

TD Waterhouse Tower
79 Wellington Street West, Toronto, ON
Greenhouse Gas Inventory Report

August 23, 2010 210xL005



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1 SUMMARY

This report details the greenhouse gas (GHG) emissions inventory of TD Centre Tower 4 (TD Waterhouse Tower), Toronto, ON. A GHG inventory lists the sources¹ of GHG emissions and the quantity of emissions released from each source during the reporting period².

TD Waterhouse Tower is owned and managed by Cadillac Fairview Corporation (Cadillac Fairview). Cadillac Fairview is registering TD Waterhouse Tower in the Canada Green Building Council's (CaGBC) LEED Canada EB: O&M Program (LEED EB) and is targeting this rating system's Energy and Atmosphere Credit 6: Emission Reduction Reporting (EAc6)³. Cadillac Fairview will use the data from this report to disclose the building's emissions in the CSA CleanStart™ Registry and also as part of TD Waterhouse Tower's LEED EB Credit EAc6 documentation package.

Loop Initiatives (Loop) is the Agent to TD Waterhouse Tower's property management company, Cadillac Fairview, and is responsible for the completion of TD Waterhouse Tower's GHG inventory and reporting in accordance with CAN/CSA-ISO Standard 14064-1-06⁴. 3P Analysis and Consulting has been engaged to provide independent third party verification.

This report has been written in accordance with CAN/CSA-ISO Standard 14064-1-06 *Greenhouse Gases - Part 1: Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*. In addition, the World Resource Institute (WRI)/World Business Council for Sustainable Development (WBCSD) Standard: Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard⁵ and CAN/CSA-ISO Standard 14064-3-06 *Greenhouse Gases - Part 3: Specification with Guidance for the Validation of Greenhouse Gas Assertions* have been used as additional resources.

We have determined that TD Waterhouse Tower produced 4,421 tonnes of CO₂e for the July 2009 to June 2010 reporting year. Direct GHG (Scope 1) emissions account for 24% of the reported emissions. Energy indirect GHG (Scope 2) emissions account for 76% of the reported emissions. Other indirect GHG emissions (Scope 3) were not reported. The emissions were calculated from data and other documentation collected from Cadillac Fairview and Halsall Associates Limited (Halsall).

¹ Examples of GHG sources include: boilers (natural gas combustion), electricity production (mixed fossil fuel combustion), etc.

² The reporting period is defined as the one year duration for which the quantity of GHG emissions from all sources is calculated.

³ *LEED Canada for Existing Buildings: Operations and Maintenance 2009 Reference Guide*. 2009, Canada Green Building Council.

⁴ *CAN/CSA ISO 14064-1 Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals*. March 2006, International Standards Organization.

⁵ *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard*. March 2004. World Resources Institute and World Business Council for Sustainable Development.

Please refer to Section 5 and Appendix A for TD Waterhouse Tower’s detailed GHG inventory.

2 ORGANIZATION PROFILE

TD Waterhouse Tower, located in Toronto, ON and built in 1985, is a 39-storey office tower with 6 levels of underground parking garage. This building is owned and managed by Cadillac Fairview.

As reported by Halsall, the gross floor area (GFA) is 842,178 ft². This includes:

- 666,830 ft.² of occupied office space;
- 131,505 ft.² of vacant office space;
- 500 ft.² data centre;
- 9,451 ft.² of retail concourse;
- 33,892 ft.² fitness centre; and
- 178,529 ft.² parking (portion shared with 95 Wellington West)

The building occupancy is 2,554 people and the parking garage holds 521 parking spaces.

As detailed in *Toronto Dominion Centre Technical Specifications (November 2008)*, TD Waterhouse Tower’s mechanical systems are as follows:

Component	Description
Control Zones/Floor	<ul style="list-style-type: none"> ▶ “11 perimeter zones and 40 interior zones. Each zone supports a thermostat controlling a variable air volume (VAV) unit. ▶ Existing thermostats can be relocated or additional VAV’s with associated thermostats can be added to accommodate the tenant’s partition layout.”
Air Distribution	<ul style="list-style-type: none"> ▶ “Variable air volume system fed from centrally located fans on a separate mechanical floor. The conditioned air is delivered to the floors through the air handling light fixtures.”
Cooling Capacity	<ul style="list-style-type: none"> ▶ “The original chilled water plant was converted to use Deep Lake Water Cooling Technology to replace 3 – 600-ton chillers and 3 – 300-ton chillers.”
Heating	<ul style="list-style-type: none"> ▶ “Provided by the perimeter radiation unit, which runs continuously from column to column and is 1’ – 3” high. Units are zoned by exposure for energy efficient operation.”
Supplemental Cooling	<ul style="list-style-type: none"> ▶ “24-hour, 600 ton closed condenser water system is available throughout the building for tenant use. Each floor is allotted 17 tons from the system. A chilled water system is available at 42°F in summer and 45°F in winter throughout the building. City water back-up

