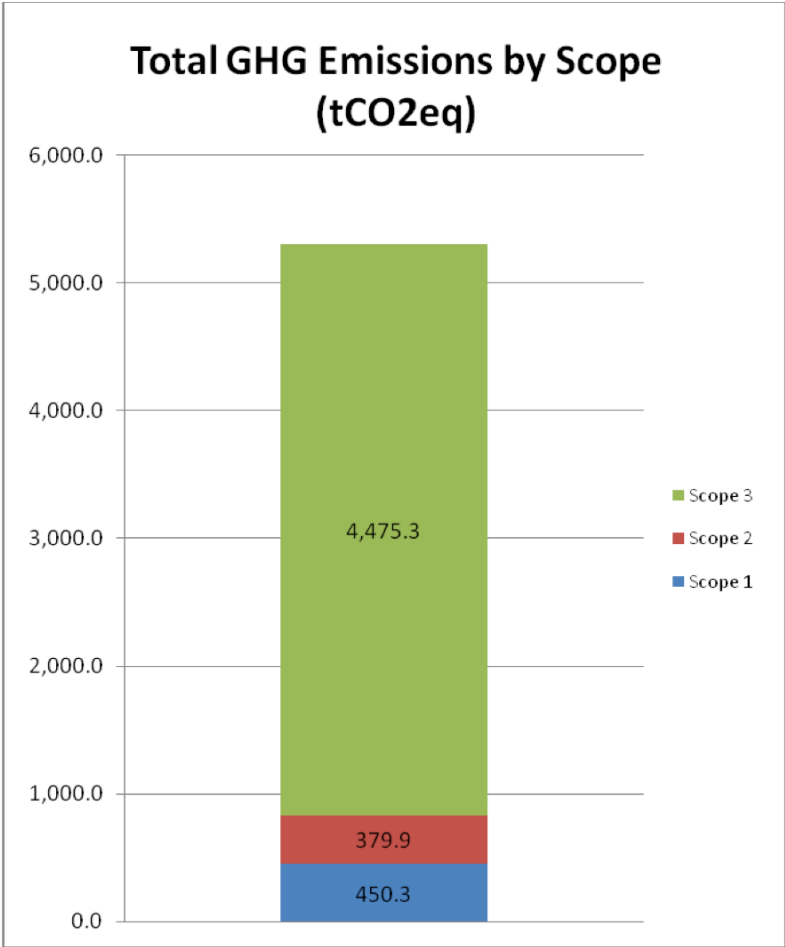
	Totals	
	(tCO <sub>2</sub> eq)	(+/- %)
<b>Electricity</b>	379.9	5.1%
<b>Natural Gas</b>	1,149.9	7.3%
<b>Vehicle Fleet Travel</b>	34.6	11.0%
<b>Vehicle Travel</b>	141.0	12.2%
<b>Car Allowance</b>	462.5	3.1%
<b>Commuting</b>	2,017.4	8.4%
<b>Air Travel</b>	328.2	0.7%
<b>Paper</b>	791.9	0.0%

(Uncertainty not assessed but is high)

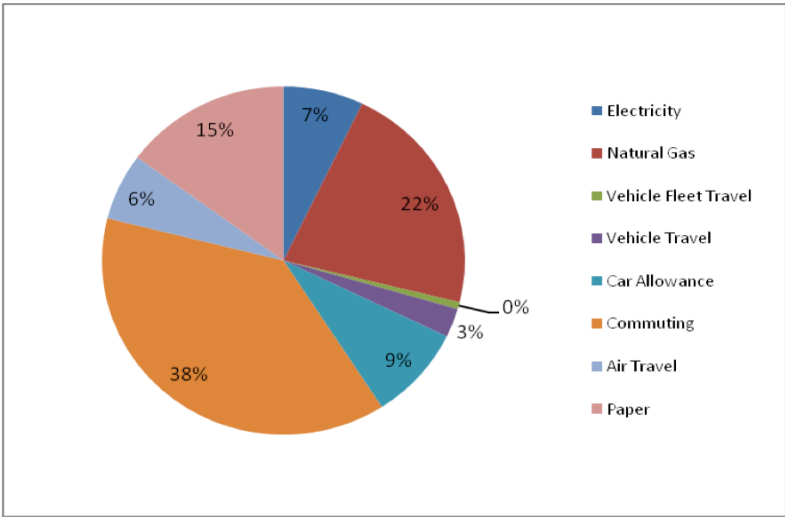
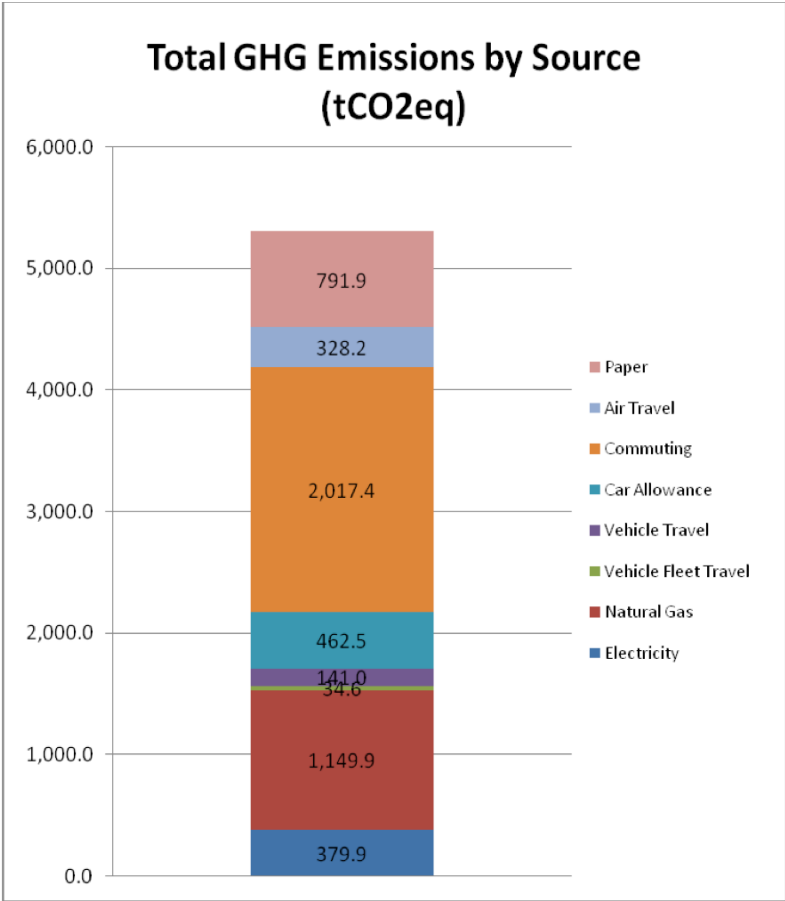
(Uncertainty not assessed but is high)

*Table 3 - Total GHG Emissions by Source*

Note: Paper use totals do not include office paper for Squamish Savings. Accounting systems to be put in place to measure this in 2009.



**Figure 2 - Total GHG Emissions by Scope (tonnes CO<sub>2</sub>e)**



**Figure 3 - Total GHG Emissions by Source (tonnes CO2e)**

See Appendix H for a detailed breakdown of total GHG emissions by facility.

## **4.2      **Activities to Reduce GHG Emissions****

### **4.2.1.     **Directed Actions****

#### ***Employee Engagement***

In 2008 Vancity launched an eight-month employee engagement program in partnership with BC Hydro called *Cut the Carbon*. The program was open to all staff within the Vancity group of companies and gave them the opportunity to go green, win prizes, stop climate change, and help Vancity be carbon neutral.

The Cut the Carbon program was based on an online platform. This virtual tool was developed through an in-depth stakeholder engagement process that aimed to create something that was easy for employees to use, conducive to long term behaviour change, and reflective of precise behaviour changes that are important to Vancity across all locations and divisions. Each month staff were invited to take one action to reduce CO<sub>2</sub> emissions. It sometimes was as simple as turning off the lights when they left the room, or something harder - like fitting all their trash in a tiny trash bin. Each following month, there was a new action to take (in addition to what they were doing already). As well, there were bonus actions that staff could take at home.

The program proved to be a great success. During the program staff self-recorded 58,000 actions to reduce Vancity's carbon footprint. They logged savings of over 430 tonnes of carbon emissions through carbon reducing actions at home and at work. Over 1200 employees participated, which is about 45% of Vancity's total staff compliment.

In addition, employees were able to post their stories and ideas regarding the Cut the Carbon program on a 'share your ideas' page of the online site. Twenty-nine blog posts were made by staff over the course of the program. According to an end-of-program survey, reducing energy usage by turning out the lights was the action taken most by participants (81%), but 68% of survey respondents pledged to continuing all the Cut the Carbon actions after the program closed. Unplugging electric appliances and leaving the car at home were the actions taken least by participants (38.2% and 35.2%).

