

Greenhouse Gas (GHG)
Reporting Methodology

Financed Emissions



March 2026¹

¹ This methodology applies to financed emissions disclosures in our most recent annual Sustainability and Climate Report and should be read with reference to that report. Year-over-year comparisons may not be possible.

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1. Purpose and background

This document provides an overview of the BMO financed greenhouse gas (GHG) emissions (financed emissions) quantification methodology for the calculation and reporting of Scope 3 category 15.

Our approach is guided by the principles and standards of the Partnership for Carbon Accounting Financials' Global GHG Accounting & Reporting Standard, Part A Financed Emissions, Second Edition (PCAF Standard, Part A).² The PCAF Standard, Part A follows the requirements set forth in the GHG Protocol's Corporate Value Chain (Scope 3) Accounting and Reporting Standard for Category 15 investment activities. We use the PCAF Standard, Part A to inform measurement methodologies and disclosure of our GHG emissions; this guidance is interpreted and applied at our discretion as described in this document.

Emissions related to BMO's operations (Scope 1, Scope 2 and applicable Scope 3 categories 1-14) are calculated with reference to the GHG Protocol. For information on our approach to operational emissions, including how we define our organizational and operational boundaries in relation to our GHG inventory, refer to bmo.com/sustainability.

2. Financed emissions approach

Financed emissions are GHG emissions that are attributable to financial institutions as a result of their lending and investment activities. We estimate financed emissions associated with our business and government lending portfolio (see [Section 3 – Business and government lending portfolio methodology](#)).

We also use applicable asset class methodologies from the PCAF Standard, Part A to estimate emissions for key sectors and stages in those sectors' value chains or sub-sectors. Key sectors are determined by where climate impacts are concentrated, where we have significant lending exposure (i.e., over 1%), where sufficient data are available, where relevant methodologies exist, and where we see stakeholder interest (see [Section 4 – Sector-specific methodologies](#)).

For key sectors, we disclose our lending exposure in outstanding amounts (in Canadian dollars), absolute emissions estimates, and portfolio data quality scores measured according to the PCAF Standard, as well as economic-emissions and/or physical-emissions intensity figures, where relevant. We identify the best available data under the data hierarchies specified in the PCAF Standard. The data quality scores range from 1 to 5, with a score of 1 for most certain and 5 for least certain estimates. As we expand and evolve the quantification of financed emissions across our portfolio, we customarily begin at a low data quality level and work to improve the scores over time.

3. Business and government lending portfolio methodology

Scope

We include on-balance sheet lending to borrowers within our business and government portfolio, including project finance loans.

Calculation approach

We apply the PCAF asset class methodology for business loans.

Our Scope 1 and 2 **financed emissions** are calculated by multiplying the borrowers' outstanding loan balance with an economic-based emissions factor and then taking the sum of these emissions across the portfolio:

Financed emissions = \sum (Outstanding loan balance \times Emission factor)

Where c = borrower

All borrowers are calculated at a PCAF data quality score of 5. Due to the low PCAF data quality score, we do not disclose absolute financed emissions or economic- and physical-emissions intensities for our full portfolio. We disclose directional data, such as sectoral emissions concentrations.

Source of emissions data	Data quality score
Estimated using emissions per million dollars of outstanding loan value	5

Data sources

Data type	Data source
BMO's lending exposure	Internal data sources
Emission factors	PCAF emission factor database (Exiobase sector and regional average economic-based emission factors) adjusted annually for inflation.

4. Sector-specific methodologies

4.1 Upstream oil and gas

Scope

We include on-balance sheet lending, including project finance loans, to upstream oil and gas borrowers defined as borrowers specific to Crude Petroleum Extraction and Natural Gas Extraction North American Industry Classification Systems (NAICS) codes because they account for most of the emissions within the oil and gas sector's value chain.

We separately calculate Scope 1 and 2 emissions of our borrowers, and the Scope 3 emissions related to the combustion of their oil or gas products.

Scope 1 & 2 emissions of our borrowers

Calculation approach

We apply the PCAF asset class methodology for business loans and calculate scope 1 and 2 carbon dioxide equivalents (CO₂e).

