Manulife Financial Corp. - Climate Change 2021

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 37,000 employees, over 118,000 agents, and thousands of distribution partners, serving over 30 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 $39.8 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$39.8 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.

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

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 GHG 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.

Position of individual(s)	Please explain
Board-level committee	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 Manulife'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 (CGNC) 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.

C1.1b

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

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – all meetings	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	Climate-related risks and opportunities to our own operations Climate-related risks and opportunities to our investment activities Climate-related risks and opportunities to our insurance underwriting activities The impact of our own operations on the climate The impact of our investing activities on the climate The impact of our insurance underwriting activities on the climate	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.

C1.2

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

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	Reports to the board directly	Assessing climate-related risks and opportunities	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	More frequently than quarterly
Chief Financial Officer (CFO)	CEO reporting line	Both assessing and managing climate-related risks and opportunities	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	More frequently than quarterly

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Chief Risks Officer (CRO)	CEO reporting line	Both assessing and managing climate-related risks and opportunities	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	More frequently than quarterly
Chief Operating Officer (COO)	CEO reporting line	Both assessing and managing climate-related risks and opportunities	Risks and opportunities related to our investing activities Risks and opportunities related to our own operations	More frequently than quarterly
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)	CEO reporting line	Other, please specify (Both assessing and managing climate-related risks and opportunities. (1) Sets Manulife's sustainability ambition and strategy, (2) Acts as recommendation body on strategy and significant issues to Executive Leadership Team, including the CEO)	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	More frequently than quarterly

C1.2a

(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?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	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.

C1.3a

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

Entitled to incentive	Type of incentive	Activity inventivized	Comment
Other, please specify (Real Estate Asset Manager)	Monetary reward	Energy reduction target Other (please specify) (Water and waste reduction targets)	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.
Corporate executive team	Monetary reward	Other (please specify) (Achievement of our annual Climate Action Plan)	Executives have performance goals linked to ESG metrics such as diversity, equity, and inclusion (DEI), employee engagement, and leadership accountability. Goals linked to Manulife's Climate Action Plan will also be included in executive leadership team performance goals.
Chief Sustainability Officer (CSO)	Monetary reward	Emissions reduction target Company performance against a climate-related sustainability index	The Chief Sustainability Officer has performance goals linked to Manulife's ESG strategy, including the Climate Action Plan.

C-FS1.4

(C-FS1.4) 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.	Comment
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?

	From (years)	To (years)	Comment
Short-term	0	3	
Medium-term	3	10	
Long-term	10	40	

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 framework 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 from 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's 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 Scenario 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°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 at December 31, 2019, $14 billion, or 3.7% of General Account assets were invested into renewable energy and energy efficiency projects; 25.7 million square feet, or greater than 70% of our $14.3 billion real estate portfolio was certified to sustainable building standards such as LEED, BOMA, and Energy Star; and the entire $3.4 billion timberland portfolio was managed to third-party sustainability standards, including Forest Stewardship Council ("FSC") and Programme for the Endorsement of Forest Certification ("PEFC"). 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 on 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. 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.

Value chain stage(s) covered
Direct operations

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

Frequency of assessment
Please select

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

Description of process
The minimum requirements for identification and assessment of climate-related risks are communicated through an Environmental Risk Policy updated in 2020, which sets out an enterprise-wide framework for the management of environmental risks within our business activities. ESG Guidelines for the General Account assets and MIM's ESG Engagement Policy cover climate change risk factors in investment decision-making. For example, MIM's public markets team directly engages some of the world's largest emitters on climate-related risks and opportunities, as well as through the collaborative industry program Climate Action 100+. We continue to enhance the integration of climate-related risk into our ERM framework to ensure that they are managed in a manner consistent with our common approach to risk management (refer to "Risk Identification, Measurement and Assessment" above). In addition, there is a Manulife Investment Management Responsible Investing approach that integrates ESG considerations and the General Account has a set of ESG guidelines that seek to do the same for the assets we own. As sustainability is integrated into our business operations, Manulife introduced in 2018 the Sustainability Centre of Expertise - made up of Head Office Leads, Business Unit Sustainability Leads and other key internal stakeholders. This group meets once a month and responsibilities include the Identification of risks and opportunities related to sustainability and climate change. When a risk is identified, and is material, it is escalated to the Executive Sustainability Council. Corporate: 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. These 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 framework made to address climate change; or increased mortality or morbidity resulting from environmental damage or climate change. Management of material climate-related issues for our real assets is carried out at the Business Unit (BU) level. Systems for risk identification, assessment and management are built into existing policies and procedures and are specific to the asset (e.g. oil and gas, real estate, forestry, agriculture etc.). BU Sustainability leads report on environmental issues, including issues related to climate change. The Climate Change Working group launched in 2019 as a sub-team of the Sustainability Centre of Expertise and sponsored by the CRO, is responsible for working with BU Sustainability leads to set, measure and report on Manulife's environmental KPIs and indicators. The working group performs an assessment and reports to the Executive Sustainability Council (ESC), which includes the CRO, any material environmental issues, which would be reported to the Board's Risk Committee and/or Corporate Governance & Nominating Committee through consolidated reporting. The management of climate change is captured in ERM's Evolving Risk Inventory and reported to the Board's Risk Committee at least twice a year. ERM scans for trends/insights via industry publications and other channels and disseminates any relevant information to BUs and other internal stakeholder as required. The Corporate Sustainability team does the same and acts as a resource to BU Sustainability leads in their development of processes related to climate management. Examples: Manulife Investment Management's Real Estate arm: Real Estate considers climate and natural hazard risks during its acquisition due diligence process. 3rd party consultants perform building assessments and rely on local studies and guidelines where available. Environmental assessments, building status reports and insurance renewals are conducted periodically depending on the risk profile of a property. The Engineering and Technical Services team assesses portfolio-level CC

