



GROWING SUSTAINABLE BUSINESS

2017 Real Estate Sustainability Report

Providing healthy and efficient workplaces for our customers in collaboration with tenants and community partners, while enhancing our long-term returns.



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2016 HIGHLIGHTS & 2017 OBJECTIVES

2016 HIGHLIGHTS



28.7 M SF
Green Certified



120,000 m³
Water savings in 2016. Equivalent to water needed to fill 47 Olympic sized swimming pools.



40,000 MWh
Energy savings in 2016. Equivalent to the energy used by approximately 1,300 Canadian homes.



Executive Sustainability Committee established



Sustainable Real Estate Policy established



2017 OBJECTIVES



- Achieve a reduction of two percent in energy consumption at properties where we manage utilities
- Set performance targets for water usage, waste management, carbon emissions and renewable energy



- Integrate our Operations Sustainability Procedures in new third-party management agreements
- Include landlord-tenant information-sharing on utility consumption in new leases



- Participation by all funds in the Global Real Estate Sustainability Benchmark (GRESB) assessment
- Improve all funds' GRESB scores compared to 2016



- Deliver training for property operations and investment teams on our approach to sustainability



- Publish a Manulife Real Estate sustainability report

OUR SUSTAINABLE REAL ESTATE POLICY COMMITMENTS

Our Sustainable Real Estate Policy outlines five sustainability commitment areas. Examples of our commitments in action will appear throughout this report. They are identified by the following icons:



Minimize our environmental impact



Support health and wellness



Promote responsible business practices



Engage our stakeholders on sustainability



Be accountable for our performance

LETTER FROM THE CEO

OUR SUSTAINABILITY VISION

Our vision is to drive leadership in sustainable real estate practices across our global organization. We provide healthy and efficient workplaces for our customers in collaboration with our tenants and community partners, while enhancing our long-term returns.



Leadership in sustainability has always been important to us

At Manulife Real Estate, integrating sustainability and environmental, social and governance (ESG) practices is key to our investment management process and day-to-day operations. In 2016, we established our Executive Sustainability Steering Committee and adopted a new sustainability vision that emphasizes leadership. Our vision affirms our aspiration to offer a sustainable property portfolio and implement a best-in-class approach to sustainability. This builds on Manulife Real Estate's 2015 commitment to the Principles for Responsible Investment (PRI).

We believe that a strong and effective sustainability strategy can deliver several benefits. It supports stable, long-term returns for our investors. It helps us navigate within a changing regulatory landscape and positions us to take advantage of future trends and customer preferences. Being a respected employer and landlord, as well as a proactive business and community partner, builds a trusted brand and inspires loyalty. Finally, reducing our impact on the environment protects the planet and at the same time drives cost savings related to

energy and water usage, greenhouse gas (GHG) emissions and waste management.

Sustainability is not a new idea at Manulife. We have a long track record of managing our environmental impacts. For example, we have been measuring our energy consumption and GHG emissions since 2005. Our two percent annual energy reduction target, which has been in place for many years, has improved efficiency across our portfolio, with overall performance that is better on average than national benchmarks.

We have also been reporting our climate and carbon management strategy and performance results to Carbon Disclosure Project (CDP) through Manulife Financial Corporation disclosures for more than ten years.

We are continually refining our practices. In 2016, all of our funds participated in the Global Real Estate Sustainability Benchmark (GRESB) assessment. Our goal is to achieve "Green Star" ranking and have our property holdings place among the top quintile of participants globally. As a part of our decision to focus on a new sustainability vision, we are systematically incorporating ESG considerations into our existing procedures and processes and investing in training, systems and communication. We invite you to learn more about our management approach, and our results, in this report.

Sincerely,

A handwritten signature in blue ink that reads "Kevin Adolphe". The signature is fluid and cursive.

Kevin Adolphe
President and CEO, Manulife Real Estate

OUR SUSTAINABILITY VISION, STRATEGY & COMMITMENTS



Real Estate Sustainability Integration Framework

Sustainability starts with our vision and is integrated into our policies and departmental practices

In 2016, we updated the Manulife Real Estate sustainability integration framework. At the top of our sustainability integration framework is our vision. This vision sets out our aspiration to drive leadership in sustainable real estate practices across our global organization.

