

**Assurance Statement related to
Greenhouse Gas Emissions Inventory for Calendar Year 2017
prepared for The Manufacturers Life Insurance Company**

Terms of Engagement

This Assurance Statement has been prepared for The Manufacturers Life Insurance Company (Manulife).

Lloyd's Register Quality Assurance Canada Ltd. (LRQA) was commissioned by Manulife to assure its Greenhouse Gas (GHG) Emissions Inventory for the calendar year (CY) 2017, (hereafter referred to as "the Inventory").

The Inventory relates to direct GHG emissions (Scope 1), energy indirect GHG emissions (Scope 2) and other indirect GHG emissions (Scope 3) from company-wide business travel, paper use, and waste disposal generated emissions.

The Inventory includes Scope 1, Scope 2, and Scope 3 emissions from Manulife corporate offices and the Manulife Real Estate, NAL Resources, and Hancock Natural Resources Group business units.

The following GHG emissions sources were excluded from the Inventory on the basis of their de minimis contribution:

- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Hancock Natural Resources Group investment properties (timber, agriculture, and renewable energy management operations)

Management Responsibility

Manulife's management was responsible for preparing the Inventory and for maintaining effective internal controls over the data and information disclosed. LRQA's responsibility was to carry out an assurance engagement on the Inventory in accordance with our contract with Manulife.

Ultimately, the Inventory has been approved by, and remains the responsibility of Manulife.

LRQA's Approach

Our verification has been conducted in accordance with ISO 14064-3:2006 *Specification with guidance for validation and verification of greenhouse gas assertions* to provide limited assurance that GHG data as presented in the Inventory have been prepared in conformance with the World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD) GHG Protocol: *A Corporate Accounting and Reporting Standard (Revised Edition)* (GHG Protocol) and Manulife's GHG Accounting Policy.

To form our conclusions the assurance engagement was undertaken as a sampling exercise and covered the following activities:

- reviewed data and information related to Scope 1, Scope 2, and Scope 3 GHG emissions for CY 2017 included in the Inventory;
- reviewed the processes for the management of data and information related to the Scope 1, Scope 2, and Scope 3 GHG emissions used at the corporate level;
- interviewed relevant staff of the organization responsible for managing GHG emissions data and records; and



- verified historical GHG emissions data and records at an aggregated level for CY 2017.

Level of Assurance & Materiality

The opinion expressed in this Assurance Statement has been formed on the basis of a limited level of assurance and at a materiality of the professional judgment of the Verifier.

LRQA's Opinion

Based on LRQA's approach nothing has come to our attention that would cause us to believe that the total Scope 1, Scope 2, and Scope 3 GHG emissions disclosed in the Inventory, as summarized in Table 1 below, are not materially correct and have not been prepared in accordance with WRI/WBCSD GHG Protocol and Manulife's GHG Accounting Policy.

Signed

Dated: May 24, 2018

Tom Berge
LRQA Lead Verifier
On behalf of Lloyd's Register Quality Assurance Canada Ltd.
5420 North Service Road, Suite 506
Burlington, Ontario L7L 6C7

LRQA reference number: CQA00000030\1694790

Table 1. Summary of Manulife GHG Inventory 2017

Scope of GHG emissions	Tonnes CO ₂ e
Direct GHG emissions (Scope 1)	431,932
Energy indirect GHG emissions – Location Based (Scope 2)	283,146
Energy indirect GHG Emissions – Market-based (Scope 2)	270,707
Business Travel (Scope 3)	25,038
Paper Use (Scope 3)	13,632
Waste Disposal (Scope 3)	2,699

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Due to inherent limitations in any internal control, it is possible that fraud, error, or non-compliance with laws and regulations may occur and not be detected. Further, the verification was not designed to detect all weakness or errors in internal controls so far as they relate to the requirements set out above as the verification has not been performed continuously throughout the period and the verification carried out on the relevant internal controls were on a test basis. Any projection of the evaluation of control to future periods is subject to the risk that the processes may become inadequate because of changes in conditions, or that the degree of compliance with them may deteriorate.

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