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 emission 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

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Failure to adequately prepare for the potential realities of climate change may have a negative impact on our financial position and/or our ability to operate. Climate change risks include transition risks, such as potential positive and negative impacts of climate-related litigation, technological change, and environmental regulatory regimes; and physical risks, such as disruption resulting from extreme weather conditions or increased mortality or morbidity. MFC's internal policies and guidelines provide enterprise-wide protocols for managing environmental risks, including climate change. Business and functional units are responsible for observing protocols and exercising due diligence to identify and manage environmental risks in accordance with these policies. Examples: Corporate level: The Manulife Sustainability Centre of Expertise works in tandem with Regulatory and Public Affairs group to monitor emerging regulations and cascades through the organization as appropriate. Manulife's Legal and Compliance function is responsible for monitoring compliance with current regulations. BU level: Business unit Sustainability leads are responsible for monitoring regulatory changes in their sectors. For example: The Manulife Investment Management real estate arm complies with local energy benchmarking and mandatory greenhouse gas, energy and water reporting requirements in jurisdictions that we own assets.
Emerging regulation	Relevant, always included	Failure to adequately prepare for the potential realities of climate change may have a negative impact on our financial position and/or our ability to operate. Climate change risks include transition risks, such as potential positive and negative impacts of climate-related litigation, technological change, and environmental regulatory regimes; and physical risks, such as disruption resulting from extreme weather conditions or increased mortality or morbidity. MFC's internal policies and guidelines provide enterprise-wide protocols for managing environmental risks, including climate change. Business and functional units are responsible for observing protocols and exercising due diligence to identify and manage environmental risks in accordance with these policies. Examples: The Centre of Expertise works in tandem with Regulatory and Public Affairs group to monitor emerging regulations and cascades through the organization as appropriate. Business unit Sustainability leads are responsible for monitoring regulatory changes in their sectors. Manulife Investment Management Agriculture and Timber closely monitors carbon regulation and markets to be prepared to offer solutions to investors in the event of increased or more widespread carbon prices. 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 Scenario 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. 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. Once an investment is made, investment teams continue to monitor all material aspects that could impact an asset or company, including Sustainability risks and opportunities. Relevant risks or concerns are addressed as part of the team's ongoing investment process via on-going company surveillance and engagement, where relevant, portfolio positioning and risk monitoring, the sustainability teams may also conduct, on a periodic basis, reviews of individual portfolios, and engage with investment teams about potential Sustainability Risks as a further enhancement to the materiality assessment.
Technology	Relevant, always included	Failure to adequately prepare for the potential realities of climate change may have a negative impact on our financial position and/or our ability to operate. Climate change risks include transition risks, such as potential positive and negative impacts of climate-related litigation, technological change, and environmental regulatory regimes; and physical risks, such as disruption resulting from extreme weather conditions or increased mortality or morbidity. MFC's internal policies and guidelines provide enterprise-wide protocols for managing environmental risks, including climate change. Business and functional units are responsible for observing protocols and exercising due diligence to identify and manage environmental risks in accordance with these policies. Examples: Manulife Corporate and our business units are always assessing the risks associated with new technologies in the market. Examples include in our utilities investment team considers disruptive technologies that may impact energy delivery, e.g. advances in the electric vehicle infrastructure.
Legal	Relevant, always included	Failure to adequately prepare for the potential realities of climate change may have a negative impact on our financial position and/or our ability to operate. Climate change risks include transition risks, such as potential positive and negative impacts of climate-related litigation, technological change, and environmental regulatory regimes; and physical risks, such as disruption resulting from extreme weather conditions or increased mortality or morbidity. MFC's internal policies and guidelines provide enterprise-wide protocols for managing environmental risks, including climate change. Business and functional units are responsible for observing protocols and exercising due diligence to identify and manage environmental risks in accordance with these policies. Examples: We consistently monitor the potential of legal actions or shareholder proposals/resolutions regarding our management of climate change risks.
Market	Relevant, sometimes included	Failure to adequately prepare for the potential realities of climate change may have a negative impact on our financial position and/or our ability to operate. Climate change risks include transition risks, such as potential positive and negative impacts of climate-related litigation, technological change, and environmental regulatory regimes; and physical risks, such as disruption resulting from extreme weather conditions or increased mortality or morbidity. MFC's internal policies and guidelines provide enterprise-wide protocols for managing environmental risks, including climate change. Business and functional units are responsible for observing protocols and exercising due diligence to identify and manage environmental risks in accordance with these policies. Examples: Manulife Investment Management's real estate group has a Sustainable Real Estate Framework to supplement the Manulife Investment Management's Sustainable Investing Statement. We integrate ESG considerations into investment and due diligence practices to identify and manage risks and opportunities. We also integrate ESG considerations into our ongoing portfolio and asset management practices. We track and report on ESG integration in our portfolio. We promote responsible investing in the real estate industry through participation in industry initiatives such as the Global Real Estate Sustainability Benchmark (GRESB) Assessment. Within real estate there is an increasing investor and customer demand for sustainable and energy efficient properties. We are at risk of tenants going elsewhere if we do not address these demands. Manulife Investment Management also offers Negative (and norms based) screening to help investors better align with their values, as well as Positive or best-in-class (and norms based) screening to positively influence climate risks in industries globally.
Reputation	Relevant, always included	Failure to adequately prepare for the potential realities of climate change may have a negative impact on our financial position and/or our ability to operate. Climate change risks include transition risks, such as potential positive and negative impacts of climate-related litigation, technological change, and environmental regulatory regimes; and physical risks, such as disruption resulting from extreme weather conditions or increased mortality or morbidity. MFC's internal policies and guidelines provide enterprise-wide protocols for managing environmental risks, including climate change. Business and functional units are responsible for observing protocols and exercising due diligence to identify and manage environmental risks in accordance with these policies. Financial institutions such as Manulife, are expected by stakeholders to demonstrate their commitment to the transition to a low-carbon economy. The Manulife Executive Sustainability Council and Sustainability Centre of Expertise works in tandem with our Investor Relations, Brand Marketing, Regulatory and Public Affairs groups to monitor emerging reputational risks associated with such sustainability factors. Examples: Manulife Investment Management's Agriculture and Timber group example 1: In 2019, the Agriculture and Timber group's Executive Team adopted a formal zero-deforestation policy, committing not to clear native forests or acquire any land on which native forests have been cleared since regional cut-off dates agreed upon by international best practices. Manulife Investment Management's Agriculture and Timber group example 2: In 2019, after two years of working collaboratively with many of our colleagues throughout the agriculture sector, we have developed a performance-based, industry-wide sustainability standard and third-party certification program for agriculture, known as Leading Harvest. We are committed to enrolling eligible properties in the program, which includes in its principles energy efficiency and emissions reductions.
Acute physical	Relevant, always included	Failure to adequately prepare for the potential realities of climate change may have a negative impact on our financial position and/or our ability to operate. Climate change risks include transition risks, such as potential positive and negative impacts of climate-related litigation, technological change, and environmental regulatory regimes; and physical risks, such as disruption resulting from extreme weather conditions or increased mortality or morbidity. MFC's internal policies and guidelines provide enterprise-wide protocols for managing environmental risks, including climate change. Business and functional units are responsible for observing protocols and exercising due diligence to identify and manage environmental risks in accordance with these policies. Examples: Corporate level: An acute physical risk for Manulife is business disruption due to severe weather events that may translate into the mortality risk, operational disruption, or devaluation of impacted invested assets, for example coastal real estate. Manulife has business continuity policies, plans and procedures in place that take into account the risk of business disruption due to severe weather events. Manulife Investment Management's Real Estate group: Manulife Investment Management's real estate group assesses natural hazards as part of its due diligence process, physical risk is included in insurance reports including natural hazards, environmental reports, e.g. floodplain maps, wind hazards, soil contamination. Manulife Investment Management's Agriculture and Timber group considers wildfire risk in its timberland acquisition due diligence.
Chronic physical	Relevant, always included	Failure to adequately prepare for the potential realities of climate change may have a negative impact on our financial position and/or our ability to operate. Climate change risks include transition risks, such as potential positive and negative impacts of climate-related litigation, technological change, and environmental regulatory regimes; and physical risks, such as disruption resulting from extreme weather conditions or increased mortality or morbidity. MFC's internal policies and guidelines provide enterprise-wide protocols for managing environmental risks, including climate change. Business and functional units are responsible for observing protocols and exercising due diligence to identify and manage environmental risks in accordance with these policies. Examples: As part of the Manulife Investment Management's Agriculture and Timber group's risk assessments, the impact and management of chronic physical conditions such as drought and water scarcity are built into investment due diligence and operational procedures. In 2019, we conducted additional water scarcity due diligence on multiple acquisition targets. Manulife Investment Management's Real Estate group: Relevant, always included. Manulife Investment Management's real estate group assesses natural hazards as part of its due diligence process, physical risk is included in insurance reports including natural hazards, environmental reports, e.g. floodplain maps, wind hazards. 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. Our investment arm also aims to creation of a biodiversity framework for disclosure.