To ensure that our vision can be realized and drive progress in all material focus areas, we have established eight leadership strategies in three focus areas.

Our Sustainable Real Estate Policy outlines our commitments and material focus areas and guides the integration of sustainability principles into our processes and portfolios.

To help us meet our commitments, we have developed a suite of sustainability practices and checklists. These practices set a standard for all of our key departments including new developments, investments, operations and asset management.

Finally, our practices and performance are validated through public reporting and participation in industry benchmarking initiatives.

Sustainability Leadership Strategies

Renewed ESG Leadership	Tiered building standards	Centre of sustainability
	ESG performance management system	
Sustainability Brand & Culture	Internal and external	Employee awareness and education
	Corporate sustainability culture	
Differentiated Offerings	Health and wellness	
	Clean energy	

ENVIRONMENTAL PERFORMANCE



Resource-efficient buildings minimize our impacts

HOW WE MANAGE OUR ENVIRONMENTAL FOOTPRINT

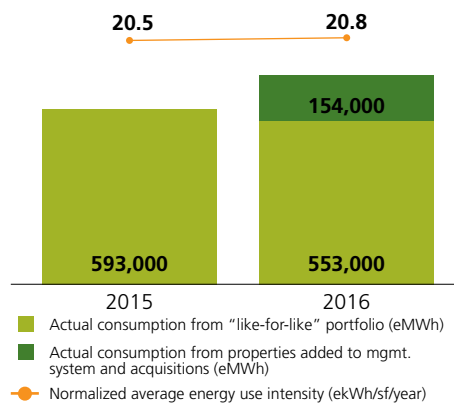
Minimizing environmental impact

Because they consume large amounts of energy and water and generate greenhouse gas emissions and waste, we can minimize our environmental impact by operating our buildings efficiently. Property management teams are responsible for actively overseeing environmental performance. Our Engineering and Technical Services team provides expert guidance on operational practices and capital investments.

To support effective decision-making, our properties have reported performance results for more than a decade. At the portfolio level, we monitor these results through utility consumption reports. To ensure the accuracy of the reported results and facilitate comparability across years and regions, a third-party consultant reviews and analyzes the data and normalizes it for weather conditions and extreme energy users.

ENERGY

2015-2016 Energy Consumption and Intensity



Note: 2015 consumption excludes 4 properties divested in 2016

The energy footprint of our real estate portfolio is 707,000 equivalent megawatt hours. In 2016, we expanded our tracking to include more properties, such as acquisitions and buildings managed by companies other than Manulife. This explains why our overall energy consumption increased. In comparing properties which we owned in both 2015 and 2016, our "like-for-like" portfolio, energy consumption decreased by 40,000 eMWh. This is enough energy to power approximately 1,300 Canadian homes.

Our energy consumption target is to improve efficiency by two percent per year. We will deliver this by implementing best practices consistently across the portfolio, applying technology, and investing in building system retrofits. In 2016, our like-for-like energy reduction was 3.9 percent when normalizing for weather and extreme energy users, which surpassed our target.

In 2016, the average, normalized energy use intensity for our offices was 20.8 ekWh/sf/year, which is lower than both the US and Canada benchmarks for office buildings of 22.8 and 25.5 ekWh/sf/year respectively. Energy intensity increased slightly due to the expanded property portfolio.

Our 2016 energy usage reported above represents 89 percent of the real estate floor area where we manage and pay for utilities. As most industrial and retail property tenants control their energy use directly, their consumption data is not available to us. To support our tenants' efficiency efforts we are starting to work more closely with them. Our property managers are tasked with requesting data from tenants so that we can expand our understanding of energy usage and show accountability by reporting on a larger share of our footprint.

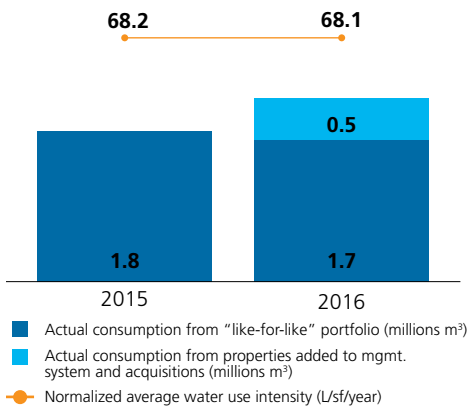
WATER

Water consumption in 2016 was just under 2.2 million m³. The average, normalized water use intensity for all properties decreased slightly to 68.1 L/sf/year. This benchmark is lower than the Canadian office average of 91 and the US average of eighty-one litres. Comparing the “like-for-like” portfolio, we reduced water consumption by almost 120,000 m³ in 2016. This is the same amount of water required to fill forty-seven Olympic sized swimming pools.

