Greenhouse Gas Statement

For the year ended December 31, 2019

Prepared in accordance with:

International Standard on 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 Canadian National Railway Company's Greenhouse Gas Statement (the "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, 2019, comprising the emissions inventory, and the explanatory notes. This engagement was conducted by a multidisciplinary team including assurance practitioners and individuals with environmental experience.

Canadian National Railway Company's responsibility

Canadian National Railway Company is responsible for preparation of the GHG Statement in accordance with the *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard operational control methodology* (the "Applicable Criteria"), applied as explained in the GHG Statement. CN is also responsible for such internal control as management determines necessary to enable the preparation of a GHG Statement that is free from material misstatement.

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 responsibility

Our responsibility is to express limited assurance conclusion on the GHG Statement based on the evidence we have obtained. We conducted our limited assurance engagement in accordance with the International Standards on Assurance Engagements 3410, Assurance Engagements on Greenhouse Gas Statements ("ISAE 3410"), issued by the International Auditing and Assurance Standards Board. This standard requires us to conclude whether anything has come to our attention that causes us to believe that the GHG Statement is not fairly prepared, in all material respects.

A limited assurance engagement undertaken in accordance with ISAE 3410 involves performing procedures (primarily consisting of making inquiries of management and other within the entity, as appropriate, and applying analytical procedures) and evaluating the evidence obtained. The procedures are selected based on our professional judgment, which includes identifying areas where the risks of material misstatement in preparing the GHG Statement in accordance with the Applicable Criteria are likely to arise.

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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.
- Checked the mathematical accuracy of the calculation related to the GHG emissions variations on the comparative period January 1, 2018 to December 31, 2018 reported in the GHG Statement. This did not imply any assurance procedures on GHG emissions for the periods January 1, 2018 to December 31, 2018.

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 and, consequently, the level of assurance obtained is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

Our independence and quality control

We have complied with the relevant rules of professional conduct/code of ethics applicable to the practice of public accounting and related to assurance engagements, issued by various professional accounting bodies, which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

The firm applies Canadian Standard on Quality Control 1, Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance Engagements 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.

Scope limitation

Our engagement scope did not cover the emissions for the period January 1, 2018 to December 31, 2018 and related disclosure. Therefore our limited assurance conclusion does not extend to the above mentioned items.

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 Canadian National Railway Company's GHG Statement prepared in accordance with the Applicable Criteria for the year ended December 31, 2019, is not fairly stated, in all material respects.

Purpose of statement and restriction of use and distribution

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, 2019, 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 GHG Statement. 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]

Partnership of Chartered Professional Accountants

Montréal, Quebec
August 25, 2020

[1] CPA 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 energy consumption for the calendar year ended December 31, 2019 as outlined in the following table:

GHG inventory - January 1, 2019 to December 31, 2019			
Scope	GHG sources	GHG (tCO2e)	Energy (MWh)
Scope 1	Diesel (locomotive) Fuel Consumption	4,962,923	18,203,164
Scope 2	Electricity	162,202	557,261
Scope 3	Diesel Fuel Production	1,609,712	
Scope 3	Purchased goods & services	297,614	
Scope 3	Capital goods	288,725	
Scope 3	Upstream transportation & distribution	56,373	

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

GHG inventory - Year over year changes				
Scope	GHG Sources	2019 GHG (tCO2e)	Change vs previous year	2018 GHG (tCO2e)
Scope 1	Diesel (locomotive) fuel consumption	4,962,923	-2.6%	5,095,382
Scope 2	Electricity	162,202	-14.2%	188,992
Scope 3	Diesel fuel production	1,609,712	-3.6%	1,669,529

Methodology and Assumptions

Scope 1 (locomotive fuel consumption)

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 2019 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 1990-2018: 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, excluding climate-carbon feedbacks (GWP of CO2 = 1, GWP of CH4 = 28 and GWP of N2O = 265).
- Diesel fuel emissions were then adjusted to reflect the renewable fuel component based on Canadian and U.S. renewable fuel regulations. The renewable fuel component was estimated based on the Canadian Renewable Fuels Regulation mandating that 2% of renewable fuel by volume in diesel pools for Canada and the best available information (fuel purchase volumes, locations of purchases, seasonality of biodiesel blending, etc.) for the U.S.