C-FS2.2b

(C-FS2.2b) Do you assess your portfolio's exposure to climate-related risks and opportunities?

	We assess the portfolio's exposure	Please explain
Bank lending (Bank)	<Not Applicable>	<Not Applicable>
Investing (Asset manager)	Yes	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 divest of any investment, our preferred position is company engagement to encourage climate risk mitigation and adaptation strategies.
Investing (Asset owner)	Yes	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.
Insurance underwriting (Insurance company)	Yes	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 at 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.
Other products and services, please specify	Please select	

C-FS2.2c

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

	Portfolio coverage	Assessment type	Description
Bank lending (Bank)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Investing (Asset manager)	Minority of the portfolio	Qualitative and quantitative	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 creates 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) Raise Awareness – Raising awareness is vital to educating real estate stakeholders to understand 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 its shocks and stressors. 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 that risk and improve resilience effectively. Our real estate business takes a global portfolio approach to understand our climate threats, inventory our existing resilience practices and features, and identify improvement opportunities for climate change management. Our approach includes an evaluation of both the real estate portfolio 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 place 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.
Investing (Asset owner)	Majority of the portfolio	Quantitative	Manulife has undertaken, and will continue to implement, various processes to enable climate change risks 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 undergoing an assessment of higher-risk sectors within the portfolio to assist 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 it relates 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, on an annual basis a risk assessment report is created which explicitly requires 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 most at-risk sectors (heat mapping), work to standardize and implement improved monitoring processes, and to educate departmental investment professionals to better assess and standardize portfolio related risks.
Insurance underwriting (Insurance company)	Unknown	Qualitative and quantitative	The process of assessing the portfolio's exposure to climate-related risks and opportunities began in late 2019. 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.
Other products and services, please specify	<Not Applicable>	<Not Applicable>	<Not Applicable>