Access to fresh water is a material environmental issue in many regions of the world, including California, where we have thirty-eight properties. Therefore, we are taking steps to limit consumption in our commercial buildings. For example, our office property at 3161 Michelson, in Irvine, California employs an innovative water reuse system that reclaims water for use in restrooms, irrigation systems and cooling towers. The result in 2016 was an estimated reduction of nearly 27,000 m³, equivalent to a quarter of the building’s total water consumption.

The most significant challenge in achieving further reductions in water consumption is the related return on capital, given that water is relatively inexpensive. In 2017, we plan to set water reduction targets to increase focus as we perceive water becoming a more scarce and costly resource in many regions of the world.

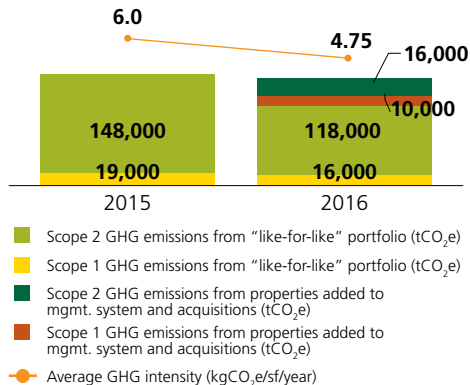
2015-2016 Water Consumption and Intensity



GREENHOUSE GAS EMISSIONS

At Manulife Real Estate, we are committed to reducing our contribution to climate change by minimizing our greenhouse gas (GHG) emissions. Our GHG emissions arise predominantly from the electricity we use to power buildings (scope 2), with a smaller portion from fuels used to heat space and water (scope 1).

2015-2016 Greenhouse Gas Emissions and Intensity

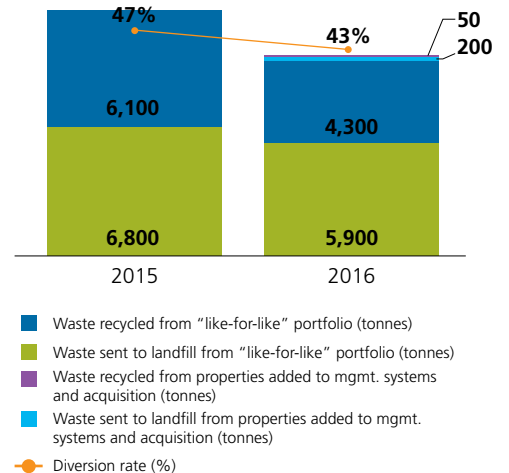


Becoming more energy efficient and reducing waste are two important ways we can reduce our carbon footprint. We can achieve this by making capital upgrades, adjusting our operating practices and working with tenants to promote sustainable behaviours. We also purchase energy from renewable sources and pilot innovative technologies, which will become increasingly important for as we continue to support the shift to a low-carbon economy.

Increased availability of energy consumption data enabled us to include more buildings in our 2016 GHG footprint, which is 134,000 metric tonnes of carbon dioxide equivalent. Even with this expanded measurement scope, total emissions decreased by four percent or twenty percent for the “like-for-like” portfolio. This is partly due to energy reduction, but also because electricity generation in the regions where we operate became “cleaner” through shifts to natural gas and renewable energy generation. We plan to set targets in 2017 for further reductions in our GHG footprint

WASTE AND RECYCLING

2015-2016 Waste/Recycling and Diversion Rate



Our management strategy is to monitor waste stream and volumes, provide recycling options and encourage tenants to support our efforts. In 2016, the total amount of waste our properties reported decreased by approximately 2,700 tonnes, but the diversion rate declined slightly from forty-seven percent to forty three percent.

