

The Greenhouse Gas (GHG) Emissions Report 2024



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INDEPENDENT PRACTITIONER'S LIMITED ASSURANCE REPORT

To the Management of the Canadian National Railway Company

We have undertaken a limited assurance engagement on certain performance metrics of the Canadian National Railway Company ("CN" or the "Entity"), included in the accompanying Greenhouse Gas (GHG) Emissions Report 2024 (the "Report"), for the years ended December 31, 2024 and December 31, 2023.

The scope of our limited assurance engagement, as agreed with management, comprises the following performance metrics (collectively, the "subject matter information") and criteria:

Subject Matter Information	Units of measure	2024	2023	Year over year changes (2024 - 2023)
Scope 1 emissions from diesel (locomotive) fuel consumption	tCO ₂ e	4,107,444	4,309,099	-4.68 %
Scope 2 emissions from electricity (location-based)	tCO ₂ e	86,356	93,762	-7.90 %
Scope 3 emissions from diesel (locomotive) fuel production	tCO ₂ e	1,250,218	1,329,713	-5.98 %
Scope 3 emissions from purchased goods & services	tCO ₂ e	183,172	201,636	-9.16 %
Scope 3 emissions from capital goods	tCO ₂ e	441,601	506,688	-12.85 %
Scope 3 emissions from upstream transportation and distribution	tCO ₂ e	60,387	65,336	-7.57 %
Energy consumption from diesel (locomotive) fuel consumption	MWh	16,052,807		
Energy consumption from electricity	MWh	387,168		



There are no mandatory requirements for the preparation or presentation of the subject matter information. As such, the Entity has applied the Greenhouse Gas Protocol - Corporate Accounting and Reporting Standard (Revised Edition) in relation to greenhouse gas emissions, and internally developed criteria for the remaining subject matter information. The criteria are further described in the Report and the Greenhouse Gas Protocol's website (the "applicable criteria").

Management's Responsibility

Management is responsible for the preparation and presentation of the subject matter information in accordance with the applicable criteria.

Management is also responsible for such internal control as management determines necessary to enable the preparation and presentation of the subject matter information that is free from material misstatement, whether due to fraud or error. This responsibility includes determining the Entity's objectives in respect of sustainability performance and reporting, identifying stakeholders and material issues, and selecting or developing appropriate criteria.

Our Responsibility

Our responsibility is to express a limited assurance conclusion on the subject matter information based on the procedures we have performed and the evidence we have obtained. We conducted our limited assurance engagement in accordance with Canadian Standards on Assurance Engagements (CSAE) 3000, *Attestation Engagements Other than Audits or Reviews of Historical Financial Information* and CSAE 3410, *Assurance Engagements on Greenhouse Gas Statements*. These standards require that we plan and perform our engagement to obtain limited assurance about whether the subject matter information is free from material misstatement.

A limited assurance engagement involves assessing the suitability of the criteria used by the Entity in preparing the subject matter information in the circumstances of the engagement, assessing the risks of material misstatement, whether due to fraud or error, and responding to the assessed risks as necessary in the circumstances.

We exercised professional judgment and maintained professional skepticism throughout the engagement. Our procedures were designed and performed to obtain evidence that is sufficient and appropriate to provide a basis for our conclusion. In carrying out our engagement, we:

- Evaluated the suitability of the Entity's use of the criteria, as the basis for preparing the subject matter information in the circumstances;
- Through inquiries, obtained an understanding of the Entity's control environment, processes and systems relevant to the preparation of the subject matter information, but did not evaluate the design of particular control activities, obtain evidence about their implementation or test their operating effectiveness;
- Evaluated whether the Entity's methods for developing estimates are appropriate and had been consistently applied;



- Inspected a limited number of items to or from supporting records, as appropriate, and, where relevant, re-performed calculations;
- Performed analytical procedures by comparing the expected GHGs emitted, based on the calorific value of fuel combusted during the period, to actual GHGs emitted and made inquiries of management to obtain explanations for any significant differences we identified;
- Considered the presentation and disclosure of the subject matter information.

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 a reasonable assurance engagement been performed.

Our Independence and Quality Management

We have complied with the independence and other ethical requirements of 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 behaviour.