C-FS2.2d

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

	We assess the portfolio's exposure	Portfolio coverage	Please explain
Bank lending (Bank)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Investing (Asset manager)	Yes	Minority of the portfolio	We are committed to responsible investing and sustainable management of our assets. Manulife's commitment to environmental, social and governance integration and sustainable investment practices are outlined in Manulife Investment Management Sustainable Investment Statement, Real Estate Sustainability Framework, and Timber and Agriculture Sustainability and Responsible Investing (SRI) Framework. Manulife Investment Management incorporates evaluation of ESG risks and opportunities in the investment and due diligence process. ESG considerations in the real estate investment process include, but are not limited to: transportation, building safety and materials, contamination, indoor environmental quality, regulatory compliance, flooding, natural hazards, climate change risks, energy efficiency, energy supply, water efficiency, waste management, water supply, tenant engagement programs, and green leasing. In our timber and agriculture business, we are committed to watershed protection in the operation of timber and agriculture assets. Protecting and improving watersheds is vital for the ecosystems and communities that depend on them. We do this by protecting sensitive lands, adhering to strict water and land management policies and best practices, and supporting forest growth.
Investing (Asset owner)	Yes	Minority of the portfolio	Manulife assesses water related risks and opportunities when these risks are considered material. Investments in sectors such as Utilities, Metals & Mining, Oil & Gas, Chemicals and certain other sectors receive analytical scrutiny regarding water management and/or spill related activities. To the extent these risks are considered material, they are included in our comprehensive risk assessments.
Insurance underwriting (Insurance company)	Yes	Unknown	The process of assessing the portfolio's exposure to water-related risks and opportunities just began in late 2019. The team is looking at developing a process.
Other products and services, please specify	Please select	<Not Applicable>	

C-FS2.2e

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

	We assess the portfolio's exposure	Portfolio coverage	Please explain
Bank lending (Bank)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Investing (Asset manager)	Yes	Minority of the portfolio	As an example, at Manulife Investment Management’s agriculture and timber group, through our partnerships with the World Business Council on Sustainable Development’s (WBCSD) Forest Solutions Group and Scaling Positive Agriculture, as well as with both the MIT Joint Program on the Science and Policy of Global Change and the Climate Smart Land Network, we are preparing to better understand and respond to the risks climate change poses to forestry and agriculture.
Investing (Asset owner)	Yes	Majority of the portfolio	Manulife assesses forest related risks and opportunities as part of our comprehensive risk underwriting and monitoring if they are a material risk for an investment. Currently these risks are generally limited to investments in our timber debt and equity portfolios. Equity ownership in timber is made through Manulife Investment Management’s agriculture and timber group, as noted above.
Insurance underwriting (Insurance company)	Not applicable	<Not Applicable>	This is not applicable to our insurance underwriting business.
Other products and services, please specify	Please select	<Not Applicable>	

C-FS2.2f

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

	We request climate-related information	Please explain
Bank lending (Bank)	<Not Applicable>	<Not Applicable>
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 practice.
Investing (Asset owner)	Yes, for some	We request climate-related information from some of our clients/investees as part of our due diligence practice. 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	Not applicable to our insurance underwriting business.
Other products and services, please specify	Please select	

C2.3

(C2.3) 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

(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-22), 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 in 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)
5000000

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 scale 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

Emerging regulation	Carbon pricing mechanisms

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 came 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

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)
4800000

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 $50 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)
85000000

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 GRESB. 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, 7.5% 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

Current regulation	Mandates on and regulation of existing products and services

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

Chronic physical	Changes in precipitation patterns and extreme variability in weather patterns

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 black-outs. 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
5000000

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, Solution105. 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

Identifier
Risk 6

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

Risk type & Primary climate-related risk driver

Current regulation	Enhanced emissions-reporting obligations

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
Federal Carbon tax rising to $50/tonne by 2023. Unmitigated cost annually of ~$40MM by 2023.

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

(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

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

Identifier
Opp1

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 48.7 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
Opp2

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)
700000

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 citizen. If, 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 $5 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

Identifier
Opp3

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

Opportunity type
Energy source

Primary climate-related opportunity driver
Use of lower-emission sources of energy

Primary potential financial impact
Returns on investment in low-emission technology

Company-specific description
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.

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?
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
Impacts of the opportunity depend on many factors, including deal size and structure and future energy prices. It is therefore difficult to estimate.

Cost to realize opportunity
0

Strategy to realize opportunity and explanation of cost calculation
Manulife Investment Management's Real Estate are has engaged with 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.

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
Opp5

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

Identifier
Opp6

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 review, 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

Identifier
Opp7

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
Opp8

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 1.2 million credits from our New Zealand forests. Since inception, we have sold over 6.1 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

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

Yes

C3.1b

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

	Intention to publish a low-carbon transition plan	Intention to include the transition plan as a scheduled resolution item at Annual General Meetings (AGMs)	Comment
Row 1	Yes, in the next two years	No, we do not intend to include it as a scheduled AGM resolution item	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 emissions reduction targets.