	availability.”
Energy Efficient Cooling	<ul style="list-style-type: none"> ▶ “The use of Deep Lake Water Cooling Technology for primary cooling to the complex conserves energy in comparison to conventional cooling. At outside temperatures below 57°F, increased quantities of fresh air are used instead of conditioned air to conserve energy.”
Facility Management System	<ul style="list-style-type: none"> ▶ “The Metasys Facility Management System is “state-of-the-art” and performs environmental control, energy management, lighting control functions and overall facility monitoring. This provides the building occupants with an energy efficient and comfortable environment.”
Light Fixtures	<ul style="list-style-type: none"> ▶ “20” x 60” air handling fixture with 2-32 watt T8 energy efficient lamps/fixture for interior and perimeter fixtures. All fixtures have energy-efficient ballasts and electro-connect wiring system to provide easy relocation of light fixtures, acrylic prismatic lens.”
Schedule	<ul style="list-style-type: none"> ▶ “Fluorescent lighting is time-managed for energy conservation and is subdivided in 22 control zones per floor. Tenants have full control of the on-floor zone switching, using the telephone interface. ▶ Normal schedule: 7:00am to 8:00pm Monday to Friday, off on Saturday and Sunday”

TD Waterhouse Tower’s tenants include:

- | | |
|--|--|
| <ul style="list-style-type: none"> • ABN Amro Bank • Beach & Associates • Belmore McIntosh • Canadian Investor (CIPF) • Cda Deposit Insurance Corp • Deloitte & Touche • Evangelista & Associates • Fitness Institute – Toronto Athletic Club • FTI Consulting • Greenhill Canada & Co. • IBM | <ul style="list-style-type: none"> • Manulife Securities • Maple Partners Financial • McLeod Dixon • Queens University • Scotia Financial • TD • TD Bank • TD Credit Risk Model Group • Thomas Weisel Partners • TORYS |
|--|--|

Cadillac Fairview has made a commitment to “greening” this facility, including participating in the LEED Canada EB: O&M Program, which includes evaluating energy, water efficiency and waste management. To achieve LEED EB EA6, Cadillac Fairview is reporting TD Waterhouse Tower’s GHG emissions to the CSA Clean Start™ Registry.

3 GHG INVENTORY DESIGN AND DEVELOPMENT

3.1 Organizational Boundaries

For any GHG inventory, an organizational boundary is used to determine how GHG emissions are accounted for. Typically, one of the following approaches is used⁶:

1. Equity share approach: accounts for GHG emissions based on share of equity in the operation;
2. Financial control approach: accounts for GHG emissions based on the financial control over the operation; or
3. Operational control approach: accounts for GHG emissions based on the control of operations. The organization must report emissions from the sources over which it has operational control.

CAN/CSA-ISO Standard 14064-1-06 Section 4.1 states that the organization may use a different consolidation methodology where specific arrangements are defined by a GHG program or legal contract.

Since LEED-EB evaluates facilities rather than organizations, to meet EAc6 requirements, the TD Waterhouse Tower facility was used as a physical boundary, rather than using any of the organizational boundaries described above. As such, the emissions from the base building equipment and the tenant equipment (including direct and indirect energy GHG emissions) were included in the GHG inventory without taking into consideration whether Cadillac Fairview or the tenants have control or ownership. In addition, since LEED EB: O&M credit EAc6 does not include transportation impacts, emissions from building-owned or leased vehicles are excluded from the inventory.

3.2 Operational Boundaries

Operational boundaries are defined to prevent double counting of reported emissions. These boundaries can be separated into the following three emission types:

Direct GHG emissions:

Direct emissions within the organizational boundary are released from fuel combustion, HFC emissions, generation of electricity, steam, or heat in equipment, business travel or employee commuting in company owned or leased vehicles.

⁶ *Hot Climate, Cool Commerce: A Service Sector Guide to Greenhouse Gas Management*. May 2009, World Resources Institute.

Energy Indirect GHG emissions:

Indirect GHG emissions are released by the production of electricity, steam and/or chilled water, purchased by the facility users.

Other Indirect GHG emissions:

Other indirect GHG emissions are released from all other activities outside of the organizational boundaries. They may include business travel, employee commuting, third party production or manufacture of materials and resources, outsourced activities, and/or combustion of fuel in boilers or furnaces and electricity, steam or chilled water use excluded from the organizational boundary.

3.2.1 Direct GHG Emissions at TD Waterhouse Tower

Direct GHG emissions released from sources at the facility level include TD Waterhouse Tower's natural gas and diesel emissions.

Natural gas is supplied by Enbridge Gas Distribution Inc. (Enbridge Gas) through one main meter. As reported in Halsall's energy breakdown calculations, all natural gas use is for space heating.

As reported by Halsall in a letter dated June 3, 2010, there were no HFC, PFC or SF₆ refrigerants used in the building during the reporting period.

A 750kW diesel-powered generator on site is used for emergency power purposes (for fire and life safety systems). GHG emissions from diesel combustion are accounted for in the year fuel is purchased. Since the diesel generator was last refilled in May 2009, diesel consumption data has not been included in the GHG inventory for the July 2009 to June 2010 year.