The firm applies Canadian Standard on Quality Management 1, *Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements* which requires the firm to design, implement and operate a system of quality management, including policies or procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

Significant Inherent Limitations

Historical non-financial information, such as that contained in the Report, is subject to more inherent limitations than historical financial information, given the qualitative characteristics of the underlying subject matter and methods used for determining this information. The absence of a significant body of established practice on which to draw allows for the selection of different but acceptable evaluation techniques, which can result in materially different measurements and can impact comparability. The nature and methods used to determine such information, as described in the applicable criteria, may change over time. It is important to read the Entity's reporting methodology disclosed in the Report on its website.

Conclusion

Our conclusion has been formed on the basis of, and is subject to, the matters outlined in this report. We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.



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Based on the procedures performed and evidence obtained, no matters have come to our attention to cause us to believe that the Entity's subject matter information for the years ended December 31, 2024 and December 31, 2023 is not prepared, in all material respects, in accordance with the applicable criteria.

Our conclusion on the subject matter information does not extend to any other information, reports or documents that accompany, are presented with, or contain the subject matter information and our assurance report.

Restriction on Use

Our report is intended solely for use by the Canadian National Railway Company for the purpose(s) set out in our engagement agreement. Our report may not be suitable for any other purpose and is not intended for use or reliance by any third parties. While KPMG LLP acknowledges that disclosure of our report may be made, in full, by the Canadian National Railway Company in its Greenhouse Gas (GHG) Emissions Report 2024, KPMG LLP does not assume or accept any responsibility or liability to any third party in connection with the disclosure of our report.

A handwritten signature in black ink that reads 'KPMG LLP' with an asterisk. A horizontal line is drawn underneath the signature.

Montréal, Canada

May 30, 2025

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, 2024, as outlined in the following table:

GHG Inventory - January 1, 2024 to December 31, 2024			
Scope	GHG Sources	GHG (tCO ₂ e)	Energy (MWh)
Scope 1	Diesel (locomotive) fuel consumption	4,107,444	16,052,807
Scope 2	Electricity	86,356	387,168
Scope 3	Diesel (locomotive) fuel production	1,250,218	
Scope 3	Purchased goods & services	183,172	
Scope 3	Capital goods	441,601	
Scope 3	Upstream transportation & distribution	60,387	

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

GHG Inventory - Year over year changes				
Scope	GHG Sources	2024	Change vs previous year	2023
		GHG (tCO ₂ e)		GHG (tCO ₂ e)
Scope 1	Diesel (locomotive) fuel consumption	4,107,444	-4.68%	4,309,099
Scope 2	Electricity	86,356	-7.90%	93,762
Scope 3	Diesel (locomotive) fuel production	1,250,218	-5.98%	1,329,713
Scope 3	Purchased goods & services	183,172	-9.16%	201,636
Scope 3	Capital goods	441,601	-12.85%	506,688
Scope 3	Upstream transportation & distribution	60,387	-7.57%	65,336

Methodology and Assumptions

Scope 1 – Diesel (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 (litres) in 2024 by CN were extracted from the fuel data in SAP.
- A new methodology was implemented for 2024, where CN utilized reported biofuel volumes (i.e., biodiesel and renewable diesel volumes), rather than estimating volumes based on regulated blend rates of such fuels.
- Purchased biofuel volumes are obtained from monthly confirmations from fuel suppliers that represented the majority of total fuel volume purchased. For other fuel suppliers, fuel was assumed to be conventional diesel.
- Consumed biofuel volumes are estimated by assuming that the proportion of biofuel consumed to total fuel consumed is equal to the proportion of biofuel purchased to total fuel purchased. Renewable diesel and biodiesel were not differentiated: all biofuel was treated as biodiesel.
- Emissions were calculated by multiplying fuel volumes by the associated diesel locomotive and biomass-based diesel (biodiesel) emission factors (combustion) taken from the Environment Canada National Inventory Report (National Inventory Report 1990-2022: Greenhouse Gas Sources and Sinks in Canada, Part 2). Canadian locomotive and biodiesel emission factors were applied to the volumes of fuel, regardless of location (i.e., to U.S. and Canadian locomotives).
- Emission factors, in tonnes of CO₂ equivalent, were calculated by multiplying the emission factor of each gas (N₂O, CH₄ and CO₂) by its global warming potential (GWP) and summing the total. GWPs used are from the IPCC Sixth Assessment Report, 2021, excluding climate-carbon feedbacks (GWP of CO₂ = 1, GWP of CH₄ = 27.9 and GWP of N₂O = 273).