We continue to work with tenants and waste haulers to improve recycling rates and access to waste data across more properties. Currently we are only able to measure waste output at fifty percent of properties. In 2017 we will also set waste diversion targets.



CASE STUDY

Battery Storage Pilot Installed in California

At 3161 Michelson, our property in Irvine CA, we installed Powerpack, Tesla’s energy storage system, to reduce peak electricity demand. Installing a 1 MW Powerpack system energy storage system has allowed our property management team to charge the system’s batteries during low demand periods when rates are low, and then use that stored electric power during peak demand times. By reducing demand for electricity during peak hours, we expect to save almost \$120,000 annually and offsetting some of the need for new generation capacity.

GREEN BUILDING CERTIFICATIONS



Third-party certifications validate our achievements

Green building certifications provide assurance to tenants and stakeholders that a building performs at a minimum standard and is managed with best-in-class sustainability practices. Certifications validate many aspects of sustainability, such as energy, water and waste performance, green procurement, renewable energy use, rainwater runoff and light pollution.

For our investors, building certifications also provide economic value. A number of studies have shown that certifications are linked to higher net effective rents, fewer rent concessions, higher rates of occupancy, tenant renewal and tenant satisfaction, and lower energy consumption.

Many different green building standards are in use globally. Manulife pursues certification under the LEED® system and the Building Owners and Managers Association (BOMA) BEST™ standard in Canada, and LEED and the Energy Star™ certification program in the US.

In 2016, 28.7 million square feet of our portfolio had been certified under one or more sustainable building certification programs. Sixty-six percent of our office buildings and forty-one percent of our overall portfolio have received green certification. In 2017, we plan to continue increasing the percentage of our overall portfolio that is certified, in part by examining certification programs for our portfolio of industrial properties.

Manulife Sustainable Building Certifications as of December 31, 2016.

CERTIFICATION TYPE	CERTIFIED SF	% OF PORTFOLIO
BOMA BEST/360	11.5 million	17%
LEED (EB, CS, BD)	14.7 million	21%
Energy Star certified	9.5 million	14%
Total	28.7 million*	42%

*Total will not add up as buildings with multiple certificates are only counted once.



CASE STUDY

Sustainability by design—980 Howe

Our office property at 980 Howe in Vancouver, which received LEED CS Gold certification in 2016, is a prime example of ensuring long-term value preservation by incorporating sustainability provisions early in the development process. The design team was able to meet both aesthetic and energy efficiency objectives and incorporate innovations such as rainwater harvesting. Electric vehicle charging stations, tenant sub-metering, enhanced

commissioning, and use of local and recycled materials all contributed to the certification. To complement these sustainability provisions, the designers also considered the health and wellness of the occupants. Floor-to-floor glass maximizes daylighting, low-emission construction materials and indoor air monitoring contribute to good air quality, and a fitness centre, secure bicycle storage and shower facilities promote an active lifestyle.

TENANT ENGAGEMENT

Working with our tenants for greater impact



Engage our stakeholders

Supporting tenant awareness and involvement is integral to improving the sustainability performance of our property portfolio. Tenant organizations often share our sustainability objectives, or are pursuing objectives that are similar. As their landlord, we can provide them with support and expertise.

In 2016, engagement programs for tenants that focused on sustainability were offered at fifty percent of the entire Manulife Real Estate portfolio and seventy-three percent of office properties. Initiatives included sharing building performance results with tenants, offering sustainability tips, holding events and education sessions, and establishing tenant-landlord green teams.

In 2016, we began rolling out new guidance and communication materials to support tenant engagement at our properties. As a company with expertise in health and wellness, we are also developing programs for tenants that are focused on the well-being of occupants.

We see greater collaboration on sustainability as an essential, mutually beneficial activity that supports our tenants' business objectives and increases their satisfaction with our properties and services. Over the last two years, we conducted surveys at forty-nine percent of our properties that included a number of questions related to sustainability, so that we could better understand our tenants' needs. Their feedback is informing our property sustainability standards and operations training.

Catch your flight

Take the stairs and avoid long elevator wait times while getting a short exercise break in!

Manulife Real Estate

Good will thinking

Cleaning your closets? Don't throw away your old clothes, donate them.

Manulife Real Estate

Give your heart a break

Stay hydrated. Remember to drink 8 glasses of water a day.