Our **financed emissions** are calculated by multiplying an attribution factor by the borrowers' emissions and then taking the sum of these emissions across the portfolio:

$$\text{Financed emissions} = \sum (\text{Attribution factor}_c \times \text{Company emissions}_c)$$

Where c = borrower

The **attribution factor** (i.e., how we account for our share of borrower emissions) is calculated as follows based on whether the borrower is a private or public company:

Private companies³:

$$\text{Attribution factor}_c = \frac{\text{Outstanding amount}_c}{\text{Total equity}_c + \text{debt}_c}$$

Public companies⁴:

$$\text{Attribution factor}_c = \frac{\text{Outstanding amount}_c}{\text{Enterprise Value Including Cash}_c}$$

Where c = borrower

Company Scope 1 and 2 emissions are obtained or estimated based on data availability and assigned a data quality score per PCAF's data hierarchy:

- Companies' publicly **reported emissions** data are sourced from S&P Capital IQ Pro or public reports, yielding PCAF Data Quality 1 if third-party verified, or Data Quality 2 if not third-party verified.⁵
- Where company emissions data are not available, emissions are **estimated** using an average emission factor **per \$millions of company revenue** based on companies' publicly reported emissions, yielding Data Quality 4.⁶
- Where company emissions and revenue data are not available, emissions are **estimated** using an average emission factor **per \$millions of outstanding loan** based on companies' publicly reported emissions, yielding Data Quality 5.⁷

³ Where equity and/or debt are not available, we use total assets.

⁴ If the data needed to calculate an attribution factor for public companies is not available, we use the private company attribution factor approach. If a public or private company's attribution factor is more than 100%, we assume 100%.

⁵ When we established our baseline, economic emission factors from PCAF's Database were considered but yielded highly variable and overstated results when compared to disclosed emissions. We assessed the correlation between estimated emissions from company production and the revenue or outstanding loan to extrapolate to borrowers where production data are not available. We acknowledge limitations that, despite a generally strong correlation, extrapolated data could diverge from actual company data if that data were known.

⁶ In 2024, there was not a sufficient number of upstream oil and gas borrowers disclosing their GHG emissions so we applied an average emission factor based on the last two analysis years for data quality 4 and 5.

⁷ Ibid

We assign each borrower a PCAF data quality score as follows:

Source of emissions data	Data quality score
Publicly disclosed emissions with third-party verification	1
Publicly disclosed emissions without third-party verification	2
Estimated using emissions per million dollars of revenue	4
Estimated using emissions per million dollars of outstanding loan value	5

Metrics

Scope 1 and 2 Financed emissions (ktCO₂e) are the absolute financed emissions calculated per the above section.

Economic emissions intensity (tCO₂e/\$millions outstanding loan) is the sum of financed emissions divided by sum of outstanding loans, calculated as:

$$\text{Economic emissions intensity} = \frac{\sum \text{Financed emissions}_c}{\sum \text{Outstanding loan value}_c}$$

Where c = borrower

Physical emissions intensity (tCO₂e/T) is the sum of financed emissions divided by the sum of BMO's share of the borrower's production for borrowers where production data is available, calculated as:

$$\text{Physical emissions intensity} = \frac{\sum \text{Financed emissions}_{c_1}}{\sum (\text{Attribution factor}_{c_1} \times \text{Company production}_{c_1})}$$

Where c₁ = borrowers where production data is available

Portfolio PCAF data quality score is the average data quality score assigned to each borrower, weighted by outstanding loan value:

$$\text{Portfolio data quality score} = \frac{\sum (\text{Data quality score}_c \times \text{Outstanding loan value}_c)}{\sum \text{Outstanding loan value}_c}$$

Where c = borrower

Data type	Data source
BMO's lending exposure	Internal data sources
Borrower reported emissions	Internal data sources, S&P Trucost Capital IQ or publicly available company disclosures
Borrower financial metrics	
Borrower production data	
Emission factors	Average borrower intensity using data listed above

Scope 3 emissions of our borrowers

Calculation approach

We apply the PCAF asset class methodology for business loans and calculate downstream scope 3 CO₂ emissions from the ultimate combustion of the oil or gas product produced by our borrowers.^{8,9}

