

Sun Life Financial Tower
150 King Street West, Toronto
Greenhouse Gas Inventory Report

December 4, 2009 210yL001



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
Electricity	Halsall submitted Sun Life Financial Tower’s Toronto Hydro electricity monthly utility bill to Loop Initiatives on behalf of Bentall.
Natural Gas	Halsall submitted Sun Life Financial Tower’s Enbridge Gas monthly utility bills to Loop Initiatives on behalf of Bentall.
Refrigerant	Halsall submitted Sun Life Financial Tower’s base building refrigerant policy, chiller tags and small tenant split system nameplate data to Loop Initiatives on behalf of Bentall.

EMISSION FACTORS

Table B2 summarizes the emission factors and sources used in the calculations completed for the Bentall’s Sun Life Financial Tower GHG inventory.

Table B2 – Emission Factors

Emission Source	Emission Factor	Source of Emissions Factor
Electricity (Carbon Dioxide) (Ontario): 2007	237.6 g CO ₂ /kWh ²⁰	Canada’s National Inventory Report, 2009, Annex 9 (most recent year: 2007)
Electricity (Methane) (Ontario): 2007	0.00432 g CH ₄ /kWh ⁴	Canada’s National Inventory Report, 2009, Annex 9 (most recent year: 2007)
Electricity (Nitrous Oxide) (Ontario): 2007	0.00216 g N ₂ O /kWh ⁴	Canada’s National Inventory Report, 2009, Annex 9 (most recent year: 2007)
Natural Gas (Carbon Dioxide) (Ontario)	1.891 kg CO ₂ /m ³	Canada’s National Inventory Report, 2008, Annex 12
Natural gas (Methane) (Canadian Average)	0.037 g CH ₄ /m ³	Canada’s National Inventory Report, 2008, Annex 12
Natural gas (Nitrous Oxide) (Canadian Average)	0.035 g N ₂ O/m ³	Canada’s National Inventory Report, 2008, Annex 12
Carbon Dioxide Conversion (100-yr)	1	IPCC 2 nd Assessment Report
Methane Conversion (100-yr)	21	IPCC 2 nd Assessment Report
Nitrous Oxide Conversion (100-yr)	310	IPCC 2 nd Assessment Report

²⁰ The emission factor for electricity production in Ontario is 220 g CO_{2e}/kWh. This value was increased by 8% to account for transmission and distribution losses (Reference: “The Report of the National Advisory Panel on Sustainable Energy Science and Technology – Version 1”, by NRCan, 2006).

APPENDIX C – Standard Reporting Declaration

1 REPORTING INFORMATION

The following table provides a summary of the reporting information required by CAN/CSA-ISO 14064-1-06²¹ provided in the “declaration” column is Bentall’s assertion for the Sun Life Financial Tower’s inventory.

Note: This GHG inventory report is the first GHG inventory report issued from Bentall’s for the Sun Life Financial Tower.

No.	CSA Reporting Requirement	Declaration
A	Description of the reporting organization.	Bentall is the property management company for the Sun Life Financial Tower, located at 150 King Street West. Bentall 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 Bentall’s initiative to green this 28 floor facility, they are reporting the Sun Life Financial Tower’s greenhouse gas (“GHG”) emissions with the CSA Registry. The Sun Life Financial Tower emits GHG’s through their use of electricity, natural gas and a negligible amount of refrigerant leakage. The total floor area excluding parking of the building is 554,048 sq. ft. and the building occupancy excluding transients in the retail area is 1,630 people.
B	Person responsible	Francisca Quinn, Project Director and Agent to David Serravalle, General Manager at the Sun Life Financial Tower.

²¹ 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.

C	Reporting period covered	Oct. 16, 2008 to Oct. 15, 2009
D	Documentation of organizational boundary.	Different consolidation methodology defined by the LEED-EB Canada Energy and Atmosphere credit 6 emissions reduction reporting program. Physical facility approach.
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 direct GHG emissions and 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. Imported heat or steam not applicable to this inventory.
J	The historical base year selected and the base-year GHG inventory.	Base year: Oct. 16, 2008 to Oct. 15, 2009 This base year 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 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 Bentall. Refrigerant data is based on nameplate data, leak test logs and manufacturer and operator testimony. Based on these sources, the level of uncertainty is assumed to be low.

No.	CSA Reporting Requirement	Declaration
P	A statement that the GHG report has been prepared in accordance with ISO 14064-1.	This report has been prepared in accordance with the following standard: CAN/CSA-ISO 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.
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