Stay active and take 1 minute breaks for every hour you're sitting.

Making minor changes to your diet, activity level and sleeping habits can benefit your health and your happiness.

Manulife Real Estate

Ditch the plastic

No need to buy bottled water. Our drinking fountains and taps feature water purifiers to provide you and your reusable bottle with the cleanest water possible.

Manulife Real Estate



CASE STUDY

Engaging tenants on waste and recycling at 1100 Peachtree

At 1100 Peachtree in Atlanta, Georgia, the property management team works collaboratively with tenants to improve waste and recycling methods and reduce their environmental impact. To increase their awareness of the property's recycling program, management at 1100 Peachtree regularly provides all tenants with educational information, including live seminars on best-in-class recycling practices. Annual electronic waste events help tenants and occupants dispose of waste they may have at their homes or offices. Finally, sharing performance results for each quarter via waste diversion reports allows tenants to see how they are doing and set targets for further improvements. The result is engaged tenants working together with the property management team to reduce the building's environmental impact.

EMPLOYEE ENGAGEMENT



Building excellence by investing in our people

Over the years, Manulife has been recognized as an employer of choice with numerous awards. At Manulife, we focus on employee satisfaction, professional development opportunities and wellness, because an exceptional employee experience enables us to deliver an exceptional customer experience.

All Manulife Real Estate employees participate in ongoing performance management discussions, including annual reviews and professional development direction. Select employees have sustainability practices and metrics integrated into their performance goals, and moving forward, we plan to integrate these practices and metrics into all employee performance goals. In 2016, every Manulife Real Estate employee received compliance and human resources training. Manulife provides a comprehensive suite of learning and development programs and

courses that cultivate leadership and other skills, ranging from effective strategizing, creative thinking and problem-solving to coaching, building and leading teams. In 2017, we are rolling out a training program that addresses sustainability in order to enhance awareness, knowledge and capabilities in this area.



Our employees' health and wellness are very important to us. Manulife is committed to providing programs that promote physical, emotional, social and financial well-being. Manulife also provides a competitive rewards package that links performance and pay, rewarding "what" and "how" when employees achieve their objectives. Additionally, our corporate real estate team has implemented the WorkSmart program, providing more mobile office and teleconferencing facilities, remote working arrangements and TechLounges. By offering employees a range of unique approaches to achieving both their professional and

personal goals, we seek to promote a healthy work-life balance. Piloting programs like WorkSmart in our own operations enables us to gain experience and share knowledge that can be beneficial for any of our real estate customers looking to achieve similar results.

Every two years, we survey employee satisfaction. In 2015, the response rate from Manulife Real Estate employees was ninety percent. Based on employee feedback, senior and regional leaders develop action plans for improving our tools, processes and work environment.

Manulife and its employees support many charities and not-for-profit organizations. In 2016, through a number of programs, Manulife and its employees contributed a total of \$39.3 million to non-profit organizations in 2016, targeting healthy and active living and helping youth realize their potential.

SUPPORTING COMMUNITIES AND A CLEAN ECONOMY



Investing in the future

COMMUNITY ENGAGEMENT



Promote responsible business practices

Our buildings play an important role in local economies and communities. They contribute to the communities in which they operate, providing spaces for outdoor recreation and community programming, blood donation drives, farmers' markets and other events. In 2016, we began tracking indicators of community engagement so that we could identify properties that need support and help their managers develop appropriate programs. In 2017, we also plan to evaluate programs for engaging other stakeholders, such as local suppliers, in efforts to strengthen their communities through their employment and purchasing decisions.

FACILITATING A CLEAN ECONOMY

Manulife is contributing to the shift to the low-carbon economy by piloting low carbon emission technologies. Our successful electric vehicle (EV) pilot program has led to more than 75 EV charging stations across our portfolio. In addition to electric transportation infrastructure, we source renewable energy. Since 2006, we have encouraged the development of clean energy by purchasing renewable energy credits across North America. In 2016, we purchased more than 29,000 MWh of renewable energy which is almost 5% of our total electricity consumption. We are working on a portfolio-wide renewable energy strategy.

These types of initiatives not only support a cleaner economy, but also accommodate growing tenant expectations.