Scope 2 – Electricity

Scope 2 location-based emissions are calculated based on the best estimate of electricity consumption for all CN sites and buildings located in Canada and the U.S. for which CN has the operational control, determined as follows:

- CN utilized a hybrid approach that sources actual electricity consumption data for a portion of CN's total coverage merged with estimated electricity consumption data based on electricity spend by reporting period for CN accounts using CN specific electricity rates, or "CN Rates".
- "CN Rates" were estimated in two ways: For regions where CN had actual electricity consumption data, "CN Rates" were calculated by dividing total electricity consumption by total spend for each region. For regions where CN did not have any actual electricity consumption data, "CN Rates" were calculated from publicly available utility websites and other online resources.
- CN performed an account matching process to scope out the accounts for which CN had actual electricity consumption from the spend data which covered the overall population of accounts.
- For accounts where actual electricity consumption was not available, electricity consumption was estimated for each account using the formula: Electricity Consumption (kWh) = Account Spend (\$) * CN Rate (kWh/\$).
- GHG emissions were then calculated using the formula: GHG Emissions (tCO₂e) = Electricity Consumption (kWh) * Electricity Emission Factor (tCO₂e/kWh).
- Total Scope 2 emissions are presented as a sum of consumption and spend data emissions.
- Data for TransX has not been integrated into CN's accounting system and is provided by the TransX accounting function. TransX emissions were estimated based on account spend multiplied by rates determined from other CN accounts in that region.
- Canadian location-based emission factors were sourced from the National Inventory Report - (1990-2022 - part 3, Annex 13). U.S. location-based emission factors were sourced from the eGrid2023 - released 1/15/2025.

Scope 3 – Diesel (locomotive) 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 provided by region of purchase. A percentage of fuel by region was then derived based on the total diesel purchased volume.
- The GHGenius model (Version 5.02b) was used to determine an upstream GHG emission factor for each geographic region where diesel was purchased in Canada and the U.S.
- A weighted average diesel production emission factor of 880.6 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 2024.
- The same approach was used to estimate the emissions from the production of biomass-based diesel consumed in 2024. Using well-to-pump (upstream) emission factors of biodiesel from canola oil, the most prevalent biodiesel in Canada in 2024, a weighted average biodiesel production emission factor of 291.6 g CO₂e/L was calculated.

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 GREET2_2021, GREET2_2024, ICE V4.0, ecoinvent 3.10, and studies on railroad cross ties (Christopher Bolin and Stephen Smith, 2013).
- The split of Scope 3 emissions between capital goods and other goods purchased was derived based on 2024 capital vs operating expenses extract from SAP (excluding TransX intermodal purchased goods).

Scope 3 – Purchased services and upstream transportation & distribution

Emissions from purchased services and upstream transportation & distribution are quantified following a spend-based methodology as follows:

- CN's key spend categories were identified based on spend and relevance to CN and mapped to relevant economic sectors.

- 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 2024 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 (litres) in 2024 by CN were extracted from the fuel data in SAP. Volumes of biomass-based diesel consumed (litres) in 2024 were derived from fuel supplier purchase confirmations. See Scope 1 details above.
- The diesel energy conversion factor in TJ/ML was taken from the Environment Canada National Inventory Report (National Inventory Report 1990-2022: Greenhouse Gas Sources and Sinks in Canada, Part 2, Table A4-2). The biomass-based diesel energy conversion factor in TJ/ML was taken from the Fuel Characteristics Table in GHGenius 5.02b. These factors were converted into MWh/L by converting TJ to MWh (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 litres by the diesel energy conversion factor in MWh/L.

Year-on-year changes in emissions

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

- The Scope 1 locomotive fuel emissions in 2023 were subtracted from the Scope 1 locomotive fuel emissions in 2024 to determine the year-on-year absolute difference. This number was then divided by the Scope 1 locomotive fuel emissions in 2023 to determine the year-on-year percent change in emissions.
- The Scope 2 electricity emissions in 2023 were subtracted from the Scope 2 electricity emissions in 2024 to determine the year-on-year absolute difference. This number was then divided by the Scope 2 electricity emissions in 2023 to determine the year-on-year percent change in emissions.
- The Scope 3 emissions in 2023 were subtracted from the Scope 3 emissions in 2024 to determine the year-on-year absolute difference for each Scope 3 emissions category. This number was then divided by the Scope 3 emissions in 2023 to determine the year-on-year percent change in emissions for each Scope 3 emissions category.

François Bélanger, Senior Director Sustainability



Signature:

Date: May 30, 2025