C3.2

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

Yes, qualitative and quantitative

C3.2a

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

Climate-related scenarios and models applied	Details
RCP 4.5 RCP 8.5 IEA Sustainable development scenario	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 Stated Policies Scenario (STEPS) for transition elements. The low carbon scenario accentuated transition-related impacts under the IEA WEO Sustainable Development Scenario (SDS) and used RCP 4.5 for physical elements. Comprehensive, portfolio-wide scenario analysis for our farmland and timberland assets requires accurate, long-term, site-specific data and sector-specific transition models. 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 timber 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 Scenario 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. 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.

C3.3

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

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	Real Estate established the Renewable Energy Working Group to develop a business plan to provide a clean energy offering 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 timber and agriculture investment manager, there is opportunity in managing investments to remove 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 investing considerations/screening requirements in their investment guidelines/mandate, we'll evaluate and determine if we're able to offer a tailored version of the strategy customized to those guidelines. ESG factors can be material to companies/assets in both the short and long term, as well as across the ESG factor taxonomy. Supply chain oversight/management, could be considered under ESG dimensions of risk and opportunity. We focus on understanding how companies/investments may be able to take advantage of opportunities arising as the world solves ESG-related challenges and assessing business opportunities associated with a company's/fund's operations, reputation, market access, innovation, or ability to navigate regulatory changes. We aim to protect and enhance our portfolio returns for our clients and encourage the leadership of the entities in which we invest, or plan to invest, to improve their ESG practices. We analyze the potential impact of climate change on mortality and morbidity assumptions of our life and health insurance business. In 2020, we laid the framework for research and analysis of climate change impacts, like vector-borne diseases, extreme weather events, and increased temperatures, on morbidity/mortality. The research, along with experience data, helps inform decisions on underwriting assumptions over the long term. The P&C Reinsurance business is annually priced and is a smaller part of our underwriting portfolio. It may experience business risks associated with increased frequency and severity of catastrophic weather events.
Supply chain and/or value chain	Yes	Corporate: Manulife has in place a Vendor Code of Conduct that includes adherence 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 Vendor Code of Conduct.
Investment in R&D	No	
Operations	Yes	Manulife is committing to reduce absolute scope 1 and 2 emissions 35 per cent by 2035. The Company will take steps such as enhanced efficiency measures, fuel switching, and use of onsite renewables in our buildings to achieve this target. Manulife Investment Management real estate incorporates evaluation of ESG risks and opportunities in the investment and due diligence process. ESG considerations in the investment process include, but are not limited to: transportation, building safety and materials, contamination, indoor environmental quality, regulatory compliance, flooding, natural hazards, climate change risks, energy efficiency, energy supply, water efficiency, waste management, water supply, tenant engagement programs, and green leasing. In 2020, we achieved two new Fitwel certifications at Manulife Place in Edmonton and The Michelson in Irvine.

C3.4

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

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Capital expenditures Capital allocation Acquisitions and divestments Access to capital	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 low-carbon economy, are strategically relevant. We are an operator of real estate, timber and agricultural businesses, where carbon pricing is considered in financial planning (see examples below). The majority of our business though is insurance underwriting and asset management, where carbon pricing decisions are factored into risk management and investment processes addressed elsewhere in this CDP questionnaire. Manulife Investment Management's real estate group has developed a model of estimates of GHG reduction, capital cost, incremental life cycle cost, and GHG abatement cost (i.e. $/tCO2e). Furthermore, we have improved our ESG data inputs for the GHG model and the regulatory reporting is improving our data coverage and quality. Improving our portfolio GHG emissions helps assess the carbon footprint of new acquisitions. Therefore, we have updated our Investment ESG due diligence process to take climate change into account. At select properties, capital projects, such as installation of battery storage and electric vehicle charging stations increase capital expenditures. Ideally, these items are either offset by savings from energy efficiency or help to increase tenant satisfaction and decrease vacancy. Further, we are integrating climate mitigation and adaptation into our property management Sustainable Building Standards. The Agriculture and Timber Group: factors costs for achieving third-party sustainability certifications into its budgets. Systematically considers climate-related risks and opportunities in acquisitions and divestments. Risks such as access to water or potential for wildfire are considered and may impact valuations. Corporate: We raise capital on an ongoing basis and in 2017 and again in 2018, saw market opportunities to issue green bonds. We are the 1st global life insurer to issue green bonds. Our total green bond issuance to date is over $1 billion with the estimated annual environmental benefit of 192,459 tons of avoided carbon dioxide emissions.

C3.4a

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

N/A

C-FS3.6

(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?

	Type of policy	Portfolio coverage of policy	Description
Bank lending (Bank)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Investing (Asset manager)	Sustainable/Responsible Investment Policy Other, please specify (Hancock Natural Resource Group's Zero Deforestation Policy)	Majority of the portfolio	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.
Investing (Asset owner)	Credit policy Risk policy Underwriting policy Engagement policy Sustainable/Responsible Investment Policy Investment policy/strategy Proxy voting policy Other, please specify (Environmental Risk Policy)	All of the portfolio	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.
Insurance underwriting (Insurance company)	Other, please specify (As part of underwriting climate change working group, we're looking at different elements to include related to climate change.)	Unknown	We analyze the potential impact of climate change on mortality and morbidity assumptions of our life and health insurance business. In 2020, we laid the framework for research and analysis of climate change impacts, like vector-borne diseases, extreme weather events, and increased temperatures, on morbidity/mortality. The research, along with experience data, helps inform decisions on underwriting assumptions over the long term.
Other products and services, please specify	Please select	Please select	

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?