#### ***Energy***

Over 2008 there were several energy management projects implemented at Vancity offices and branches.

##### ***2008 Energy Management Initiatives***

1. Installed ground floor coils to better control HVAC in Vancity Centre lobby
2. Implemented energy saving software for all company computers to allow auto shut off
3. Reviewed and reduced permanent after hour lighting per floor to only elevator lobbies
4. Relamping of select Branches

ESTIMATED SAVINGS /year <sup>3</sup>	PROJECT
<b>\$2,300.00/yr</b> <b>80,000 kWh/yr</b>	<b>Vancity Centre Floodlights</b> 32 exterior roof floodlights were permanently turned off. 4 were left on. We are currently reviewing whether to replace remaining 4 lights with LEDs.
<b>\$1,560.00/yr</b> <b>7.5 tonnes CO2/yr</b> <b>153 GJ/yr</b> (based on \$10.198/GJ)	<b>Vancity Centre Solar Domestic Hot Water</b> Solar panels were installed on the roof and the power generated will heat our domestic hot water. These panels will reduce the use of our natural gas fired boilers.
	<b>Energy Audits Q2 2008</b> Energy audits were performed at Branches 4, 12, 17, 27, 28, 42 and 46. Annual energy audits are conducted at a few branches each year. They provide a high-level overview of the building systems and equipment.  The purpose of these audits is to determine the energy savings potential for operations and upgrading the electrical and mechanical systems.
<b>\$1,800.00/yr/branch</b> <i>(estimated)</i>	<b>DDC - Digital Direct Controls</b> These controls were installed at Branches 18 and 23. They are placed on the HVAC system, which allows Facility Management maintenance to review and adjust the performance and diagnostic operations of the systems while offsite. The benefits are that site visits are not necessary which saves travel time and emissions, and also saves time by not having to research and investigate systems on-site.
<b>\$96.00/yr energy</b> <b>\$101.22/yr energy &amp; maintenance costs</b> <b>1,309 kWh/yr</b>	<b>Branch 32 - Energy Savings Lighting Upgrade</b> 22 lights were replaced with Mr16 bulbs, which use 3 W versus 20 W and last about 10x longer, which reduces maintenance costs.

**Table 4 - 2008 Energy Management Project Savings & Summary**

In addition, Vancity Centre received BOMA Go Green recertification, a Canada-wide environmental recognition program for existing commercial buildings.

## **Transportation**

### *Employee Commuting*

While it's our employees' decision how they commute to work, we encourage environmentally responsible choices through programs and incentives. Our staff transportation program encourages employees to use alternative modes of transportation and aims to raise awareness of the link between transportation choices, emissions and climate change. In 2008, 56% of

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<sup>3</sup> Savings calculations unaudited.

Vancity group staff commuted to work by means other than driving alone (e.g. public transit, carpooling, walking etc).

Year	Vancity Group
2008	56%
2007	53%
2006	51%

**Table 5 - Percent of Employees using Sustainable Modes of Transportation to Commute**

In comparison, the percentage of individuals in Metro Vancouver who commute by means other than by car is 33%.

The Vancity groups online Take Sustainable Transportation Directory provides information on a variety of transportation options so that employee can find the most convenient, low-emission method for their transportation needs. Options include:

Discounted monthly parking at Vancity Centre for carpool vehicles

Recognizing that automobiles are the single greatest contributor to the significant air pollution problem in Greater Vancouver, Vancity wishes to support those staff members who take the initiative and carpool as a method of reducing pollution problems resulting from automobile emissions. Therefore limited parking spaces have been reserved for car-poolers and are offered to them at a reduced parking fee.

Employee transit pass

Employees who use public transit in Metro Vancouver are eligible for a discounted transit pass.

Guaranteed ride home program

The Guaranteed Ride Home program offers reimbursement to staff members who take alternative transportation to work and need to return home via transit and/or taxi due to unforeseen situations (illness, family emergency, or unanticipated over-time). The intent of the program is to encourage more employees to use alternative transportation options by providing assurance that they can return home in case of emergency.

Ride-share programs

Vancity and Citizens Bank are registered with ride-share programs across the country. Employees can easily register online and instantly find carpool matches, either with fellow employees or the general public.

Cycling

Bike rooms are available at Vancity Centre and the Citizens Bank building in Vancouver for employees who ride their bike to work.

Car sharing

Some Vancity departments have joined the Cooperative Auto Network (CAN), Vancouver's car-sharing cooperative. This allows them to have access to all of the 234 vehicles that the coop has parked around Metro Vancouver. It's a way to have a car when employees really need one while relying on alternatives such as transit, walking or cycling for other trips.

## Office Activity

In 2005, the Vancity Group switched from office paper that was made of 30% post-consumer waste to top-of-the-line 100% post-consumer waste recycled paper. By doing this, we've kept approximately 60 tonnes of greenhouse gases out of the atmosphere.

We have made significant strides in tracking the Vancity group's environmental impact due to paper use. In addition to tracking use of letterhead, copy/fax paper and statement paper, we put into place accounting mechanisms to identify and measure paper used in:

- Marketing materials (brochures, posters, statement stuffers, and tent cards);
- Member communications (newsletters, annual and accountability reports);
- Employee communications
- Business cards;
- Envelopes; and,
- Annual General Meeting and board election communications.

Also in 2005, all printers at Vancity Centre were set to automatically print double-sided and in black and white. Since then and wherever possible, most other printers have been set to the same specifications.

Year	Total tonnes Consumed*	PCW** paper as a % of total paper consumed
2008	375	69%
2007	404	66%
2006	371	68%

**Table 6 - Paper Use by the Vancity group**

Includes: copy paper, marketing materials, stationary, envelopes and other.

\* Paper use totals do not include office paper for Squamish Savings. Accounting systems to be put in place to measure this in 2009.

\*\* PCW stands for post consumer waste

## 4.3 Base-Year GHG Inventory

Vancity's 2007 GHG Inventory forms the historical base year for future inventories. Vancity's base-year GHG Inventory is 5,525 tonnes CO<sub>2</sub> equivalent. See Appendix G for a detailed breakdown of the base-year GHG Inventory.

The base year inventory will be revised and recalculated as organizational and operational boundaries of the GHG inventory are expanded in future years.

## 4.4 Assessing and Reducing Uncertainty

This section describes the parameter and model uncertainties that have been identified and assessed. For the purpose of this **uncertainty** assessment it is assumed that all uncertainties are normally distributed. Although in some cases this may not hold true it is a reasonable assumption for the scope of this uncertainty assessment. The **bias** column is used to provide an indication of whether this assumption holds true and if it does not, which direction the bias is believed to be in.

#### 4.4.1. Energy

There are three main sources of uncertainty associated with energy related emission estimates:

1. Emission Factors (Electricity and Natural Gas)
2. Natural Gas and Electricity Meters
3. Energy Use Model

##### ***Emission Factors***

As part of the national reporting procedure Environment Canada commissioned a study to quantify the uncertainty associated with various fuel emission factors including natural gas. It is assumed that the uncertainty associated with the emission factor captures the uncertainty in the energy content of the fuel and thus the conversion factor from energy to volume (GJ to cubic metres). Neither BC Hydro nor Environment Canada publishes uncertainty estimates of the emission factors (emission intensities) associated with electricity generation. In absence of reported estimates, confidence intervals were calculated for each province using 1990 to 2005 emission factor estimates published by Environment Canada [6]. It shall be assumed, however, that in all cases there is at a minimum uncertainty of 10% unless otherwise reported. This is based on consultation with experts.

Type	Description	Source	Bias	+/- %
Parameter	BC Electricity Emissions Factor	Statistical Methods	-	54
Parameter	Alberta Electricity Emissions Factor	Expert Elicitation (Statistical Methods)	?	10 (3)
Parameter	Ontario Electricity Emissions Factor	Statistical Methods	?	24
Parameter	Natural Gas	Environment Canada (2007): National Inventory Report (1990-2005) [6]	No	3.0

##### ***Natural Gas and Electricity Meters***

Measurements Canada regulates the tolerance of both electricity and natural gas meters under the Electricity and Gas Inspection Act and corresponding specifications:

Type	Description	Source	Bias	+/- %
Parameter	Electricity Meter Tolerance	S-E-01 Specifications for the Calibration, Certification and Use of Electricity Calibration Consoles	No	0.5
Parameter	Natural Gas Meter Tolerance	LMB-EG-08 - Specifications for Approval of Type of Gas Meters and Auxiliary Devices	No	1.5

## ***Energy Use Model***

See Appendix B for details on the uncertainty associated with the Energy Use Model.