Our **financed emissions** are calculated by multiplying an attribution factor by the borrowers' emissions and then taking the sum of these emissions across the portfolio:

$$\text{Financed emissions} = \sum (\text{Attribution factor}_c \times \text{Company emissions}_c)$$

Where c = borrower

The **attribution factor** (i.e., how we account for our share of borrower emissions) is calculated as follows based on whether the borrower is a private or public company:

Private companies¹⁰:

$$\text{Attribution factor}_c = \frac{\text{Outstanding amount}_c}{\text{Total equity}_c + \text{debt}_c}$$

Public companies¹¹:

$$\text{Attribution factor}_c = \frac{\text{Outstanding amount}_c}{\text{Enterprise Value Including Cash}_c}$$

Where c = borrower

⁸ Greenhouse gases other than CO₂ are excluded due to relative immateriality.

⁹ We make an assumption that 100% of oil and gas produced is burned; however, some oil and gas product may have alternate uses with different scope 3 emissions profiles, such as plastics and other petrochemicals.

¹⁰ Where companies' equity and/or debt are not available, we use total assets.

¹¹ If the data needed to calculate an attribution factor for public companies is not available, we use the private company attribution factor approach. If a public or private company's attribution factor is more than 100%, we assume 100%.

Company Scope 3 emissions are estimated based on data availability and assigned a data quality score per PCAF’s data hierarchy:

- Emissions are **estimated** by applying international default emission factors¹² to **borrower-level production** of oil, natural gas, or natural gas liquid yielding Data Quality 3.
- Where company production data are not available, emissions are **estimated** using an average emission factor **per \$millions of company revenue** based on the estimated emissions from borrower production, yielding Data Quality 4.^{13,14}
- Where company production and revenue data are not available, emissions are **estimated** using an average emission factor **per \$millions of outstanding loan** based on estimated emissions from borrower production, yielding Data Quality 5.¹⁵

We assign each borrower a PCAF data quality score as follows:

Source of emissions data	Data quality score
Estimated using oil and gas production data	3
Estimated using emissions per million dollars of revenue	4
Estimated using emissions per million dollars of outstanding loan value	5

Metrics

Scope 3 financed emissions (ktCO₂) are the absolute financed emissions calculated per the above section.

Economic emissions intensity (tCO₂/\$millions outstanding loan) is the sum of financed emissions divided by sum of outstanding loans, calculated as:

$$\text{Economic emissions intensity} = \frac{\sum \text{Financed emissions}_c}{\sum \text{Outstanding loan value}_c}$$

Where c = borrower

Physical emissions intensity (tCO₂/TJ) is the sum of financed emissions divided by the sum of BMO’s share of the borrower’s production for borrowers, where production data is available, calculated as:

$$\text{Physical emissions intensity} = \frac{\sum \text{Financed emissions}_{c_1}}{\sum (\text{Attribution factor}_{c_1} \times \text{Company production}_{c_1})}$$

Where c₁ = borrowers where production data is available

Portfolio PCAF data quality score is the average data quality score assigned to each borrower, weighted by outstanding loan value:

$$\text{Portfolio data quality score} = \frac{\sum (\text{Data quality score}_c \times \text{Outstanding loan value}_c)}{\sum \text{Outstanding loan value}_c}$$

Where c = borrower

Data sources

Data type	Data source
BMO’s lending exposure	Internal data sources
Borrower reported emissions	Internal data sources, S&P Trucost Capital IQ or publicly available company disclosures
Borrower financial metrics	
Borrower production data	
Emission factors	IPCC Guidelines for National Greenhouse Gas Inventories (2006). Average borrower intensity using data listed above

¹² IPCC Guidelines for National Greenhouse Gas Inventories for scope 3 international emission factors.

¹³ When we established our baseline, economic emission factors from PCAF’s Database were considered but yielded highly variable and overstated results when compared to disclosed emissions. We assessed the correlation between estimated emissions from company production and revenue or outstanding loan to extrapolate to borrowers where production data are not available. We acknowledge limitations that, despite a generally strong correlation, extrapolated data could diverge from actual company data if that data were known.