Scope 2 (electricity consumption)

Scope 2 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 Accounts Payable 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, 2019, 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 2019, ytd Dec 2019 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 - (1990-2018 - part 3, Annex 13). U.S. emission factors were sourced from the eGrid2018 edition, eGRID Summary Tables 2018 file, Table 3.

Scope 3 (diesel fuel production)

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 5.0f) 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 942.05 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 2019.

Scope 3 (purchased goods and capital goods)

These emissions are calculated based on the actual quantities and weight of goods purchased:

- CN's key goods purchases were identified based on spend and value to the business. These include: locomotives, freight cars, containers, rail ties, ballast, and rail and other track materials.
- Quantities and weights of goods purchased by source location were calculated by summing supplier invoice data from SAP.
- Representative materials for each type of good were identified. Emissions factors for each material and source location were then applied to the corresponding total weight of goods purchased. Emissions factors applied were taken from various sources including: GREET 2019, ICE V3.0, Athena Sustainable Materials Institute, and studies on primary aluminum production in China (Han Hao, Yong Geng and Wen Hang), and railroad cross ties (Christopher Bolin and Stephen Smith).
- The split of Scope 3 emissions between capital goods and other goods purchased was derived based on 2018 capital vs operating expenses for CN vendors with spend greater than $2 million.

Scope 3 (purchased services and upstream transportation and distribution)

Emissions from purchased services are quantified following a spend-based methodology as follows:

- 2019 spend by vendor was extracted from SAP for vendors with spend greater than $2 million to capture top areas of spend.
- From this extract, spend dollars for purchased services were categorized by industry sector which was then mapped to a relevant economic sector.
- Economic input-output emission factors were developed based on emissions and GDP per economic sector for Canada from the World Input Output database. GDP data was adjusted for inflation and converted to Canadian dollars.
- These emission factors were applied to the 2019 CN spend by economic sector to calculate the estimated CN scope 3 emissions from purchased services.
- Emissions from the "Inland transport" economic sector were separated from other purchased services into the "Upstream transportation and distribution" scope 3 category.

Locomotives diesel fuel energy consumption

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

- Volumes of diesel fuel consumed (liters) in 2019 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 1990-2018: 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/reports/unit-converter-and-glossary).
- Energy consumption in MWh was calculated by multiplying the diesel fuel volumes in liters by the diesel energy conversion factor in MWh/L.
- Diesel fuel energy consumption was then adjusted to reflect the renewable fuel component based on Canadian and U.S. renewable fuel regulations. The renewable fuel component was estimated based on the Canadian Renewable Fuels Regulation mandating that 2% of renewable fuel by volume in diesel pools for Canada and the best available information (fuel purchase volumes, locations of purchases, seasonality of biodiesel blending, etc.) for the U.S.

Year-over-year changes in emissions

The year-over-year changes in emissions are calculated as follows:

- The Scope 1 locomotive fuel emissions in 2018 were subtracted from the Scope 1 locomotive fuel emissions in 2019 to determine the year-over-year absolute difference. This number was then divided by the Scope 1 locomotive fuel emissions in 2018 to determine the year-over-year percent change in emissions.
- The Scope 2 electricity emissions in 2018 were subtracted from the Scope 2 electricity emissions in 2019 to determine the year-over-year absolute difference. This number was then divided by the Scope 2 electricity emissions in 2018 to determine the year-over-year percent change in emissions.
- The Scope 3 fuel production emissions in 2018 were subtracted from the Scope 3 fuel production emissions in 2019 to determine the year-over-year absolute difference. This number was then divided by the Scope 3 fuel production emissions in 2018 to determine the year-over-year percent change in emissions.

Chantale Despres, Director Sustainability

Signature: Chantale Despres Date: August 18, 2020