Greenhouse Gas (GHG) Reporting Methodology

Financed Emissions

BMO

March 2025[1]

[1] This methodology applies to financed emissions disclosures in our most recent annual 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. This document consolidates disclosures from our 2021, 2022 and 2023 Climate Reports and reflects information accurate at the original time of publication.

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). 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 our GHG Reporting Methodology – Operational emissions.

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 methodology from the PCAF Standard, Part A to estimate emissions for high-emitting sectors[2] and stages in those sectors' value chains or sub-sectors 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**).

[2] Agriculture, Heavy industries (aluminum, cement, iron and steel), coal, commercial real estate, residential real estate, oil & gas, power generation, transportation.

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 = $\sum$ (Oustanding loan balance $_c$ x 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, and change in the portfolio's economic emissions intensity over time.

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 (CO_2e).

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 companies[3]:

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

Public companies:

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

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 verified by a third-party.[4]
- 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.
- 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.

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

[4] When we established our baseline, economic emission factors from PCAF's Database were considered for use, 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. Company disclosed emissions data are not always comparable or externally assured and we acknowledge limitations that, despite a generally strong correlation, extrapolated data could diverge from actual company data if that data were known.

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 ($ktCO_2e$) are the absolute financed emissions calculated per the above section.

Economic emissions intensity (tCO_2e/$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 (tCO_2e/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:

$$\text{Physical emissions intensity} = \frac{\sum \text{Financed emissions}_{c1}}{\sum (\text{Attribution factor}_{c1} \times \text{Company production}_{c1})}$$

Where c_1 = 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	

Scope 3 emissions of our borrowers

Calculation approach

We apply the PCAF asset class methodology for business loans and calculate downstream scope 3 CO_2 emissions from the ultimate combustion of the oil or gas product produced by our borrowers.[5,6]

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 companies[7]:

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

Public companies:

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

Where c = borrower

[5] Greenhouse gases other than CO_2 are excluded due to relative immateriality.

[6] 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.

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

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 factors[8] to **borrower-level production** of oil (bbls/y), natural gas (mcf/y), NGL (bbls/y), and/or barrels of oil equivalent (BOE/y), yielding Data Quality 3.[9]
- 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.
- 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.

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 ($ktCO_2$) are the absolute financed emissions calculated per the above section.

Economic emissions intensity (tCO_2/$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 (tCO_2/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:

$$\text{Physical emissions intensity} = \frac{\sum \text{Financed emissions}_{c1}}{\sum (\text{Attribution factor}_{c1} \times \text{Company production}_{c1})}$$

Where c_1 = 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:

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

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).

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[8] IPCC Guidelines for National Greenhouse Gas Inventories for scope 3 international emission factors.

[9] We assessed the correlation between production estimated 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.

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.

Calculation approach

We apply the PCAF asset class methodology for business loans and calculate scope 1 carbon dioxide equivalents (CO_2e). 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:

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

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 companies[10]:

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

Public companies:

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

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 verified by a third-party.[11]
- Where company reported emissions data is not available, emissions are **estimated from power generation** data by fuel type (gas, coal, other petroleum) using publicly available country or regional emission factors, yielding Data Quality 3. Emissions from renewable and nuclear power generation are assumed to be zero consistent with PCAF emission factors.[12]
- Where company reported emissions and production data are not available, emissions are **estimated** using an average emission factor **per $millions of company revenue** based on the estimated emissions from power generation, yielding Data Quality 4.
- Where company reported emissions, 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 power generation, yielding Data Quality 5.

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

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

[11] When we established our baseline, economic emission factors from PCAF's Database were considered for use but yielded highly variable and overstated results when compared to disclosed emissions. This analysis was performed on the 2019 footprint when we developed this methodology and is not re-evaluated annually. We assessed the correlation between reported emissions and the companies' revenue and outstanding loan to extrapolate to borrowers where emissions data are not available. Company disclosed emissions data are not always comparable or externally assured and we acknowledge limitations that, despite a generally strong correlation, extrapolated data could diverge from actual company data if that data were known.

[12] Renewable power generation sources include wind, solar, hydro, and biomass/waste.

Metrics

Scope 1 Financed emissions ($ktCO_2e$) are the absolute financed emissions calculated per the above section.

Economic emissions intensity (tCO_2e/$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 (tCO_2e/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:

$$\text{Physical emissions intensity} = \frac{\sum \text{Financed emissions}_{c1}}{\sum (\text{Attribution factor}_{c1} \times \text{Company production}_{c1})}$$

Where c_1 = 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:

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

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.[13]

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

4.3 Agriculture

Scope

We include on-balance sheet lending to agriculture borrowers, identified as borrowers operating in 60 unique agriculture NAICS codes that cover agriculture production, including farms, forestry, and fishing.

