C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Manulife Financial Corporation is a leading international financial services group that helps people make their decisions easier and lives better. With our global headquarters in Toronto, Canada, we operate as Manulife across our offices in Canada, Asia, and Europe, and primarily as John Hancock in the United States. We provide financial advice, insurance, and wealth and asset management solutions for individuals, groups and institutions. At the end of 2020, we had more than 77,000 employees, over 118,000 agents, and thousands of distribution partners, serving over 34 million customers. At the end of 2020, we had $1.3 trillion (US$1.0 trillion) in assets under management and administration, and during 2020, we made $31.6 billion in payments to our customers. Our principal operations are in Asia, Canada, and the United States where we have served customers for more than 155 years. We trade as 'MFC' on the Toronto, New York, and the Philippine stock exchanges, and under '945' in Hong Kong. All data is for 2020 and in Canadian dollars, unless otherwise stated.

In May 2020, Manulife announced the first phase of its climate action plan focusing on three pillars: operations, investments, and products and services. This included a commitment to reduce absolute scope 1 and 2 emissions 35% per cent by 2035 and steer our investment portfolio to net zero by 2050. To establish a strategy for our financed emissions net zero ambition, we are taking a sector-based approach, focusing first on the heavy emitting industries, such as power generation, to establish near term emissions reduction targets. To ensure these targets have a meaningful impact, we have committed to SBTi to guide our target setting, measurement, and progress reporting. We will also continue to grow our significant $39.0 billion portfolio of green investments, such as renewable energy and energy-efficient real estate.

Reporting segments:
- Asia – providing insurance products and insurance-based wealth accumulation products in Asia
- Canada – providing insurance products, insurance-based wealth accumulation products, and banking services in Canada and has an in-force variable annuity business
- U.S. under the John Hancock brand – providing life insurance products, insurance-based wealth accumulation products and has an in-force long-term care insurance business and an in-force annuity business
- Global Wealth and Asset Management (GWAM) – providing fee-based wealth solutions to our retail, retirement and institutional customers around the world. Externally known as Manulife Investment Management

Two businesses within Manulife Investment Management to highlight:
- Agriculture and timber businesses also known as Hancock Natural Resource Group (HNRG). Our agriculture and timber businesses specialize in global farmland and timberland portfolio development and management. Investments are integrated with comprehensive property management operations. We manage over 5.4 million acres of timberland and nearly 440,000 acres of farmland globally, with approximately US$14.3 billion in assets under management.
- Real Estate: our Real Estate portfolio consists of space that is occupied both by external tenants and by Manulife corporate users. Most of our assets are managed by our robust team of real estate professionals. We do not include data from properties that are managed by third-party property management firms in our reporting, as we do not have operational control over these buildings.

We would also like to highlight our General Fund which supports the operations of our Asia, Canada and US segments. Our investment philosophy for the General Fund is to invest in an asset mix that optimizes our risk adjusted returns and matches the characteristics of our underlying liabilities. We invest in a diversified mix of assets, including a variety of alternative long-duration asset classes. Our diversification strategy has historically produced superior risk adjusted returns while reducing overall risk. We use a disciplined approach across all asset classes, and we do not chase yield in the riskier end of the fixed income or alternative asset market. As part of our well-diversified investment program, we are a market leader in financing renewable energy and energy efficiency projects. Our infrastructure investment teams include renewable energy financing specialists that invest Manulife’s on-balance sheet assets into wind, solar, hydroelectric, geothermal, and waste to energy projects, as well as in energy efficiency installations that allow our borrowers to reduce their energy use. As of 2020, C$39.9 billion or 9.7% of the total C$411 billion General Fund was invested in long-duration, carbon emission efficient assets. Under our General Fund, oil and gas company, NAL Resources, was one of Manulife’s wholly owned subsidiaries until it was divested in January 2021 which historically represented about 70% of Manulife’s overall Scope 1 and 2 emissions.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

<table>
<thead>
<tr>
<th>Reporting year</th>
<th>Start date</th>
<th>End date</th>
<th>Indicate if you are providing emissions data for past reporting years</th>
<th>Select the number of past reporting years you will be providing emissions data for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting year</td>
<td>January 1 2020</td>
<td>December 31 2020</td>
<td>No</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

C0.3
(C0.3) Select the countries/areas for which you will be supplying data.
Australia
Barbados
Bermuda
Brazil
Cambodia
Canada
Chile
China
China, Hong Kong Special Administrative Region
India
Indonesia
Ireland
Japan
Malaysia
Myanmar
New Zealand
Philippines
Singapore
Switzerland
Taiwan, Greater China
Thailand
United Kingdom of Great Britain and Northern Ireland
United States of America
Viet Nam

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.
CAD

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHS inventory.
Operational control

C-FS0.7

(C-FS0.7) Which organizational activities does your organization undertake?
Investing (Asset manager)
Investing (Asset owner)
Insurance underwriting (Insurance company)

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?
Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

<table>
<thead>
<tr>
<th>Position of Individual(s)</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board-level committee</td>
<td>Oversight of our environmental, social and governance framework is included in the charter of the Corporate Governance and Nominating Committee of the Board of Directors. The committee reviews Mastiff’s sustainability strategy, progression and stays informed of Environmental, Social, and Governance (ESG) trends, risks and opportunities through management reporting. Members of the Corporate Governance and Nominating Committee (CNGC) include the Board Chair and five independent Board members. Examples of climate-related matters considered by this committee include reviewed our Climate Action Plan which includes related goals linked to executive compensation, Climate Change position statement, new Human Rights statement and TCFD disclosure.</td>
</tr>
</tbody>
</table>

C1.1b
### (C1.1) Provide further details on the board’s oversight of climate-related issues.

<table>
<thead>
<tr>
<th>Frequency with which climate-related issues are a scheduled agenda item</th>
<th>Governance mechanisms into which climate-related issues are integrated</th>
<th>Scope of board-level oversight</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduled – all meetings</td>
<td>Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Monitoring and overseeing progress against goals and targets for addressing climate-related issues</td>
<td>Climate-related risks and opportunities to our bank lending activities Risks and opportunities related to our investing activities Climate-related risks and opportunities to our insurance underwriting activities The impact of our insurance activities on the climate The impact of our underwriting activities on the climate</td>
<td>Oversight of our environmental, social and governance (ESG) framework is included in the charter of the Board’s Corporate Governance and Nominating Committee (the Committee). The Committee reviews progress made on our sustainability strategy and stays informed of ESG trends, risks and opportunities through management reporting. Members of the Committee include the Board Chair and five independent Board members.</td>
</tr>
</tbody>
</table>

### (C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

<table>
<thead>
<tr>
<th>Name of the position(s) and/or committee(s)</th>
<th>Reporting line</th>
<th>Responsibility</th>
<th>Coverage of responsibility</th>
<th>Frequency of reporting to the board on climate-related issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Executive Officer (CEO)</td>
<td>Reports to the board directly</td>
<td>Assessing climate-related risks and opportunities</td>
<td>Risks and opportunities related to our bank lending activities Risks and opportunities related to our investing activities Risks and opportunities related to our insurance underwriting activities Risks and opportunities related to our other products and services Risks and opportunities related to our own operations</td>
<td>More frequently than quarterly</td>
</tr>
<tr>
<td>Chief Financial Officer (CFO)</td>
<td>CEO reporting line</td>
<td>Both assessing and managing climate-related risks and opportunities</td>
<td>Risks and opportunities related to our bank lending activities Risks and opportunities related to our investing activities Risks and opportunities related to our insurance underwriting activities Risks and opportunities related to our other products and services Risks and opportunities related to our own operations</td>
<td>More frequently than quarterly</td>
</tr>
<tr>
<td>Name of the position(s) and/or committee(s)</td>
<td>Reporting line</td>
<td>Responsibility</td>
<td>Coverage of responsibility</td>
<td>Frequency of reporting to the board on climate-related issues</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>---------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Chief Risk Officer (CRO)</td>
<td>CEO reporting line</td>
<td>Both assessing and managing climate-related risks and opportunities</td>
<td>Risks and opportunities related to our bank lending activities</td>
<td>More frequently than quarterly</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risks and opportunities related to our investing activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risks and opportunities related to our insurance underwriting activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risks and opportunities related to our other products and services</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risks and opportunities related to our own operations</td>
<td></td>
</tr>
<tr>
<td>Chief Operating Officer (COO)</td>
<td>CEO reporting line</td>
<td>Both assessing and managing climate-related risks and opportunities</td>
<td>Risks and opportunities related to our bank lending activities</td>
<td>More frequently than quarterly</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risks and opportunities related to our investing activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risks and opportunities related to our insurance underwriting activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risks and opportunities related to our other products and services</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risks and opportunities related to our own operations</td>
<td></td>
</tr>
<tr>
<td>Other, please specify (Executive Sustainability Council (ESC) Members are Chief Financial Officer, Chief Risk Officer, Chief Investment Officer, General Counsel, Chief Marketing Officer, President and CEO of Global Wealth and Asset Management)</td>
<td>CEO reporting line</td>
<td>Other, please specify (Both assessing and managing climate-related risks and opportunities. (1) Serve Manulife’s sustainability ambition and strategy, (2) Acts as recommendation body on strategy and significant issues to Executive Leadership Team, including the CEO)</td>
<td>Risks and opportunities related to our bank lending activities</td>
<td>More frequently than quarterly</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risks and opportunities related to our investing activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risks and opportunities related to our insurance underwriting activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risks and opportunities related to our other products and services</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Risks and opportunities related to our own operations</td>
<td></td>
</tr>
</tbody>
</table>
(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

Matters related to climate change is a component of Manulife’s ESG framework, overseen by the Corporate Governance and Nominating Committee of the Board (CGNC). Climate-related risks and opportunities are also considered by the Board’s Risk Committee through the ongoing monitoring and reporting of emerging risks.

The CGNC reviews progress made on our sustainability strategy and stays informed of ESG trends, risks and opportunities through management reporting. The Chair of the CGNC reports to the full Board on matters discussed at committee meetings. Members of the CGNC include the Board Chair and five independent Board members. In 2020, the CGNC met five times. The CGNC’s oversight of the company’s ESG framework complements the work of the Executive Sustainability Council (ESC). The ESC, which consists of nine members of our Executive Leadership Team (ELT) including the CEO, is responsible for establishing the enterprise’s sustainability ambition, guiding the development and execution of the sustainability strategy and providing recommendations and direction on matters related to sustainability.

In addition to the ESC, we have a subsidiary-specific committee that executes asset class specific sustainability objectives. The Chief Sustainability Officer chairs Manulife’s Sustainability Centre of Expertise (CoE), which consists of corporate function and business unit sustainability leads tasked with integrating sustainability into our business practices. This group’s responsibilities include:

- Leading development and implementation of sustainability strategy
- Ensuring integration of sustainability into business unit strategies, policies and procedures
- Advising on sustainability matters and providing support and capacity building to business units

Manulife Investment Management has established a governance structure to oversee its teams’ sustainable and responsible investing and activities. The structure is comprised of two committees that ensure oversight and decision-making at the appropriate levels: Public Markets Sustainable Investing Committee and Private Markets Sustainable Investing Committee.

Manulife Investment Management, Real Estate group: Sustainability topics, including issues related to climate, are overseen by the Real Estate Executive Sustainability Steering Committee, which is chaired by Manulife Investment Management’s Global Head of Real Estate Asset Management and consists of senior real estate executives from key departments and regions. The Committee oversees progress toward achieving our sustainability vision and ensures we meet our commitments and adhere to corporate policies and practices, set annual objectives and report, monitor sustainability efforts and performance, and meets quarterly to discuss sustainability strategy, sustainability program advancement and portfolio performance. Strategy and performance relating to climate change risks and opportunities are addressed through analysis of greenhouse gas emissions, greenhouse gas reduction targets, renewable energy strategy and performance and performance in industry ESG benchmarking initiatives including GRESB.

Manulife Investment Management’s Agriculture and Timber group: Accountability for Sustainability and Responsible Investing (SRI) lies with the Agriculture and Timber group’s Executive Team, the most senior decision making body in the company. Our Chief Sustainability Officer oversees implementation of SRI in matters of investment, operations, and policy, and SRI issues are further informed by sustainability working groups within Manulife Investment Management and Manulife.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

<table>
<thead>
<tr>
<th>Provide Incentives for the management of climate-related issues</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Members of the Executive Leadership Team currently have performance goals linked to diversity, equity, and inclusion, employee engagement, and leadership accountability. Goals linked to Manulife’s climate action plan have also been included. Monetary incentives are provided for the management of climate-related issues in our Manulife Investment Management Real Estate group.</td>
</tr>
</tbody>
</table>

C1.3a
(C.1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

<table>
<thead>
<tr>
<th>Entity to incentive</th>
<th>Type of incentive</th>
<th>Activity incentivized</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other, please specify (Real Estate Asset Manager)</td>
<td>Monetary reward</td>
<td>Strategic reduction target</td>
<td>Manulife Investment Management's real estate group has an Executive Sustainability Steering Committee which includes senior representatives from across Real Estate, to oversee the sustainability (ESG) strategy and implementation. It addresses both regulatory obligations and our voluntary commitments to sustainability and excellence in environmental performance for all our operations. Annual sustainability goal achievement is considered when determining performance and annual incentive compensation for each portfolio and property manager.</td>
</tr>
<tr>
<td>Corporate executive team</td>
<td>Monetary reward</td>
<td>Other (please specify) (Water and waste reduction targets)</td>
<td>Executives have performance goals linked to ESG metrics such as diversity, equity, and inclusion (DIE), employee engagement, and leadership accountability. Goals linked to Manulife’s Climate Action Plan will also be included in executive leadership team performance goals.</td>
</tr>
<tr>
<td>Chief Sustainability Officer (CSO)</td>
<td>Monetary reward</td>
<td>Emissions reduction target</td>
<td>The Chief Sustainability Officer has performance goals linked to Manulife’s ESG strategy, including the Climate Action Plan.</td>
</tr>
</tbody>
</table>

C-FSI.4

(C-FSI.4) Does your organization offer its employees an employment-based retirement scheme that incorporates ESG principles, including climate change?

We offer an employment-based retirement scheme that incorporates ESG principles, including climate change.

Row 1: Yes, as an investment option for some plans offered.