### **4.4.2. Transportation**

There are many sources of uncertainty associated with transportation related emissions. The following sources have been assessed:

- Vehicle Odometers
- Fuel Economy
- Fuel Emission Factors
- Fuel Price
- Radiative Forcing Factor
- Aviation Emission Factors
- Flight Routing
- Earth Radius
- Car Allowance Travel Model
- Employee Commuting Model
- Number of Working Weeks

Both commuting and car allowance estimates are based on a survey conducted once per reporting period. The survey provides only a single snap shot of the activity data in a very dynamic organization. Facilities and employees are added and removed throughout the course of a reporting period, some before and some after the survey is conducted. The results of the travel survey will inevitably be biased and reflect the organization and its operations at the time the survey is conducted. In a growing organization this means the estimates would likely be positively biased (estimates would likely be higher than actuals) and in a shrinking organization, negatively biased, assuming the survey is conducted at the end of the reporting period, as it has in the past. Car allowance results in particular are likely to be biased as there is an incentive for employees to report a higher than actual percentage of work related travel.

#### ***Vehicle Emission Uncertainty Sources***

##### *Odometer*

Vehicle odometer tolerance is not specifically regulated; manufactures are only required to specify the tolerance. However, Honda Motor Company was recently sued in the US on grounds that odometers in their vehicles were biased and outside of what was deemed as reasonable tolerance [19, 20]. As a result, the court ordered that owners of Honda vehicles have their warranty coverage extend by 5%. It is assumed that other manufactures either are or will be in compliance with this tolerance.

##### *Fuel Economy*

There is uncertainty associated with fuel economy estimates because they are dependent on factors such as the vehicle weight, engine technology, fuel type, and actual operating conditions. Two sources of fuel economy estimates are used: (1) Natural Resources Canada's Fuel Consumption Guide and (2) Natural Resources Canada's Canadian Vehicle Survey. The estimates published in the Fuel Consumption Guide are based on a standard test procedure but there is uncertainty as to what degree the test procedure captures actual real-world driving conditions. A 2005 Consumers Reports study found that in a test of 303 light duty vehicles that actual fuel economy deviated from the published rating by between +21% and -28% [21]. The study also found that 90% of the vehicles tested had fuel economies worse than the published

rating. Although this was a US study, US and Canadian test procedures were the same at the time of the study. It should be noted that the US has recently revised their test procedure and Canada is likely to follow. The Canadian Vehicle Survey provides rough data quality rankings and corresponding confidence intervals.

#### *Fuel Emission Factors*

The IPCC estimates the uncertainty associated with fuel emission factors to be less than 5% (Section 2.1.1.6 [16]). As part of the national reporting procedure Environment Canada commissioned a study to quantify the uncertainty associated with various fuel emission factors. Unfortunately these values were not published in their report.

#### *Fuel Prices*

Statistics Canada publishes monthly average fuel prices. Confidence intervals are calculated to estimate the uncertainty of the average annual fuel price.

#### *Employee Commuting Model*

The model used to estimate employee commuting does not estimate uncertainty and as previously discussed there will be biases present in the survey. Without having a more detailed understanding of biases present in the survey it is difficult to estimate uncertainty; however, an estimate of uncertainty was made based on discussions with the model developer and fuel economy uncertainties.

#### *Car Allowance Travel*

Assessing uncertainty from a survey is difficult; there is no simple way of assessing the accuracy of estimates made by respondents nor how representative the estimates at the time of the survey are over the course of a year. In addition, there will be biases present in the survey. To provide some measure of uncertainty, confidence intervals are calculated for both the fuel spending per week and percent of work related travel.

#### *Working Weeks*

There is uncertainty associated with the average number of weeks in a year an employee works. Vancity's human resources department provided an estimate and a range from which an uncertainty estimate was derived.

Type	Description	Source	Bias	+/- %
Parameter	Odometer Tolerance	Karen Vaughn vs. Honda Motor Co Inc (US District Court)	-	5.0
Parameter	Fuel Economy (Both Fuel Types) - Fuel Consumption Guide	Consumer Reports Study [21]	-	25.0
Parameter	Fuel Economy (Gasoline) – Canadian Vehicle Survey	Canadian Vehicle Survey [10]	?	20.0
Parameter	Fuel Economy (Diesel) – Canadian Vehicle Survey	Canadian Vehicle Survey [10]	+	40.0
Parameter	Gasoline Emission Factor	IPCC (2000) - IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (Section 2.1.1.6) [16]	No	5.0
Parameter	Diesel Emission Factor	IPCC (2000) - IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories (Section 2.1.1.6) [16]	No	5.0
Parameter	Fuel Price	Statistical Methods	No	(variable)
Parameter	Car Allowance Travel	Statistical Methods	+	(variable)
Model	Employee Commuting Model	Expert Elicitation	?	30.0
Parameter	Working Weeks	Expert Elicitation	?	10.0

### **Aviation Emission Uncertainty Sources**

There is considerable uncertainty associated with both the impact and release of aviation emissions. In particular there is great uncertainty associated with the radiative forcing factor. Recent studies have suggested the value could be as much as two times current estimates but don't give a specific uncertainty estimate [13]. At this time there is no widely accepted measure of uncertainty associated with the radiative forcing of aviation emissions. Because of variations in aircraft, fuels, flight paths, loads, and operating conditions there is significant uncertainty associated with aviation emissions factors that are a function of distance travelled; however, there are no published estimates. Finally, there is model uncertainty associated with estimating the length of a flight. The IPCC suggests that due to air traffic control inefficiencies and indirect flight routing that the flight length be increased by between 9-10% over the direct route [11, 12]. This value shall be assumed to capture the uncertainty in the flight length as well. As there is significant uncertainty associated with radiative forcing and no published estimates of emission factor uncertainties, the uncertainties associated with aviation emissions will not be assessed quantitatively, although it is assumed that they are large.

Type	Description	Source	Bias	+/- %
Parameter	Radiative Forcing Factor	Sausen et. al. (2005) - Aviation radiative forcing in 2000: An update on IPCC (1999)	No	2x
Parameter	Aviation Emission Factors	None	Not available	Not available
Model	Flight Routing	IPCC (1999) - Aviation and the Global Atmosphere (Section 8.2.2.3) [12]	No	9.0
Parameter	Earth's Radius	NASA (nssdc.gsfc.nasa.gov/planetary/factsheet/earthfact.html)	No	0.5

### **4.4.3. Office Activity**

#### ***Paper***

There are significant uncertainties with regards to both paper consumption activity data and emission factors. There are no published estimates of uncertainty associated with the emission factor but it is believed to be very high, likely orders of magnitude. As a result uncertainties associated with paper are not assessed as the results would be meaningless. It should be noted that the WRI has actually removed paper from their emissions inventory citing that the uncertainty was too great [22]. However, to support improvements of the paper consumption estimate, the estimates are graded (A through F) by the Data Collection Officer. If an estimate makes up a significant fraction of the total estimate and receives a poor grade, steps are taken to improve that estimate.

### **4.5 GHG Assertions**

The Vancity group's GHG Emissions Inventory for the fiscal year 2008 has been prepared in conformance with the CSA/ISO 14064-1 standard entitled *Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*.

Vancity's GHG emissions for the fiscal year 2008 were 5,305 tonnes CO<sub>2</sub> equivalent.

## 5. GHG Inventory Quality Management

### 5.1 GHG Information Management - Roles and Responsibilities

The following table outlines the roles and responsibilities that were assigned before estimating the greenhouse gas emissions inventory. Note that multiple people or a group can be responsible for a single role and that a single person can be responsible for more than one role.

Name	Responsibility	Training Level
Data Collection Officer (DCO)	This officer is responsible for collecting, managing and logging all data used to estimate Vancity's greenhouse gas emissions inventory, as described in this document. The officer is responsible for ensuring all data is reported to them and that the data adheres to the specified data collection standards and quality assurance procedures. Finally, the officer is responsible for ensuring that all data collection procedures in this document adhere to the relevant standards.	This officer should have a thorough understanding of the relevant data collection procedure and standards as well as quality assurance procedures.
Modeling Officer (MO)	This officer is responsible for ensuring the emissions inventory model adheres to the methodologies described in this document. The officer is also responsible for reviewing the methodologies described in this document to ensure they are current and adhere to the relevant standards. Finally, this officer is responsible for running the model and reporting the results of the emissions inventory to the Data Collection Officer.	This officer should have a thorough understanding of the relevant standards and modeling methodologies. The officer needs to possess sufficient quantitative skills to understand and run the model.
Finance Officer (FO)	This officer is responsible for collecting and reporting activity data derived from accounting records to the Data Collection Officer.	This officer should be familiar with the accounting system and accounting practices at Vancity.
Energy Assessment Officer (EAO)	This officer is responsible for collecting and recording energy use (electrical and fuel) at all Vancity facilities and reporting this information to the Data Collection Officer. This officer may be an external contractor.	This officer should be familiar with energy systems and utility reporting processes.
Survey Officer (SO)	In some cases, for example employee commuting, a survey may need to be conducted to estimate activity data or other model parameters. The survey officer shall be responsible for conducting and interpreting such a survey.	This officer should be familiar with survey methodologies including how to correctly conduct a survey and interpret the results.