	Process for factoring climate-related issues into external asset management selection	Comment
Row 1	Review asset manager's climate-related policies Assessment of asset manager's climate-related performance (e.g. active ownership, proxy voting records, under-weighting in high impact activities) Other, please specify (Some managers are SRI, so require detail from manager on actions, holdings, any non-compliant holdings. Also thematic managers who have climate or water as a theme.)	Understanding and assessing all elements of a manager's process is core 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 Product Team and Boards/Investment Committees globally.

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]
196357.2

Covered emissions in reporting year (metric tons CO2e)
218785

% of target achieved [auto-calculated]
78.7878271988862

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]
245.283018867924

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 10% 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
Int 2

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 (kgCO2e 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]
1.06

% 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]
30.6603773584906

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.

Target reference number
Oth 1

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)

Energy consumption or efficiency	kWh

Target denominator (intensity targets only)
square foot

Base year
2017

Figure or percentage in base year
20.2

Target year
2022

Figure or percentage in target year
18.18

Figure or percentage in reporting year
17.5

% of target achieved [auto-calculated]
133.663366336634

Target status in reporting year
Underway

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

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 10% energy reduction between 2017 to 2022 associated with equivalent kWh (ekWh) per square foot in our real estate portfolio. This is a business division target as it relates only to the real estate portfolio.

Target reference number
Oth 2

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)

Waste management	metric tons of waste diverted from landfill

Target denominator (intensity targets only)
metric ton of waste

Base year
2017

Figure or percentage in base year
52

Target year

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 65% 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
Oth 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 7.5% 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.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	19	52
To be implemented*	15	78.9
Implementation commenced*	7	8
Implemented*	43	24617.32
Not to be implemented	3	4.8

C4.3b

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

Initiative category & Initiative type

Low-carbon energy consumption	Low-carbon electricity mix

Estimated annual CO2e savings (metric tonnes CO2e)
16620

Scope(s)
Scope 2 (market-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
0

Investment required (unit currency – as specified in C0.4)
185614

Payback period
No payback

Estimated lifetime of the initiative
<1 year

Comment
Manulife Investment Management - 20 buildings purchased renewable energy in 2020. A total of 48,540 MWh of renewable energy was purchased

Initiative category & Initiative type

Energy efficiency in buildings	Building Energy Management Systems (BEMS)

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

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Lighting

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

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Motors and drives

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)
5300

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

Payback period
>25 years

Estimated lifetime of the initiative
21-30 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Heating, Ventilation and Air Conditioning (HVAC)

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)
130000

Investment required (unit currency – as specified in C0.4)
950000

Payback period
4-10 years

Estimated lifetime of the initiative
21-30 years

Comment

Initiative category & Initiative type

Energy efficiency in buildings	Maintenance program

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)
3179

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

Energy efficiency in buildings	Other, please specify (Controls)

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

Low-carbon energy generation	Solar PV

Estimated annual CO2e savings (metric tonnes CO2e)
7920

Scope(s)
Scope 1

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
939279

Investment required (unit currency – as specified in C0.4)
9000000

Payback period
4-10 years

Estimated lifetime of the initiative
21-30 years

Comment

C4.3c

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

Method	Comment
Financial optimization calculations	Investments in emissions reduction are primarily driven by a strong business case for energy efficiency. Retrofits, building upgrades, retrocommissioning 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.
Dedicated budget for other emissions reduction activities	Select properties and regions have a dedicated budget for purchasing renewable energy credits. Purchased 45,300 MWh of renewable energy.
Employee engagement	Select 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 our 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 equities/fixed 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 content and medium 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.
Compliance with regulatory requirements/standards	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.
Internal incentives/recognition programs	Real Estate rolled out its Sustainable Building Standards program 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.

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/esg#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

Investing	Fixed Income

Comment

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

% of total portfolio value

Asset classes/ product types

Investing	Forestry

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 6.1 million metric tons of carbon credits.

Level of aggregation
Product

Description of product/Group of products
A Climate Action strategy that targets alignment with a well-below 2 degree Celsius scenario at the portfolio level.

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 (Temperature gauge of the portfolio, science-based targets, carbon emissions)

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

% of total portfolio value

Asset classes/ product types

Investing	Other, please specify (Equity)

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
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
The Greenhouse Gas Protocol: Scope 2 Guidance
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.

Greenhouse Gas Protocol: Scope 2 Guidance (An amendment to the GHG Protocol Corporate Standard)

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)
555933

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
253387

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.

C6.5

(C6.5) 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
244896

Emissions calculation methodology
We calculated the GHG emissions associated with our transactional and office paper. We apply a conversion factor of 2.54kg 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 freesheet, 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
8959

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
0.000010256

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
809317

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)
809317

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 37,642 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.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption		<Not Applicable>		
Other emissions reduction activities		<Not Applicable>		
Divestment		<Not Applicable>		
Acquisitions		<Not Applicable>		
Mergers		<Not Applicable>		
Change in output		<Not Applicable>		
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other	236996	Decreased	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.