CASE STUDY

Alternate transportation at Manulife Real Estate

In Canada and the US, approximately one quarter of greenhouse gas emissions come from transportation. We therefore believe it is important to support our tenants, visitors and employees in their use of alternative transportation options.

- To support cycling, many properties, including 625 Howe Street in Vancouver, have secure bicycle storage and showering facilities. At other properties, tenants can use public bicycles stations close to the buildings. One such place is 425 McGill Street in Montreal where Manulife sponsors the municipal bike share program.
- Many properties have direct access to public transit. In Toronto, five of our office complexes are within meters of the local subway system. Other properties, including Lansing Square in Toronto, offer shuttle services to nearby transit stops during peak times.
- We support electric vehicle use by adding more EV charging stations every year and we have developed brand standards to increase awareness of where to find our charging stations.

SUSTAINABILITY GOVERNANCE

HOW WE APPROACH SUSTAINABILITY

As a large, global organization with listings on a number of stock exchanges and regulated by financial oversight authorities around the world, Manulife makes governance a priority. After interviewing members of Manulife Real Estate's senior management team, consulting industry experts and referencing global standards, we were able to identify focus areas in which we can have a material influence on our industry and the environment, as well as people and communities. We also established our Executive Sustainability Steering Committee, which includes senior representatives from across Manulife Real Estate. Our sustainability governance structure spans our organization and is linked to our corporate operations. It addresses both regulatory obligations and our own voluntary commitments to sustainability and excellence in environmental performance at all of our operations.

The Global Head of Real Estate Asset Management chairs the Executive Sustainability Steering Committee, which is made up of senior real estate representatives from key departments and regions. The Committee oversees our progress toward achieving our sustainability vision and strategy, and ensures that we meet our commitments and adhere to corporate policies and practices.

In addition to being a member of the Executive Sustainability Steering Committee,

Manulife Executive Sustainability Steering Committee

- Asset and Property Management
- Engineering and Technical Services
- Developments
- Corporate Real Estate
- Leasing
- Investments
- Marketing and Communications
- Human Resources
- Manulife Corporate Citizenship

the Vice President of Engineering and Technical Services acts as the Environmental Officer for Manulife Real Estate, reporting to Manulife's Enterprise Risk and Global Citizenship functions on matters related to environmental risks and impacts.

Our Sustainable Real Estate Policy sets out our commitment to integrate sustainability principles into our processes and property portfolio, and in 2016 we amended our practices to reflect this commitment. These practices address sustainability across the real estate life cycle, from new development and investment to current operations and asset management.

In addition to our real estate policies and practices, Manulife adheres to several related policies:

- Manulife Asset Management Environmental, Social and Governance Policy
- Manulife Code of Conduct and Business Ethics
- Manulife Environmental Policy



Accountable for our performance

To validate our practices, monitor progress on our strategy, and support transparency and responsible business practices, we report on our management approach and sustainability performance through many channels, including:

- Manulife Financial Corporation's Public Accountability Statement
- Responses to CDP (formerly the Carbon Disclosure Project)
- Manulife Real Estate sustainability reports
- Direct Property Investment reporting under PRI (Principles for Responsible Investment)
- Global Real Estate Sustainability Benchmark (GRESB)

To learn more about our organization's corporate governance practices, visit our website: www.manulife.com/Corporate-Governance.

Manulife Real Estate Material Sustainability Focus Areas

ENVIRONMENTAL IMPACTS	SOCIAL IMPACTS	GOVERNANCE IMPACTS
• Energy and renewable energy	• Health and well-being	• Business conduct and ethics
• Greenhouse gas (GHG) emissions	• Safety and accessibility	• Sustainability governance
• Water	• Employee development	• Sustainability reporting
• Waste and diversion	• Employee satisfaction	• Linking sustainability to performance management
• Green building certification	• Customer satisfaction	
• Green leases	• Tenant engagement	
• Green procurement	• Community impact	
• Climate change resiliency	• Responsible contracting	

RESPONSIBLE INVESTMENT MANAGEMENT



Managing Risks and Opportunities

Manulife Real Estate has a long history of prudent property investing, evaluating environmental, social and governance (ESG) factors in our investment management process. In 2015, Manulife Asset Management and Manulife Real Estate became signatories to the Principles for Responsible Investment (PRI), formalizing our commitment to ESG integration.

