



Report on Canadian National Railway Company (GHG) Statement

For the year ended December 31, 2015

Prepared in accordance with:

International Standard on Assurance Engagements 3410, Assurance Engagements on Greenhouse Gas Statements ('ISAE 3410')

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**SECTION I: Independent practitioner’s limited assurance report
on the emissions of the Canadian National Railway
Company’s Greenhouse Gas (GHG) statement**

To the Board of Directors and Management of Canadian National Railway Company

We have undertaken a limited assurance engagement of the accompanying GHG statement of Canadian National Railway Company (the “Company” or “CN”) for the year ended December 31, 2015, comprising the emissions inventory and the explanatory notes. This engagement was conducted by a multidisciplinary team including assurance practitioners, engineers and individuals with environmental experience.

Canadian National Railway Company’s Responsibility for the GHG Statement

Canadian National Railway Company is responsible for the preparation of the GHG statement in accordance with the Greenhouse Gas (GHG) Protocol and the Operational Control approach (the “Applicable Criteria”), applied as explained in the GHG statement. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation of a GHG statement that is free from material misstatement, whether due to fraud or error.

Inherent Uncertainty

GHG quantification is subject to inherent uncertainty because of incomplete scientific knowledge used to determine emissions factors and the values needed to combine emissions of different gases.

Our Independence and Quality Control

We have complied with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which includes independence and other requirements founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

The firm applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Our Responsibility

Our responsibility is to express a limited assurance conclusion on the GHG statement based on the procedures we have performed and the evidence we have obtained. We conducted our limited assurance engagement in accordance with International Standard on Assurance Engagements 3410, *Assurance Engagements on Greenhouse Gas Statements* (‘ISAE 3410’), issued by the International

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Auditing and Assurance Standards Board. That standard requires that we plan and perform this engagement to obtain limited assurance about whether the GHG statement is free from material misstatement.

A limited assurance engagement undertaken in accordance with ISAE 3410 involves assessing the suitability in the circumstances of Canadian National Railway Company's use of the Applicable Criteria as the basis for the preparation of the GHG statement, assessing the risks of material misstatement of the GHG statement whether due to fraud or error, responding to the assessed risks as necessary in the circumstances, and evaluating the overall presentation of the GHG statement. A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

The procedures we performed were based on our professional judgment and included inquiries, observation of processes performed, inspection of documents, analytical procedures, evaluating the appropriateness of quantification methods and reporting policies, and agreeing or reconciling with underlying records.

Given the circumstances of the engagement, in performing the procedures listed above we:

- Through inquiries, obtained an understanding of CN's control environment and information systems relevant to emissions quantification and reporting, but did not evaluate the design of particular control activities, obtain evidence about their implementation or test their operating effectiveness.
- Evaluated whether CN's methods for developing estimates are appropriate and had been consistently applied. However, our procedures did not include testing the data on which the estimates are based or separately developing our own estimates against which to evaluate CN's estimates.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement. Accordingly, we do not express a reasonable assurance opinion about whether Canadian National Railway Company's GHG statement has been prepared, in all material respects, in accordance with the Applicable Criteria applied as explained in the GHG statement.

Limited Assurance Conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the emissions of Canadian National Railway Company's GHG statement for the year ended December 31, 2015 is not prepared, in all material respects, in accordance with the Applicable Criteria applied as explained in the GHG statement.



Restriction on use

This report, including the conclusion, has been prepared for the Board of Directors and Management of Canadian National Railway Company, to assist Management in reporting on the Company's performance and activities. We permit the disclosure of this report within the accompanying GHG statement for the year ended December 31, 2015, to enable Management to demonstrate that they have discharged their governance responsibilities by commissioning an independent assurance report on the selected information contained in the Report. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than Management of CN for our work or this report, save where terms are expressly agreed and with our prior consent in writing.

*PricewaterhouseCoopers LLP*¹

June 9, 2016

Montréal (Quebec)

¹CPA auditor, CA, public accountancy permit No. A113424



SECTION II: GREENHOUSE GAS (GHG) STATEMENT

Introduction

Using an operational control approach, Canadian National Railway Company (hereafter 'CN') has determined its GHG emissions and locomotive energy consumption for the calendar year ended December 31, 2015 as outlined in the following table:

GHG inventory - January 1, 2015 to December 31, 2015			
Scope	GHG sources	GHG (tCO ₂ e)	Energy (MWh)
Scope 1	Diesel (locomotive) Fuel Consumption	4,815,828	17,117,737
Scope 2	Electricity	194,448	
Scope 3	Diesel Fuel Production	1,529,267	
Grand Total		6,539,543	

In addition, CN calculated the following year over year over year changes in emissions:

GHG inventory - Year over year changes				
Scope	GHG Sources	2015	Change vs previous	2014
		GHG (tCO ₂ e)	year	GHG (tCO ₂ e)
Scope 1	Diesel (locomotive) fuel consumption	4,815,828	-3.6%	4,995,242
Scope 2	Electricity	194,448	-0.3%	194,939
Scope 3	Diesel fuel production	1,529,267	-3.3%	1,581,423