As transportation emissions are excluded in LEED EB credit EAc6, Cadillac Fairview-owned vehicles, considered direct GHG emissions, were not included in the GHG inventory.

3.2.2 Energy Indirect GHG Emissions at TD Waterhouse Tower

This report includes TD Waterhouse Tower's indirect GHG emissions inventory from electricity and imported chilled water.

Electricity at TD Waterhouse Tower is purchased from the Toronto Hydro Corporation (Toronto Hydro). TD Waterhouse Tower is one of four buildings that make up the north side of the TD Centre and originally these buildings were serviced by separate electricity meters owned and maintained by Toronto Hydro. However, Toronto Hydro now only provides the combined electricity use for these four towers to Cadillac Fairview.

Since the separate meters still exist, Cadillac Fairview has retained Energy @ Work to connect to the original Toronto Hydro meters, and record each tower's individual consumption.

As reported by Halsall's energy breakdown calculations, the building's energy breakdown is as follows:

- Plug loads contribute the highest load at 37%;
- Fans use 22% of electrical energy;
- Lights use 17% of electrical energy;
- Pumps use 11% of electrical energy;
- of energy; and,
- The remaining 7% electricity is consumed by elevators and heating of domestic water, pool and the garage ramp.

Chilled water at TD Waterhouse Tower is purchased from the Enwave Energy Corporation (Enwave). The chilled water replaced the chillers and is used to cool the building. Chilled water consumption is measured by one meter to TD Waterhouse Tower.

3.2.3 Other Indirect GHG Emissions at TD Waterhouse Tower

Other indirect GHG emissions were not included as part of the GHG inventory.

3.2.4 GHG Removals and Biomass Combustion at TD Waterhouse Tower

GHG removals or combustion of biomass are not present at TD Waterhouse Tower.

3.3 History of Emissions at TD Waterhouse Tower

Emissions were calculated for the time period between July 2009 and June 2010 to meet LEED-EB's 12 month Performance Period requirement.

Since this is the first year that TD Waterhouse Tower is calculating its GHG emissions, this GHG inventory becomes the building's "base year"⁷ emissions. Future annual inventories should be compared to this base year to track the results of emissions reduction efforts.

⁷ The base year is the first reporting period for which a GHG inventory is reported.

4 QUANTIFICATION

The GHG inventory calculation requires two general types of data. As per CAN/CSA-ISO Standard 14064-1-06 Section 4.3.6, we obtained the appropriate “activity data” and “emission factor” to apply to the following equation:

$$\text{activity data} \times \text{emission factor} = \text{GHG emissions}$$

Activity data was collected from site utility bills. Emission factors from Canada’s National Inventory Report (1990-2008)⁸ were used.

4.1 Natural Gas

4.1.1 Activity Data

Activity data for natural gas is based on Enbridge Gas monthly utility bills. Natural gas consumption is metered and reported by the utility in m³.

4.1.2 Emission Factor

Loop Initiatives used the National Inventory Report (1990-2008)⁸ natural gas emission factors to calculate TD Waterhouse Tower’s GHG emissions. Ontario-specific CO₂ emission factors from Part 2, Annex 8, Table A8-1 were used. Since CH₄ and N₂O emissions are dependent on a specific sector rather than regional fuel properties, national commercial CH₄ and N₂O data from Part 2, Annex 8, Table A8-2 were used.

The natural gas emission factor units are in metric tonnes of emission per m³.

4.2 Electricity

4.2.1 Activity Data

Activity data for electricity is based on Toronto Hydro monthly utility bills. Electricity consumption is metered and reported on by the utility in unadjusted kWh and adjusted kWh. As required by Energy Star and consequently the LEED-EB Program, unadjusted kWhs were used for this GHG inventory.

4.2.2 Emission Factor

Loop Initiatives used the National Inventory Report (1990-2008)⁸ electricity emission factors. Published electricity grid emission factors do not account for

⁸ *National Inventory Report (1990-2008) Greenhouse Gas Sources and Sinks in Canada*. April 2010, Environment Canada GHG division.

Transmission and Distribution (T & D) losses. As per the Greenhouse Gas Protocol, companies that purchase electricity from a T & D grid but do not own any part of the system should not include T & D losses in a scope 2 inventory. For this reason, T & D losses have not been included in the calculations for TD Waterhouse Tower.

As Cadillac Fairview is reporting on only one facility in Ontario, the calculations used provincial CO₂, CH₄ and N₂O emission factors from the National Inventory Report's Part 3, Annex 13, Table A13-7.

The electricity emission factor is measured in metric tonnes emission per kWh.

Refer to Appendix B for summary of data collection sources and emission factor sources.

4.3 Chilled Water

4.3.1 Activity Data

Activity data for chilled water is based on Enwave monthly utility bills. Chilled water is provided through one main meter to TD Waterhouse Tower. Chilled water consumption is metered and reported by the utility in Ton Hours (TnHr).