Manulife has a robust pension governance model which includes oversight Committees comprised of plan fiduciaries that routinely select and monitor the investment options available to plan members in company-sponsored defined contribution (DC) plans. DC investment options made available to members are intended to be sufficiently diversified, avoid excessive risk (including climate-related risk), and provide strong risk-adjusted long-term returns. Investment options are not evaluated on any single criteria, but include a myriad of factors, including social, environmental or ethical policies. Fund managers of the DC investment options take ESG considerations into account when selecting investments to the extent that it is expected to improve their risk-adjusted returns.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

<table>
<thead>
<tr>
<th>Time horizon</th>
<th>From (years)</th>
<th>To (years)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Medium-term</td>
<td>3</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Long-term</td>
<td>10</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

Manulife considers a climate-related risk and opportunities to be financially substantive if it has a negative impact on our financial position or our ability to operate. As such, climate-related risk has been identified with high priority in our Enterprise Risk Management: Evolving Risk Program. Impacts may be direct or indirect and may include business losses or disruption resulting from extreme weather conditions; the impact of changes in legal or regulatory frameworks made to address climate change; or increased mortality or morbidity resulting from environmental damage or climate change. We also include the impact on the value of owned assets of all these factors, particularly weather events and transition to a low carbon economy.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.
Value chain stage(s) covered
Direct operations

Risk management process
Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment
More than once a year

Time horizon(s) covered
Short-term
Medium-term
Long-term

Description of process
Consistent with TCFD, Manulife defines climate-related risk as the risk of loss, either directly through financial loss or indirectly through reputational damage, resulting from the inability or failure to adequately prepare for the impacts of climate change or the transition to a lower carbon economy. Climate-related risks can manifest through two dimensions - physical and transition risks. Physical risks include acute risks that are event driven, such as extreme heat or cold, catastrophic storms, and floods. It also includes chronic risks which are longer-term shifts in climate patterns, such as rising global temperatures and sea levels. Transition risks include risks associated with transitioning to a lower carbon economy and may entail extensive changes in policies, regulations, technologies, markets or consumer preferences to address mitigation and adaptation efforts. We view climate-related risk as a transverse risk, since the broad range of actual or potential risks can impact any of our key risks (e.g. market, credit, product, operational, legal, and reputational) through the manifestation of physical and transition climate-related risks. Governance – The Board of CGNC oversees matters related to climate change as part of the oversight of the Manulife ESG framework. The Board Risk Committee also considers climate-related risks and opportunities through the ongoing monitoring and reporting of emerging risks. Manulife’s Executive Sustainability Council is responsible for the climate strategy, risk management, and disclosures. The Manulife Climate Change Taskforce which consists of representatives from multiple businesses and functional areas and is led by the Chief Sustainability Officer, drives the development of the climate strategy, risk management activities on climate-related matters, performance tracking, and disclosures. Strategy – Manulife is a long-term oriented underwriter and investor. Therefore, long-term climate-related risks and opportunities, including changes in the physical environment and policy and technological changes associated with the transition to a lower carbon economy, are strategically relevant. In 2020, we continued the climate-related risk identification process across businesses, geographies, and time horizons. We performed a series of climate change stress tests to gain insight into the impact of climate-related risks on our investment portfolios and to inform capital management. In 2020, this included the Prudential Regulation Authority Scenarios A climate stress test that models the immediate and sudden impact of disorderly economic transition to constraining the rise in temperature to less than +2°C Celsius. Having stressed the general account assets with market value shocks ranging from +15% to -65% for various industrial sub sectors, our capital levels remained well above the minimum regulatory capital requirements. As of November 2020, Manulife is a founding participant in the Joint Bank of Canada / Office of the Superintendent of Financial Institutions’ pilot project that deploys climate change scenarios to understand the risks to the financial system that stem from the transition to a low-carbon economy. As part of Manulife’s support for the transition to a lower carbon economy, as of December 31, 2019, $14 billion, or 3.9% of General Account assets were invested into renewable energy and energy efficiency projects; 25.7 million square feet, or greater than 70% of our $1.4 billion real estate portfolio was certified to sustainable building standards such as LEED, BOCA, and Energy Star; and the entire $3.4 billion timberland portfolio was managed to third-party sustainability standards, including Forest Stewardship Council (“FSC”) and Programmes for the Endorsement of Forest Certification (“PEFC”). During 2020, our product and insurance risk management teams led the foundational framework for research and analysis of the impacts of climate change such as on vector-borne diseases (such as malaria), extreme weather events, and increased temperatures, on morbidity and mortality. The research along with experience data will help to inform decisions related to underwriting assumptions over the long term. The Property and Casualty Reinsurance business is annually priced and forms a smaller part of our underwriting portfolio. It may experience business risks associated with the increased frequency and severity of catastrophic weather events. Finally, for our third party asset management business, Manulife Investment Management (MIM) tested a climate scenario risk tool jointly with industry peers convened by the United Nations’ Environment Programme – Finance Initiative. We have identified this as a business opportunity in enabling clients to invest in decarbonization and we offer diversified investment funds with exposure to low-carbon opportunities.
risks and opportunities and tracks and benchmarks energy and GHG emissions. As building owners and managers, we minimize our environmental footprint by systematically investing in resource efficiency and embedding conservation practices throughout our operations. In our investment practices, we list sustainability issues and risks that must be considered in due diligence checklists. A "Sustainability in Investment and Due Diligence Summary Form" is completed for all investments, is signed off on by the investment manager and is provided as part of the investment package. This form specifically asks if there are any climate related risks identified during the due diligence process. We have set five year targets for energy, water and waste and a long-term greenhouse gas emissions target for 2040 that aligns with national and international greenhouse gas emissions reduction commitments. We report our progress to investors and other stakeholders through our Real Estate Sustainability Report, the annual GRESB for each fund and the PRI Direct Property Investing module. Manulife Investment Management's Agriculture and Timber group. Climate risk is assessed as part of the due diligence process for new acquisitions, where future water availability, fire and pest risk (among other issues) and carbon market opportunities are identified. One identified physical risk is chronic risks associated with changes in precipitation patterns and extreme variability in weather patterns. Our investment goal is to build diversified investment portfolios that are likely to reduce risks over the life of the asset. Process wise, the Agriculture and Timber group’s CFO uses quarterly risk registry updates to assess climate-related risks and opportunities; whereas the Agriculture and Timber group’s COO uses those registries to manage related risks.
(C2.2a) Which risk types are considered in your organization’s climate-related risk assessments?

<table>
<thead>
<tr>
<th>Relevance</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current regulation</td>
<td>Relevant, always included</td>
</tr>
<tr>
<td>Emerging regulation</td>
<td>Relevant, always included</td>
</tr>
<tr>
<td>Technology</td>
<td>Relevant, always included</td>
</tr>
<tr>
<td>Legal</td>
<td>Relevant, sometimes included</td>
</tr>
<tr>
<td>Market</td>
<td>Relevant, always included</td>
</tr>
<tr>
<td>Reputation</td>
<td>Relevant, always included</td>
</tr>
<tr>
<td>Aroa physical</td>
<td>Relevant, always included</td>
</tr>
</tbody>
</table>
(C-FS2.2b) Do you assess your portfolio’s exposure to climate-related risks and opportunities?

<table>
<thead>
<tr>
<th>We assess the portfolio’s exposure</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank lending (bank)</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>investing (Asset manager)</td>
<td>Yes</td>
</tr>
<tr>
<td>Investing (Asset owner)</td>
<td>Yes</td>
</tr>
<tr>
<td>Insurance underwriting (Insurance company)</td>
<td>Yes</td>
</tr>
<tr>
<td>Other products and services, please specify</td>
<td>Please select</td>
</tr>
</tbody>
</table>

We may take a variety of actions towards managing climate-related risks and opportunities across our businesses and investments to appropriately price climate risk (broadly summarized), our available actions relate to asset allocation and selection, investment analysis and research, proxy voting, mitigating direct GHG emissions, deploying best in class sustainability management practices for operated assets, and participating in collaborative industry climate initiatives. While we reserve the right to discontinue any investment, our preferred position is company engagement to encourage climate risk mitigation and adaptation strategies.

We assess and manage our portfolio’s exposure to climate-related risks and opportunities in our initial underwriting and ongoing monitoring processes. These risk assessments can most readily affect asset selection decisions, exposure thresholds, maturity profiles, and pricing criteria.

We assess our portfolio’s exposure to climate-related risks and opportunities through the Underwriting Climate Change Working Group which was formed late 2019 to look into incorporating climate into their risk framework. During 2020, our product and insurance risk management teams laid the foundational framework for research and analysis of the impacts of climate change, such as vector-borne diseases (such as malaria), extreme weather events, and increased temperatures, on morbidity and/or mortality. The research, along with experience data, will help to inform decisions related to underwriting assumptions over the long term.

C-FS2.2c

(C-FS2.2c) Describe how you assess your portfolio’s exposure to climate-related risks and opportunities.

<table>
<thead>
<tr>
<th>Portfolio coverage</th>
<th>Assessment type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank lending (bank)</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>investing (Asset manager)</td>
<td>Minority of the portfolio</td>
<td>Qualitative and quantitative</td>
</tr>
<tr>
<td>investing (Asset owner)</td>
<td>Majority of the portfolio</td>
<td>Quantitative</td>
</tr>
<tr>
<td>insurance underwriting (Insurance company)</td>
<td>Unknown</td>
<td>Qualitative and quantitative</td>
</tr>
<tr>
<td>Other products and services, please specify</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
</tbody>
</table>

At Manulife Investment Management, certain asset classes use a model to evaluate climate change risk which includes an assessment of the physical risks, transition risks and associated opportunities. The model measures a numerical output which measures the risk of loss for investments. At a portfolio level this helps identify the underlying companies with the greatest climate change exposure risk and whether the portfolio is more exposed to transition or physical risks. The model also helps identify companies which may be well positioned to benefit from the low-carbon transition. In our Real Estate business, we’ve built a three-step approach for resilience management that involves creating awareness, continuous evaluation, and integrating standards into operational practices. 1) Risks – Awareness – Building awareness is vital to educating real estate stakeholders on understanding the reality of climate change, how the climate is expected to change, how climate change can put a business and its operations at risk, what we can do to mitigate it, and how we can prepare and become resilient to such shocks and stresses. This is achieved primarily through training and access to climate data (climate risk analytics and modeling tools). 2) Evaluate risks and opportunities – Identifying and understanding the climate risk to a company or portfolio enables the development of resources and tools to manage the risk and improve resilience effectively. Our real estate business takes a global portfolio approach to understand our climate threats, inventing our existing resilience practices and features, and identify improvement opportunities for climate change management. Our approach includes an evaluation of both the real estate portfolios and property levels. Using the results of our assessments, we’ve developed a portfolio risk and resilience model that supports our team in identifying properties at high risk and assessing the level of preparedness for those risks. 3) Integrate best practices – We integrate our resilience standards into our global portfolio-wide proprietary Sustainable Building Standards program. As part of the program, we use a stepwise process to ensure property teams put into practice essential measures to strengthen portfolio resilience. We supplement it with training, guidance, and tools to support action while incorporating new initiatives to help teams progress and improve.

Manulife has undertaken, and will continue to implement, various processes to enable climate change risk assessments within its investment portfolio. An assessment of the overall carbon emissions of our investment portfolio is in progress. This assessment utilizes third-party data sources and internal models to assist in the calculation of these measures. In addition, Manulife is currently undertaking an assessment of higher-risk sectors within the portfolio to assess in setting decarbonization targets, with an expectation that an assessment of the Power Utilities sector will be completed in 2022, with Oil & Gas and other higher-emitting sectors following. As a result, to climate risks in individual assets, Manulife’s investment portfolio is governed by a set of ESG Guidelines that are followed when assessing ESG-related risks and opportunities, including climate change. Climate-related risks and opportunities are assessed at the time of initial underwriting and during the ongoing credit monitoring process. For each credit within the portfolio, an annual basis risk assessment report is created explicitly requiring an assessment of the most salient ESG risks of a credit, inclusive of climate change risks, which may include an assessment derived from primary data sources as well as industry reports and/or third-party providers (MSCI, S&P, etc.).

Additionally, in 2020, the Corporate Finance Group created a Climate Change Working Group to assess asset class risks (heat mapping), work to standardize and implement improved monitoring processes, and to educate departmental investment professionals to better assess and standardize portfolio-related risks.

C-FS2.2d
(C-FS2.2c) Do you assess your portfolio’s exposure to water-related risks and opportunities?

<table>
<thead>
<tr>
<th>Portfolio coverage</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank lending (Bank)</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
</tbody>
</table>

Investing (Asset manager)
- Yes
- Minority of the portfolio

Manulife is committed to responsible investing and sustainable management of our assets. Our efforts in this area include:
- Environmental, Social, and Governance (ESG) investment: Manulife Investment Management has developed a comprehensive ESG framework, which includes screening, engagement, and monitoring.
- Climate change and natural disasters: Manulife evaluates the potential risks and opportunities associated with climate change, including natural disasters and extreme weather events.
- Water-related risks: Manulife assesses the potential impact of water-related risks on our investments, including the risk of drought and flooding, and takes steps to mitigate these risks.

Insurance underwriting (Insurance company)
- Yes
- Unknown

The process of assessing the portfolio’s exposure to water-related risks and opportunities is ongoing. We continue to monitor and assess these risks as they develop.

Other products and services, please specify
- Please select

(C-FS2.2e) Do you assess your portfolio’s exposure to forest-related risks and opportunities?

<table>
<thead>
<tr>
<th>Portfolio coverage</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank lending (Bank)</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
</tbody>
</table>

Investing (Asset manager)
- Yes
- Minority of the portfolio

Manulife is committed to responsible investing and sustainable management of our assets. Our efforts in this area include:
- Environmental, Social, and Governance (ESG) investment: Manulife Investment Management has developed a comprehensive ESG framework, which includes screening, engagement, and monitoring.
- Climate change and natural disasters: Manulife evaluates the potential risks and opportunities associated with climate change, including natural disasters and extreme weather events.
- Water-related risks: Manulife assesses the potential impact of water-related risks on our investments, including the risk of drought and flooding, and takes steps to mitigate these risks.

Insurance underwriting (Insurance company)
- Yes
- Not applicable

This is not applicable to our insurance underwriting business.