Systematically reviewing ESG factors when analysing investments and allocating capital to our assets ensures that ESG risks and opportunities are identified from an early stage, incorporated into financial models and managed. It supports good decision-making by considering more information about a property and its surrounding market.

OUR PRACTICES

We have incorporated many ESG considerations—for example environmental contamination, energy performance and tenant engagement programs—in our standard Due Diligence Checklist. Our Sustainability in Investment and Due Diligence Summary Form ensures these material ESG factors are considered and communicated. Investment

teams are supported by dedicated specialists in our Engineering and Technical Services department, who share their expertise in building engineering, sustainability, and environmental and safety hazards with investment managers during the due diligence and investment processes.

To ensure that ESG factors are systematically incorporated into the ongoing management of our properties, we developed our Sustainability in Asset Management Checklist. The Checklist informs decisions relating to operational improvements, capital investments, risk management.

To understand performance, we monitor ESG metrics at internally managed properties and at properties managed by third parties by collecting and reporting key performance indicators. This reporting informs decisions related to performance management, risk management and public disclosure.

To benchmark our sustainable practices and performance, we participate in the Global Real Estate Sustainability Benchmark (GRESB) for all our properties and funds. Supporting GRESB, PRI and CDP promotes responsible business practices in the real estate and investment management industries.



CASE STUDY

ESG training

Educating employees is essential to effective ESG integration. As part of our 2016 Investment Group Conference, we included a training session on the Principles for Responsible Investment (PRI) and its implications on the investment process.

Although ESG integration has been incorporated into our practices for a long time, standards, regulation and best practice are constantly changing. Training allows us to educate our team on industry trends and leadership processes.

In 2017, we are providing training for all investment, asset management, fund management, property management and senior operations staff on our sustainability practices and checklists.



ABOUT MANULIFE REALESTATE

We own, develop and manage real estate across the globe on behalf of our clients and Manulife’s general account.

ABOUT MANULIFE

Manulife Real Estate is a business unit of of Manulife Financial Corporation (Manulife), a leading international financial services group that helps people achieve their dreams and aspirations by putting customers’ needs first and providing the right advice and solutions. We operate as John Hancock in the United States and as Manulife elsewhere. At the end of 2016, we had approximately 35,000 employees, 70,000 agents and thousands of distribution partners, serving more than 22 million customers.

To learn more about Manulife and our commitment to social responsibility, environmental sustainability, and excellence in business conduct and corporate governance, visit our website (www.manulife.com) or read our Public Accountability Statement.

ABOUT MANULIFE REAL ESTATE AND JOHN HANCOCK REAL ESTATE

At Manulife Real Estate, we manage a portfolio of properties across North America and Asia with more than 60 million square feet of floorspace. Our expertise includes real estate investment and development, asset management, property management and leasing. Our assets include office, industrial, residential and select retail properties.

For more information on our sustainability program, please visit: www.manuliferealestate.com/socialresponsibility.

REAL ESTATE PORTFOLIO INFORMATION

(As of Dec. 31, 2016)



C\$21.4 B

Value of assets under management



62.8 M SF

Area in square feet



384

Properties



8

Countries: Canada, China, Japan, Malaysia, Thailand, United States, Vietnam, Singapore



4

Property types: Industrial, office, retail and residential

ABOUT THIS REPORT

REPORT SCOPE

This report provides details about sustainability practices and performance for all real estate holdings owned or managed by Manulife Real Estate and John Hancock Real Estate. This includes third-party real estate assets managed by us and properties that are held in our life insurance investment portfolios. This also includes properties we manage for investors in our real estate funds and the Singapore based Manulife US REIT. Our approach to sustainability governance and management is consistent across all portfolios, and our strategy and programs are applied at all properties we own or manage.

The content of this report was informed by the Global Reporting Initiative (GRI) Standards and the Global Real Estate Sustainability Benchmark (GRESB).

REPORTING PERIOD

January 1, 2016 to December 31, 2016.

DATA

Data coverage: Data coverage for performance data is outlined where it is presented. If no data coverage is noted, data represents all Manulife Real Estate and John Hancock Real Estate properties.