4.3.2 Emission Factor

Enwave provided Loop Initiatives with an emission factor for chilled water. The emission factor was derived from August 2004 to July 2007 data. The data was provided in CO_{2e}/ton hour. A breakdown of CH₄ and N₂O was not provided. The chilled water emission factor units are in metric tonnes emission per ton hour.

5 GHG INVENTORY COMPONENTS

5.1 Emissions

The total emissions from direct and indirect GHG emissions sources during the reporting year are 4,421 tonnes of CO_{2e}. Building natural gas, electricity and chilled water account for 100% of TD Waterhouse Tower's reported emissions. The breakdown is as follows (Table 1):

Table 1: Emissions Results

Source of GHG Emissions	CO ₂ e (tonnes)	% of total
Natural Gas	1,069	24%
Electricity	3,195	72%
Chilled Water	157	4%
TOTAL	4,421	100%

CO₂ emissions account for 99% of the total GHG emissions, while CH₄ and N₂O emissions are negligible (they account for less than 1% of total GHG emissions). However, to meet CAN/CSA-ISO 14064-1-06⁹ requirements, they have been included in the greenhouse gas inventory.

Refer to Figure 1 for the monthly energy consumption and Figure 2 for a detailed GHG breakdown.

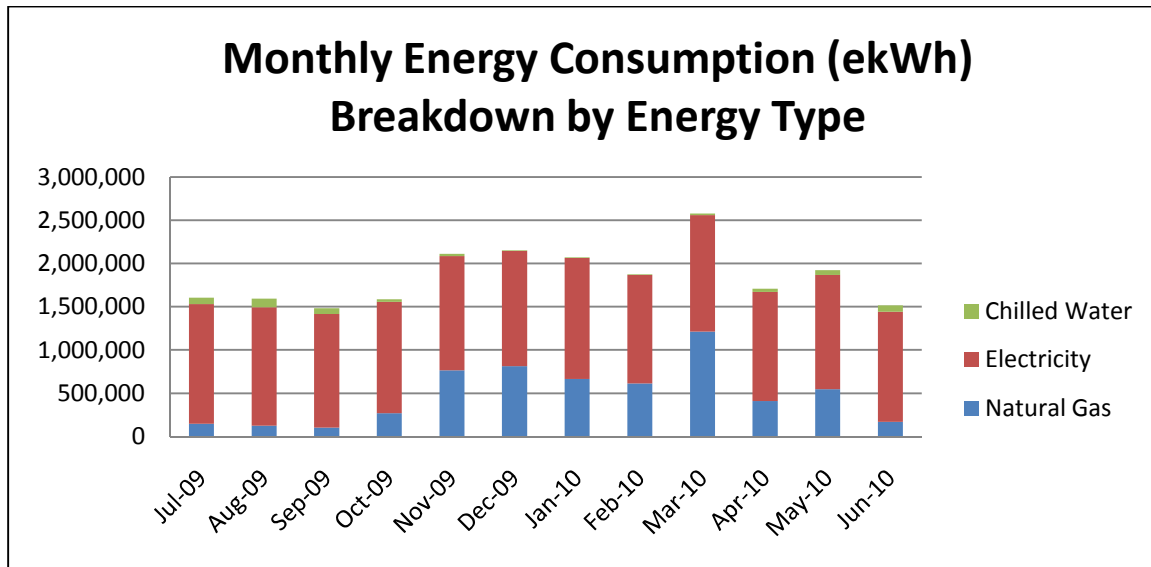


Figure 1: Energy Consumption Breakdown
 Annual Energy Consumption is approximately 22,193,645 ekWh

*Note: The lack of natural gas use between July and October 2009 is due to natural gas only being used for heating purposes (Section 3.2.1). Similarly, chilled water use during the same months has increased as this utility is only being used for cooling purposes.

⁹ CAN/CSA ISO 14064-1 Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals. March 2006, International Standards Organization.