Other products and services, please specify
- Please select

(C-FS2.2f) Do you request climate-related information from your clients/investees as part of your due diligence and/or risk assessment practices?

<table>
<thead>
<tr>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank lending (Bank)</td>
</tr>
</tbody>
</table>

Investing (Asset manager)
- Yes, for some

Investment teams consider ESG factors which may be material to their investment thesis during initial and ongoing due diligence. We request climate-related information from some of our clients/investees as part of our due diligence practices.

Investing (Asset owner)
- Yes, for some

We request climate-related information from some of our clients/investees as part of our due diligence practices. Manulife has a set of ESG Guidelines to follow when assessing ESG-related risks and opportunities, including climate-related ones. Formal processes are still being put in place.

Insurance underwriting (Insurance company)
- Not applicable

This is not applicable to our insurance underwriting business.

Other products and services, please specify
- Please select

(C-2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes
(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

### Identifier
Risk 1

#### Where in the value chain does the risk driver occur?
Direct operations

#### Risk type & Primary climate-related risk driver
Please select

- Primary potential financial impact
  - Increased indirect (operating) costs

- Climate risk type mapped to traditional financial services industry risk classification
  - Operational risk

#### Company-specific description
The Montreal Protocol is leading to the phase-out of HCFC-22 gases in air conditioning equipment. A significant portion of the air conditioning units in Real Estate's portfolio uses HCFC refrigerants (primarily R-122), which is a potent GHG. Due to phase-out regulations in Canada and the U.S., HCFC-22 refrigerants are being eliminated from the supply chain and no HCFC-22 (R-22) equipment will be manufactured or imported into Canada. These policies could increase service and maintenance requirements as HCFC equipment may need to be retired before its typical replacement period.

#### Time horizon
Short-term

#### Likelihood
Virtually certain

#### Magnitude of impact
Medium-low

#### Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

- Potential financial impact figure (currency)
  
  $500,000

- Potential financial impact figure - minimum (currency)
  
  <Not Applicable>

- Potential financial impact figure - maximum (currency)
  
  <Not Applicable>

#### Explanation of financial impact figure
Assuming 25%-50% of properties in Real Estate offices portfolio will require a chiller retrofit, capital costs could be in the range of $5 million per year. In 2017, chiller replacements in Chicago received almost $600,000 in government rebates to reduce this cost.

#### Cost of response to risk
0

#### Description of response and explanation of cost calculation
HCFC chillers, we try where possible to use low-GHG alternative gases. We are currently assessing the scope of this risk for operations and plan to compile a consolidated inventory of chiller equipment across the portfolio to design a strategy to comply with phase-out regulations. There is no additional cost for managing this risk. It is part of Manulife Real Estate's Operations and Engineering and Technical Services group mandate.

#### Comment

---

**Identifier**
Risk 2

#### Where in the value chain does the risk driver occur?
Direct operations

#### Risk type & Primary climate-related risk driver

<table>
<thead>
<tr>
<th>Emerging regulation</th>
<th>Carbon pricing mechanism</th>
</tr>
</thead>
</table>

#### Primary potential financial impact
Increased indirect (operating) costs

#### Climate risk type mapped to traditional financial services industry risk classification
Policy and legal risk

#### Company-specific description
Carbon taxes and cap and trade programs come into effect in Alberta and Ontario in 2017, two provinces where Real Estate has operations, as well as in the state of California. A national price for carbon emissions will be rolled out where Real Estate operates. Carbon pricing schemes increase operating costs and is proportionately impacts costs for less efficient properties.

#### Time horizon
Short-term

#### Likelihood

---

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.
Virtually certain

Magnitude of impact
Medium-low

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
480,000

Potential financial impact figure – minimum (currency)<Not Applicable>

Potential financial impact figure – maximum (currency)<Not Applicable>

Explanation of financial impact figure
The Canadian Tax Journal estimates that a $30 per tonne carbon tax would mean a 30% price increase in natural gas and a 13% price increase in electricity. This would translate to additional costs of $4.8 million for all Canadian operations by 2022. Other regions, such as California, would also see proportionally similar costs.

Cost of response to risk
0

Description of response and explanation of cost calculation
Estimated budget increases from carbon pricing is included in property budgets, which rolls up to business planning. For example, in 2016, Real Estate’s utility management consultants Solution 105 provided estimated cost increases to properties in Alberta for their 2017 budgeting process. There is no additional cost for managing this risk. It is part of Manulife Real Estate’s Operations and Engineering and Technical Services group mandate.

Comment

Identifier
Risk 3

Where in the value chain does the risk driver occur?
Downstream

Risk type & Primary climate-related risk driver

Market: Changing customer behavior

Primary potential financial impact
Decreased revenues due to reduced demand for products and services

Climate risk type mapped to traditional financial services industry risk classification
Operational risk

Company-specific description
Increasing demand for sustainable and energy-efficient properties, particularly in the commercial office portfolio may lead to risk of properties underperforming or not meeting tenants’ sustainability demands. Additionally, tenants and investors place greater expectations on companies to manage and disclose their sustainability performance.

Time horizon
Short-term

Likelihood
Very likely

Magnitude of impact
Medium-low

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
85,000,000

Potential financial impact figure – minimum (currency)<Not Applicable>

Potential financial impact figure – maximum (currency)<Not Applicable>

Explanation of financial impact figure
Manulife Investment Management’s real estate group has set five-year targets for energy, water and waste that managers are assessed against annually. Manager performance is also benchmarked against other portfolio performance and benchmarks such as GRESS. Real Estate’s Sustainable Building Standards program applies to both third-party and internal managers. Our minimum expectation in the program includes all properties having an energy management plan, track annual utility consumption, and engage with tenants on sustainability. Manulife Investment Management’s real estate team has had strong energy, water and waste management practices in place for many years and has five-year 10% energy reduction, 75% water reduction and 65% waste diversion targets. Tracking energy and water performance over time has shown consistent decreases in energy and water use intensities and resulted in average energy and water use intensities that are below industry benchmarks for the properties we have owned and managed for many years. For newer properties, programs have not been in place long enough to realize the same positive impact.

Cost of response to risk
0

Description of response and explanation of cost calculation
Given the rising demand among commercial tenants, Manulife continues to invest in sustainability to attract and retain tenants and sustain occupancy. As of end of 2019,
Manulife had 48.7 million square feet certified to LEED, BOMA BEST, or Energy Star. There is no additional cost for managing this risk. It is part of Manulife Investment Management's real estate arm's Sustainability and Asset Management's mandates.

**Comment**

**Identifier**
Risk 4

**Where in the value chain does the risk driver occur?**
Direct operations

**Risk type & Primary climate-related risk driver**

<table>
<thead>
<tr>
<th>Current regulation</th>
<th>Mandates on and regulation of existing products and services</th>
</tr>
</thead>
</table>

**Primary potential financial impact**
Increased capital expenditures

**Climate risk type mapped to traditional financial services industry risk classification**
Operational risk

**Company-specific description**
Mandatory building disclosure for energy and water performance is in place in many US cities where Real Estate operates and was launched in the Province of Ontario in 2018. Other cities and regions will likely follow. These regulations add transparency may reduce demand for properties that are below average efficiency. These regulations may require capital to improve efficiency to make properties marketable.

**Time horizon**
Short-term

**Likelihood**
About as likely as not

**Magnitude of impact**
Low

**Are you able to provide a potential financial impact figure?**
No, we do not have this figure

**Potential financial impact figure (currency)**
<Not Applicable>

**Potential financial impact figure – minimum (currency)**
<Not Applicable>

**Potential financial impact figure – maximum (currency)**
<Not Applicable>

**Explanation of financial impact figure**
Estimated financial impacts are difficult to assess as costs for any property will depend on local market performance relative to similar properties. Property costs may include lower vacancy rates in poorly performing properties or capital costs to improve efficiency. There are also small costs to comply with disclosure requirements.

**Cost of response to risk**

**Description of response and explanation of cost calculation**
Properties are required to disclose performance in Chicago, New York and Boston, due to municipal programs. Many properties utilize third-party consultants to comply with regulations and verify data. There is no additional cost for managing this risk. It is part of Manulife Investment Management’s real estate arm Sustainability mandate.

**Comment**

**Identifier**
Risk 5

**Where in the value chain does the risk driver occur?**
Direct operations

**Risk type & Primary climate-related risk driver**

<table>
<thead>
<tr>
<th>Chronic physical</th>
<th>Changes in precipitation patterns and extreme variability in weather patterns</th>
</tr>
</thead>
</table>

**Primary potential financial impact**
Increased direct costs

**Climate risk type mapped to traditional financial services industry risk classification**
Operational risk

**Company-specific description**
Extreme high temperatures or increased presence of storms increase the risk of disrupted electricity supply resulting in the need to operationalize business continuity plans and ensure back-up fuel sources (i.e., generators).

**Time horizon**
Short-term

**Likelihood**
Very likely

**Magnitude of impact**
Medium low
Are you able to provide a potential financial impact figure?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

**Explanation of financial impact figure**
Real Estate has not assessed the scale of this risk in financial terms, but we expect disruptions caused by extreme temperatures to have minimal impact on financial returns given the distributed nature of Real Estate’s operations and the business continuity plans already in place for such events. Real Estate has already equipped properties with generation capacity to provide electricity during blackouts. Both at the time of the acquisition, and on a rolling review basis, we identify flood risk and prepare flood plans. These are conducted both by our Technical Services Team, and our insurance provider.

**Cost of response to risk**
500,000

**Description of response and explanation of cost calculation**
Most properties have a business continuity plan to respond to supply disruptions. We also view improved energy efficiency as a method to manage the risk of extraordinary energy costs during periods of high electricity demand. Energy is tracked at all properties that pay for utilities. Annual performance at all properties is examined and reported internally by our energy management provider, Solution109. The cost to develop and implement business continuity plans and flood plans is low, and mainly relates to internal employee training costs. With respect to energy costs, the extraordinary costs related to extreme weather in the real estate portfolio are estimated at $5 million per year.

**Comment**

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Risk 6</th>
</tr>
</thead>
</table>

**Where in the value chain does the risk driver occur?**
Direct operations

**Risk type & Primary climate-related risk driver**

<table>
<thead>
<tr>
<th>Current regulation</th>
<th>Enhanced emissions-reporting obligations</th>
</tr>
</thead>
</table>

**Primary potential financial impact**
Increased direct costs

**Climate risk type mapped to traditional financial services industry risk classification**
Please select

**Company-specific description**
There could be an increased operational cost for oil & gas producers associated with the introduction of a carbon tax and its implementation and integration with federal regulations.

**Time horizon**
Long term

**Likelihood**
Very unlikely

**Magnitude of impact**
High

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

**Potential financial impact figure (currency)**

**Potential financial impact figure – minimum (currency)**
<Not Applicable>

**Potential financial impact figure – maximum (currency)**
<Not Applicable>

**Explanation of financial impact figure**

**Cost of response to risk**

**Description of response and explanation of cost calculation**
Commenced implementation of an internal carbon price. Evaluating carbon reduction investment opportunities on a case-by-case basis. Capital costs on a per case basis. G&A costs of ~$250K/year.

**Comment**

---

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes
(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

**Identifier**
Op2

**Where in the value chain does the opportunity occur?**
Downstream

**Opportunity type**
Products and services

**Primary climate-related opportunity driver**
Development and/or expansion of low emission goods and services

**Primary potential financial impact**
Increased revenues resulting from increased demand for products and services

**Company-specific description**
Commercial office tenants are increasingly looking to occupy properties that have superior environmental performance and support tenants’ corporate sustainability objectives. Real Estate believes that its reputation as a leading owner and manager of green commercial real estate in North America has a positive impact on Manulife Investment Management’s ability to attract and retain high-quality tenants and positively influence own employees who work in those.

**Time horizon**
Short-term

**Likelihood**
Likely

**Magnitude of impact**
Medium-low

Are you able to provide a potential financial impact figure?
No, we do not have this figure

**Potential financial impact figure (currency)**
<Not Applicable>

**Potential financial impact figure - minimum (currency)**
<Not Applicable>

**Potential financial impact figure - maximum (currency)**
<Not Applicable>

**Explanation of financial impact figure**
Research published in the Journal of Portfolio Management (Sep. 2015) shows that properties with sustainability ratings or certifications (e.g. Energy Star, LEED, BOMA BEST) command rental rates that are roughly 3.7 percent higher per square foot than otherwise identical properties. The same study demonstrates numerous other benefits, including lower rent concessions, higher occupancy and lower operating costs. From this study, it can be extrapolated that a LEED certification, for example, can add 10% on the market value of a property.

**Cost to realize opportunity**

**Strategy to realize opportunity and explanation of cost calculation**
Energy efficiency investment and green building certification is managed at the asset-level with sign-off at the corporate-level. Manulife Investment Management’s real estate arm encourages property managers to take advantage of local/regional energy efficiency incentives and green building schemes, such as LEED and BOMA Best (Canada). As of the end of the year 2019, Manulife had 49.7 million square feet certified to LEED, BOMA BEST or Energy Star. Real Estate integrates best sustainability practices in developments as well. Costs associated with building certifications are incorporated into a building’s operating budget, or incorporated into the development proforma and new development budget. The cost of LEED certification varies depending on the type of certification being pursued. For new construction, LEED Gold certification can add up to 4 percent to the cost of construction and more than $100,000 in additional design/consulting fees. The cost of LEED certification for existing buildings varies depending on performance, and ranges from $20,000 to $100,000 depending on required building upgrades, external consulting fees and size of the building.

**Comment**

**Identifier**
Op2

**Where in the value chain does the opportunity occur?**
Downstream

**Opportunity type**
Products and services

**Primary climate-related opportunity driver**
Development and/or expansion of low emission goods and services

**Primary potential financial impact**
Increased revenues resulting from increased demand for products and services

**Company-specific description**
As tenant organizations place greater emphasis on their corporate sustainability goals, there is an opportunity to provide them with additional services related to climate change. One example would be providing tenants with renewable energy to power their operations. This can be achieved both from on-site renewable energy generation and by off-site renewable procurement.