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.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	Yes
Generation of electricity, heat, steam, or cooling	No

C8.2a

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

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	1831343	1831343
Consumption of purchased or acquired electricity	<Not Applicable>	39546	641370	680916
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	0	18503	18503
Consumption of purchased or acquired cooling	<Not Applicable>	0	21	21
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Total energy consumption	<Not Applicable>	39546	2491238	2530784

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.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

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
ISO14064-3

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
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
ISO14064-3

Proportion of reported emissions verified (%)
100

Scope 2 approach
Scope 2 market-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
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
ISO14064-3

Proportion of reported emissions verified (%)
100

C10.1c

(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?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C8. Energy	Energy consumption	Energy Use was verified to limited assurance using the ISO14064-3 standard.	Manulife decided to verify energy use which includes kWh equivalent energy from use of electricity & steam, and combustion of natural gas & diesel fuel. We feel it is important to have these values verified to provide accuracy and transparency in the values we are reporting. Manulife_Assurance_Statement_2020_EN.pdf

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-FS12.1c

(C-FS12.1c) 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 the due diligence and risk monitoring processes, we identify companies as targets for engagement. Either the investment or ESG teams may initiate engagement. Engagement yields 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 its 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 (A4S) letter supporting the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures, as well as the CFO 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 pilot 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 Real Estate participated in consultations for the Federal Advisory Council on Climate Action and the Expert Panel on Sustainable Finance
- 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?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Other, please specify (U.S. Climate Policy)	Neutral	National Alliance of Forest Owners (NAFO) and by extension Manulife Investment Management's agriculture and timber business is attempting to clarify the treatment of carbon emissions from forest biomass as carbon beneficial.	Amendment to the Clean Air Act.

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.

Trade association
National Alliance of Forest Owners (NAFO)

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
This industry group is actively engaged in US policy discussions surrounding EPA GHG reporting for biomass combustion for energy generation.

How have you influenced, or are you attempting to influence their position?
Member of National Alliance of Forest Owners.

Trade association
Australian Forest Products Association (AFPA)

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
This industry group is actively engaged in Australian policy discussions surrounding climate impacts and opportunities of the forest products industry.

How have you influenced, or are you attempting to influence their position?
Member of Australian Forest Products Association.

Trade association
Geneva Association

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
The Geneva Association put out a Climate Risk Statement in support of adaptation measures and other policy changes: https://www.genevaassociation.org/research-topics/extreme-events-and-climate-risk/climate-risk-statement-geneva-association.

How have you influenced, or are you attempting to influence their position?
Manulife is a member.

Trade association
REALpac

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
From 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 constituents and its national and international counterparts to help to responsibly ensure the sector is well-positioned for a sustainable future".

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

Trade association
The Canadian Green Building Council (CaGBC)

Is your position on climate change consistent with theirs?
Consistent

Please explain the trade association's position
The CaGBC provided recommendations on how to help meet Canada's GHG reduction goals in a 2016 report. The report outlines four key recommendations aimed at

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 netzero 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 central to the Boston region's economic competitiveness and growth — transportation and infrastructure, land use and development, 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
From 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
From 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

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 sponsors 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 (GRESB) – Manulife Investment Management's real estate arm employees participated in GRESB 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 function and business unit sustainability leads tasked with integrating sustainability into our 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).

Publication
In mainstream reports

Status
Complete

Attach the document
MFC_ClimateChangeStatement_EN.pdf

Page/Section reference
1-4

Content elements
Governance
Strategy
Risks & opportunities
Emission targets

Comment
Manulife Financial Corporation Climate Change Statement; available at
https://www.manulife.com/content/dam/corporate/global/en/documents/pas/MFC_ClimateChangeStatement_EN.pdf

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Publication
In voluntary sustainability report

Status
Complete

Attach the document
MFC_SR_PAS_2020.pdf

Page/Section reference
4-5, 10, 15, 16, 36, 41-42, 47-58, 94-96

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment
Manulife Financial Corporation's Sustainability Report and Public Accountability Statement; available at:

https://www.manulife.com/content/dam/corporate/global/en/documents/pas/MFC_SR_PAS_2020.pdf

Publication
In mainstream reports, incorporating the TCFD recommendations

Status
Complete

Attach the document
MFC_MDA_2020_Y1_EN.pdf

Page/Section 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/corporate/investors/MFC_SR_2020_Y1_EN.pdf

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Publication
In mainstream reports, incorporating the TCFD recommendations

Status
Complete

Attach the document
2020-hnrg-climate-disclosure.pdf

Page/Section 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

Page/Section 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

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C-FS12.5

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

	Industry collaboration	Comment
Reporting framework	Equator Principles Principles for Responsible Investment (PRI) Task Force on Climate-related Financial Disclosures (TCFD)	
Industry initiative	Principles for Responsible Investment (PRI) Asia Investor Group on Climate Change (AIGCC) Climate Action 100+ International Corporate Governance Network (ICGN) The Investor Agenda UNEP FI Other, please specify (UNEP FI Investor Working Group for Task Force on Nature-related Financial Disclosures (TNFD))	• Toronto Responsible Investment (RI) Working Group • Sustainable Accounting Standards Board Investor Advisory Group (SASB IAG) • Responsible Investment Association • Japan TCFD Consortium • Hong Kong Green Finance Association • Hong Kong Financial Services Development Council (FSDC) ESG Working Group • Emerging Markets Investor Alliance (EMIA) • Ceres Investor Network on Climate Risk (INCR) • Canadian Coalition for Good Governance • Asian Corporate Governance Association (ACGA) World Benchmarking Alliance (focused on SDGs)
Commitment	Please select	30% Club Canadian Investor Group