Calculation approach

We apply the PCAF asset class methodology for business loans and calculate Scope 1 and 2 expressed as carbon dioxide equivalents (CO_2e).

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 companies[14]:

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

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:

- Company reported emissions, energy use, and/or production data for agricultural borrowers in the portfolio are not currently available, so we do not apply a Data Quality 1, 2, or 3.
- 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.

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

[14] Where borrower 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.

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 ($ktCO_2e$) are the absolute financed emissions calculated per the above section.

Economic emissions intensity (tCO_2e/$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:

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

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 for the purpose of purchasing or refinancing commercial real estate buildings or income-producing residential buildings in Canada.[15] 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 (CO_2e).

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:[16]

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

Where b = building

[15] This includes residential properties owned by investors.

[16] Where an attribution factor cannot be calculated due to data availability, we assign 100% attribution value. 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:

- Actual building energy consumption and/or emissions data for properties in this portfolio are not widely available, so we do not apply a Data Quality 1, 2, or 3.
- Where building type, location, and floor area is known, emissions are **estimated by applying emissions factors (tCO_2e/m^2)**, yielding Data Quality 4.
- Where floor area is unknown, emissions are **estimated by applying emission factors (tCO_2e/building or unit)**, yielding Data Quality 5.

Within our portfolio, loans may be secured by multiple properties. In these cases, we take a **proportional approach**, allocating 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 page 12); data are then incorporated into this analysis.

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_2e/m^2) by property type	4
Estimated using provincial emissions factors based on numbers of buildings or per dwelling (tCO_2e/building or unit) by property type	5

Metrics

Scope 1 and 2 Financed emissions ($ktCO_2e$) are the absolute financed emissions calculated per the above section.

Economic emissions intensity (tCO_2/$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 ($kgCO_2/m^2$) 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:

$$\text{Physical emissions intensity} = \frac{\sum \text{Financed emissions}_{b1}}{\sum (\text{Attribution factor}_{b1} \times \text{Property size}_{b1})}$$

Where b_1 = 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[17]	PCAF Emission Factor Database (CRE) Canada's National Inventory Report (income-generating residential properties)

[17] We use the most recently available emission factors 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) and 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 (CO_2e).

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:[18]

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

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:

- Actual building energy consumption and/or emissions data for properties in this portfolio are not widely available, so we do not apply a Data Quality 1, 2, or 3.
- 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.[19]

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

[18] Where an attribution factor cannot be calculated due to data availability, we assume 100% attribution.

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

Metrics

Scope 1 and 2 Financed emissions ($ktCO_2e$) are the absolute financed emissions calculated per the above section.

Economic emissions intensity (tCO_2/$millions outstanding loan) is the sum of property emissions divided by sum of outstanding loans, calculated as:

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

Where b = building

Physical emissions intensity ($kgCO_2/m^2$) 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:

$$\text{Physical emissions intensity} = \frac{\sum \text{Financed emissions}_{b1}}{\sum (\text{Attribution factor}_{b1} \times \text{Property size}_{b1})}$$

Where b_1 = 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:

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

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)

5. Data Management

5.1 Data Limitations

There are recognized data limitations and associated challenges in estimating the Bank's financed emissions. Our calculations are based on various 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 is an industry-wide challenge in deriving, analyzing and reporting on climate-related metrics. This is largely because GHG emissions reporting across sectors is not standardized, limited, and/or data quality is low.
- **Data sourcing:** We rely on data obtained from clients and third-party sources related to production output, emissions, financial information and other inputs. Although we believe these sources to be fit for purpose, we have not independently verified the data from these third parties, including our clients, or assessed any underlying assumptions about that data. We cannot therefore guarantee the accuracy of such third-party data or the reliability of such assumptions. Further, our use of this third-party data should not be taken as an endorsement of the third party or the data, nor is it to be construed as granting any form of intellectual property. Certain third-party data, such as Scope 3 emissions and emissions factors, may also change over time as standards and methods of measurement and estimation evolve.
- **Inventory fluctuations:** Many factors can influence our measurement of financed emissions from a particular sector, including changes in our client mix, portfolio size and geographic mix, the emissions and production profile of clients, as well as the quality of data available and the calculation of attribution factors. In our calculations for business loans, we account for each loan's share of total borrower emissions by applying an attribution factor calculated as the outstanding loan amount divided by the sum of total equity and debt for private companies, or by total enterprise value including cash for public companies, as prescribed by the PCAF Standard. Financed emissions reporting is challenged by variability in the enterprise value of a public client as a result of fluctuations in market prices. Market volatility could impact the attributed emissions reported, even if there has been no change in a client's emissions or our financing activity, which may limit the usefulness of year-over-year comparisons and trends.

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 Cautionary Statement).

5.2 Data Quality

BMO's approach follows 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 Third-party assurance

Annually, BMO engages an independent third-party to provide a limited assurance conclusion 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 in our annual climate reporting on our website.

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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