**Time horizon**
**Short-term**

**Likelihood**
About as likely as not

**Magnitude of impact**
Medium-low

**Are you able to provide a potential financial impact figure?**
Yes, a single figure estimate

**Potential financial impact figure (currency)**
700,000

**Potential financial impact figure – minimum (currency)**
<Not Applicable>

**Potential financial impact figure – maximum (currency)**
<Not Applicable>

**Explanation of financial impact figure**
The primary benefits of a renewable energy strategy and tenant offering would be differentiation and to be good corporate citizens. If the Real Estate were able to procure or generate renewable electricity and sell to 20% of tenants to cover their electricity demand, at an average rate of $8 per MWh, this could generate an additional $700,000 annually.

**Cost to realize opportunity**
0

**Strategy to realize opportunity and explanation of cost calculation**
In 2016 and 2017, Real Estate developed a strategy for renewable energy, which included large scale procurement and tenant offerings. In 2018, Real Estate looked to validate its tenant offering strategy and secure commitment to increase renewable energy procurement in the portfolio. Management costs include the time required to develop renewable energy. This cost is still being assessed as part of our strategy.

**Comment**

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Opp3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where in the value chain does the opportunity occur?</td>
<td>Direct operations</td>
</tr>
<tr>
<td>Opportunity type</td>
<td>Energy source</td>
</tr>
<tr>
<td>Primary climate-related opportunity driver</td>
<td>Use of lower-emission sources of energy</td>
</tr>
<tr>
<td>Primary potential financial impact</td>
<td>Returns on investment in low-emission technology</td>
</tr>
<tr>
<td>Company-specific description</td>
<td>Decreasing costs to produce renewable energy compared to rising overall costs for energy production create an opportunity to invest in renewable energy. Entering into long-term power purchase agreements (PPAs) provide an opportunity to support emissions reductions at properties and generate returns.</td>
</tr>
<tr>
<td>Time horizon</td>
<td>Short-term</td>
</tr>
<tr>
<td>Likelihood</td>
<td>About as likely as not</td>
</tr>
<tr>
<td>Magnitude of impact</td>
<td>Medium-low</td>
</tr>
<tr>
<td>Are you able to provide a potential financial impact figure?</td>
<td>No, we do not have this figure</td>
</tr>
<tr>
<td>Potential financial impact figure (currency)</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Potential financial impact figure – minimum (currency)</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Potential financial impact figure – maximum (currency)</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Explanation of financial impact figure</td>
<td>Impacts of the opportunity depend on many factors, including deal size and structure and future energy prices. It is therefore difficult to estimate.</td>
</tr>
<tr>
<td>Cost to realize opportunity</td>
<td>0</td>
</tr>
<tr>
<td>Strategy to realize opportunity and explanation of cost calculation</td>
<td>Manulife Investment Management’s Real Estate is has engaged regime Manulife Investment teams to identify potential for sourcing renewable energy deals internally. The cost of management was predominantly time required by real estate employees to participate in the consortium. An energy consultant has also been utilized to assess the deal and help develop an overall strategy. This cost is still being assessed as part of our strategy.</td>
</tr>
</tbody>
</table>

**Comment**

| Identifier | Opp4 |
Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Resource efficiency

Primary climate-related opportunity driver
Other, please specify

Primary potential financial impact
Other, please specify (Resource efficiency, increased assets value)

Company-specific description
Manulife owns a significant portfolio of timber and agricultural land. With rising average temperatures induced by a changing climate, it is likely that we will experience a longer growing season in many regions which could increase productivity and thus the overall value of our land assets.

Time horizon
Long-term

Likelihood
Likely

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
A significant portion of our agricultural land is in North America. The IPCC reports that over the first few decades of this century, moderate climate change would increase aggregate yields of rain-fed agriculture by 5-20%, but with important variability among regions. While it is difficult to predict what impact changing temperatures will have on the value of our agricultural assets over the next several decades, it could be in the range of +10-20%.

Cost to realize opportunity
0

Strategy to realize opportunity and explanation of cost calculation
1. Identify those crops that farmers can produce competitively in a global market. Competitively produced crops include such staples as corn, soybeans, almonds, and walnuts. We eliminate crops that do not pass this screen. 2. Identify the low-cost production regions for those crop types that were identified in step (1). For example, although corn and soybeans can be grown in almost every state, we purchase land that produces these crops almost exclusively in the Midwest and the Mississippi Delta, avoiding higher-cost production areas. 3. Identify those properties in the low-cost production regions that have the highest expected risk-adjusted returns. Climate change-related risks figure into this analysis. This is the "bottom-up" part of the strategy, where our acquisition team and our property management partners focus their efforts. Potential acquisitions are screened to make sure properties meet client objectives and have attractive risk/return characteristics. The cost of managing the opportunity will likely not be materially different than managing assets today; rather management options will change. As such, cost of risk management in previous column is 0.

Comment

Identifier
Opt5

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Energy source

Primary climate-related opportunity driver
Shift toward decentralized energy generation

Primary potential financial impact
Increased revenues resulting from increased demand for products and services

Company-specific description
A continued decline in solar panel prices will see more commercial properties adding solar panels to their roofs. We have already financed a small number of portfolios and anticipate more will come. These do need some support from local government and this has generally been halted in Ontario, but we do believe over time these types of assets will come back and be financeable.

Time horizon
Medium-term

Likelihood
Likely

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
100000000
**Potential financial impact figure** – minimum (currency)
<Not Applicable>

**Potential financial impact figure** – maximum (currency)
<Not Applicable>

**Explanation of financial impact figure**
We see the potential from these types of portfolio financings in the range of $100 million of EVA (Economic Value Add). This would be the profitability over comparable public transactions or opportunity cost investments.

**Cost to realize opportunity**
0

**Strategy to realize opportunity and explanation of cost calculation**
Managed by current portfolio team. No additional cost to realize the opportunity.

**Comment**

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Op96</th>
</tr>
</thead>
</table>

**Where in the value chain does the opportunity occur?**
Direct operations

**Opportunity type**
Markets

**Primary climate-related opportunity driver**
Other, please specify

**Primary potential financial impact**
Other, please specify (increased revenue, greater demand)

**Company-specific description**
As with the above, our portfolio is dependent to some degree on the policy of the government and the utilities providing Power Purchase Agreements to the market. We are at a low point in the cycle right now as BC, Ontario and Quebec are absorbing the costs from the previous cycle but anticipate within the next 5 years this part of the market will come back as these provinces enter new rounds of renewable energy growth.

**Time horizon**
Medium-term

**Likelihood**
Likely

**Magnitude of impact**
Medium

**Are you able to provide a potential financial impact figure?**
Yes, a single figure estimate

**Potential financial impact figure (currency)**
250000000

**Potential financial impact figure – minimum (currency)**
<Not Applicable>

**Potential financial impact figure – maximum (currency)**
<Not Applicable>

**Explanation of financial impact figure**
As above, this number is an incremental value add number. We would typically participate in a large percentage of the new transactions in the Canadian market if and when they come to fruition. The amount would be earned over a 3 or 4-year period.

**Cost to realize opportunity**
0

**Strategy to realize opportunity and explanation of cost calculation**
Managed by current portfolio team. No additional cost to realize the opportunity.

**Comment**

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Op97</th>
</tr>
</thead>
</table>

**Where in the value chain does the opportunity occur?**
Upstream

**Opportunity type**
Products and services

**Primary climate-related opportunity driver**
Development and/or expansion of low emission goods and services

**Primary potential financial impact**
Other, please specify (Reputational benefits resulting from increased demand for goods/services)

**Company-specific description**
In November 2017, Manulife issued its inaugural Singapore dollar 500 million green bond, whereby proceeds were allocated to the wind and solar energy projects in North America. In May 2018, Manulife followed up with the second CAN$600 million green bond issue with proceeds allocated to renewable energy, buildings energy efficiency and sustainably managed forestry.
Time horizon
Short term

Likelihood
 Likely

Magnitude of impact
 Medium-low

Are you able to provide a potential financial impact figure?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Unknown

Cost to realize opportunity
0

Strategy to realize opportunity and explanation of cost calculation
Continue investing in a sustainable economy. Managed by current portfolio team. No additional cost to realise opportunity.

Comment

identifier
Op90

Where in the value chain does the opportunity occur?
Downstream

Opportunity type
Products and services

Primary climate-related opportunity driver
Development and/or expansion of low emission goods and services

Primary potential financial impact
Other, please specify (increased revenue through demand for lower emissions products and services)

Company-specific description
We actively participate in carbon markets through our Manulife Investment Management agriculture and timber businesses. There could be an increase in demand for carbon credits by our clients.

Time horizon
Short term

Likelihood
Very likely

Magnitude of impact
Unknown

Are you able to provide a potential financial impact figure?
No, we do not have this figure

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
We actively participate in carbon markets. In 2019 alone, we sold over 2.2 million credits from our New Zealand forests. Since inception, we have sold over 61 million metric tons of carbon credits. We anticipate growth in carbon sequestration opportunities over time, both within and outside traditional carbon markets.

Cost to realize opportunity
0

Strategy to realize opportunity and explanation of cost calculation
Work with investors to develop and source capital for carbon sequestration opportunities in our timberland and agriculture businesses.

Comment

C3. Business Strategy
(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?

Yes

(C3.1b) Does your organization intend to publish a low-carbon transition plan in the next two years?

<table>
<thead>
<tr>
<th>Intention to publish a low-carbon transition plan</th>
<th>Intention to include the transition plan as a scheduled resolution item at Annual General Meetings (AGMs)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, in the next two years</td>
<td>No, we do not intend to include it as a scheduled AGM resolution item</td>
<td>Manulife and its board of directors continually monitor evolving governance practices, including items of business to be included at annual meetings of shareholders. On May 6, 2021, at our AGM, Manulife's CEO announced the first phase of our climate action plan. Key commitments included a commitment to reduce absolute scope 1 and 2 emissions 35 per cent by 2035, and a net zero commitment with respect to our financed emissions by 2050. To establish a strategy for Manulife’s financed emissions net zero ambition, the Company is taking a sector-based approach, focusing first on the heavy emitting industries, such as power generation, to establish near term milestones to reduce targets.</td>
</tr>
</tbody>
</table>

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

Yes, qualitative and quantitative

(C3.2a) Provide details of your organization’s use of climate-related scenario analysis.

<table>
<thead>
<tr>
<th>Climate-related scenarios and models applied</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCP 4.5 RCP 8.5 ISE Sustainable development scenario</td>
<td>To deepen our understanding of the climate-related risks and opportunities for our Agriculture and Timber assets, we conducted our own analysis of the potential impacts under both high- and low-carbon scenarios. The transition component of the analysis used the International Energy Agency (IEA) 2019 World Energy Outlook (WEO) scenarios, while the physical component used the Intergovernmental Panel on Climate Change (IPCC) Representative Concentration Pathways (RCP). The high-carbon scenario accentuated physical impacts with RCP 8.5 and used the IEA WEO Based Policies Scenario (STEPS) for transition elements. The low-carbon scenario accentuated transition-related impacts under the IEA WEO Sustainable Development Scenario (SIDS) and used RCP 4.5 for physical elements. Comprehensive, portfolio-wide scenario analysis for our timberland and timberland assets requires account, longterm, site-specific data and sector-specific transition results. Currently, globally recognized and peer-reviewed data for timberland and agriculture assets is limited. We are exploring ways to obtain or develop information tailored to sector-relevant scenarios to achieve fuller results in future years. Our scenario analysis for this year involved two business case studies: agriculture in California and timberland in New Zealand. Both analyses focused on downscaled high-carbon physical impacts and low-carbon transition elements. We selected our California agriculture assets and New Zealand timberland assets because we believe our asset classes in these regions provide a reasonable approximation for the breadth of potential climate scenario impacts on our business until we complete a full portfolio-wide scenario analysis. For our third-party Asset Management business, Manulife Investment Management jointly tested a climate scenario risk tool with industry peers convened by the United Nations Environment Programme Finance Initiative (UNEP FI). We have identified this as a business opportunity in enabling clients to invest in decarbonization and we offer diversified investment funds with exposure to low-carbon opportunities. In 2020, we performed a series of climate change stress tests to gain insight into the impact of climate-related risks on our investment portfolios and to inform capital management. In 2020, this included the Prudential Regulation Authority Scenarios A climate stress test that models the immediate and sudden impact of a steady economic transition to containing the rise in temperature to less than ‘+2°C’ having stressed the General Account assets with market value shocks ranging from +15% to -45% for various industrial sub-sectors, our capital levels remained well above the minimum regulatory capital requirements. As of November 2020, Manulife is a founding participant in the Joint Bank of Canada/Office of the Superintendent of Financial Institutions pilot project that deploys climate change scenarios to understand the risks to the financial system that stem from the transition to a low-carbon economy.</td>
</tr>
</tbody>
</table>

(C3.3)
(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

| Products and services | Yes | Real Estate established the Filmframe Energy Working Group to develop a business plan to provide clean energy offerings to tenants, which includes members of Manulife's specialized renewable energy project finance team, leveraging internal capabilities. We have implemented a sustainability strategy to increase the environmental performance of our portfolio to make it more appealing to top-tier tenants with sustainability objectives. As a lender and agriculture investment manager, there is opportunity in managing investments to reduce carbon from the atmosphere and offers opportunities for investors to focus on carbon sequestration as an objective. Public Markets. Our sustainable investing capabilities range from ESG integration to thematic investing. Where our clients include socially responsible investors, we are investing in requirements in their investment guidelines, and strategies that we believe will evaluate and determine if we will be able to offer a tailored version of the strategy, which will be dependent in both the short and long-term, as well as access to the ESG sector. Our supply chain management includes the consideration of both carbon and environmental impact, and our investors can consider investments in both the short and long-term.
| Supply chain and/or value chain | Yes | Corporate. Manulife has a Place of Conduct that includes adverse to environmental standards to ensure vendors perform to a minimum standard, helping reduce reputational and operational risk to Manulife. Vendors who provide Manulife with services and/or products are expected to adhere to the requirements of Manulife's Code of Conduct.

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

<table>
<thead>
<tr>
<th>Financial planning elements that have been influenced</th>
<th>Description of influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>Revenues</td>
</tr>
<tr>
<td>Capital expenditure</td>
<td>Capital allocation</td>
</tr>
</tbody>
</table>

(C3.4a) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

NA

(C-FS3.6) Are climate-related issues considered in the policy framework of your organization?

Yes, climate-related issues are integrated into our general policy framework that relates to our financing activities.