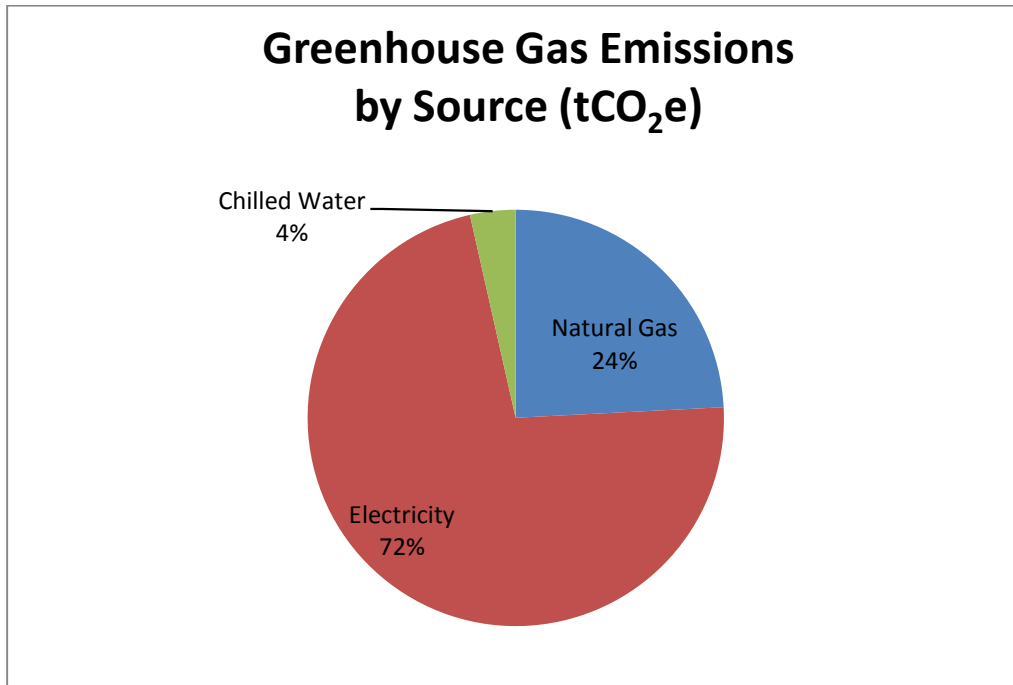


Figure 2: Greenhouse Gas Emissions Breakdown
Annual GHG emissions are 4,421 tonnes CO₂e

With a carbon intensity of 5.3 kg CO₂e/ ft², TD Waterhouse Tower's carbon footprint is lower than the average of other office buildings in Toronto that Loop has worked with. Within the buildings reviewed, Loop has observed a range of carbon intensities between 2.4 kg CO₂e/ ft² and 10.9 kg CO₂e/ft²., averaging at 6.2 kg CO₂e/ ft².

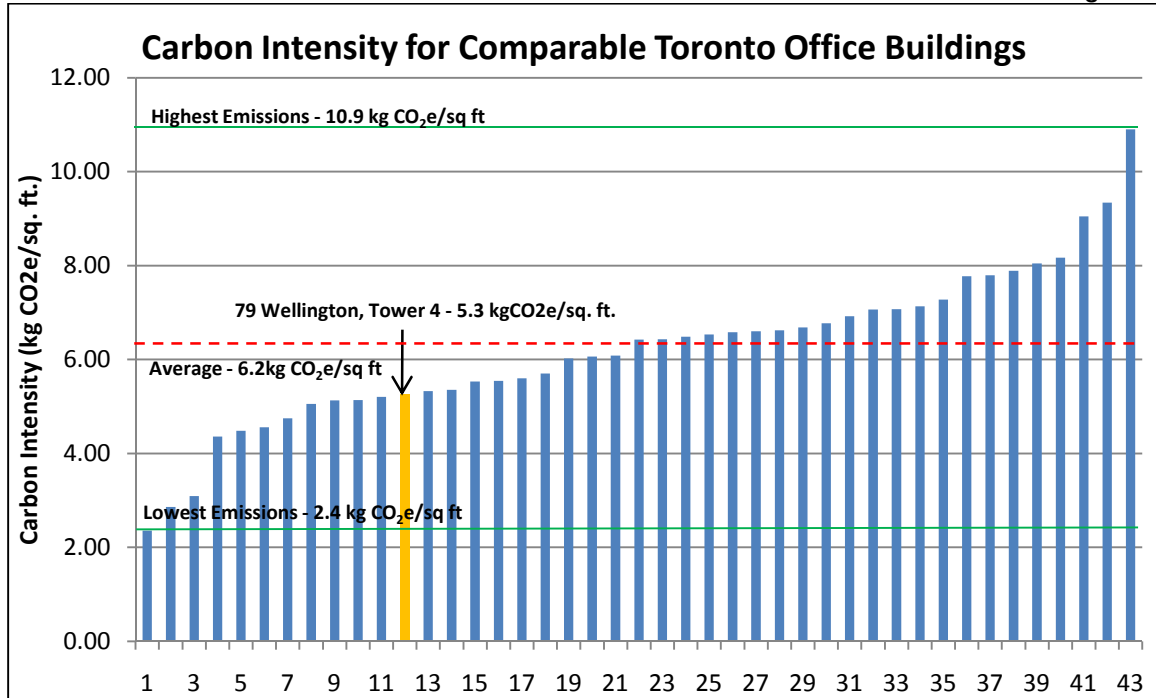


Figure 3: Carbon Intensity for Comparable Toronto Office Buildings¹⁰

5.2 Activities to Reduce GHG Emissions

GHG reduction strategies for this facility have focused on energy measures. In TD Waterhouse Tower’s current baseline, implemented energy saving retrofits have resulted in energy and carbon reductions compared to the previous years. An emissions reduction of approximately 828 tonnes of CO₂e (16%) was calculated between the July 2009 to June 2010 reporting year and the previous 12 month period.