### 5.2 Document Retention and Record Keeping

Vancity's Greenhouse Gas Emissions Inventory Handbook outlines the procedures and methodologies Vancity uses to assess and estimate the emissions of greenhouse gases associated with our business and business operations; Vancity's greenhouse gas emission inventory. The procedures were developed to meet both the CSA/ISO 14064-1 standard and the World Resources Institutes' GHG Protocol standard [1, 2]. They were designed to reflect the principles of: relevance, completeness, consistency, accuracy, and transparency [1]. As the standards evolve, these principles will guide the evolution of this document and the procedures described within. Finally, the procedures were developed to be independent of a specific implementation or technology solution.

Documentation supporting the design, development and maintenance of the inventory is retained to support the verification process and provide a historical record. This task is the primary responsibility of the Data Collection Officer. In determining what information needs to be retained the following principles are applied:

- 1) At any point in time, all past emissions inventories should be able to satisfy an audit.
- 2) At any point in time, any past emissions inventory should be able to be recalculated from the retained records.

The following information is retained on an ongoing basis:

- The procedures, processes, and methodologies used to estimate the emissions inventory and relevant sources
- All emission factors and their sources
- All activity data, activity data models, and their sources
- All models
- All supporting documentation and sources
- The emissions inventory, reported at the facility level

The following directory structure is in place on a single, backed-up storage location and used to store and maintain all information:

- Procedures and Reporting – Contains a copy of Vancity’s Greenhouse Gas Emissions Inventory Handbook and other relevant documents and supporting source material
- Model – Contains a clean copy of all major versions of the model
- Year (2007, 2008, 2009 ...)
  - Report – Contains the Verification Report
  - Data – Contains raw activity data and survey results
  - Model – Contains the emissions inventory model
  - Base Year – Contains the emissions inventory model of the current base year

## 6. Vancity's Role in Verification Activities

ISO 14064-1 requires a verification procedure be established with the auditor/verifier. The following describes the general procedures Vancity follows.

Procedure
Before verification is conducted the procedures described in this document shall have been completed
The appointed auditor/verifier shall have the necessary background, training, and competency to perform the verification as defined in ISO 14064-1 (see Section 8.3.3 of [1] for further details).
The objectives, scope, level of assurance, materiality, and data sampling and custody criteria shall be discussed and established with the verifier
A verification statement shall be obtained from the verifier that includes as a minimum: a description of the objectives, scope and criteria of the verification activities, a description of the level of assurance, and the verifier's conclusion indicating any qualification or limitations (see Section 8.3.4 of [1] for further details).
The verification statement shall be reviewed to ensure it is consistent with criteria established with the verifier

### 6.1 *Verification*

This Carbon Footprint Report was prepared by management and has been externally verified by an independent auditor, InterPraxis, with a reasonable level of assurance, and in a manner consistent with the requirements of ISO 14064-3.

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23. NRCan, *Commercial and Institutional Consumption of Energy Survey Summary Report 2005*. 2007, Natural Resources Canada: Ottawa.
24. NRCan, *Canadian New Light Duty Vehicles: Trends in fuel consumption and characteristics (1988-1998)*, M. Schingh, É. Brunet, and P. Gosselin, Editors. 2006, Natural Resources Canada.

## Appendix A Facilities by Province

### British Columbia

#### Citizens Bank of Canada

400 - 815 West Hastings St.  
Vancouver, BC V6C 1B4

#### Inhance Investment Management Inc.

1200 – 900 West Hastings St.  
Vancouver, BC V6C 1E5

#### Squamish Savings Branches

Downtown Branch  
38085 2<sup>nd</sup> Ave., Box 1940  
Squamish, BC V8B 0B4

Highlands Branch  
1 – 1900 Garibaldi Way, Box 939  
Garibaldi Highlands, BC V0N 1T0

#### Vancity Capital

530 – 815 West Hastings St.  
Vancouver, BC V6C 1B4

#### Vancity Enterprises Ltd.

510 – 815 West Hastings St.  
Vancouver, BC V6C 1B4

#### Vancity Community Foundation

510 – 815 West Hastings St.  
Vancouver, BC V6C 1B4

#### Vancity Credit Union

183 Terminal Avenue  
Vancouver, BC V6A 4G2

1300 - 13450 -102nd Ave  
Surrey, BC V3T 5X4

301 - 369 Terminal Ave,  
Vancouver BC V6A 4C4

6889 Sellers Ave  
Burnaby, BC V5J 4R2

1285 Main Street, Vancouver, BC  
V6A 4B6

Units 3 & 6 - 8433 Harvard Place  
Chilliwack, BC V2P 7Z5

#### Vancity Credit Union Branches

4th Ave Community Branch  
Branch 11  
2233 West 4th Avenue, Vancouver, BC  
V6K 1N9

North Burnaby Community Branch  
Branch 6  
4302 Hastings Street, Burnaby, BC  
V5C 2J9

Abbotsford Community Branch  
Branch 34  
32675 South Fraser Way, Abbotsford, BC  
V2T 1X9

Blanshard Street Community Branch  
Branch 67  
1001 Blanshard Street, Victoria, BC  
V8W 2H4

Brentwood Community Branch  
Branch 43  
Unit 106 - 1901 Rosser Avenue, Burnaby,  
BC V5C 6R6

Cedar Hills Community Branch  
Branch 44  
12820 96th Avenue, Surrey, BC  
V3V 6A8

Chilliwack Community Branch  
Branch 31  
45617 Luckakuck Way, Chilliwack, BC  
V2R 1A3

Chinatown Community Branch  
Branch 28  
188 East Pender Street, Vancouver, BC  
V6A 1T3

Collingwood Community Branch  
Branch 13  
3305 Kingsway, Vancouver, BC  
V5R 5K6

Commercial Drive Community Branch  
Branch 12  
1675 Commercial Drive, Vancouver, BC  
V5L 3Y3

Downtown Community Branch  
Branch 10  
898 West Pender Street, Vancouver, BC  
V6C 1J8

Dunbar Community Branch  
Branch 45  
4445 Dunbar Street, Vancouver, BC  
V6S 2G4

North Delta Community Branch  
Branch 19  
7211 120th Street, Delta, BC  
V4C 6P5

North Road Community Branch  
Branch 16  
3977 North Road, Burnaby, BC  
V3J 1S2

North Side Community Branch  
Branch 53  
130 – 2325 Ottawa Street, Port Coquitlam,  
BC V3B 8A4

North Vancouver Community Branch  
Branch 21  
1290 Marine Drive, North Vancouver, BC  
V7P 1T2

Oakridge Community Branch  
Branch 41  
5594 Cambie Street, Vancouver, BC  
V5Z 3Y5

Pinetree Community Branch  
Branch 18  
Unit 20 - 2991 Lougheed Hwy, Coquitlam,  
BC, V3B 6J6

Pitt Meadows Community Branch  
Branch 50  
750-19800 Lougheed Highway, Pitt  
Meadows, BC V3Y 2W1

Point Grey Community Branch  
Branch 22  
4545 West 10th Avenue, Vancouver, BC  
V6R 4N2

Port Coquitlam Community Branch  
Branch 33  
Unit 7100 - 2850 Shaughnessy Street, Port  
Coquitlam, BC V3C 6K5

Port Moody Community Branch  
Branch 52  
140 – 221 Ioco Road, Port Moody, BC  
V3H 4H2

Fairview Community Branch  
Branch 8  
501 West 10th Avenue, Vancouver, BC  
V5Z 1K9

Fraser Street Community Branch  
Branch 7  
6288 Fraser Street, Vancouver, BC  
V5W 3A1

Guildford Community Branch  
Branch 30  
Unit 108 - 15175 101st Avenue, Surrey, BC  
V3R 7Z1

Hastings Community Branch  
Branch 3  
2510 East Hastings Street, Vancouver, BC  
V5K 1Z3

Johnston Heights Community Branch  
Branch 64  
D-1, 15251 101 Avenue, Surrey, BC  
V3R 9V8

Kerrisdale Community Branch  
Branch 15  
2380 West 41st Avenue, Vancouver, BC  
V6M 2A4

Kitsilano Community Branch  
Branch 4  
3395 West Broadway, Vancouver, BC  
V6R 2B1

Kruger Community Branch  
Branch 65  
1625 – 5<sup>th</sup> Ave., New Westminster, BC  
V3M 1Z7

Langford Community Branch  
Branch 69  
716 Goldstream Avenue, Victoria, BC  
V9B 2X3

Langley Community Branch  
Branch 23  
Unit 100 - 20055 Willowbrook Drive,  
Langley, BC V2Y 2T5