(C-FS3.6a)
(C-FS3.6a) In which policies are climate-related issues integrated?

<table>
<thead>
<tr>
<th>Type of policy</th>
<th>Portfolio coverage of policy</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank lending (bank)</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Investing (Asset manager)</td>
<td></td>
<td>The Sustainable Investing Statement describes how we integrate material ESG factors. Provides a list of common ESG issues considered during the different stages of the investment process, including climate change.</td>
</tr>
<tr>
<td>Investing (Asset owner)</td>
<td></td>
<td>The entirety of Manulife’s investment portfolio is governed by a set of ESG guidelines that are followed when assessing ESG-related risks and opportunities, including climate change.</td>
</tr>
</tbody>
</table>

C-FS3.7

(C-FS3.7) Are climate-related issues factored into your external asset manager selection process?

Yes, for some assets managed externally

C-FS3.7a

(C-FS3.7a) How are climate-related issues factored into your external asset manager selection process?

<table>
<thead>
<tr>
<th>Process for factoring climate-related issues into external asset manager selection</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review manager’s climate-related policies Assessment of asset managers’ climate-related performance (e.g. active ownership, proxy voting records, underweighting in high impact activities) Other, please specify (Some managers are SRI, so require detail from manager on actions, holdings, any non-compliant buildings. Also thematic managers who have climate as a theme)</td>
<td>Understanding and assessing all elements of a manager’s process is key to our assessment and ongoing oversight, and ESG integration is among the factors considered, which would include climate-related issues. During our selection process we conduct extensive due diligence meetings with portfolio managers, risk managers and key executives. In conjunction with these interactions, we seek to understand if there is a clearly stated position and investment belief on key issues, such as climate, and how that is factored into the investment process and company engagement. Specifically, on ESG and climate-related issues we are focused on the manager’s overall governance framework, integration of ESG factors into the investment process and degree of active ownership and engagement for any new strategy. We continue to monitor the integration and stated objectives after the strategy is on our platform through regular and recurring engagement, including a formal and comprehensive annual due diligence, the outcome of which are discussed with our Global Investment Products Team and BMO Investment Committees globally.</td>
</tr>
</tbody>
</table>

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Both absolute and intensity targets

C4.1a
(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number
Abs 1

Year target was set
2021

Target coverage
Company-wide

Scope(s) (or Scope 3 category)
Scope 1+2 (location-based)

Base year
2019

Covered emissions in base year (metric tons CO2e)
302088

Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)
100

Target year
2035

Targeted reduction from base year (%)
35

Covered emissions in target year (metric tons CO2e) [auto-calculated]
196378.2

Covered emissions in reporting year (metric tons CO2e)
218765

% of target achieved [auto-calculated]
78.7878271988362

Target status in reporting year
New

Is this a science-based target?
Yes, we consider this a science-based target, but it has not been approved by the Science-Based Targets initiative

Target ambition
Well-below 2°C aligned

Please explain (including target coverage)
We are targeting a 35% reduction in absolute Scope 1 and 2 emissions by 2035. To ensure this target has a meaningful impact, we have committed to the Science Based Targets initiative, to guide and validate our target setting, measurement and progress reporting.

---

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number
Int 1

Year target was set
2017

Target coverage
Business division

Scope(s) (or Scope 3 category)
Scope 1+2 (location-based)

Intensity metric
Metric tons CO2e per square foot

Base year
2017

Intensity figure in base year (metric tons CO2e per unit of activity)
0.0053

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure
20

Target year
2022

Targeted reduction from base year (%)
10

Intensity figure in target year (metric tons CO2e per unit of activity) [auto-calculated]
0.00477
% change anticipated in absolute Scope 1+2 emissions
2

% change anticipated in absolute Scope 3 emissions
0

Intensity figure in reporting year (metric tons CO2e per unit of activity)
0.004

% of target achieved [auto-calculated]
24.5, 29301867924

Target status in reporting year
Achieved

Is this a science-based target?
No, but we are reporting another target that is science-based

Target ambition
<Not Applicable>

Please explain (including target coverage)
We are targeting a 1.0% energy consumption reduction (energy efficiency improvement target) between 2017 to 2022 associated with carbon emission per square foot in our real estate portfolio. This is a business division target as it relates only to the real estate portfolio. Manulife has achieved its target. It should be noted that the COVID-19 pandemic contributed to a decrease in energy consumption in 2020.

Target reference number
IT12

Year target was set
2020

Target coverage
Business division

Scope(s) (or Scope 3 category)
Scope 1+2 (market-based)

Intensity metric
Other, please specify (kg CO2e per sq. ft.)

Base year
2018

Intensity figure in base year (metric tons CO2e per unit of activity)
5.3

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure
100

Target year
2050

Targeted reduction from base year (%)
80

Intensity figure in target year (metric tons CO2e per unit of activity) [auto-calculated]
1.08

% change anticipated in absolute Scope 1+2 emissions
2.67

% change anticipated in absolute Scope 3 emissions
0

Intensity figure in reporting year (metric tons CO2e per unit of activity)
4

% of target achieved [auto-calculated]
30.6037773584906

Target status in reporting year
Underway

Is this a science-based target?
No, but we are reporting another target that is science-based

Target ambition
<Not Applicable>

Please explain (including target coverage)
We are targeting an 80% reduction in greenhouse gas emission intensity for our global real estate portfolio by 2050, using 2018 as the baseline. This is a business division target as it relates only to the global Manulife Investment Management Real Estate portfolio.

C4.2
(C4.2) Did you have any other climate-related targets that were active in the reporting year?
Net zero target(s)
Other climate-related target(s)

C4.2b

(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.

<table>
<thead>
<tr>
<th>Target reference number</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oth 1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year target was set</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target coverage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Business division</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target type: absolute or intensity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensity</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target type: category &amp; Metric (target numerator if reporting an intensity target)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy consumption or efficiency</td>
<td>kWh</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target denominator (intensity targets only)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>square foot</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Base year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Figure or percentage in base year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>20.2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2022</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Figure or percentage in target year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>18.18</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Figure or percentage in reporting year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>17.5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% of target achieved [auto-calculated]</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>133.63% (83% of target achieved)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target status in reporting year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Underway</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Is this target part of an emissions target?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No, it’s not part of an overarching initiative</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Is this target part of an overarching initiative?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No, it’s not part of an overarching initiative</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Please explain (including target coverage)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>We are targeting a 10% energy reduction between 2017 to 2022 associated with equivalent kWh (orkWh) per square foot in our real estate portfolio. This is a business division target as it relates only to the real estate portfolio.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target reference number</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oth 2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year target was set</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target coverage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Business division</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target type: absolute or intensity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensity</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target type: category &amp; Metric (target numerator if reporting an intensity target)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste management</td>
<td>metric tons of waste diverted from landfill</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target denominator (intensity targets only)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>metric ton of waste</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Base year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Figure or percentage in base year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>52</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2022

Figure or percentage in target year
65

Figure or percentage in reporting year
52

% of target achieved [auto-calculated]
0

Target status in reporting year
Underway

Is this target part of an emissions target?
This is not part of an emission target

Is this target part of an overarching initiative?
No, it’s not part of an overarching initiative

Please explain (including target coverage)
We are targeting a 6.9% waste diversion rate by 2022 associated in our real estate portfolio. This is a business division target as it relates only to the real estate portfolio.

Target reference number
0th 3

Year target was set
2017

Target coverage
Business division

Target type: absolute or intensity
Intensity

Target type: category & Metric [target numerator if reporting an intensity target]
Other, please specify
Other, please specify (Water use (L))

Target denominator (intensity targets only)
square foot

Base year
2017

Figure or percentage in base year
64

Target year
2022

Figure or percentage in target year
59

Figure or percentage in reporting year
39

% of target achieved [auto-calculated]
500

Target status in reporting year
Underway

Is this target part of an emissions target?
This is not part of an emission target

Is this target part of an overarching initiative?
No, it’s not part of an overarching initiative

Please explain (including target coverage)
We are targeting a 7.9% water reduction between 2017 to 2022 associated with litres per square foot in our real estate portfolio. This is a business division target as it relates only to the real estate portfolio.

C4.2c
(C4.2c) Provide details of your net-zero target(s).

Target reference number
NZ1

Target coverage
Business division

Absolute/Intensity emission target(s) linked to this net-zero target
Not applicable

Target year for achieving net zero
2050

Is this a science-based target?
Yes, and we have committed to seek validation of this target by the Science Based Targets initiative in the next 2 years

Please explain (including target coverage)
We are committed to steering our investment portfolio to be net zero by 2050. To drive our journey, we are taking a sector-based approach, focusing first on the heavy emitting industries, such as power generation, and we will establish near-term emissions reduction targets. Manulife has committed to the Science Based Targets initiative, which will guide target setting, measurement, and progress reporting.

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

<table>
<thead>
<tr>
<th>Stage of Development</th>
<th>Number of Initiatives</th>
<th>Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under Investigation</td>
<td>19</td>
<td>52</td>
</tr>
<tr>
<td>To be implemented*</td>
<td>15</td>
<td>78.9</td>
</tr>
<tr>
<td>Implementation commenced*</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Implemented*</td>
<td>43</td>
<td>246.17.32</td>
</tr>
<tr>
<td>Not to be implemented</td>
<td>3</td>
<td>4.8</td>
</tr>
</tbody>
</table>

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

<table>
<thead>
<tr>
<th>Initiative category &amp; Initiative type</th>
<th>Low-carbon energy consumption</th>
<th>Low-carbon electricity mix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated annual CO2e savings (metric tonnes CO2e)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16820</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scope(s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scope 2 (market based)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voluntary/Mandatory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voluntary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual monetary savings (unit currency - as specified in C9.4)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Investment required (unit currency - as specified in C9.4)</td>
<td>185614</td>
<td></td>
</tr>
<tr>
<td>Payback period</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Estimated lifetime of the initiative</td>
<td>&lt;1 year</td>
<td></td>
</tr>
<tr>
<td>Comment</td>
<td>Manulife Investment Management - 20 buildings purchased renewable energy in 2020. A total of 48.5-40 MWh of renewable energy was purchased</td>
<td></td>
</tr>
</tbody>
</table>

Initiative category & Initiative type

<table>
<thead>
<tr>
<th>Initiative category &amp; Initiative type</th>
<th>Energy efficiency in buildings</th>
<th>Building Energy Management Systems (BEMS)</th>
</tr>
</thead>
</table>
Estimated annual CO2e savings (metric tonnes CO2e)  
3.6

Scope(s)
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)  
19360

Investment required (unit currency – as specified in C0.4)  
248050

Payback period  
11-15 years

Estimated lifetime of the initiative  
>30 years

<table>
<thead>
<tr>
<th>Initiative category &amp; initiative type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy efficiency in buildings</td>
</tr>
</tbody>
</table>

Estimated annual CO2e savings (metric tonnes CO2e)  
70.1

Scope(s)
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)  
250588

Investment required (unit currency – as specified in C0.4)  
945897

Payback period  
4-10 years

Estimated lifetime of the initiative  
6-10 years

<table>
<thead>
<tr>
<th>Initiative category &amp; initiative type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy efficiency in buildings</td>
</tr>
</tbody>
</table>

Estimated annual CO2e savings (metric tonnes CO2e)  
0.1

Scope(s)
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)  
5200

Investment required (unit currency – as specified in C0.4)  
275000

Payback period  
>25 years

Estimated lifetime of the initiative  
21-30 years

<table>
<thead>
<tr>
<th>Initiative category &amp; initiative type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy efficiency in buildings</td>
</tr>
</tbody>
</table>

Estimated annual CO2e savings (metric tonnes CO2e)  
0.2

Scope(s)
Scope 2 (location-based)
Voluntary/Mandatory
Voluntary
Annual monetary savings (unit currency – as specified in C0.4)
13000
Investment required (unit currency – as specified in C0.4)
95000
Payback period
4-10 years
Estimated lifetime of the initiative
21-30 years
Comment

### Initiative category & Initiative type

<table>
<thead>
<tr>
<th>Energy efficiency in buildings</th>
<th>Maintenance program</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Estimated annual CO2e savings (metric tonnes CO2e)**

0.1

**Scope(s)**

Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
31.79

Investment required (unit currency – as specified in C0.4)
8184

Payback period
1-3 years

Estimated lifetime of the initiative
Ongoing

Comment
Energy efficiency in buildings

### Initiative category & Initiative type

<table>
<thead>
<tr>
<th>Energy efficiency in buildings</th>
<th>Other, please specify (Controls)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Estimated annual CO2e savings (metric tonnes CO2e)**

3.2

**Scope(s)**

Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
29656

Investment required (unit currency – as specified in C0.4)
160000

Payback period
4-10 years

Estimated lifetime of the initiative
11-15 years

Comment

### Initiative category & Initiative type

<table>
<thead>
<tr>
<th>Low-carbon energy generation</th>
<th>Solar PV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Estimated annual CO2e savings (metric tonnes CO2e)**

7902

**Scope(s)**

Scope 1

Voluntary/Mandatory
C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

<table>
<thead>
<tr>
<th>Method</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial optimization calculations</td>
<td>Investments in emissions reduction are primarily driven by a strong business case for energy efficiency. Retrofits, building upgrades, recommissioning and other efficiency projects are implemented across the portfolio on an ongoing basis. Government incentives further contribute to the business case, increasing rate of return on efficiency projects.</td>
</tr>
<tr>
<td>Dedicated budget for other emissions reduction activities</td>
<td>Selected properties and regions have a dedicated budget for purchasing renewable energy credits. Purchased 45,300 MWh of renewable energy.</td>
</tr>
<tr>
<td>Employee engagement</td>
<td>Selected properties and regions have a dedicated budget for purchasing renewable energy credits. Purchased 45,300 MWh of renewable energy. Real Estate provides tools and training to investment, property management and operations staff regarding integrating sustainability, including energy efficiency and related carbon reductions into investment and asset management processes. Manulife Investment Management’s real estate group provides employees with training, both in person and through its online training platform. Training topics include sustainability in real estate and energy management. More broadly, the Manulife Investment Management ESG team periodically conducts ESG-related training sessions for staff in the following departmental areas: - Investment teams (with a focus on equity staffed income) - Compliance and legal - Marketing compliance - Sales/Distribution - Client portfolio managers. For all investment staff, the ESG Integration team has commenced periodic training sessions on ESG issues for which current and medium term can vary, e.g. executive pay analysis. Training sessions are led either by the internal ESG team or leverage external service providers and experts. Investment staff attendance at ESG training sessions (internal or external) is tracked.</td>
</tr>
<tr>
<td>Compliance with regulatory requirements/standards</td>
<td>Real Estate complies with all regulatory and code requirements for energy efficiency, and mandatory energy and water reporting and disclosure in the jurisdictions that we operate.</td>
</tr>
<tr>
<td>Internal incentives/recognition programs</td>
<td>Real Estate rolled out its Sustainable Building Standard in 2017. This program rewards properties for implementing strong sustainability practices in 13 sustainability focus areas, of which 4 can be directly linked to mitigating climate impacts.</td>
</tr>
</tbody>
</table>

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a
(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

**Level of aggregation**
Group of products

**Description of product/Group of products**
Manulife Investment Management's U.S. Retail business, John Hancock Investment Management, has four environmental, social and governance (ESG) dedicated mutual funds. Our ESG lineup includes funds managed by three ESG specialist firms with proven track records of combining financial returns with positive impact. Our ESG funds are designed to help investors pursue high risk-adjusted returns relative to traditional investments, while supporting companies with strong governance that are making a positive impact on the environment and society. [https://www.jhinvestments.com/eso/our-esg-funds](https://www.jhinvestments.com/eso/our-esg-funds)

Are these low-carbon product(s) or do they enable avoided emissions?
Low-carbon product

**Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**
Other, please specify (Low carbon investment funds)

% revenue from low carbon product(s) in the reporting year
0.1

% of total portfolio value

**Asset classes/product types**

<table>
<thead>
<tr>
<th>Investing</th>
<th>Fixed income</th>
</tr>
</thead>
</table>

**Comment**
Through Manulife Investment Management’s agriculture and timber businesses, we actively participate in carbon markets. In 2019 we sold over 1.2 million credits from our New Zealand forests. Since inception, we have sold over 8.1 million metric tons of carbon credits.