Hunter Facilities Management has recommended to Cadillac Fairview several strategies for energy conservation at TD Waterhouse Tower; Cadillac Fairview has not yet decided which measures will be implemented in the future. Table 2 indicates the potential emissions savings of the suggested strategies.

¹⁰ Halsall Associates Ltd./Loop Initiatives Energy and Carbon database (2006-2009). Data is not weather normalized. Intensity is calculated using the Energy Star™ definition of gross floor area.

Table 2: Carbon Saving Strategies

Building Performance Parameter	Estimated Emissions Savings	Activity Unit
Release fan overrides when no requirement from tenant	165	t CO _{2e}
Operate fan 401 at "free cooling" mode instead of mechanical cooling	77	t CO _{2e}
Install VFDs on pumps and cooling tower fans	34	t CO _{2e}
Turn off lights in chiller room and unoccupied floors	TBD	t CO _{2e}
Adjust temperature set points	TBD	t CO _{2e}
Annual Carbon Savings Implementation	276	t CO_{2e}

5.3 Estimation of Uncertainty¹¹

Table 3 presents our opinion of the level of uncertainty related to this GHG inventory. Our opinion of uncertainty is based on *Table 3: Certainty Ranking for Common Emission Sources*, found in "Measurement and Estimation Uncertainty of GHG Emissions" by the Greenhouse Gas Protocol Initiative.

Table 3 – Uncertainty Ranking

Major Emission Category	Certainty Ranking
Natural Gas	High – The meter is calibrated and verified by Enbridge Gas. Natural gas emission factors are less dependent on location and are almost always standard and accurate. Uncertainty may be derived from fluctuations in measurement equipment.
Electricity	Fair – The emission factor is based on an annual provincial grid average, containing multiple fuel sources such as coal, natural gas, hydro and nuclear.
Chilled Water	Fair – the emission factor was provided by the chilled water provider. Calculations and limitations of the data are unknown.

¹¹ *Measurement and Estimation Uncertainty of GHG Emissions*. 2003, The Greenhouse Gas Protocol Initiative.

6 GHG INVENTORY QUALITY MANAGEMENT

6.1 GHG Information Management

In an effort to maintain a credible GHG inventory, roles and responsibilities were assigned to ensure consistency, accuracy, completeness, transparency and conformance with CAN/CSA-ISO Standard 14064-1-06.

Name	Role	Company
Adrian Sluga	Senior Manager, Tenant Projects	Cadillac Fairview ¹²

Responsibilities:

- To provide Halsall/Loop with required energy data (via utility bills);
To approve and sign the CSA CleanStart™ Registry application form.

Name	Role	Company
Adrien Deveau	Project Principal	Halsall Associates ¹³
Jenny McMinn	Project Manager	Halsall Associates
Eric Chisholm	Project Associate (Energy)	Halsall Associates

Responsibilities:

- To provide Loop Initiatives with required energy data (via utility bills); and,
- To provide Loop Initiatives with refrigerant data information.

Name	Role	Company
Francisca Quinn	Project Director	Loop Initiatives
Jia Shin	Project Manager	Loop Initiatives
Jessica Fisher	Project Associate	Loop Initiatives

Responsibilities:

- To request and analyze received activity data for acceptable accuracy, to collect appropriate emission factors and perform GHG calculations; and,
- To produce a report consistent with both the CSA CleanStart™ Registry requirements and CAN/CSA-ISO Standard 14064-1-06.

¹² Cadillac Fairview is the Owner's Representative

¹³ Halsall is the LEED-EB Consultant for TD Waterhouse Tower

Name	Role	Company
Evan Jones	Independent Verifier	3P Analysis and Consulting

Responsibilities:

- To verify that Loop Initiative’s 14064-1 report meets CSA CleanStart™ Registry requirements and CAN/CSA-ISO Standard 14064-3-06; and,
- To issue a verification statement.

6.2 Document Retention and Record Keeping

The following activities, conducted by the property management company, maintain credible GHG inventory and reporting:

- Cadillac Fairview compiles a record of TD Waterhouse Tower’s utility bills and maintains them through spreadsheet tracking. This has a dual purpose in that it tracks both energy and operating costs; and,
- This is the first year that Cadillac Fairview will calculate and register TD Waterhouse Tower’s greenhouse gas emissions. This inventory contains emission factors, July 2009 to June 2010 activity data, GHG emissions and other important information. Cadillac Fairview should keep this GHG inventory report for their records, should they choose to register TD Waterhouse Tower or other organizations within TD Waterhouse Tower next year with the CSA CleanStart™ Registry.

7 ORGANIZATION’S ROLE IN VERIFICATION ACTIVITIES

Evan Jones from 3P Analysis and Consulting was engaged to provide independent third party verification as per CAN/CSA-ISO Standard 14064-3-06. The verification is to be completed at a reasonable level of assurance.