¹⁴ In 2024, there was not a sufficient number of upstream oil and gas borrowers disclosing their GHG emissions so we applied an average emission factor based on the last two analysis years for data quality 4 and 5.

¹⁵ Ibid.

4.2 Power generation

Scope

We include on-balance sheet lending, including project finance loans, to Canadian and U.S. pure-play power generators and the power generation share of businesses operating in the electric power distribution and natural gas distribution sectors.¹⁶

Calculation approach

We apply the PCAF asset class methodology for business loans and calculate scope 1 carbon dioxide equivalents (CO₂e). Scope 2 emissions associated with electricity used in power generation facility operations are immaterial and are not calculated.

Our **financed emissions** are calculated by multiplying an attribution factor by the borrowers' emissions and then taking the sum of these emissions across the portfolio:

Financed emissions = \sum (Attribution factor_c x Company emissions_c)
Where c = borrower

The **attribution factor** (i.e., how we account for our share of borrower emissions) is calculated as follows based on whether the borrower is a private or public company:

Private companies¹⁷:

$$\text{Attribution factor}_c = \frac{\text{Outstanding amount}_c}{\text{Total equity}_c + \text{debt}_c}$$

Public companies¹⁸:

$$\text{Attribution factor}_c = \frac{\text{Outstanding amount}_c}{\text{Enterprise Value Including Cash}_c}$$

Where c = borrower

Company Scope 1 emissions are estimated based on data availability and assigned a data quality score per PCAF's data hierarchy:

- Companies' publicly **reported emissions** data are sourced from S&P Capital IQ Pro or company public reports, yielding PCAF Data Quality 1 if third-party verified, or Data Quality 2 if not third-party verified. The percent of the power generation portion of the business' revenue is applied to the reported emissions; the non-generation share is excluded from this sector analysis.
- Where company reported emissions data is not available, emissions are **estimated from power generation** data by fuel type generation mix (e.g., gas, coal, other petroleum, solar, wind, etc.) using publicly available country or regional emission factors, yielding Data Quality 3. Emissions from renewable¹⁹ and nuclear power generation are assumed to be zero consistent with PCAF emission factors.
- Where company reported emissions and production data are not available, emissions are **estimated** using revenue data and emission factors. For the power generation share of the business, production data is split by the company's fuel type generation mix (e.g., gas, coal, other petroleum, solar, wind, etc.) and an average emission factor **per \$millions of company revenue** based on the estimated emissions from power generation is applied, yielding Data Quality 4.²⁰
- Where company reported emissions, production, and revenue data are not available, emissions are **estimated** using outstanding lending exposure and an emission factor. For the power generation share of the business, lending exposure data are split by company's fuel type generation mix (e.g., gas, coal, other petroleum, solar, wind, etc.) and an average emission factor **per \$millions of outstanding loan** based on estimated emissions from power generation is applied, yielding Data Quality 5.²¹

We assign each borrower a PCAF data quality score as follows:

Source of emissions data	Data quality score
Publicly disclosed with third party verification	1
Publicly disclosed without third party verification	2
Estimated using power generation data	3
Estimated using emissions per million dollars of revenue	4
Estimated using emissions per million dollars of outstanding loan value	5

¹⁶ Emissions resulting from a company's non-generation activities (e.g., power distribution, etc.) are estimated based on revenue splits and are excluded.

¹⁷ Where equity and/or debt are not available, we use total assets.

¹⁸ If the data needed to calculate an attribution factor for public companies is not available, we use the private company attribution factor approach. If a public or private company's attribution factor is more than 100%, we assume 100%.

¹⁹ Renewable power generation sources include wind, solar, hydro, and biomass/waste.

²⁰ When we established our baseline, economic emission factors from PCAF's Database were considered but yielded highly variable and overstated results when compared to disclosed emissions. We assessed the correlation between reported emissions and the companies' revenue and outstanding loan to extrapolate to borrowers where emissions data are not available. We acknowledge limitations that, despite a generally strong correlation, extrapolated data could diverge from actual company data if that data were known.