---

(C4.5b) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

**Level of aggregation**
Product

**Description of product/Group of products**
We actively participate in carbon markets through our Manulife Investment Management agriculture and timber businesses.

Are these low-carbon product(s) or do they enable avoided emissions?
Low-carbon product

**Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions**
Other, please specify (Carbon Credits)

% revenue from low carbon product(s) in the reporting year
0.1

% of total portfolio value

**Asset classes/product types**

<table>
<thead>
<tr>
<th>Investing</th>
<th>Fixed income</th>
</tr>
</thead>
</table>

**Comment**
Our Climate Action equity strategy was launched in May 2021 and has a structured methodology to target real-world decarbonization and climate solutions. The temperature gauge of the portfolio is tracked and monitored.

---

C5. Emissions methodology
C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start
January 1 2019

Base year end
December 31 2019

Base year emissions (metric tons CO2e)
99478

Comment

Scope 2 (location-based)

Base year start
January 1 2019

Base year end
December 31 2019

Base year emissions (metric tons CO2e)
202610

Comment

Scope 2 (market-based)

Base year start
January 1 2019

Base year end
December 31 2019

Base year emissions (metric tons CO2e)
191874

Comment

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

ISO 14064-1
Other, please specify (Greenhouse Gas Protocol: Scope 2 Guidance (An amendment to the GHG Protocol Corporate Standard))

C5.2a

(C5.2a) Provide details of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.


C6. Emissions data

C6.1
(C6.1) What were your organization’s gross global Scope 1 emissions in metric tons CO2e?

Reporting year
Gross global Scope 1 emissions (metric tons CO2e)
55933

Start date
<Not Applicable>

End date
<Not Applicable>

Comment
2020 emissions include emissions from NAL Resources. NAL Resources, representing the majority of emissions and energy use, was one of Manulife's wholly owned subsidiaries until it was divested in January 2021.

C6.2

(C6.2) Describe your organization’s approach to reporting Scope 2 emissions.

Row 1
Scope 2, location-based
We are reporting a Scope 2, location-based figure

Scope 2, market-based
We are reporting a Scope 2, market based figure

Comment

C6.3

(C6.3) What were your organization’s gross global Scope 2 emissions in metric tons CO2e?

Reporting year
Scope 2, location-based
253187
Scope 2, market-based (if applicable)
241505

Start date
<Not Applicable>

End date
<Not Applicable>

Comment
2020 emissions include emissions from NAL Resources. NAL Resources, representing the majority of emissions and energy use, was one of Manulife's wholly owned subsidiaries until it was divested in January 2021.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

Yes

C6.4a

(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.

Source
Refrigerants and back up diesel use from NAL Resources facilities

Relevance of Scope 1 emissions from this source
Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source
No emissions excluded

Relevance of market-based Scope 2 emissions from this source (if applicable)
No emissions excluded

Explain why this source is excluded
NAL Resources currently does not collect this information. We estimate that refrigerants and back up diesel fuel represent less than 1% of Manulife’s emissions.
(C9.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status
Relevant, calculated

Metric tonnes CO2e
24,689

Emissions calculation methodology
We calculated the GHG emissions associated with our transactional and office paper. We apply a conversion factor of 2.549g CO2e/tonne of paper purchased. This emission factor is taken from the Environmental Paper Network 2015, Paper Calculator. We used the emission factor for uncoated freestock, 0% recycled to be conservative in our calculation. We calculate emissions from third-party data centres. This is done by multiplying the electricity use kWh by the emission factor relevant for the province or state in which the data centre is located taken from the IEA 2020 Emission Factors, the US EPA eGrid emission factors, Summary Tables, released 2020, and the Canadian National Inventory Report written in 2020. We calculate emissions from Contractor Fuel Use from the Manulife Investment Management's agriculture and timber business.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain

Capital goods

Evaluation status
Relevant, not yet calculated

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status
Relevant, not yet calculated

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain

Upstream transportation and distribution

Evaluation status
Relevant, not yet calculated

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
As a financial institution, emissions associated with upstream transportation and distribution are not considered material in the context of our Scope 3 value chain emission inventory.
Waste generated in operations

Evaluation status
Not relevant, calculated

Metric tonnes CO2e
1365

Emissions calculation methodology
We measure the amount of waste to landfill in our real estate portfolio and apply a mixed municipal solid waste emission factor of 0.31tCO2e/tonne for waste. The emission factor comes from the EPA Waste Reduction Model (WARM), version 15, November 2020.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain

Business travel

Evaluation status
Relevant, calculated

Metric tonnes CO2e
9999

Emissions calculation methodology
Employee business travel by air and by passenger car mileage is tracked centrally by our procurement team who works with our travel partners in Canada and the U.S. Emission factors for air travel are provided by the 2020 Guidelines to UK Defra GHG Conversion Factors for Company Reporting. Three different emission factors were used 0.12788 kg CO2e/km for a short haul (<483 km), 0.08145kg CO2e/km for medium haul (>483km, <3700 km) and 0.09994 kg CO2e/km for long haul (>3700km). For personal car mileage the emission factor is from the EPA Emission Factor for Greenhouse Gas Inventories, March 2020.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain

Employee commuting

Evaluation status
Relevant, not yet calculated

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Manulife is continuing to refine our Scope 3 emissions inventory

Upstream leased assets

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
All properties leased by Manulife are included in Manulife’s scope 1 and 2 emissions.

Downstream transportation and distribution

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
As a financial institution, emissions associated with downstream transportation and distribution are not considered material in the context of our scope 3 value chain emission inventory.
Processing of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
As a financial institution, emissions associated with downstream transportation and distribution are not considered material in the context of our scope 3 value chain emission inventory.

Use of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
As a financial institution, emissions associated with downstream transportation and distribution are not considered material in the context of our scope 3 value chain emission inventory.

End of life treatment of sold products

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
As a financial institution, emissions associated with downstream transportation and distribution are not considered material in the context of our scope 3 value chain emission inventory.

Downstream leased assets

Evaluation status
Relevant, calculated

Metric tonnes CO2e
225981

Emissions calculation methodology
We calculate scope 1 and 2 emissions from properties leased by Manulife Investment Management’s agriculture and timber business.

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain

Franchises

Evaluation status
Not relevant, explanation provided

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
As a financial institution, emissions associated with downstream transportation and distribution are not considered material in the context of our scope 3 value chain emission inventory.
Other (upstream)

Evaluation status
Please select

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain

Other (downstream)

Evaluation status

Metric tonnes CO2e
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure
0.00010298

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
809017

Metric denominator
unit total revenue

Metric denominator: Unit total
78908000000

Scope 2 figure used
Location-based

% change from previous year
22

Direction of change
Decreased

Reason for change
Intensity figure changed due to a decrease in scope 1 and 2 emissions. COVID-19 pandemic policies for remote work, and purchase and sale of assets throughout the year contributed to a decrease in emissions in 2020.

Intensity figure
21.8

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
809017

Metric denominator
full time equivalent (FTE) employee

Metric denominator: Unit total
37198

Scope 2 figure used
Location-based

% change from previous year
22

Direction of change
Decreased

Reason for change
Intensity figure decreased due to a slight decrease in total FTE from 37,842 in 2019 to 37,198 in 2020 and decrease in emissions. COVID-19 pandemic policies for remote work, and purchase and sale of assets throughout the year contributed to a decrease in emissions in 2020.
C7. Emissions breakdowns

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

<table>
<thead>
<tr>
<th>Change in emissions (metric tons CO2e)</th>
<th>Direction of change</th>
<th>Emissions value (percentage)</th>
<th>Please explain calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in renewable energy consumption</td>
<td>&lt;Not Applicable&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other emissions reduction activities</td>
<td>&lt;Not Applicable&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divestment</td>
<td>&lt;Not Applicable&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquisitions</td>
<td>&lt;Not Applicable&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mergers</td>
<td>&lt;Not Applicable&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in output</td>
<td>&lt;Not Applicable&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in methodology</td>
<td>&lt;Not Applicable&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in boundary</td>
<td>&lt;Not Applicable&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in physical operating conditions</td>
<td>&lt;Not Applicable&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unidentified</td>
<td>&lt;Not Applicable&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>238996</td>
<td>Decreased</td>
<td>23 COVID-19 pandemic policies for remote work, and purchase and sale of assets throughout the year contributed to a decrease in emissions in 2020.</td>
</tr>
</tbody>
</table>

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 0% but less than or equal to 5%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

<table>
<thead>
<tr>
<th>Energy-related activity</th>
<th>Indicate whether your organization undertook this activity in the reporting year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption of fuel (excluding fuels used)</td>
<td>Yes</td>
</tr>
<tr>
<td>Consumption of purchased or acquired electricity</td>
<td>Yes</td>
</tr>
<tr>
<td>Consumption of purchased or acquired heat</td>
<td>No</td>
</tr>
<tr>
<td>Consumption of purchased or acquired steam</td>
<td>Yes</td>
</tr>
<tr>
<td>Consumption of purchased or acquired cooling</td>
<td>Yes</td>
</tr>
<tr>
<td>Generation of electricity, heat, steam, or cooling</td>
<td>No</td>
</tr>
</tbody>
</table>
C8.2a

(C8.2a) Report your organization’s energy consumption totals (excluding feedstocks) in MWh.

<table>
<thead>
<tr>
<th>Consumption of fuel (excluding feedstock)</th>
<th>Heating value</th>
<th>MWh from renewable sources</th>
<th>MWh from non-renewable sources</th>
<th>Total (renewable and non-renewable) MWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption of purchased or acquired electricity</td>
<td>&lt;Not Applicable&gt;</td>
<td>39546</td>
<td>64370</td>
<td>485016</td>
</tr>
<tr>
<td>Consumption of purchased or acquired steam</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Consumption of purchased or acquired cooling</td>
<td>&lt;Not Applicable&gt;</td>
<td>0</td>
<td>1850</td>
<td>1850</td>
</tr>
<tr>
<td>Consumption of self-generated non-fuel renewable energy</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Total energy consumption</td>
<td>&lt;Not Applicable&gt;</td>
<td>39546</td>
<td>2451238</td>
<td>2530784</td>
</tr>
</tbody>
</table>

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

<table>
<thead>
<tr>
<th>Scope</th>
<th>Verification/Assurance status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope 1</td>
<td>Third-party verification or assurance process in place</td>
</tr>
<tr>
<td>Scope 2 (Activity-based or market-based)</td>
<td>Third-party verification or assurance process in place</td>
</tr>
<tr>
<td>Scope 3</td>
<td>Third-party verification or assurance process in place</td>
</tr>
</tbody>
</table>

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
HNRG Timber_2020 GHG Inventory Verification - Letter.pdf
HNRG Ag_2020 GHG Inventory Verification - Letter.pdf
Manulife_Assurance_Statement_2020_EN.pdf

Page/section reference
1-3

Relevant standard
ISO4064-3

Proportion of reported emissions verified (%)
100

C10.1b
(C10.1b) Provide further details of the verification assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach
Scope 2 location-based

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
HNHG Timber_2020 GHG Inventory Verification - Letter.pdf
HNHG Ag_2020 GHG Inventory Verification - Letter.pdf
Manulife_Assurance_Statement_2020_EN.pdf

Page/section reference
1-3

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

---

(C10.1c) Provide further details of the verification assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category
Scope 3: Business travel

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
Manulife_Assurance_Statement_2020_EN.pdf

Page/section reference
1-3

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
100

---

Scope 3 category
Scope 3: Waste generated in operations

Verification or assurance cycle in place
Annual process
Status in the current reporting year
Complete
Type of verification or assurance
Limited assurance
Attach the statement
Manulife_Assurance_Statement_2020_EN.pdf
Page/section reference
1-3
Relevant standard
ISO14064-3
Proportion of reported emissions verified (%)
100

Scope 3 category
Scope 3: Upstream leased assets
Verification or assurance cycle in place
Annual process
Status in the current reporting year
Complete
Type of verification or assurance
Limited assurance
Attach the statement
Manulife_Assurance_Statement_2020_EN.pdf
Page/section reference
1-3
Relevant standard
ISO14064-3
Proportion of reported emissions verified (%)
100

Scope 3 category
Scope 3: Purchased goods and services
Verification or assurance cycle in place
Annual process
Status in the current reporting year
Complete
Type of verification or assurance
Limited assurance
Attach the statement
Manulife_Assurance_Statement_2020_EN.pdf
Page/section reference
1-3
Relevant standard
ISO14064-3
Proportion of reported emissions verified (%)
100

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?
Yes

C10.2a
(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

<table>
<thead>
<tr>
<th>Disclosure module verification relates to</th>
<th>Data verified</th>
<th>Verification standard</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>C8. Energy</td>
<td>Energy consumption</td>
<td>Energy use was verified at limited assurance using the ISO:4064-3 standard.</td>
<td>MANulife decided to verify energy use which includes kWh of electricity &amp; steam, and combustion of natural gas &amp; diesel fuel. We feel it is important to have these values verified to provide accuracy and transparency in the values we are reporting.</td>
</tr>
</tbody>
</table>

C11. Carbon pricing

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

No, but we anticipate doing so in the next two years

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our customers
Yes, our investee companies
Yes, other partners in the value chain

C12.1b
(C12.1b) Give details of your climate-related engagement strategy with your customers.