Loop Initiatives prepared for TD Waterhouse Tower’s verification by:

- Engaging a third party verifier to provide a reasonable level of assurance;
- Agreeing to verification objectives, scope, materiality and criteria with the verifier;
- Reviewing each section using the CSA Registry checklist; and,
- Using an internal review process for quality control for the inventory and the document.

Third party verification is required by LEED EB. This provides an impartial and objective review of the reported GHG emissions.

Reporting content summary for declarations to the CSA standard is presented in Appendix C.

We hope this report meets your expectations and will assist Cadillac Fairview in successfully managing your ongoing efforts to reduce GHG emissions. Loop Initiatives would be pleased to contribute further if you wish, by proceeding with a GHG reduction plan.

Please do not hesitate to contact us at (416) 644-0625.

Yours truly,
LOOP INITIATIVES



Jia Shin, M.Sc.(Eng.), P.Eng., LEED AP
Project Manager



Francisca Quinn, M. Sc.
Project Director

APPENDIX A – GREENHOUSE GAS INVENTORY

Table A1.1 – Summary by Source Greenhouse Gas Inventory
(July 2009 to June 2010) – Base Year

Source and Fuel	Quantity of Activity	Activity Unit	Emissions (t CO _{2e})
DIRECT GHG EMISSIONS			
Natural Gas			
Jul-09	14,402	m ³	27.23
Aug-09	12,090	m ³	22.86
Sep-09	10,022	m ³	18.95
Oct-09	25,920	m ³	49.01
Nov-09	73,885	m ³	139.69
Dec-09	78,641	m ³	148.68
Jan-10	64,341	m ³	121.64
Feb-10	59,466	m ³	112.43
Mar-10	117,433	m ³	222.02
Apr-10	39,818	m ³	75.28
May-10	52,891	m ³	100.00
Jun-10	16,255	m ³	30.73
Total Natural Gas	565,164	m³	1,068.51
ENERGY INDIRECT EMISSIONS			
Electricity - Mixed Fossil Fuels			
Jul-09	1,382,969	kWh	278.60
Aug-09	1,367,939	kWh	275.57
Sep-09	1,312,576	kWh	264.42
Oct-09	1,290,055	kWh	259.88
Nov-09	1,323,536	kWh	266.63
Dec-09	1,331,684	kWh	268.27
Jan-10	1,396,855	kWh	281.40
Feb-10	1,252,565	kWh	252.33
Mar-10	1,347,613	kWh	271.48
Apr-10	1,261,269	kWh	254.08
May-10	1,320,636	kWh	266.04
Jun-10	1,272,598	kWh	256.36
Total Electricity	15,860,295	kWh	3,195.06

ENERGY INDIRECT EMISSIONS (CONTINUED)			
Chilled Water			
Jul-09	255,728	TnHr	23.02
Aug-09	349,471	TnHr	31.45
Sep-09	232,555	TnHr	20.93
Oct-09	101,169	TnHr	9.11
Nov-09	82,449	TnHr	7.42
Dec-09	28,148	TnHr	2.53
Jan-10	29,084	TnHr	2.62
Feb-10	25,638	TnHr	2.31
Mar-10	55,053	TnHr	4.95
Apr-10	130,573	TnHr	11.75
May-10	190,932	TnHr	17.18
Jun-10	262,884	TnHr	23.66
Total Chilled Water	1,743,684	TnHr	156.93
TOTAL EMISSIONS	4,420.50		
CARBON INTENSITY	5.25 kg CO₂e/ft²		
	1.73 t CO₂e/FTE		

APPENDIX B – ACTIVITY DATA AND EMISSION FACTORS

ACTIVITY DATA

Activity data was collected by Loop Initiatives using the methodology summarized in Table B1.

Table B1 – Activity Data

Activity Data	Collection Methodology
Natural Gas	Halsall submitted TD Waterhouse Tower's Enbridge monthly utility bills to Loop Initiatives on behalf of Cadillac Fairview.
Electricity	Halsall submitted TD Waterhouse Tower's Toronto Hydro electricity monthly utility bill to Loop Initiatives on behalf of Cadillac Fairview.
Chilled Water	Halsall submitted TD Waterhouse Tower's Enwave monthly utility bills to Loop Initiatives on behalf of Cadillac Fairview.

EMISSION FACTORS

Table B2 summarizes the emission factors and sources used in the calculations completed for the Cadillac Fairview TD Waterhouse Tower GHG inventory.