Richmond Community Branch  
Branch 26  
5900 No.3 Road, Richmond, BC  
V6X 3P7

Royal Oak Community Branch  
Branch 59  
6632 Royal Oak Avenue, Burnaby, BC  
V5H 3P6

Saanich Community Branch  
Branch 62  
890 Short Street, Victoria, BC  
V8X 2V5

Scott Street Community Branch  
Branch 68  
3055A Scott Street, Victoria, BC  
V8R 4J9

Semiahmoo Community Branch  
Branch 25  
#104 - 1790 152nd Street, Surrey, BC  
V4A 7Z7

South Burnaby Community Branch  
Branch 17  
5064 Kingsway, Burnaby, BC  
V5H 2E7

South Slope Community Branch  
Branch 56  
7384 Market Crossing, Burnaby, BC  
V5J 0A2

Station Square Community Branch  
Branch 35  
Unit 120A - 6100 McKay Avenue, Burnaby,  
BC V5H 4L6

Surrey City Centre Community Branch  
Branch 32  
10293 King George Hwy, Surrey, BC  
V3T 2W6

Telus Community Branch  
Branch 63  
6th Floor, 3777 Kingsway, Burnaby, BC  
V5H 3Z7

Lynn Creek Community Branch  
Branch 46  
1370 Main Street, North Vancouver, BC  
V7J 1C6

Lynn Valley Community Branch  
Branch 57  
Unit 101 - 1233 Lynn Valley Road , North  
Vancouver, BC V7J 2A1

Maillardville Community Branch  
Branch 51  
1013 Brunette Avenue, Coquitlam, BC  
V3K 1E6

Main Street Community Branch  
Branch 9  
4205 Main Street, Vancouver, BC  
V5V 3P8

Maple Ridge Community Branch  
Branch 29  
22824 Lougheed Hwy, Maple Ridge, BC  
V2X 2V6

Marpole Community Branch  
Branch 14  
8615 Granville Street, Vancouver, BC  
V6P 5A2

Mission Community Branch  
Branch 36  
Unit 150 - 32555 London Avenue, Mission,  
BC V2V 6M7

New Westminster Community Branch  
Branch 61  
527 Sixth Street, New Westminster, BC  
V3L 3B9

Newton Community Branch  
Branch 27  
7555 King George Hwy, Surrey, BC  
V3W 5A8

Vancity Insurance Services Ltd.  
183 Terminal Avenue  
Vancouver, BC V6A 4G2

Tsawwassen Community Branch  
Branch 58  
1215 56th Street, Delta, BC  
V4L 2A6

Vancity Centre Community Branch  
Branch 1  
Unit 100 - 183 Terminal Avenue, Vancouver,  
BC V6A 4G2

Victoria Community Branch  
Branch 42  
3075 Douglas Street, Victoria, BC  
V8T 4N3

Victoria Drive Community Branch  
Branch 2  
5590 Victoria Drive, Vancouver, BC  
V5P 3W1

Walnut Grove Community Branch  
Branch 54  
E-103-20159 88th Avenue, Langley, BC  
V1M 0A4

Waterfront Community Branch  
Branch 60  
17 - 200 Granville Street, Vancouver, BC  
V6C 1S4

West Vancouver Community Branch  
Branch 5  
1402 Marine Drive, West Vancouver, BC  
V7T 1B7

Westend Community Branch  
Branch 47  
1680 Robson Street, Vancouver, BC  
V6G 1C7

Westview Community Branch  
Branch 49  
712 - 2601 Westview Drive, North  
Vancouver, BC V7N 3X4

425 Hornby Street  
Vancouver, BC V6C 2Y2

Vancity Insurance Services Branches (stand alone branches)

Kitsilano Community Branch  
3361 West Broadway, Vancouver BC  
V6R 2B1

North Burnaby Community Branch  
4318 Hastings St, Burnaby V5C 2J9

Saanich Centre Insurance Community  
Branch  
8 - 3475 Quadra Street, Victoria, BC  
V8X 1G8

Vancity Investment Management Ltd.  
300 – 900 West Hastings  
Vancouver, BC V6C 1E5

**Alberta**

Citizens Bank of Canada  
#150 - 505 - 3rd St SW  
Calgary, AB V2P 3B6

**Ontario**

Citizens Bank of Canada  
184 Front St  
Toronto, ON M5A 4N3

## Appendix B Energy Use Model

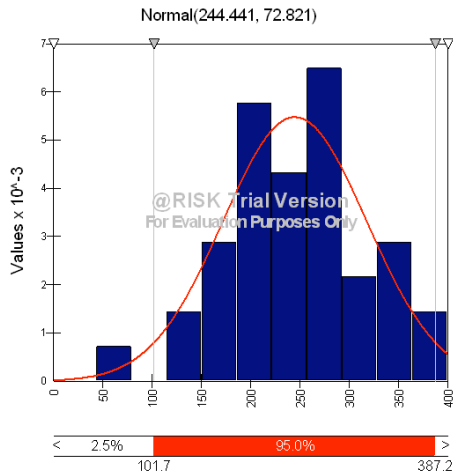
A number of Vancity's facilities are not metered for electricity and/or natural gas use. For these facilities a model is used to estimate facility energy use. There are many factors that influence building energy use such as age, type, construction quality, and weather. However, it is not feasible to develop a model to incorporate all of these factors. To simplify the model only the building type and the province it is located in shall be considered. It shall be assumed that based on this categorization that the buildings Vancity operates are similar and that their energy use per unit area is on average similar. A statistical analysis of the 2006 electricity and gas use for metered Vancity facilities located in BC indicates that this is a reasonable assumption (see Table 7, Table 8, Figure 4, and Figure 5). The sample of metered facilities did not include sufficient numbers of the Office Building category (only one was metered) to make any statistical comparison and there was also insufficient numbers of the Mall Building category so the Mall and Strip Mall categories were combined into a single Mall category. No statistically significant difference was found between Mall and Free Standing building categories (i.e. factors other than the building type are responsible for variations in energy use). The analysis also showed that electricity use per m<sup>2</sup> is normally distributed (see Figure 4) and that natural gas use per m<sup>2</sup> appears to be normally or log-normally distributed (see Figure 5). This analysis shows that it is reasonable to use Vancity's metered facilities to estimate energy use of its non-metered sites for Strip Mall, Mall and Free Standing building categories.

Electricity Use per m <sup>2</sup> Analysis					
Free Standing (FS)		Strip Mall (SM)		Mall (M)	
Mean	248.5894138	Mean	251.3535836	Mean	242.5451558
Standard Error	15.71835506	Standard Error	15.55491491	Standard Error	65.97193604
Standard Deviation	62.87342024	Standard Deviation	69.56369426	Standard Deviation	93.29840669
Minimum	158.99196	Minimum	117.7051507	Minimum	176.5732198
Maximum	354.9852696	Maximum	399.1797105	Maximum	308.5170918
Sum	3977.430621	Sum	5027.071673	Sum	485.0903116
Count	16	Count	20	Count	2
Confidence Level (95.0%)	33.50288059	Confidence Level (95.0%)	32.55681101	Confidence Level (95.0%)	838.252926

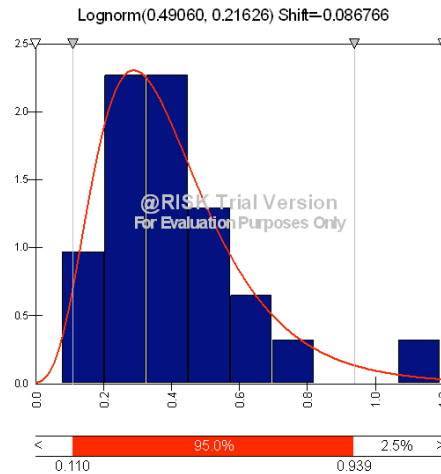
**Table 7 - Electricity Use per m<sup>2</sup> Descriptive Statistics**

Natural Gas Use per m <sup>2</sup> Analysis			
Free Standing (FS)		Strip Mall (SM)	
Mean	0.423048	Mean	0.381238
Standard Error	0.069411	Standard Error	0.059119
Standard Deviation	0.259713	Standard Deviation	0.196074
Sample Variance	0.067451	Sample Variance	0.038445
Minimum	0.080014	Minimum	0.133146
Maximum	1.191162	Maximum	0.783595
Sum	5.922668	Sum	4.193619
Count	14	Count	11
Confidence Level (95.0%)	0.149954	Confidence Level (95.0%)	0.131724

**Table 8 - Natural Gas Use per m<sup>2</sup> Descriptive Statistics**



**Figure 4 - Electricity Use Histogram for Freestanding and Mall building Categories**



**Figure 5 - Natural Gas Use Histogram for Freestanding and Mall building Categories**

For the Office Building category and for all categories of buildings located in provinces other than BC, estimates based on Natural Resources Canada's energy use surveys shall be used. The most recent and most relevant survey is the "Commercial and Institutional Consumption of Energy Survey Summary Report" [23]. This report provides an average energy use per square metre (GJ/m<sup>2</sup>) by province for various building categories. The split between electricity and natural gas is reported by province but not by building category. For this reason the energy split for BC buildings shall be obtained using data from metered sites. This process shall be used to develop estimates when there are an insufficient number of metered facilities to generate a statistically valid estimate; a minimum of 5 facilities are needed (see Table 9). Rough estimates of uncertainties can also be obtained from the report using the quality ranking of the statistics (A, B, C, etc.) and the corresponding coefficient of variation (CV). The confidence interval can be calculated by multiplying the maximum CV by 1.96. For BC confidence intervals are calculated using the metered data.