²¹ Ibid.

Metrics

Scope 1 financed emissions (ktCO₂e) are the absolute financed emissions calculated per the above section.

Economic emissions intensity (tCO₂e/\$millions outstanding loan) is the sum of financed emissions divided by sum of outstanding loans, calculated as:

$$\text{Economic emissions intensity} = \frac{\sum \text{Financed emissions}_c}{\sum \text{Outstanding loan value}_c}$$

Where c = borrower

Physical emissions intensity (tCO₂e/MWh) is the sum of financed emissions divided by the sum of BMO's share of the borrower's production for borrowers, where production data is available, calculated as:

$$\text{Physical emissions intensity} = \frac{\sum \text{Financed emissions}_{c_1}}{\sum (\text{Attribution factor}_{c_1} \times \text{Company production}_{c_1})}$$

Where c₁ = borrowers where production data is available

Portfolio PCAF data quality score is the average data quality score assigned to each borrower, weighted by outstanding loan value:

$$\text{Portfolio data quality score} = \frac{\sum (\text{Data quality score}_c \times \text{Outstanding loan value}_c)}{\sum \text{Outstanding loan value}_c}$$

Where c = borrower

Share of low-carbon power generation is calculated as the proportional value of the outstanding loan for the percent of the businesses' power generation activities from low-carbon sources.²²

Data sources

Data type	Data source
BMO's lending exposure	Internal data sources
Borrower reported emissions	Internal data sources, S&P Trucost Capital IQ or publicly available company disclosures
Borrower financial metrics	
Borrower production data	
Emission factors	Canada: Canada's National Inventory Report U.S.: Environmental Protection Agency (EPA)'s eGRID World: Ember database Average borrower intensity using data listed above

4.3 Agriculture

Scope

We include on-balance sheet lending to agriculture borrowers, identified as borrowers operating in agricultural production NAICS codes, including crop and animal (livestock, poultry, fish) production and support activities.

Calculation approach

We apply the PCAF asset class methodology for business loans and calculate Scope 1 and 2 expressed as carbon dioxide equivalents (CO₂e).

Our **financed emissions** are calculated by multiplying an attribution factor by the borrowers' emissions and then taking the sum of these emissions across the portfolio:

$$\text{Financed emissions} = \sum (\text{Attribution factor}_c \times \text{Company emissions}_c)$$

Where c = borrower

The **attribution factor** (i.e., how we account for our share of borrower emissions) is calculated as follows:

Private companies²³:

$$\text{Attribution factor}_c = \frac{\text{Outstanding amount}_c}{\text{Total equity}_c + \text{debt}_c}$$

Where c = borrower

Company Scope 1 and 2 emissions are estimated based on data availability and assigned a data quality score per PCAF's data hierarchy:

- Where borrower revenue is known, we apply Exiobase sector and regional emission factors **per \$millions of company revenue** from the PCAF emission factor database, yielding Data Quality 4.
- Where company revenue is not available, we apply Exiobase sector and regional emission factors **per \$millions of outstanding loan** from the PCAF emission factor database, yielding Data Quality 5.

²² We define low-carbon as renewable sources (i.e., hydro, wind, solar, biomass, other renewables) and nuclear power.

²³ Where equity and/or debt are not available, we use total assets. An immaterial share of our agriculture portfolio is comprised of public companies; we calculate the attribution factor assuming all companies are private. If a public or private company's attribution factor is more than 100%, we assume 100%.

We assign each borrower a PCAF data quality score as follows:

Source of emissions data	Data quality score
Estimated using emissions per million dollars of revenue	4
Estimated using emissions per million dollars of outstanding loan value	5

Metrics

Scope 1 and 2 financed emissions (ktCO₂e) are the absolute financed emissions calculated per the above section.

Economic emissions intensity (tCO₂e/\$millions outstanding loan) is the sum of financed emissions divided by sum of outstanding loans, calculated as:

$$\text{Economic emissions intensity} = \frac{\sum \text{Financed emissions}_c}{\sum \text{Outstanding loan value}_c}$$

Where c = borrower

Physical emissions intensity is not calculated due to data limitations obtaining consistent production data across agriculture borrowers.