**Type of engagement**
Education/information sharing

**Details of engagement**
Run an engagement campaign to educate customers about the climate change impacts of (using) your products, goods, and/or services

**% of customers by number**
100

**% of customer-related Scope 3 emissions as reported in C6.5**
0

**Portfolio coverage (total or outstanding)**
All of the portfolio

Please explain the rationale for selecting this group of customers and scope of engagement
Tenants' behaviour has major impacts on a building's energy usage and waste production as well as the use of alternate transportation and other factors that can mitigate climate impacts. By engaging tenants, Real Estate can have a much greater impact. All Real Estate properties are encouraged to participate in some form of tenant engagement. 100% - Our Sustainable Building Standards are applicable to all properties and include tenant engagement strategies and tenant campaign materials for all properties.

**Impact of engagement, including measures of success**
Manulife Investment Management Real Estate's Sustainable Building Standards provide guidance to our property managers on material ESG initiatives such as energy, water and waste management, and tenant and community engagement. Property managers are expected to achieve at least level 1 (out of 5 levels) for all properties in all property asset classes. In 2019, Manulife Investment Management's real estate team rolled out a tenant engagement calendar across global operations and tracked participation using our annual Green Champion Survey. In our bi-annual tenant survey, 82% of our office tenants listed sustainable building operations as either "Very Important" or "Important". Manulife Investment Management's Real Estate arm engages with tenants (i.e. customers) to foster a commitment to energy conservation, waste and carbon emission reductions. E-mail communications, tenant sustainability handbooks, newsletters, building campaign posters, LCD displays in elevators and building websites are all utilized to promote and provide updates on Manulife's initiatives and to offer ongoing reinforcement and continual education. Success is measured by improvements to footprint year over year. Real Estate has a comprehensive Sustainable Building Standards program which promotes energy and water reduction, and tenant engagement and provide properties with resources to support their sustainability activities.

---

**Type of engagement**
Education/information sharing

**Details of engagement**
Share information about your products and relevant certification schemes (i.e. Energy STAR)

**% of customers by number**
100

**% of customer-related Scope 3 emissions as reported in C6.5**
0

**Portfolio coverage (total or outstanding)**
All of the portfolio

Please explain the rationale for selecting this group of customers and scope of engagement
Real Estate fund investors increasingly care about climate risks and opportunities and want to see that they are being managed. Real Estate, therefore, wants to demonstrate to investors that climate change and sustainability are important and are managed in their portfolios. All investors are engaged through GRESB and sustainability reporting initiatives. 100% of our properties are included in our GRESB response. This information is available to investors. Further, we list the percentage of our portfolio with building certifications (LEED, Energy Star) in our Sustainability Report, which is publicly available.

**Impact of engagement, including measures of success**
Manulife Real Estate participates in the Global Real Estate Sustainability Benchmark (GRESB) each year for all funds. GRESB is an investor-led initiative to benchmark real estate funds on sustainability performance, including aspects of climate risk and opportunity. In addition, Real Estate produces an annual sustainability report each year for all stakeholders including investors. The sustainability report includes a section on supporting the transition to a clean economy that details how Real Estate is addressing risks and opportunities related to climate change. Further, Real Estate is responding to the GRESB assessment's resilience questionnaire for three of our submissions.

---

C-FS121c
(C-FS12.1d) Give details of your climate-related engagement strategy with your investee companies.

Type of engagement
Information collection (Understanding investee behavior)

Details of engagement
Included climate change in investee selection / management mechanism

% of investees by number
10.5

% Scope 3 emissions as reported in C-FS14.1a/C-FS14.1b
0

Portfolio coverage
Minority of the portfolio

Rationale for the coverage of your engagement
Through due diligence and risk monitoring processes, we identify companies as targets for engagement. Either the investment or ESG teams may initiate engagement. Engagement provides greater insight into the quality of a company's ESG management and performance, and company responses to engagement are tracked over time. In the case of equities, engagement informs each investment team's approach to proxy voting.

Impact of engagement, including measures of success
Currently, only our Manulife Investment management group engages with our investee companies. For our engagements, we look to document and track the issue as well as any outcome achieved. For example, in 2020 we engaged with a company that manages ports, with a focus on climate change. We engaged with the company to learn more about GHG emissions targets and climate risk mitigation strategies. The company had achieved significant reduction in energy intensity and is in process of developing SBTS. Also, the company conducts biodiversity assessments for all its ports. Robust safety program and has made improvements to make board and committees more independent.

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

Manulife considers other partners in the value chain to be employees, regulators, civil society and industry peers. The purpose of our climate-related engagement activities is to build our own capacity/knowledge on climate issues, help capacity build in our sector, and ensure our value chain is aligned on the management of climate-related issues.

In the past two years, Manulife collaborated on the following climate-related engagement strategies:
- Manulife's Chief Financial Officer signed the Accounting for Sustainability (AAS) letter supporting the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures, as well as the GFO Net Zero Statement of Support.
- Manulife Investment Management, Manulife's global third-party asset management arm, was one of the founding members of the Climate Action 100+, a five-year collaborative engagement initiative involving more than 200 institutional investors. Through this initiative, we will engage with investee companies to better understand their climate risk plans and disclosures, and advocate for better practices where necessary.
- Manulife Investment Management participated in the UNEP FI Investor Pledge of the TCFD recommendations.
- Manulife Investment Management's Agriculture and Timber group sponsored the Massachusetts Institute of Technology's Joint Program on the Science and Policy of Global Change, providing the team with cutting-edge, authoritative, peer-reviewed science related to climate change, drawing upon a range of academic disciplines from oceanography to economics.
- Manulife partnered with the Intact Centre for Climate Adaptation at the University of Waterloo to launch a foundational study of the impact of climate change on health.
- Manulife Real Estate trained more than 200 of its employees on applying sustainability fundamentals in their roles.
- Manulife Real Estate established a cross-company renewable energy working group to explore future low-carbon and carbon-free investment opportunities.
- Manulife Real Estate developed a network of more than 125 green champions, each of whom acts as the sustainability point person and role model at their respective properties.
- Manulife Real Estate is a member of the BOMA Resilience Committee to draft flood resilient guidelines for commercial properties.
- Manulife is a member of the Canadian Standards Association (CSA) Technical Committee on Sustainable and Transition along with Canadian peers in the Financial Services sector. The focus is on developing Canadian transition finance principles and taxonomy, to build on the recommendations of Canada’s Expert Panel on Sustainable Finance and contribute to the mobilization of capital associated with the global transition towards net zero greenhouse gas (GHG) emissions by 2050.

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?
Direct engagement with policy makers
Trade associations
Funding research organizations
Other

C12.3a
(C12.3a) On what issues have you been engaging directly with policy makers?

<table>
<thead>
<tr>
<th>Focus of legislation</th>
<th>Corporate position</th>
<th>Details of engagement</th>
<th>Proposed legislative solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other, please specify (U.S. Climate Policy)</td>
<td>Neutral</td>
<td>National Alliance of Forest Owners (NAFO) and by extension Manulife Investment Management’s approach to managing real estate assets and liabilities with respect to climate change.</td>
<td>Amendment to the Clean Air Act</td>
</tr>
</tbody>
</table>

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

<table>
<thead>
<tr>
<th>Trade association</th>
<th>Is your position on climate change consistent with theirs?</th>
<th>Please explain the trade association’s position</th>
<th>How have you influenced, or are you attempting to influence their position?</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Alliance of Forest Owners (NAFO)</td>
<td>Consistent</td>
<td>This industry group is actively engaged in US policy discussions surrounding climate change impacts and opportunities for the forest products industry.</td>
<td>Member of National Alliance of Forest Owners.</td>
</tr>
<tr>
<td>Australian Forest Products Association (AFPA)</td>
<td>Consistent</td>
<td>This industry group is actively engaged in Australian policy discussions surrounding climate change impacts and opportunities for the forest products industry.</td>
<td>Member of Australian Forest Products Association.</td>
</tr>
<tr>
<td>Geneva Association</td>
<td>Consistent</td>
<td>The Geneva Association put out a Climate Risk Statement in support of adaptation measures and other policy changes.</td>
<td>Manulife is a member.</td>
</tr>
<tr>
<td>REALpac</td>
<td>Consistent</td>
<td>Form the REALpac website, “REALpac recognizes the significant environmental, social, and economic impact of Canada’s the commercial real property sector, the need for an industrial driven approach toward supporting national and provincial strategies on greenhouse gas reduction, the importance of reasoned discourse with political and policy officials and the value of persuasive arguments for sustainable economic growth. The Association also recognizes the need for industry-wide “green” benchmarking data and shared best practices, and is working with its counterparts and its national and international counterparts to help to responsibly ensure the sector is well-positioned for a sustainable future.”</td>
<td>Manulife Investment Management’s real estate Director of Sustainability sits on the REALPAC ESG committee and provides contributions to Ontario’s future building energy benchmarking and mandatory reporting requirements. Manulife Investment Management’s real estate Director of Sustainability is a member of the BOMA Resilience Committee to draft flood resilience guidelines for commercial properties.</td>
</tr>
<tr>
<td>The Canadian Green Building Council (CaGBC)</td>
<td>Consistent</td>
<td>The CaGBC provided recommendations on how to meet Canada’s GHG reduction goals in a 2016 report. The report outlines four key recommendations aimed at...</td>
<td></td>
</tr>
</tbody>
</table>
meeting Canada’s climate change targets while fueling the growth of Canada’s sustainable building industry. The four recommendations include new data proving the effectiveness of these measures, if taken immediately: 1. Meet Canada’s climate change targets by investing in and providing incentives for energy efficiency improvements (such as recommissioning, deep retrofits, solar and renewable onsite energy systems, and switching of fuel systems) in existing buildings commercial, institutional and high-rise residential buildings over 25,000 sq ft, to reach high-performance energy efficiency. 2. Strengthen building performance by advancing building energy benchmarking, reporting and disclosure initiatives 3. Invest in net-zero buildings 4. Reduce the Government’s GHG Emissions.

**How have you influenced, or are you attempting to influence their position?**

The Regional Managing Director, Western Canada from the real estate team is Chair of the Board of the Canada Green Building Council (CaGBC). The CaGBC provides recommendations on how to help meet Canada’s GHG reduction goals. A 2016 report outlines four key recommendations aimed at meeting Canada’s climate change targets while fueling the growth of Canada’s sustainable building industry.

---

**Trade association**

A Better City

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association’s position**

A Better City is a diverse group of business leaders united around a common goal — to enhance Boston and the region’s economic health, competitiveness, vibrancy, sustainability and quality of life. A Better City develops solutions and influences policy in three critical areas: economic development, transportation and infrastructure, and environment and energy. Under environment and energy, A Better City has three focus areas, including reducing carbon emissions and building climate resiliency. A Better City has developed several resources and undertaken multiple initiatives to advance these areas.

**How have you influenced, or are you attempting to influence their position?**

Member.

---

**Trade association**

Clean Energy BC

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association’s position**

Form the Clean Energy BC website, “Clean Energy BC has been the voice of British Columbia’s clean energy industry for the past 25 years. The purpose of the association is to: - Promote BC’s clean energy industry - Assist the growth of manufacturing supply, and service industry in BC serving clean energy production in BC and around the world - Build relationships with all levels of government, BC Hydro, First Nations, environmental organizations and the public to improve the sector’s social licence. - Ensure the business and regulatory climate is reasonable and efficient for operating assets. - Improve the regulatory and economic environments for clean energy production in BC - Work with environmental organizations to develop science-based clean energy development models.”

**How have you influenced, or are you attempting to influence their position?**

An employee is a founding member of Clean Energy BC. We have participated directly with this association to lobby for new generation programs and have assisted in drafting or commenting on new procurement initiatives.

---

**Trade association**

Ontario Waterpower Association (OWA)

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association’s position**

Form the OWA website, “OWA is a not-for-profit, member-based organization promoting the sustainable development of waterpower resources in Ontario.” OWA is a strong advocate of climate change initiatives.

**How have you influenced, or are you attempting to influence their position?**

An employee is a founding member of OWA. We have participated directly with this association to lobby for new generation programs and have assisted in drafting or commenting on new procurement initiatives.

---

**Trade association**

Massachusetts Competitive Partnership

**Is your position on climate change consistent with theirs?**

Consistent

**Please explain the trade association’s position**

The Partnership includes an energy committee, which includes climate

**How have you influenced, or are you attempting to influence their position?**

Marianne Harrison, President of John Hancock, is a member of the organization’s Board.

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**C12.3d**

(C12.3d) Do you publicly disclose a list of all research organizations that you fund?

No

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**C12.3e**
(C12.3e) Provide details of the other engagement activities that you undertake.

Manulife Investment Management's Agriculture and Timber group is a member of the Climate Smart Land Network (CSLN). CSLN is an alliance of forest landowners and land managers that are working together to respond to the challenges posed by climate change. The program is structured to assist Network members in identifying and implementing pragmatic on-the-ground solutions that both meet their management goals and increase natural system resiliency to climate change. The agriculture and timber group also sponsors the Joint Program on the Science and Policy of Global Change at the Massachusetts Institute of Technology (MIT). The Joint Program provides access to historical information, analysis, projections and modeling capabilities focused on climate change and its impacts using state-of-the-art economic and earth system models. The agriculture and timber group is also a member of the World Business Council for Sustainable Development (WBCSD), the Global Impact Investing Network (GIIN), and the Forest Climate Working Group (FCWG).

