

**Independent Opinion  
on the Statements of  
Manulife Investment Management  
Relative to Its  
Inventory of MIMTA Timberland  
Non-Biological Emissions**

Opinion Date: 2024-05-07

<b>To the Management of:</b>	<b>MANULIFE INVESTMENT MANAGEMENT, TIMBERLAND AND AGRICULTURE</b>
<b>Independent Verification Opinion of:</b>	197 Clarendon St, Boston, MA 02116 USA Futurepast: Inc. 4250 Fairfax Drive, Suite 600 Arlington, Virginia 22203 USA
<b>Subject Matter:</b>	Annual emissions of GHGs
<b>For the Period:</b>	1 January 2023 to December 31 2023

## Details Pertaining to the Statements

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<b>Responsible Party, if Different from Addressee</b>	N/A
<b>Statement of Responsibility:</b>	<p>It was the responsibility of MANULIFE INVESTMENT MANAGEMENT, TIMBERLAND AND AGRICULTURE (Manulife) to prepare its ANNUAL GHG EMISSIONS statements in accordance with the World Resources Institute/World Business Council for Sustainable Development's <i>The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard – Revised Edition</i> (March 2004) as amended in 2013 and 2015 (GHG Protocol). This responsibility included designing, implementing and maintaining a data management system relevant to the preparation and fair presentation of the statements. Manulife is responsible for the fair presentation of its data and information and ensuring that these are free from material misstatements.</p>

## Intended User and Limitation of Liability

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<b>Intended User:</b>	<p>This opinion has been prepared for the management of Manulife for internal management purposes.</p>
<b>Limitation of Liability:</b>	<p>Manulife is solely responsible for the preparation and presentation of the information it has submitted to Futurepast for verification. Our role is limited to expressing a conclusion as to whether the greenhouse gas emissions as stated by Manulife are presented fairly in accordance with the GHG Protocol. In doing so, we do not assume any duty, liability, or responsibility of Manulife or of any third party. Our duties in relation to the</p>

opinions expressed are owed solely to Manulife. As such, we do not accept any responsibility for any loss allegedly occasioned by any third party acting or refraining from action because of our expressed opinions.

## Details Pertaining to the Validation/Verification Body

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**Futurepast's Role:** Futurepast is an impartial third-party validation/verification body.

## Declaration of Impartiality

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**Evaluation of Actual or Potential Conflicts-of-Interest** Futurepast, and the verification team members and independent reviewer, have evaluated their potential for compromised impartiality and found no actual or potential threats to impartiality with respect to the performance of this engagement.

## Details Pertaining to the Verification Team and Independent Reviewer

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**Verification Team Leader:** This verification was led by John Thurmes.  
The following persons assisted the team leader in the execution

**Verification Team Members:** of this verification:  
— Bruce Carroll,

**Independent Reviewer:** This verification was independently reviewed by:  
— John Shideler

## Details Pertaining to the Verification

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**Type(s) of Engagement:** Verification

**Objectives of the Verification:** To verify the 2023 non-biological GHG Inventory of Manulife's timberland business and to confirm that these emissions are free from material misstatements within the agreed level of assurance and that the inventory conformed to the requirements of the criteria.

**Scope of the Verification:** Manulife directly operated forest lands in six countries: Australia, Canada, Chile, New Zealand, Brazil, and the United States.

**Level of Assurance:** Limited

**Threshold of Materiality:** 10%

**Verification Criteria:** Futurepast performed this verification in accordance with the requirements of ISO 14064-3:2019.

## Description of Work Performed

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### Description of the Basis for Our Conclusions and Opinion

Manulife provided a methods document describing how they followed the GHG Protocol for reporting emissions and shared documentation of raw data, chosen emission and conversion factors, and calculations of Scope 1 and Scope 3 emissions. Futurepast reviewed these documents using a risk-based approach where we focused on those data that posed the greatest risks to material misstatement of calculated emissions.

Futurepast verified the non-biological emissions found in the tab “Dashboard Total” in the HTRG Calculator Dashboard2023 and the linked tabs and the data and calculations found in HTRG 2023 Non-Biological Emissions Calculator\_4262024. We compared 2023 results to 2022 and searched for anomalies in that comparison and in the raw data. We reviewed the emission factors and conversion assumptions and checked them against their sources. We tested the calculations and the summaries.

Issues we encountered were assembled into a list of findings and were presented to the client for resolution. Manulife made corrections and these corrections were accepted.

The data examined were historical in nature.

## Summary of the Responsible Party’s Statements and Prior Year Comparison

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	<b>2022</b>	<b>2023</b>
(a) Emissions - Fuel Combustion from MIM TA Owned Vehicles / Equipment (MtCO <sub>2e</sub> )	3,102	3,388
(b) Emissions - Fuel Combustion from Contractor Owned Vehicles / Equipment (MtCO <sub>2e</sub> )	413,518	413,249
(c) Total Direct and Indirect N <sub>2</sub> O Emissions (MtCO <sub>2e</sub> )	8,642	14,578
(d) CH <sub>4</sub> and N <sub>2</sub> O Emission from Managed Fire (MtCO <sub>2e</sub> )	37,489	46,862
<b>Total Scope 1 (MtCO<sub>2e</sub>, (a+c+d))</b>	<b>49,050</b>	<b>64,828</b>

Total Scope 3 (MtCO <sub>2</sub> e, (b))	413,518	413,249
Total Non-Biological Emissions (MtCO <sub>2</sub> e)	462,568	478,077

Source: “Dashboard Total” tab of the HTRG Calculator Dashboard2023, 29 April 2024.

## Limitations, If Any

Scope 2 electrical emissions were not reported as no offices or infrastructure were located at the remote forest sites and any electricity consumption was considered to be *de minimis*.

## Modifications, If Any


Manulife’s inventory of non-biological emissions from its timberland operations did not fulfil the requirement for public disclosure listed in the GHG Protocol, Chapter 9, “Reporting GHG Emissions” that emissions data for all seven GHGs (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>, NF<sub>3</sub>) be separately reported in metric tonnes and in tonnes of CO<sub>2</sub> equivalent.

## Conclusions

Except for the limitations and modifications described above, and based on our evaluation of the evidence, nothing comes to our attention which causes us to believe:

- That Manulife’s non-biological MIMTA (timberland) emissions inventory report for the period from 01/01/2023 to 12/31/2023 is not materially correct and is not a fair representation of its GHG data and information, and
- That Manulife’s non-biological MIMTA (timberland) inventory report for the period from 01/01/2023 to 12/31/2023 has not been prepared in accordance with the World Resources Institute/World Business Council for Sustainable Development’s “*The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard – Revised Edition*” (March 2004) as amended in 2013 and 2015.

## Approvals

**Verification Team Leader:** John Thurmes  
  
 Date: 2024-05-03



John C. Shideler

**Independent Reviewer:**

A handwritten signature in black ink that reads "John C. Shideler".

Date: 2024-05-07

**Signature**

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**Verification/Validation Body:** Futurepast: Inc., Arlington, Virginia USA

**Opinion Issued:**

2024-05-07