Portfolio PCAF data quality score is the average data quality score assigned to each borrower, weighted by outstanding loan value:

$$\text{Portfolio data quality score} = \frac{\sum (\text{Data quality score}_c \times \text{Outstanding loan value}_c)}{\sum \text{Outstanding loan value}_c}$$

Where c = borrower

Data sources

Data type	Data source
BMO's lending exposure	Internal data sources
Emission factors	PCAF emission factor database (Exiobase sector and regional average economic-based emission factors) adjusted annually for inflation.

4.4 Commercial real estate

Scope

We include on-balance sheet loans used to purchase, operate, or refinance commercial real estate buildings and loans used for income-producing residential buildings in Canada.²⁴ These loans are used to finance a property where the building owner/investor uses or leases the property to generate income (e.g., from retail, hotels, office space, industrials, or multi-family rentals).

We exclude financing for land, construction, and renovation of properties due to methodological difficulties in estimating emissions from these activities—a limitation acknowledged by PCAF. It also excludes financing for real estate investment trusts which are largely general corporate purpose loans.

Calculation approach

We apply the PCAF asset class methodology for commercial real estate and calculate scope 1 and 2 carbon dioxide equivalents (CO₂e).

Our **financed emissions** are calculated by multiplying an attribution factor by the building's emissions and then taking the sum of these emissions across the portfolio:

$$\text{Financed emissions} = \sum (\text{Attribution factor}_b \times \text{Building emissions}_b)$$

Where b = building

The **attribution factor** (i.e., how we account for our share of building emissions) is calculated as follows:²⁵

$$\text{Attribution factor}_b = \frac{\text{Outstanding amount}_b}{\text{Property value at origination}_b}$$

Where b = building

²⁴ This includes residential properties owned by investors.

²⁵ Where an attribution factor cannot be calculated due to data availability, or if a property's attribution factor is more than 100%, we assume 100%. For property value at origination, we keep the property value used in the base year calculations static and fixed for subsequent years. If that is not available, we use the latest property value.

Building emissions are estimated based on data availability and assigned a data quality score per PCAF’s data hierarchy:

- Where building type, location, and floor area is known, emissions are **estimated by applying emissions factors (tCO₂e/m²)**, yielding Data Quality 4.
- Where floor area is unknown, emissions are **estimated by applying emission factors (tCO₂e/building or unit)**, yielding Data Quality 5.

Within our portfolio, loans may be secured by multiple properties. In these cases, we allocate a portion of the outstanding loan, and project size data if relevant, to each property in the associated collateral pool based on the total property value of the collateral pool.

For income-generating residential mortgages, we calculate financed emissions using the same approach as residential mortgages (see [Section 4.5 – Residential real estate](#)).

We assign buildings a PCAF data quality score as follows:

Source of emissions data	Data quality score
Estimated using property floor area and provincial emission factors (tCO ₂ e/m ²) by property type	4
Estimated using provincial emissions factors based on numbers of buildings or per dwelling (tCO ₂ e/building or unit) by property type	5

Metrics

Scope 1 and 2 financed emissions (ktCO₂e) are the absolute financed emissions calculated per the above section.

Economic emissions intensity (tCO₂e/\$millions outstanding loan) is the sum of property emissions divided by sum of outstanding loans, calculated as:

$$\text{Economic emissions intensity} = \frac{\sum \text{Financed emissions}_b}{\sum \text{Outstanding loan value}_b}$$

Where b = building

Physical emissions intensity (kgCO₂/m²) is the sum of financed emissions divided by the sum of BMO’s share of the property’s size, where property size data is available, calculated as:

$$\text{Physical emissions intensity} = \frac{\sum \text{Financed emissions}_{b_1}}{\sum (\text{Attribution factor}_{b_1} \times \text{Property size}_{b_1})}$$

Where b₁ = buildings where property size data is available

Portfolio PCAF data quality score is the average data quality score assigned to each building, weighted by outstanding loan balance:

$$\text{Portfolio data quality score} = \frac{\sum (\text{Data quality score}_b \times \text{Outstanding loan value}_b)}{\sum \text{Outstanding loan value}_b}$$

Where b = building

Data sources

Data type	Data source
BMO’s commercial real estate exposure	Internal data sources
Average property type energy use (for income-generating residential properties)	Natural Resources Canada (NRCAN)
Emission factors ²⁶	PCAF Emission Factor Database (CRE) Canada’s National Inventory Report (income-generating residential properties)

²⁶ We use the most recently available emission factors at the time of calculation to calculate emissions.