From Table 4 - Energy consumption by energy source, by region (GJ)					
Province	Ontario	Alberta	BC	Uncertainty (+/-%)(BC)	
Electricity	164,658,915	70,986,485	-	39.2%	
Natural gas	236,771,531	120,650,263	-	39.2%	
Total	401,430,446	191,636,748	-		
Energy Split					
Electricity	41.0%	37.0%	67.0%	39.2%	16.0%
Natural gas	59.0%	63.0%	33.0%	39.2%	16.0%
From Table 3 - Energy intensity by activity sector, by region (GJ/m2)					
Province	Ontario	Alberta	BC	Uncertainty (+/-%)(BC)	
Offices	1.54	1.28	1.61	39.2%	
Estimated Energy Use for Offices					
Province	Ontario	Alberta	BC	Uncertainty (+/-%)	
Electricity (GJ)	0.63	0.47	1.08	55.4%	42.3%
Electricity (KWh)	175	132	300	55.4%	42.3%
Natural gas (GJ)	0.91	0.81	0.53	55.4%	42.3%

Note on uncertainty calculation: A ranking implies a CV < 20%; a CV of 20% implies a CI = 1.96x0.20 = 39.2%

**Table 9 - NRCan Building Energy Estimates**

## Appendix C Paper Use Emission Factor Sample Derivation

To obtain a paper use emissions factor the [Environmental Defense' online calculator](#) is used. The calculator does not explicitly list emission factors; however, they can be extrapolated by calculating the greenhouse gas emissions associated with 1 Metric Tonne of each paper type for the following recycling percentages: 0%, 25%, 50%, 75%, 100%. Presently the relationship is linear ( $R^2 = 1$ ) and a linear regression can be used to determine emission factors as a function of recycled content. For example:

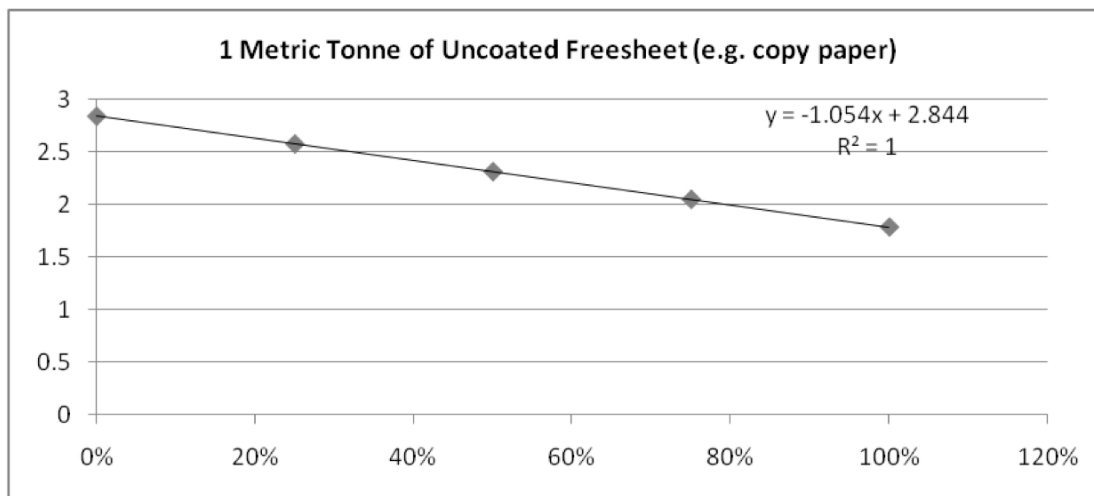
### Inputs:

Paper Type: Uncoated Freesheet

Amount: 1 Metric Tonne

% Recycled Content: 0%, 25%, 50%, 75%, 100%

% Recycled Content	lbs of CO2	Kg of CO2	Metric Tonnes of CO2 / Metric Tonne of paper
0%	6,271	2844.477	2.84
25%	5,690	2580.94	2.58
50%	5,109	2317.403	2.32
75%	4,528	2053.866	2.05
100%	3,947	1790.329	1.79



This formula ( $y = -1.054x + 2.844$ ) can then be used to calculate the emissions factor as a function of recycled content, where y is the emission factor in Metric Tonnes per Metric Tonne of paper and x is the percent recycled content.

# Appendix D Paper Use Estimation Procedure

Procurement of paper based products for use by the Vancity group is generally decentralized. Apart from general office paper used for photo copiers, faxes, member statements, company letterhead, stationary, and envelopes, departments order and purchase their own paper products as needed.

The following table lists the departments that have been identified as purchasers of paper products and the use of the paper.

Department	Paper Use
Vancity Marketing	Brochures, posters, letterhead and envelopes, buckslips, mailers and other campaign materials, etc.
Purchasing	Member forms, both generic and custom, statements, memo pads, letterhead, cheques, deposit books, brochures, business cards, branch vouchers, envelopes, other miscellaneous office paper
Public Affairs and Corporate Communications	Member newsletters and other communications, corporate reports, corporate business plans, employee communications
Governance	AGM and election materials including statement stuffers, ballots, voting cards, envelopes, board materials
Citizens Bank Marketing	Brochures, posters, letterhead and envelopes, buckslips, mailers and other campaign materials, etc.
Human Resources	Employee recognition and recruiting materials

**Procedure:**

1. Paper use data is collected by Data Collection Officer from each of the departments listed above on either a quarterly or annual basis depending on the volume and specific use of paper.
2. Total weight of paper purchased, as well as percent of paper that is post consumer waste (PCW) is tabulated and summarized.

## Appendix E Natural Resources Canada Fuel Economy Estimates

Natural Resources Canada (NRCan) publishes a number of fuel economy estimates for both specific vehicles and vehicles classes.

### *Specific Vehicles*

Every year NRCan publishes a fuel consumption guide (available online) listing the tested city and highway fuel economy ratings for all vehicles sold in Canada (for example [10]). They also report an average fuel economy rating that can be used when the driving mode is not known.

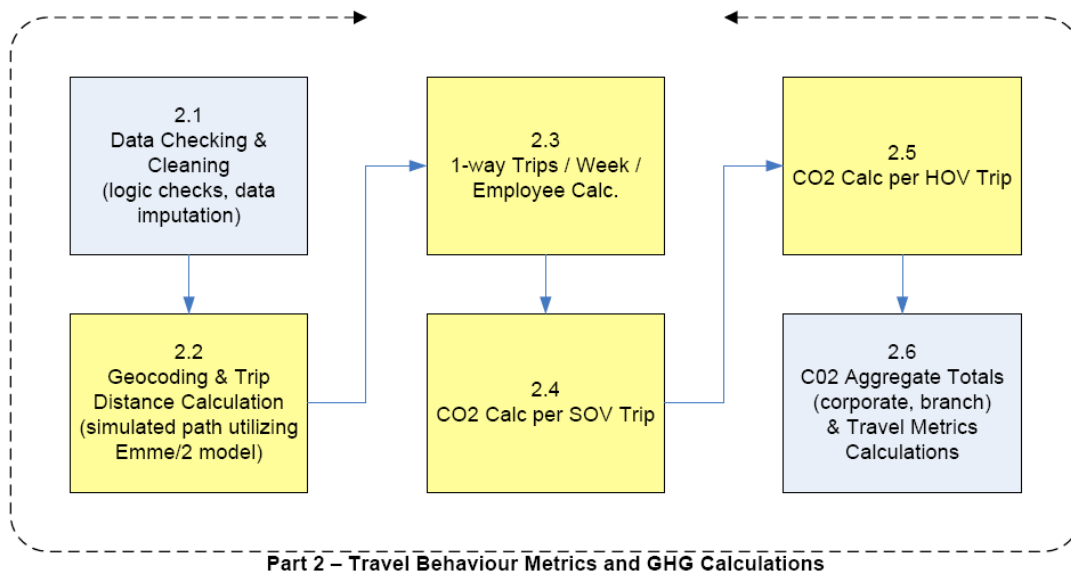
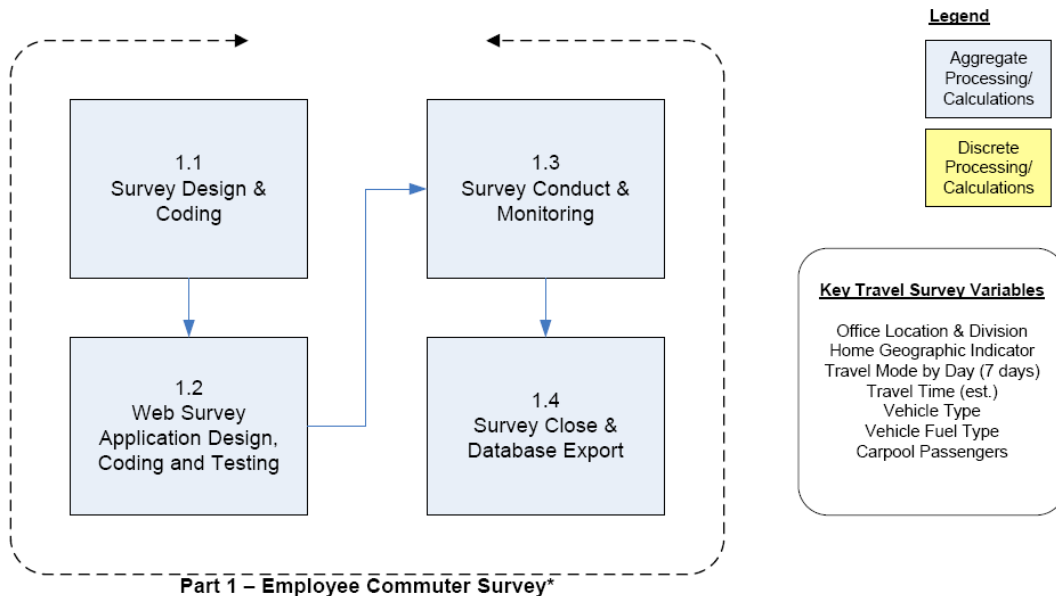
### *Vehicle Classes*

