

**Independent Opinion
on the Statements of
Manufacturers Life Insurance
Company**

Relative to Its

**Manulife Investment Management
Agriculture (MIM-Ag) Greenhouse Gas
Emissions Inventory and Energy
Consumption for 2024**

Opinion Date: 2025-04-26

To the Management of:	Manufacturers Life Insurance Company 200 Bloor Street East Toronto ON M4W 1E5
Independent Verification Opinion of:	OmnexFuturepast 315 E. Eisenhower Pkwy, Ste 300 Ann Arbor, Michigan 48108 USA
Subject Matter:	MIM-Ag Greenhouse Gas Emissions Inventory and Energy Consumption for 2024
For the Period:	January 1, 2024 – December 31, 2024

Details Pertaining to the Statements

Statement of Responsibility:

It was the responsibility of Manufacturers Life Insurance Company (“Manulife”) to prepare the Manulife Investment Management Agriculture (“MIM-Ag”) greenhouse gas (GHG) inventory statement for both the 2024 reporting year and the 2019 base year in accordance with the WRI/WBCSD GHG Protocol Corporate Accounting and Reporting Standard (including the Scope 2 and Scope 3 updates issued in 2015 and 2013, respectively). It was the responsibility of Manulife to prepare its energy consumption data in accordance with its own internal data management and reporting criteria. This responsibility includes designing, implementing and maintaining a data management system adequate for 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.

Based on the work we performed, it was the responsibility of OmnexFuturepast to express an opinion as to whether the MIM-Ag GHG emissions and energy consumption as stated by Manulife for the 2024 reporting year were presented fairly in accordance with the agreed criteria. It was also the responsibility of OmnexFuturepast to express an opinion on the percentage change in MIM-Ag GHG emissions from the 2019 base year to 2024.

Intended User and Limitation of Liability

Intended User:

This report has been prepared for the management of Manulife for internal management purposes and for public disclosure.

Limitation of Liability:

Manulife is solely responsible for the preparation and presentation of the information it has submitted to OmnexFuturepast for verification. Our role is limited to expressing a conclusion as to whether the disclosures as stated by Manulife are presented fairly in accordance with the agreed-upon criteria. 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 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

OmnexFuturepast's Role:

OmnexFuturepast is an impartial third-party validation/verification body.

Declaration of Impartiality

Evaluation of Actual or Potential Conflicts-of-Interest

OmnexFuturepast, 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

Verification Team Leader:

This verification was led by Stephen Boles

Independent Reviewer:

This verification was independently reviewed by John Shideler

Details Pertaining to the [Verification/Validation]

Type(s) of Engagement:

Verification

Objectives of the Verification:

1. To provide limited assurance to Manulife that there is no evidence that the MIM-Ag GHG Statement and energy consumption disclosures made by Manulife for the 2024 reporting year are not materially correct and are not in conformance with the stated criteria.
2. To provide limited assurance to Manulife that there is no evidence that the percentage change in MIM-Ag GHG emissions from the 2019 base year to the 2024 reporting year as stated by Manulife are not materially correct and are not in conformance with the stated criteria.

Scope of the Verification:

Facilities, physical infrastructure, activities, technologies, and processes	Manulife manages farmland and timberland portfolios through several investment structures for institutional investors. Manulife's agricultural businesses manage properties in the USA, Canada, Chile, and Australia. The portfolio includes a mix of both directly operated and leased properties. A wide range of crop types are farmed in the Manulife portfolio, including almonds, rice, cotton, corn, soybeans, grapes, cranberries. The MIM-Ag GHG inventory includes emissions from energy use (fossil fuel, electricity) and other emissions specific to agricultural land management (N₂O release from fertilizer applications, CH₄ emissions from rice water management, CO₂ from lime/urea applications).	
Greenhouse gas sources, sinks, and reservoirs	GHG Scope	GHG Source
	1	Stationary and Mobile Fuel Combustion
	1	Process Emissions (fertilizer applications, urea and lime applications)
	2	Imported electricity
	3 (Category 13)	1. All Scope 1 and Scope 2 GHG sources

		listed above on leased properties 2. Methane emissions from water management on leased rice properties
Types of greenhouse gases	Manulife calculates and reports CO ₂ , CH ₄ , N ₂ O emissions.	
Other disclosures included in scope of verification	• Energy consumption • percentage change of GHG emissions from 2019 to 2024	
Time period	January 1, 2024 – December 31, 2024	