4.5 Residential real estate

Scope

We include on-balance sheet lending for the purchasing or refinancing of Canadian residential properties, including BMO originated and third-party originated mortgages held by BMO. We include investor-owned mortgages in our Commercial Real Estate analysis (see [Section 4.4 – Commercial real estate](#)). We exclude home equity lines of credit, per the PCAF Standard.

Calculation approach

We apply the PCAF asset class methodology for residential real estate and calculate scope 1 and 2 carbon dioxide equivalents (CO₂e).

Our **financed emissions** are calculated by multiplying an attribution factor by the property emissions and then taking the sum of these emissions across the portfolio:

$$\text{Financed emissions} = \sum (\text{Attribution factor}_b \times \text{Building emissions}_b)$$

Where b = building

The **attribution factor** (i.e., how we account for our share of building emissions) is calculated as follows:²⁷

$$\text{Attribution factor}_b = \frac{\text{Outstanding amount}_b}{\text{Property value at origination}_b}$$

Where b = building

Company Scope 1 and 2 emissions are estimated based on data availability and assigned a data quality score per PCAF's data hierarchy:

- Where floor area is known, energy use is **estimated** using **average annual household energy use** by energy type (e.g. natural gas, fuel oil, electricity, etc.) by province and by building type. Building emissions are estimated by applying emission factors per energy type, yielding Data Quality 4.
- Where floor area is unknown, emissions are **estimated** by applying BMO-calculated provincial emission factors per building by building type, yielding Data Quality 5.²⁸

We assign each building a PCAF data quality score as follows:

Source of emissions data	Data quality score
Estimated using floor area and provincial energy use data by building type	4
Estimated using provincial emissions factors per building	5

Metrics

Scope 1 and 2 financed emissions (ktCO₂e) are the absolute financed emissions calculated per the above section.

Economic emissions intensity (tCO₂e/\$millions outstanding loan) is the sum of property emissions divided by sum of outstanding loans, calculated as:

$$\text{Economic emissions intensity} = \frac{\sum \text{Financed emissions}_b}{\sum \text{Outstanding loan value}_b}$$

Where b = building

Physical emissions intensity (kgCO₂e/m²) is the sum of financed emissions divided by the sum of BMO's share of the property's size, where property size data is available, calculated as:

$$\text{Physical emissions intensity} = \frac{\sum \text{Financed emissions}_{b_1}}{\sum (\text{Attribution factor}_{b_1} \times \text{Property size}_{b_1})}$$

Where b₁ = buildings where property size data is available

Portfolio PCAF data quality score is the average data quality score assigned to each building, weighted by outstanding loan balance:

$$\text{Portfolio data quality score} = \frac{\sum (\text{Data quality score}_b \times \text{Outstanding loan value}_b)}{\sum \text{Outstanding loan value}_b}$$

Where b = building

Data sources

Data type	Data source
BMO's mortgage exposure	Internal data sources
Average household energy use per property type	Natural Resources Canada (NRCAN)
Emission factors	Canada's National Inventory Report (NIR)

²⁷ Where an attribution factor cannot be calculated due to data availability, or if a property's attribution factor is more than 100%, we assume 100%.

²⁸ BMO-calculated provincial emission factors are calculated using Natural Resources Canada and National Inventory Report data.