NRCan publishes a number of fuel economy statistics. The data is collected through a number of methods and aggregated in three main data collections:

- (1) Vehicle Fuel Economy Information System (VFEIS) (maintained by Transport Canada) [24]
- (2) Vehicle Information System (VIS) [24]
- (3) National Energy Use Database ([NEUD](#))

The VFEIS and VIS systems contain the same data that is published in the fuel consumption guides and the NEUD contains estimates based on models (e.g. Transportation End Use Model) and survey results. From the NEUD NRCan produces the Energy Use Data Handbook which includes a section on [transportation](#). In addition, NRCan also publishes summary reports based on the surveys they conduct. The latest report on transportation was published in 2007 and provides an estimate of the average fuel economy of 2005 light duty gasoline and diesel vehicles (10.6 L/100km, 11.6 L/100km) [9]. It is recommend that this and future summary reports be the source of average fleet fuel economy.

# Appendix F Estimation of Employee Commuting-based GHG Emissions



**Calculation Notes:**

- 2.1 – Incomplete or unreconcilable data removed
- 2.2 – Trip origin & destination postal codes used as geo-reference for geocoding to Emme/2 Traffic Zone System. Simulated trip distances packed to each applicable record.
- 2.4 – Average fuel consumption rates (NRCAN) for each vehicle type used to determine litres of fuel consumed per vehicle trip. Incorporating fuel type information, fuel (litres) to emission (grams) rates (Metro Van; Environ. Canada) calculated for each vehicle trip.
- 2.5 – Per person emissions (grams) calculated based on total passengers in an average carpool commute for a particular employee.
- 2.4 & 2.5 – Multi-modes taken per trip considered in calculations by equally dividing trip distances for each mode used (up to 3).
- 2.6 – Travel behaviour metrics consist of mode share totals, distribution of distances, vehicle and fuel type distribution, trips/week/emp, CO2 emissions per trip, CO2 emission totals by branch and corporate-wide

Prepared by: Clark Lim, P.Eng, Acuere Consulting (May 2008)

## Appendix G Base-Year GHG Inventory (2007)

	Totals	
	(tCO <sub>2</sub> eq)	(+/- %)
<b>Scope 1</b>	468.0	15.1%
<b>Scope 2</b>	372.9	0.0%
<b>Scope 3</b>	4,683.7	4.8%
<b>Totals</b>	5,524.5	4.2%

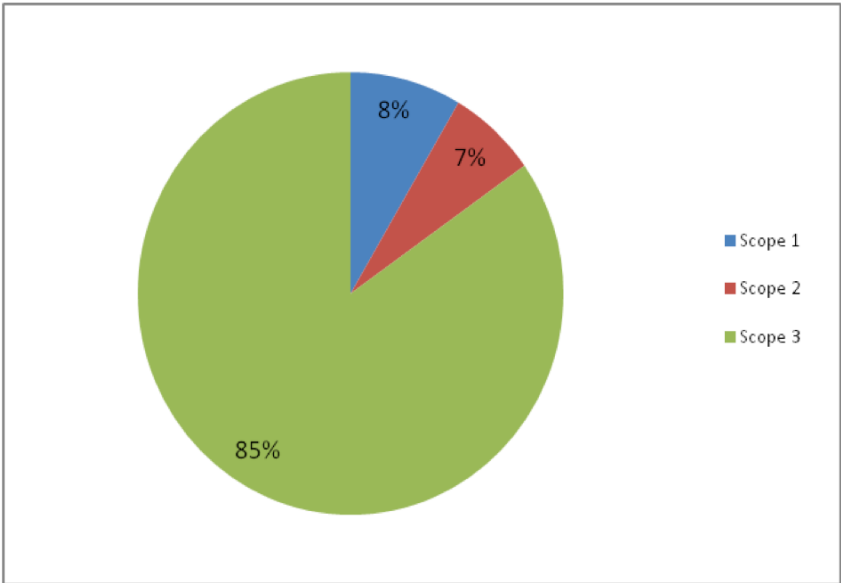
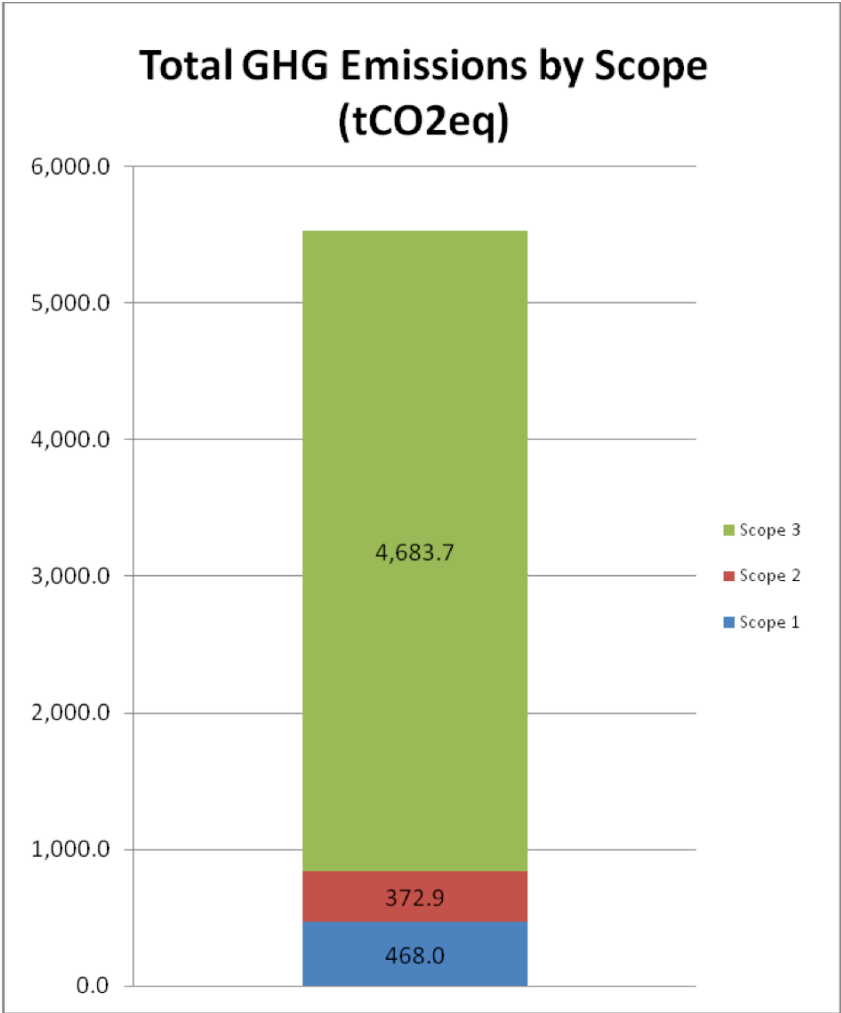
*Table 10 – Total GHG Emissions by Scope*