Table B2 – Emission Factors

Emission Source	Emission Factor	Source of Emissions Factor
Natural gas (Carbon Dioxide) (Ontario)	1.879 g/m ³	Canada's National Inventory Report 1990-2008, Annex 8, written in 2010
Natural gas (Methane) (Ontario)	0.037 g/m ³	Canada's National Inventory Report 1990-2008, Annex 8, written in 2010
Natural gas (Nitrous Oxide) (Ontario)	0.035 g/m ³	Canada's National Inventory Report 1990-2008, Annex 8, written in 2010
Electricity (Carbon Dioxide) (Ontario): 2007	200 g CO ₂ /kWh	Canada's National Inventory Report 1990-2008, Part 3, Annex 13, Table A13-7, written in 2010
Electricity (Methane) (Ontario): 2007	0.01 g CH ₄ /kWh	Canada's National Inventory Report 1990-2008, Part 3, Annex 13, Table A13-7, written in 2010
Electricity (Nitrous Oxide) (Ontario): 2007	0.004 g N ₂ O/kWh	Canada's National Inventory Report 1990-2008, Part 3, Annex 13, Table A13-7, written in 2010
Chilled Water (Carbon Dioxide) (Ontario): 2008	90 g CO ₂ /TnHr	Email correspondence from P. Harasati at EnWave. Based on analysis from Aug 2004 to Jul 2007
Carbon Dioxide Conversion (100-yr)	1	CAN/CSA ISO 14064-1 Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals. Annex C. March 2006, International Standards Organization.
Methane Conversion (100-yr)	21	
Nitrous Oxide Conversion (100-yr)	310	

APPENDIX C – STANDARD REPORTING DECLARATION

1 REPORTING INFORMATION

The following table provides a summary of the reporting information required by CAN/CSA-ISO Standard 14064-1-06. Provided in the “declaration” column is Cadillac Fairview’s assertion for TD Waterhouse Tower’s inventory.

Note: This GHG inventory report is the first GHG inventory report issued from Cadillac Fairview for TD Waterhouse Tower.

Table C1 – Reporting Information

No.	CSA Reporting Requirement	Declaration
A	Description of the reporting organization.	Cadillac Fairview is the property management company for TD Waterhouse Tower. Cadillac Fairview is registered in the Canadian Green Building Council’s LEED-EB Program and is targeting LEED-EB Energy and Atmosphere credit 6: Emission Reduction Reporting. As part of Cadillac Fairview’s initiative to green this 39-storey facility, they are reporting TD Waterhouse Tower’s greenhouse gas (“GHG”) emissions with the CSA Registry. TD Waterhouse Tower emits GHGs through their use of natural gas, electricity and chilled water. The total gross floor area of the building is approximately 842,178 ft ² . (excluding parking) and the building occupancy is approximately 2,554 people.
B	Person responsible	Francisca Quinn, Project Director and Agent to Adrian Sluga, Senior Manager, Tenant Projects at TD Waterhouse Tower.
C	Reporting period covered	July 2009 to June 2010
D	Documentation of organizational boundary.	“Physical facility approach” defined by the LEED-EB Canada Energy and Atmosphere credit 6 Emissions Reduction Reporting Program; this is a different consolidation methodology than typically defined, but is still within CSA/ISO14064-1 guidelines.
E	Direct GHG emissions, quantified separately for each GHG, in tonnes of CO ₂ e.	See Appendix A.
F	A description of how CO ₂ emissions from the combustion of biomass are treated in the GHG inventory.	Not applicable to this inventory.

No.	CSA Reporting Requirement	Declaration
G	If quantified, GHG removals, quantified in tonnes of CO ₂ e.	Not applicable to this inventory.
H	Explanation for the exclusion of any GHG sources or sinks from quantifications.	This inventory includes all energy indirect GHG emissions. GHG sinks are not applicable to this inventory.
I	Energy indirect GHG emissions associated with the generation of imported electricity, heat or steam, quantified separately in tonnes of CO ₂ e.	See Appendix A.
J	The historical base year selected and the base-year GHG inventory.	Base year: July 2009 to June 2010 This base year for the CSA CleanStart Registry was chosen due to the performance period requirements of the Canadian Green Building Council LEED-program. It is a starting point for potential future GHG inventories. See Appendix A for the CSA CleanStart Registry's base year GHG emission summary.
K	Explanation of any change to the base year or other historical GHG data, and any recalculation of the base year or other historical GHG inventory.	Not applicable to this inventory.
L	Reference to, or description of, quantification methodologies including reasons for their selection.	Calculations are based on GHG activity data multiplied by GHG emission factors.
M	Explanation of any change to quantification methodologies previously used.	Not applicable to this inventory.
N	Reference to, or documentation of, GHG emission or removal factors used.	See Appendix B for details.
O	Description of the impact of uncertainties on the accuracy of the GHG emissions and removals data.	Uncertainties in calculations include error margins in emissions factors and measured activity data. Emission factors were determined by the most local and credible source available at the time of reporting. Activity data is based on utility bills received by Halsall from Cadillac Fairview. Based on these sources, the level of uncertainty is assumed to be fair.

No.	CSA Reporting Requirement	Declaration
P	A statement that the GHG report has been prepared in accordance with ISO Standard 14064-1.	This report has been prepared in accordance with the following standard: CAN/CSA-ISO Standard 14064-1-06 - Part 1: Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals.
Q	A statement describing whether the GHG inventory, report or assertion has been verified, including the type of verification and level of assurance achieved	Evan Jones at 3P Analysis and Consulting will provide third party verification for this GHG inventory report and will provide a reasonable level of assurance. See the third party verification report for further details.