Level of Assurance: Limited

Threshold of Materiality: 5%

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

Description of Work Performed

Description of the Basis for Our Conclusions and Opinion

OmnexFuturepast designed and executed analytical procedures and controls testing on a risk-based approach after reviewing Manulife's reported disclosures. OmnexFuturepast performed the following assessments of information during the verification:

1. Assessment of the geographic and temporal boundaries of Manulife's disclosures.
2. Tracing of GHG calculations in the consolidated statements to confirm the accuracy of reported values.
3. Review for accuracy of GHG emission factors and calculation methodologies.
4. Comparison to the prior year results of GHG emissions and key input data values (e.g. fuel consumption).
5. Assessment of the reasonableness of assumptions

The data reviewed were historical in nature.

Summary of the Responsible Party's Statements

Manulife's MIM-Ag GHG totals are presented in the table below:

GHG Scope and Source	2024 GHG emissions (t CO ₂ e)	2019 GHG emissions (t CO ₂ e)	% Change Against 2019 Base Year
SCOPE 1			
Stationary Fuel Combustion, Mobile Fuel Combustion, Process Emissions (applications of fertilizer, urea, lime)	36,009	43,911	-18
SCOPE 2			
Location-based and market-based	16,227	32,761	-50.5
SCOPE 3^{1,2}			
Category 13 (Downstream Leased Assets)	119,570	156,305	-23.5
Total (Location-Based and Market-Based)	171,806	232,977	-26.3

¹ The following Scope 3 categories have been deemed not relevant to Manulife: upstream and downstream transportation and distribution, processing of sold products, use of sold products, end-of-life-treatment of sold products, franchises.

² The following Scope 3 categories are being reported in other Manulife GHG inventories (MFC or MIMRE): purchased goods and services, capital goods, upstream fuel and energy impacts, waste generated in operations, business travel, employee commuting, upstream leased assets, investments (Category 15).

Manulife's 2024 MIM-Ag energy consumption totals are presented in the table below:

Energy Source	Equivalent kWh (ekWh)
Electricity	111,720,796
Diesel	176,854,105
Renewable Diesel	4,652,381
Gasoline	2,408,531
Propane	2,331,071
Natural Gas	4,983,968
Total	302,950,851

Limitations, If Any

None

Modifications, If Any

Manulife's MIMRE 2024 GHG inventory did not fulfil all requirements for public disclosure listed in the GHG Protocol, Chapter 9, "Reporting GHG Emissions", including:

Emissions data for all seven GHGs separately (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, NF₃) in metric tonnes and in tonnes of CO₂ equivalent

Conclusions

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

- That Manulife's disclosures of MIM-Ag GHG emissions and energy consumption for the period from 01/01/2024 to 31/12/2024 are not materially correct and are not a fair representation of its data and information, and
- That Manulife's MIM-Ag GHG inventory report for the period from 01/01/2024 to 31/12/2024 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, and
- That the percentage change in GHG emissions for MIM-Ag from 2019 to 2024 is not materially correct and is not a fair representation of its data and information.

Approvals

Verification Team Leader:



Stephen Boles, 17 April 2025

Independent Reviewer:



John C. Shideler, 18 April 2025

Signature

Verification/Validation Body: OmnexFuturepast, Ann Arbor, Michigan USA

Opinion Issued: 2025-04-26