	Totals	
	(tCO <sub>2</sub> eq)	(+/- %)
<b>Electricity</b>	372.9	18.1%
<b>Natural Gas</b>	1,109.3	7.7%
<b>Vehicle Fleet Travel</b>	35.8	9.6%
<b>Vehicle Travel</b>	92.5	11.8%
<b>Car Allowance</b>	401.9	2.9%
<b>Commuting</b>	2,146.0	9.1%
<b>Air Travel</b>	498.0	0.5%
<b>Paper</b>	868.1	0.0%

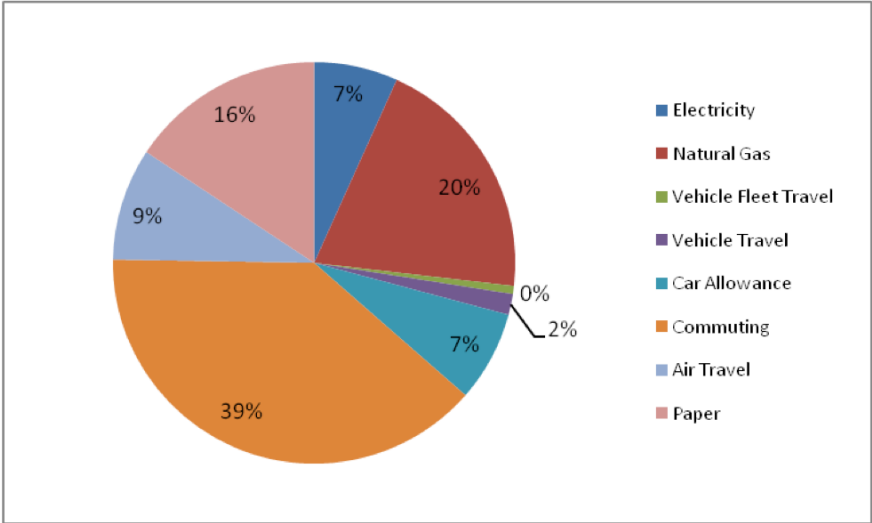
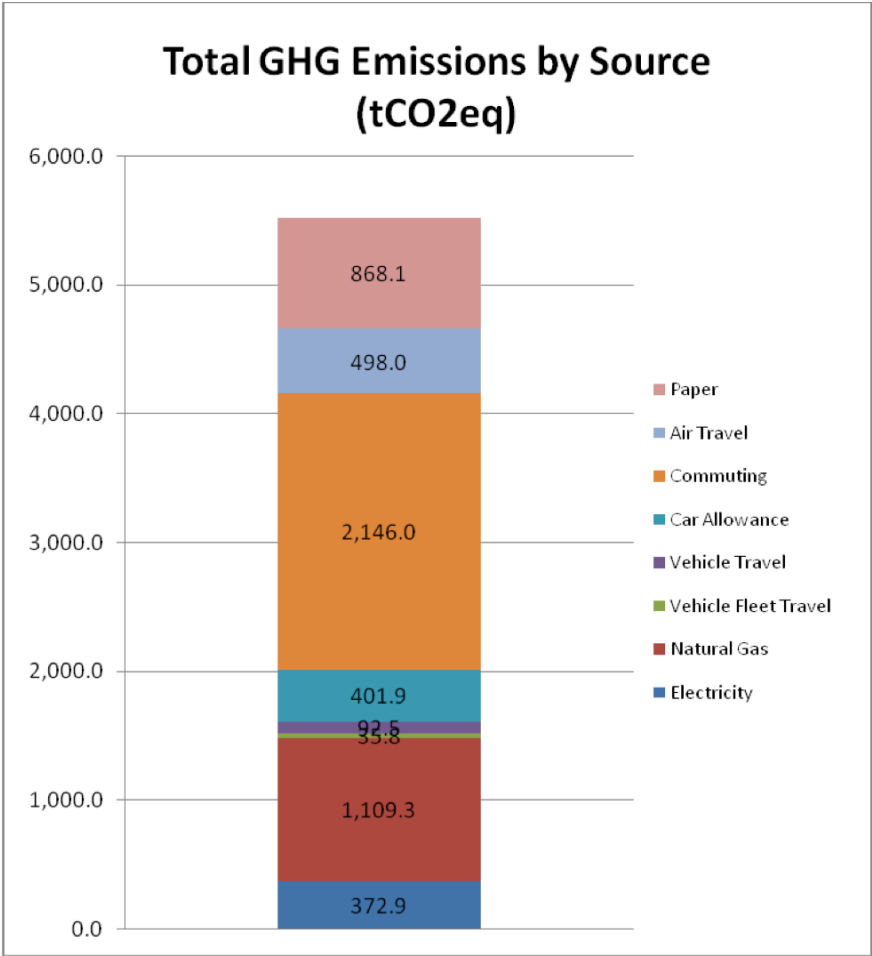
(Uncertainty not assessed but is high)

(Uncertainty not assessed but is high)

*Table 11 - Total 2007 GHG Emissions by Source*



**Figure 6 - Total 2007 GHG Emissions by Scope (tonnes CO<sub>2</sub>e)**



**Figure 7 - Total 2007 GHG Emissions by Source (tonnes CO<sub>2</sub>e)**

## Appendix H GHG Emissions Summary by Facility (2008)

Facility ID	Facility Name	Totals	
		(tCO <sub>2</sub> eq)	(+/- %)
1	Vancity Centre	2,230.1	6.8%
2	Branch #02	40.8	17.9%
3	Branch #03	41.2	20.4%
4	Branch #04	23.5	15.7%
5	Branch #05	16.4	27.6%
6	Branch #06	44.0	18.4%
7	Branch #07	45.1	15.4%
8	Branch #08	28.1	28.1%
9	Branch #09	14.8	8.3%
10	Branch #10	23.9	16.3%
11	Branch #11	11.9	26.8%
12	Branch #12	32.8	28.5%
13	Branch #13	49.4	15.4%
14	Branch #14	11.8	16.4%
15	Branch #15	13.9	16.2%
16	Branch #16	26.1	27.6%
17	Branch #17	43.1	19.6%
18	Branch #18	64.8	20.7%
19	Branch #19	21.7	21.2%
21	Branch #21	55.7	12.5%
22	Branch #22	10.6	27.2%
23	Branch #23	41.7	24.8%
25	Branch #25	35.2	24.0%
26	Branch #26	36.1	19.7%
27	Branch #27	37.6	20.3%
28	Branch #28	28.6	18.8%
29	Branch #29	41.0	20.8%
30	Branch #30	30.0	17.4%
31	Branch #31	26.7	22.4%
32	Branch #32	38.6	12.9%
33	Branch #33	23.5	19.4%
34	Branch #34	30.5	17.6%
35	Branch #35	8.9	26.5%
36	Branch #36	30.9	17.0%
41	Branch #41	42.5	19.8%
42	Branch #42	42.3	21.6%
43	Branch #43	10.7	26.6%

44	Branch #44	68.8	23.3%
45	Branch #45	15.2	20.8%
46	Branch #46	31.6	22.8%
47	Branch #47	5.7	18.6%
49	Branch #49	21.5	7.6%
50	Branch #50	20.9	17.5%
51	Branch #51	42.9	16.4%
52	Branch #52	16.7	20.6%
53	Branch #53	11.4	18.6%
54	Branch #54	24.9	13.0%
75	Branch #56	16.1	22.8%
57	Branch #57	22.4	22.2%
58	Branch #58	25.7	13.0%
59	Branch #59	27.8	22.8%
60	Branch #60	1.8	19.2%
61	Branch #61	26.2	20.1%
62	Branch #62	12.2	17.2%
63	Branch #63	24.0	22.1%
64	Branch #64	16.8	21.5%
65	Branch #65	6.5	24.3%
66	Branch #66 (Metro Insurance)	12.9	25.2%
81	Branch #81	46.3	17.5%
82	Branch #82	14.8	17.8%
100	VCIS @ Br.4	3.3	16.9%
101	VCIS @ Br.6	4.8	17.9%
102	DRS - Inventure & Data Backup	15.8	36.6%
103	Surrey Central	121.2	23.6%
104	815 W. Hastings	683.0	15.0%
105	900 W. Hastings	204.3	22.1%
106	Citizens - Calgary	80.6	41.0%
107	Citizens- Toronto	120.5	26.8%
108	425 Hornby	43.8	8.1%
109	SHOP	16.8	3.6%
110	369 Terminal	45.5	26.2%
111	Branch #1	9.6	30.4%
112	BOSA	21.3	23.4%
113	Branch #67	24.7	14.9%
114	Branch #68	26.8	23.9%
115	Branch #69	12.3	26.8%
116	VCIS Branch #98	3.2	16.3%