The Global Real Estate Sustainability Benchmark (GRESSB) – Manulife Investment Management’s real estate arm employees participated in GRESSB industry events in Canada, including a panel on transitioning to a low carbon in real estate. Real Estate is a member of the BOMA Resilience Committee to draft flood resilient guidelines for commercial properties. Real Estate participated in consultations for the Federal Advisory Council on Climate Action and the Expert Panel on Sustainable Finance.

Manulife Investment Management (Public Markets) is a member of the Investor Leaders Group, and part of the Cambridge Institute for Sustainability Leadership.

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

In 2018, Manulife introduced the Sustainability Center of Expertise (COE), made up of sustainability leads across the Business that meet formally on a monthly basis. Representatives from the company’s Compliance, Regulatory and Public Affairs teams also participate in this group. The COE which consists of corporate functions and business unit sustainability leads tasked with integrating sustainability into business practices. This group’s responsibilities include leading the development and implementation of the sustainability strategy; ensuring integration of sustainability into business unit strategies, policies, and procedures; and advising on sustainability matters and providing support and capacity building to business units. The work coming out of the COE is shared with the Executive Sustainability Council.

C12.4

(C12.4) Have you published information about your organization’s response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

<table>
<thead>
<tr>
<th>Publication</th>
<th>In mainstream reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Complete</td>
</tr>
</tbody>
</table>

Attach the document
MFC_ClimateChangeStatement_EN.pdf

PageSection reference
1-4

Content elements
Governance
Strategy
Risks & opportunities
Emission targets

Comment
Manulife Financial Corporation Climate Change Statement; available at:

<table>
<thead>
<tr>
<th>Publication</th>
<th>In voluntary sustainability report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Complete</td>
</tr>
</tbody>
</table>

Attach the document
MFC_SR_PAS_2020.pdf

PageSection reference
4-5, 10, 15, 16, 36, 41-42, 47-58, 94-96

Content elements
Governance
Strategy
Risks & opportunities
Emission targets
Other metrics

Comment
Manulife Financial Corporation’s Sustainability Report and Public Accountability Statement; available at:
Publication
In mainstream reports, incorporating the TCFD recommendations

Status
Complete

Attach the document
MFC_MDA_2020_Y1_EN.pdf

PageSection reference
46-47

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures

Comment
We have been a supporter of the Task Force on Climate-related Financial Disclosures (TCFD) since November 2017 and are committed to adopting and aligning our disclosures to the TCFD recommendations. Our climate-related disclosure can be found on page 46-47 in our 2020 Management's Discussion and Analysis and our Annual Report. https://www.manulife.com/content/dam/corporateinvestors/MFC_SR_2020_Y1_EN.pdf

Publication
In mainstream reports, incorporating the TCFD recommendations

Status
Complete

Attach the document
2020 hrng climate disclosure.pdf

PageSection reference

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures

Comment
We pride ourselves on producing food and fibre sustainably and, in December 2020, our Timber and Agriculture Group released their inaugural Climate Report, which is aligned with the TCFD recommendations. While the TCFD recommends that companies disclose the resilience of their business strategy, scientific information on how climate change affects biological assets—and how these assets impact climate change—has historically lagged other sectors due to its complexity. We are closely following developments in this space and anticipate using sector-appropriate climate scenario analyses as they become available.

Publication
In mainstream reports, incorporating the TCFD recommendations

Status
Complete

Attach the document
2019 sustainable and responsible investing report-en (3).pdf

PageSection reference

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets

Comment
Manulife Investment Management published its first disclosures aligned with the TCFD recommendations in 2020, which can be found in its 2019 Sustainable and Responsible Investing Report.

C-FS12.5
(C-FS12.5) Are you a signatory of any climate-related collaborative industry frameworks, initiatives and/or commitments?

<table>
<thead>
<tr>
<th>Industry collaboration</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting framework</td>
<td></td>
</tr>
<tr>
<td>Eclarot (Principles)</td>
<td></td>
</tr>
<tr>
<td>Principles for Responsible Investment (PRI) Task Force on Climate-related Financial Disclosures (TCFD)</td>
<td></td>
</tr>
<tr>
<td>Industry initiative</td>
<td></td>
</tr>
<tr>
<td>Principles for Responsible Investment (PRI) AskInvestor Group on Climate Change (ACGC)</td>
<td></td>
</tr>
<tr>
<td>CERES-Kingdom of Global Imitation Network (CGIN)</td>
<td></td>
</tr>
<tr>
<td>The Investor Agenda UNEP FI</td>
<td></td>
</tr>
<tr>
<td>Other, please specify (UNEP FI)</td>
<td></td>
</tr>
<tr>
<td>Investor Working Group for Task Force on Nature-related Financial Disclosures (TNF)</td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td></td>
</tr>
<tr>
<td>Please select</td>
<td></td>
</tr>
<tr>
<td>30% Club: Canadian Investor Group</td>
<td></td>
</tr>
</tbody>
</table>

**C14. Portfolio Impact**

(C-FS14.1) Do you conduct analysis to understand how your portfolio impacts the climate? (Scope 3 portfolio impact)

<table>
<thead>
<tr>
<th>Bank (lending) (Bank)</th>
<th>Disclosure metric</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluebird</td>
<td>&lt;Not Applicable&gt;</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
</tbody>
</table>

(C-FS14.1a) What are your organization’s Scope 3 portfolio emissions? (Category 15 “Investments” total emissions)

**Category 15 (Investments)**

**Evaluation status**

Relevant, calculated

**Scope 3 portfolio emissions (metric tons CO2e)**

480,000.00

**Portfolio coverage**

More than 50% but less than or equal to 60%

**Percentage calculated using data obtained from client/investee**

52%

**Emissions calculation methodology**

PCF’s in-house methodologies; Trucost database for actual information from publicly-traded investees, 2, and Tucost’s environment-related input-output model for estimating Scope 3 upstream (supplies) emissions.

**Please explain**

Approximately 48 million tons (investees’ score 1 and 2 emissions, plus Scope 3 upstream (supplies) emissions. Inclusion of suppliers’ emissions is per Tucost’s recommended approach, 52% or approximately CAD $28 billion (total portfolio of CAD $57.8 billion as of 31 December 2019). This is subject to required scope of the Science-Based Targets initiative that Manulife is committed to, namely, public equity and public corporate bonds, including Exchange Traded Funds, and private debt placements (including electricity generation and commercial mortgages). 52% calculated includes public corporate bond portfolio and public equity portfolio (individual securities, not funds).
C-FS14.1b

(C-FS14.1b) What is your organization’s Scope 3 portfolio impact? (Category 15 “Investments” alternative carbon footprinting and/or exposure metrics)

Metric type
Carbon intensity

Metric unit
tCO2e/$M invested

Scope 3 portfolio metric
220

Portfolio coverage
More than 50% but less than or equal to 60%

Percentage calculated using data obtained from clients/investees
52

Calculation methodology
PCAF

Please explain
Publicly available emissions are collected via the Trucost's model; rest of emissions are estimated using production for business activity (revenue) - based sector specific metrics per PCAF guidance.

Metric type
Exposure to carbon-related assets

Metric unit
Other, please specify ($ portfolio value)

Scope 3 portfolio metric
234,000,000

Portfolio coverage
More than 90% but less than or equal to 100%

Percentage calculated using data obtained from clients/investees
100

Calculation methodology
Investment asset accounting, part of management and financial reporting

Please explain
CAD 23.4 bn (5.7% of total portfolio as of 31 Dec 2020.) Total oil & gas exposure: public and private placement debt (including pipelines), public and private equities.

Metric type
Other, please specify (Exposure to low-carbon assets)

Metric unit
Other, please specify ($ portfolio value)

Scope 3 portfolio metric
39,000,000

Percentage calculated using data obtained from clients/investees
100

Calculation methodology
Green Bonds Principles / Climate Bonds Taxonomy

Please explain
Followed the general classification of green assets (GB Principles) and for some asset classes also the more specific Climate Bonds Taxonomy. (9.7% of total portfolio as of 31 Dec 2020) green asset exposure: renewable energy of CAD 9.8bn or 2.4% of total portfolio, energy efficiency, green buildings, clean transport, sustainably managed timberland and farmland, sustainable water resources, and green bond investments.

C-FS14.2

(C-FS14.2) Are you able to provide a breakdown of your organization's Scope 3 portfolio impact?

<table>
<thead>
<tr>
<th>Scope 3 Breakdown</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yes, by asset class</strong></td>
<td>Majority (85%) of measured portfolio emissions come from the public debt securities, and 20% from private placements and project finance of power generation (information as of 31 Dec 2019).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Yes, by industry</strong></th>
</tr>
</thead>
</table>
C-FS14.2a

(C-FS14.2a) Break down your organization’s Scope 3 portfolio impact by asset class.

<table>
<thead>
<tr>
<th>Asset class</th>
<th>Metric type</th>
<th>Metric unit</th>
<th>Scope 3 portfolio emissions or alternative metric</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other, please specify (Public Corporate Bonds)</td>
<td>Total carbon absolute emissions (CO2e)</td>
<td>Metric tons CO2e</td>
<td>3464790</td>
<td>Scope: CAN$ 94.7bn portfolio of public corporate bonds (31 Dec 2019)</td>
</tr>
<tr>
<td>Other, please specify (Public Corporate Bonds)</td>
<td>Carbon intensity</td>
<td>Mkt cap</td>
<td>673</td>
<td>Weighted average carbon intensity. Scope: CAN$ 94.7bn portfolio of public corporate bonds (31 Dec 2019)</td>
</tr>
<tr>
<td>Other, please specify (Public Equity)</td>
<td>Total carbon absolute emissions (CO2e)</td>
<td>Metric tons CO2e</td>
<td>1530713</td>
<td>Scope: CAN$ 10.8bn portfolio of individual public equity securities, not equity funds (31 Dec 2019)</td>
</tr>
<tr>
<td>Other, please specify (Public Equity)</td>
<td>Carbon intensity</td>
<td>Mkt cap</td>
<td>216</td>
<td>Weighted average carbon intensity. Scope: CAN$ 11.1bn portfolio of individual public equity securities, not equity funds (31 Dec 2019)</td>
</tr>
</tbody>
</table>

C-FS14.2b

(C-FS14.2b) Break down your organization’s Scope 3 portfolio impact by industry.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Metric type</th>
<th>Metric unit</th>
<th>Scope 3 portfolio emissions or alternative metric</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilities</td>
<td>Total carbon absolute emissions (CO2e)</td>
<td>Metric tons CO2e</td>
<td>27000000</td>
<td>Exposure includes both public and private bonds and equity</td>
</tr>
</tbody>
</table>

C-FS14.3

(C-FS14.3) Are you taking actions to align your portfolio to a well below 2-degree world?

<table>
<thead>
<tr>
<th>Back / Lending / Bank / Other</th>
<th>We are taking actions to align our portfolio to a well below 2-degree world</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back / Lending / Bank / Other</td>
<td>&lt;Not Applicable&gt;</td>
<td></td>
</tr>
</tbody>
</table>

Investing (Asset manager)

Yes

Manulife Investment Management prioritizes the impact of climate change on the economy through our company engagements. Manulife Investment Management is, for example, a lead investor for a collaborative engagement with an NGO as company through Climate Action 100+. It also is a member of the steering committee for the initiative. Manulife Investment Management seeks to reduce emissions across the value chain. The team has the capability for meeting client mandates with specific objectives like reducing carbon footprints and building portfolios for client objectives. The investment team can offer scenario analysis on the portfolio for 1.5, 2, and 3 degree alignment. Where Manulife Investment Management operates, it’s asset class, the team works to reduce the carbon footprint.

Investing (Asset owner)

Yes

In May 2021, we have committed to steer our portfolio to net zero by 2050, committed to SBTI, and committed to setting interim reduction targets for the most carbon intensive portion of the portfolio by May 2023.

Insurance underwriting (Insurance company)

Not applicable

This is not applicable to our insurance underwriting business.

Other products and services, please specify

Please select
(C-FS143a) Do you assess if your clients/investees’ business strategies are aligned to a well below 2-degree world?

<table>
<thead>
<tr>
<th>We assess alignment</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank lending (Bank)</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Investing (Asset manager)</td>
<td>Yes, for some. Manulife Investment Management advocates through initiatives like Climate Action 100+. The team also uses frameworks such as TCFD, SASB, and the SBTi.</td>
</tr>
<tr>
<td>Investing (Asset owner)</td>
<td>Yes, for all. As part of our target setting process and net zero financial emissions commitment, we are taking a sector-based approach, focusing first on the heavy emitting industries, such as power generation, to establish near term emissions reduction targets. To ensure these targets have a meaningful impact, we have committed to SBTi to guide our target setting, measurement, and progress reporting.</td>
</tr>
<tr>
<td>Insurance underwriting (Insurance company)</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Other products and services, please specify</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
</tbody>
</table>

C-FS143b

(C-FS143b) Do you encourage your clients/investees to set a science-based target?

<table>
<thead>
<tr>
<th>We encourage clients/investees to set a science-based target</th>
<th>Please explain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank lending (Bank)</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Investing (Asset manager)</td>
<td>Yes, for some. We encourage our clients/investees to set a science-based target through Manulife Investment Management’s commitment to Climate Action 100+.</td>
</tr>
<tr>
<td>Investing (Asset owner)</td>
<td>Yes, for some. The exact systematic nature of the engagement will translate out of the target setting process. We encourage some companies to focus on reducing their emissions in line with the Science-Based Targets initiative, though our focus is currently on companies in sectors with higher emissions intensities (Oil &amp; Gas, Metals &amp; Mining, etc.).</td>
</tr>
<tr>
<td>Insurance underwriting (Insurance company)</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
<tr>
<td>Other products and services, please specify</td>
<td>&lt;Not Applicable&gt;</td>
</tr>
</tbody>
</table>

C15. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization’s response. Please note that this field is optional and is not scored.

C15.1

(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.

<table>
<thead>
<tr>
<th>Job title</th>
<th>Corresponding job category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Financial Officer (CFO), Manulife</td>
<td>Chief Financial Officer (CFO)</td>
</tr>
</tbody>
</table>

SC. Supply chain module

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

NA