5. Data management

5.1 Data limitations

There are recognized data limitations and associated challenges in estimating financed emissions. Our calculations are based on assumptions and are subject to inherent risks and uncertainties. We acknowledge that these assumptions may yield results that may be materially different from financed emissions calculated using actual reported data. Key data limitations include:

- **Data availability:** The availability of complete, accurate and comparable data presents an industry-wide challenge. Estimating the bank's financed emissions is challenged by inconsistent company disclosures and delays in emissions reporting.
- **Data quality and reliability:** To enhance the reliability of estimates, we aim to match clients' production, emissions and/or financial data with their outstanding loan balance from the same year. Misaligned time frames and evolving client disclosures can limit our confidence in emissions estimates. To address timing gaps, we report financed emissions on a one-year lag in order to incorporate reported client emissions, when possible.
- **Data sourcing:** Our financed emissions estimates rely on client and third-party data (e.g., production, emissions, financials), from various sources. While these sources are considered to be fit for purpose, they are not independently verified and underlying assumptions can vary. We are working to automate our data sourcing and calculation processes so we may expand to more assets and improve data quality and reliability. We recognize the inherent risk associated with manually sourced data and are designing processes and controls to help mitigate those risks. In addition, evolving standards and methodologies can impact third-party data (e.g., emission factors), potentially influencing our footprint estimates and related targets.
- **Footprint inventory fluctuation:** Financed emissions estimates can vary year-over-year due to several factors, such as changes in the bank's portfolio, changes in clients' production and/or emissions, and data availability. Two additional reasons for fluctuations:
 1. Market volatility – Attribution factors for business loans are based on company values, which can be sensitive to market conditions. This variability can affect attributed emissions, even if client emissions or our lending exposure remain unchanged, limiting the comparability of year-over-year trends.
 2. Exposure value – In line with PCAF Standard, we use year-end outstanding balances to calculate financed emissions. However, clients drawing on previously extended authorized credit year over year can cause fluctuations unrelated to actual client emissions activity or BMO's lending decisions. To improve consistency, we are considering calculating and reporting a second set of emissions estimates based on authorized loan values.

Given the evolving nature of emissions regulation, data sourcing, and improvements in methodologies, we may periodically need to recalculate or restate our historic emissions and possibly reset our targets for emission reductions (See [Section 6 – Cautionary Statement](#)). We follow internal procedures to determine when and how to restate emissions metrics.

5.2 Data quality

BMO's approach is guided by the GHG Protocol's principles of relevance, completeness, consistency, accuracy and transparency as well as PCAF's principles of recognition, measurement, attribution, data quality, and disclosure. We refer to the GHG Protocol and PCAF guidance on how to deal with the data gaps, uncertainties and estimations, and how to perform data quality checks, validations and verifications. We prioritize data of the highest PCAF data quality score as described in [Section 4 – Sector-specific methodologies](#). Data quality checks are executed by the analyst responsible for preparing the calculations, and at least one other reviewer.

5.3 Internal controls & third-party assurance

We strive to produce a financed emissions inventory that is complete, accurate, reliable and transparent. We have implemented controls that are executed by our teams that prepare the emissions footprint inventory.

Annually, BMO engages an independent third-party to provide a limited assurance of newly reported financed emissions metrics 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. Assurance statements can be found on our website: bmo.com/sustainability.



Cautionary statement regarding methodologies and data

BMO's methodologies and the nature and source of data used remain subject to evolution over time. Our emissions calculation methodologies are guided by internationally recognized standards (i.e., PCAF Standard, GHG Protocol); however, availability of comprehensive, high-quality and verifiable GHG emissions data remains a challenge for the industry. These standards inform the measurement methodologies and disclosure of our GHG emissions; guidance is interpreted and applied at our discretion as described in this document. GHG emissions calculations are based on various assumptions and are subject to inherent risks and uncertainties. Such assumptions and estimates may apply over longer time frames than many of our other disclosures. These assumptions and estimates are highly likely to change over time. As a result of the above, we expect that certain disclosures based on such methodologies and data are likely to be amended, updated or restated in the future as the quality and completeness of our data and methodologies continue to improve.

Other disclaimers

This document includes voluntary disclosures on GHG emission related methodologies and data that may not be, and are not required to be, incorporated into our mandatory disclosures, where we use a definition of materiality established under applicable securities laws for the purpose of complying with the disclosure rules and regulations promulgated by applicable securities regulators and applicable stock exchange listing standards.

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