Methodology and Assumptions

Scope 1

These emissions are calculated based on the actual volumes of diesel consumed in relation to locomotives as follows:

- Volumes of diesel fuel consumed (liters) in 2015 by CN were extracted from the fuel data in SAP.
- Emissions were calculated by multiplying these diesel fuel volumes by the diesel train emission factor (combustion) taken from the Environment Canada National Inventory Report (National Inventory Report 1990-2014: Greenhouse Gas Sources and Sinks in Canada, Part 2).
- The total emissions, in tonnes of CO₂ equivalent, were calculated by multiplying the masses of each gas (N₂O, CH₄ and CO₂) by its global warming potential (GWP) and summing the total. GWPs used are from the IPCC Fifth Assessment Report, 2013 (GWP of CO₂ = 1, GWP of CH₄ = 34 and GWP of N₂O = 298).

Scope 2

These emissions are calculated based on the best estimate of the electricity consumption for all the CN sites and buildings and is determined as follows:

- SAP cost data was provided by Accounting covering electricity invoices across the CN network by specific address.
- The cost data was summarized by province or state based on the address.
- Invoice cost data was then converted to estimated energy consumption (Mwh) using average electricity prices for the province or state. Canadian average prices by province were obtained from the Hydro Quebec comparison report - April 1, 2015, using the General Service (large power) 5,000 kW, 3,060,000 kWh, 25 kV rates. US average prices by state were obtained from the EIA electric power monthly report with data to December 2015 p. 126, ytd Dec 2015 average price by state in US\$ (table 5.6b) - Industrial price.
- The energy consumption numbers by province or state were then converted to estimated CO₂e emissions using average emission factors for the province or state. Canadian emission factors were sourced from the National Inventory Report - (1990-2014 - part 3, Annex 13). U.S. emission factors were sourced from the eGrid2012 edition, state file - 2012 data .

Scope 3

These emissions are calculated based on the actual volumes of diesel fuel purchased in relation to locomotives as follows:

- CN's diesel fuel purchases were summed by region of purchase. A percentage by region was then derived based on the total diesel purchase volume.
- The GHGenius model (Version 4.03a) was used to calculate the life cycle GHG emissions for diesel purchased from various locations across Canada and the US.

- The model was run for each geographic region. A weighted average diesel production emission factor of 950.6 g CO₂e/L was calculated by multiplying the percent purchased in each region by the emission factor for each region. This production emission factor was multiplied by the total volume of diesel fuel consumed by CN in 2015.

Locomotives diesel fuel energy consumption

The energy consumption in MWh related to diesel fuel consumed by CN's locomotives was calculated as follows:

- Volumes of diesel fuel consumed (liters) in 2015 by CN were extracted from the fuel data in SAP.
- The diesel energy conversion factor in TJ/Ml was taken from the Environment Canada National Inventory Report (National Inventory Report 1990-2014: Greenhouse Gas Sources and Sinks in Canada, Part 2, Table A4-2). This factor was converted into MWh/l by multiplying by 277.8 (International Energy Agency unit converter, <https://www.iea.org/statistics/resources/unitconverter/>).
- Energy consumption in MWh was calculated by multiplying the diesel fuel volumes by the diesel energy conversion factor in MWh/l.

Year on year changes in emissions

The year on year changes in emissions were calculated as follows:

- The Scope 1 locomotive fuel emissions in 2014 were subtracted from the Scope 1 locomotive fuel emissions in 2015 to determine the year on year absolute difference. This number was then divided by the Scope 1 locomotive fuel emissions in 2014 to determine the year on year percent change in emissions.
- The Scope 2 electricity emissions in 2014 were subtracted from the Scope 2 electricity emissions in 2015 to determine the year on year absolute difference. This number was then divided by the Scope 2 electricity emissions in 2014 to determine the year on year percent change in emissions. Note: The 2014 scope 2 emissions were restated as follows:
 - Electricity consumption by province was recalculated using the average electricity prices from the Hydro Quebec comparison report - April 1, 2014, using the General Service (large power) 5,000 kW, 3,060,000 kWh, 25 kV rates. Electricity consumption for the U.S. states was not recalculated.
 - Emissions were recalculated using the most up to date emission factors available. Canadian emission factors by province were taken from the National Inventory Report, 1990-2014, Annex 13. U.S. emission factors were sourced from the eGrid2012 edition, state file - 2012 data.
- The Scope 3 fuel production emissions in 2014 were subtracted from the Scope 3 fuel production emissions in 2015 to determine the year on year absolute difference. This number was then divided by the Scope 3 fuel production emissions in 2014 to determine the year on year percent change in emissions.

Chantale Despres, Director Sustainability



Signature:

Date: 09/06/2016