Energy: Energy data includes electricity, natural gas, heating oil and steam consumption for base buildings, common areas and tenanted spaces. Energy use intensity has been adjusted for weather to the 2016 reporting year and extraordinary usage.

Average US and Canadian energy intensities are taken from the US Environmental Protection Agency, 2012 and the Real Property Association of Canada (REALpac), 2014. Average water intensities are taken from the DC Department of Energy & Environment, 2012 and REALpac, 2012.

Greenhouse gas emissions: Greenhouse gas emissions data includes all office buildings with available data. Methodology for determining greenhouse gas emissions

is aligned with the CAN/CSA-ISO 14064-1-06, CAN/CSA-ISO 14064-3-06 and the WRI/WBCSD Greenhouse Gas Protocol standards.

DEFINITIONS

BOMA BEST: Building Owners and Managers Association Building Environmental Standards. This Canadian certification program evaluates properties based on energy, water, waste, greenhouse gas emissions, indoor environment and environmental management systems.

CaGBC: The Canada Green Building Council. The CaGBC is a national, not-for-profit organization that has been working since 2002 to advance green building and sustainable community development practices in Canada.

CDP: Formerly the "Carbon Disclosure Project," the CDP is an organization which works to disclose the greenhouse gas emissions of major corporations. CDP's climate change program collects information on the risks and opportunities of climate and aims to reduce companies' greenhouse gas emissions and mitigate climate change risk.

CO₂e: Carbon dioxide equivalent. This metric calculates the total global warming impact of different greenhouse gases by converting them to the standard measure of carbon dioxide. It is often displayed in metric tonnes (1,000 kilograms) or tCO₂e. Greenhouse gas emissions intensity is expressed in kgCO₂e per square foot.

ENERGY STAR™: An international standard for energy efficiency. It was created in 1992 by the U.S. Environmental Protection Agency and the Department of Energy to provide an energy performance rating system for commercial building types. The ratings, measured on a scale from 1 to 100, provide a means for benchmarking the energy efficiency of specific buildings against similar facilities. Australia, Canada, Japan, New Zealand, Taiwan, and the European Union have adopted the program.

ekWh: Equivalent kilowatt hours. This metric is the standard unit of energy consumption used to aggregate and compare different energy sources (e.g., natural gas to electricity).

Greenhouse gas emissions: Gases that trap heat in the atmosphere, raising the average temperature of the planet. They are produced because of fossil fuel combustion and industrial, agricultural and waste management processes. They are measured in tonnes of carbon dioxide equivalent (tCO₂e), hence they are also known as carbon emissions.

GRESB: Global Real Estate Sustainability Benchmark. This institutional investor-sponsored assessment is the global standard for assessing the sustainability performance of real estate companies and funds. In 2016, the assessment had 759 participants from 63 countries, representing \$2.8 trillion in gross asset value.

LEED: Leadership in Energy and Environmental Design. This internationally-recognized, third-party certification system rates a building's site, water and energy efficiency, waste management, material selection and indoor air quality. There are different certification programs:

- **NC:** New Construction. This rating program applies to new construction and major renovations of commercial and institutional buildings.
- **CS:** Core & Shell. This rating program is a derivative of NC and applies to buildings where the owner controls 50% or less of the building area that will be built to NC requirements.
- **CI:** Commercial Interiors. This rating program is applicable to tenant improvements of new or existing office space.

• **EB: O&M:** Existing Buildings: Operations & Maintenance. This rating program evaluates the sustainability of ongoing operations of existing commercial and institutional buildings.

Scope 1 emissions: Direct greenhouse gas emissions from activities at company-owned properties, including combustion of natural gas in boilers and furnaces, the use of gasoline in generators and vehicles and refrigerant losses.

Scope 2 emissions: Greenhouse gas emissions from the generation of electricity, steam and chilled water purchased by the company.

Scope 3 emissions: Greenhouse gas emissions from company operations from sources not owned or controlled by the company, e.g., landfill waste, water transportation and data centres.

PRI: Principles for Responsible Investment. This organization works to understand the investment implications of environmental, social and governance factors and to support its international network of investor signatories in incorporating these factors into their investment and ownership decisions

Waste diversion rate: The percentage of total waste that is diverted away from landfill disposal through recycling or composting.

IMPORTANT INFORMATION

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