C14. Portfolio Impact

C-FS14.1

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

	We conduct analysis on our portfolio's impact on the climate	Disclosure metric	Comment
Bank lending (Bank)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Investing (Asset manager)	Yes	Other, please specify (Climate Value at Risk (% decrease/increase in portfolio value in climate scenarios); Portfolio Temperature Score (degree Celsius relative to the 1.5 degree global goal))	See the TCFD report within the Manulife Investment Management's 'Sustainable and Responsible Investing Report 2019' https://www.manulifeim.com/institutional/vn/en/sri-report
Investing (Asset owner)	Yes	Category 15 "Investment" total absolute emissions Other, please specify (Absolute total emissions, emission intensity (per revenue, per invested amount, weighted average intensity); low-carbon investments; high-carbon investments (assets under management and percentage of portfolio).)	Portfolio carbon intensity metric (weighted average carbon emissions – public equities) was first disclosed in the TCFD section of the Manulife's Y2020 Annual Report: https://www.manulife.com/content/dam/corporate/investors/MFC_SR_2020_Y1_EN.pdf. See disclosures below.
Insurance underwriting (Insurance company)	Yes	Other, please specify (In 2020, we have conducted the assessment of the impacts of climate change on our underwriting risk practices and have established a framework.)	
Other products and services, please specify	Not applicable	<Not Applicable>	

C-FS14.1a

(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)
48000000

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

Percentage calculated using data obtained from client/investees
52

Emissions calculation methodology
PCAF for in-house estimations; Trucost database for actual information from publicly-traded investees, and Trucost's environmentally-extended input-output model for estimating scope 3 upstream (suppliers) emissions.

Please explain
Approximately 48 million tons (investees' scope 1 and 2 emissions, plus scope 3 upstream (suppliers) emissions. Inclusion of suppliers' emission is per Trucost's recommended approach. 58% or CAD $218bn (of total portfolio of CAD $378.5bn as of 31 December 2019). This is assets 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 Trucosts’s model; rest of emissions are estimated using production-/or 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
23400000000

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
39800000000

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

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 31Dec2020) 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?

	Scope 3 breakdown	Comment
Row 1	Yes, by asset class Yes, by industry	Majority (65%) of measured portfolio emissions come from the public debt securities, and 20% from private placements and project finance of power generation (information as of 31Dec2019).

C-FS14.2a

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

Asset class	Metric type	Metric unit	Scope 3 portfolio emissions or alternative metric	Please explain
Other, please specify (Public Corporate Bonds)	Total carbon absolute emissions (CO2e)	Metric tons CO2e	25456790	scope: CAN$ 96.7bn portfolio of public corporate bonds (31Dec2019)
Other, please specify (Public Corporate Bonds)	Carbon intensity	tCO2e/$M revenue	673	weighted average carbon intensity. scope: CAN$ 96.7bn portfolio of public corporate bonds (31Dec2019)
Other, please specify (Public Equity)	Total carbon absolute emissions (CO2e)	Metric tons CO2e	1537213	scope: CAN$ 10.85bn portfolio of individual public equity securities, not equity funds (31Dec2019)
Other, please specify (Public Equity)	Carbon intensity	tCO2e/$M revenue	216	weighted average carbon intensity. scope: CAN$ 11.1bn portfolio of individual public equity securities, not equity funds (31Dec2019)

C-FS14.2b

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

Industry	Metric type	Metric unit	Scope 3 portfolio emissions or alternative metric	Please explain
Utilities	Total carbon absolute emissions (CO2e)	Metric tons CO2e	27000000	Exposure includes both public and private bonds and equity.

C-FS14.3

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

	We are taking actions to align our portfolio to a well below 2-degree world	Please explain
Bank lending (Bank)	<Not Applicable>	<Not Applicable>
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 Oil/Gas company through Climate Action 100+ and is also a member of the steering committee for that 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 teams conduct scenario analysis on the portfolios for 1.5, 2, and 3 degree alignment. Where Manulife Investment Management operates the 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 2022.
Insurance underwriting (Insurance company)	Not applicable	This is not applicable to our insurance underwriting business.
Other products and services, please specify	Please select	

C-FS14.3a

(C-FS14.3a) Do you assess if your clients/investees' business strategies are aligned to a well below 2-degree world?

	We assess alignment	Please explain
Bank lending (Bank)	<Not Applicable>	<Not Applicable>
Investing (Asset manager)	Yes, for some	Manulife Investment Management advocates though initiatives like Climate Cction 100+. The team also uses frameworks such as TCFD, SASB, and the SBTs.
Investing (Asset owner)	Yes, for all	As part of our target setting process and net zero financed emissions commitment. 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.
Insurance underwriting (Insurance company)	<Not Applicable>	<Not Applicable>
Other products and services, please specify	<Not Applicable>	<Not Applicable>

C-FS14.3b

(C-FS14.3b) Do you encourage your clients/investees to set a science-based target?

	We encourage clients/investees to set a science-based target	Please explain
Bank lending (Bank)	<Not Applicable>	<Not Applicable>
Investing (Asset manager)	Yes, for some	We encourage our clients/investees to set a science-based target through Manulife Investment Management's commitment to Climate Action 100+.
Investing (Asset owner)	Yes, for some	The exact systematic nature of the engagement will transpire 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 & Gas, Metals & Mining, etc.).
Insurance underwriting (Insurance company)	<Not Applicable>	<Not Applicable>
Other products and services, please specify	<Not Applicable>	<Not Applicable>

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.

	Job title	Corresponding job category
Row 1	Chief Financial Officer (CFO), Manulife	Chief Financial Officer (CFO)

SC. Supply chain module

SC0.0

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

N/A