RBC Global Asset Management

RBC Global Asset Management Climate Report 2023

Guided by the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)

About this report

In this document, references to RBC Global Asset Management (RBC GAM) include the following affiliates: BlueBay Asset Management LLP (for the reporting period between January 1, 2023 – April 1, 2023), RBC Global Asset Management Inc. (including Phillips, Hager & North Investment Management), RBC Global Asset Management (U.S.) Inc., RBC Global Asset Management (UK) Limited (RBC GAM UK), and RBC Global Asset Management (Asia) Limited, and RBC Indigo Asset Management Inc., which are separate, but affiliated subsidiaries of Royal Bank of Canada (RBC). On April 1, 2023, the majority of the BlueBay Asset Management LLP asset management business was transferred to RBC GAM UK and the consolidated business operates under the name RBC BlueBay Asset Management (RBC BlueBay).[1] References to RBC refers to the Royal Bank of Canada and its subsidiaries in this report.

In this document, references to our investment approach, applicable types of investments, applicable investments, and assets under management in scope of analysis exclude certain investment strategies, asset classes, exposures or security types that do not integrate ESG factors. Examples of these include, but are not limited to money market, buy-and-maintain, passive and certain third-party sub-advised strategies or certain currency or derivative instruments. In most, if not all of these instances, there is no engagement with issuers by RBC GAM. This document discusses our investments that integrate ESG factors.

This is RBC GAM's fourth climate report guided by the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). The RBC GAM Climate Report is published in line with the regulatory requirements of the U.K. Financial Conduct Authority (FCA) Environmental, Social, and Governance Sourcebook (ESG Sourcebook). RBC GAM entities that are in scope of the ESG Sourcebook are RBC GAM UK and BlueBay Asset Management LLP. These in-scope entities are relying on this RBC GAM, group-level report, prepared by RBC GAM. These entities are included in the scope of this report, unless otherwise stated. A Compliance Statement that confirms that this report complies with the requirements of Chapter 2 of the ESG Sourcebook is provided in Appendix 4.

Reporting period

All data and examples in this report reflect activities undertaken during the 2023 calendar year (January 1, 2023 – December 31, 2023), unless otherwise noted.

Currency and measurement

All amounts in this document are in United States (US) dollars unless otherwise noted. In some cases, values may not add up to totals due to rounding.

[1] RBC GAM's business outside of North America. Collateral Loan Obligations (CLOs) remain part of BlueBay Asset Management LLP and were not transferred to RBC GAM UK on April 1, 2023.

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Letter from our Chief Investment Officer

At RBC GAM, we believe that integrating material climate change factors in our investment approach can enhance long-term risk-adjusted returns. This view forms the foundation of RBC GAM's Approach to Climate Change.

To effectively consider and integrate material ESG factors into investment decisions, investors need reliable, consistent and comparable disclosures from issuers. Over the past year, we have seen significant progress in this area, with the finalization of a new global climate disclosure standard by the International Sustainability Standards Board (ISSB). It is for this reason that in December 2023 we joined close to 400 organizations in declaring our support for advancing the global adoption of this standard. We have also continued to advance our ability to use climate-related data and disclosures to generate insights and inform decisions. In 2023, we leveraged our internal ESG data infrastructure to initiate climate research. This includes ongoing research that considers the risk-return implications of managing portfolios with emission reduction targets, using our quantitative research expertise to assess climate factors, and working to expand our climate analysis to include additional sovereign fixed income assets. In this report we discuss our climate research, and our continued efforts to measure and assess climate-related risks and opportunities across our investments.

Active stewardship is a core pillar of our approach to climate change. We convey our views on climate change through thoughtful proxy voting and engage with issuers on the management of climate-related risks and opportunities, where appropriate. We also collaborate with like-minded peers to advance dialogue on material climate issues and to share our views on topics and to inform investment decisions. This year we were pleased to participate in the launch of the first Net-Zero Benchmark of Climate Engagement Canada (CEC), in which we are a founding participant. CEC is a finance-led initiative whose mandate is to enable institutional investors to engage collaboratively with Canadian companies to promote a just transition to a net-zero economy.

As described in Our Net-Zero Ambition, we are committed to providing robust and timely disclosure of our climate change commitments and actions, as well as reporting transparently on our progress. It is for this reason that we first made a voluntary commitment to publish a report that is guided by the TCFD recommendations in 2020. The Climate Report 2023 is our fourth such disclosure. We recognize that our clients are also interested in transparency into how their investments may be exposed to or contribute to climate-related risks or opportunities. In 2023, we expanded our reporting of climate-related metrics to institutional clients in some jurisdictions, and will continue to advance these efforts over time.

Daniel E. Chornous, CFA
Chief Investment Officer, RBC Global Asset Management

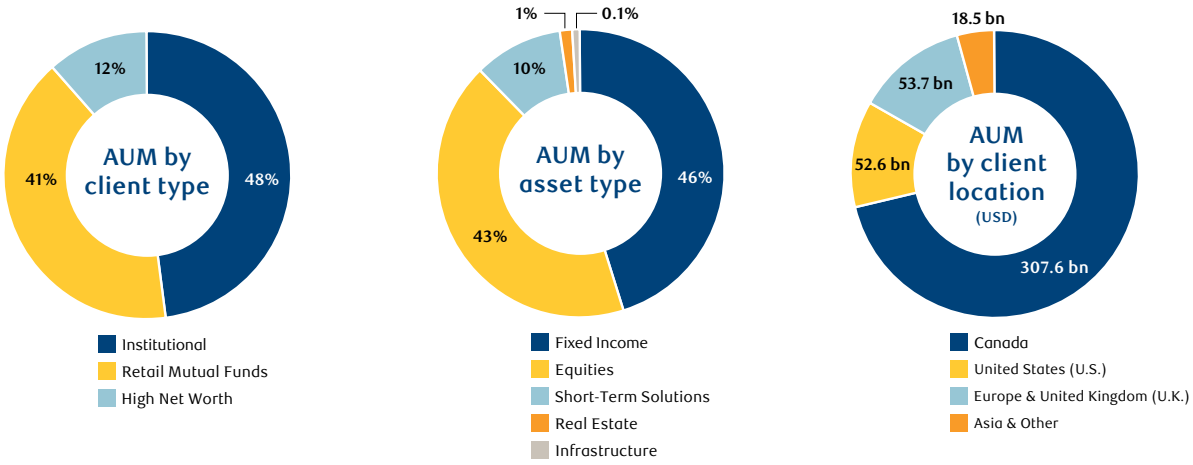
About RBC GAM

RBC Global Asset Management is the asset management division of RBC. RBC GAM manages US$432.4 billion in assets under management (AUM) and has approximately 1,650+ employees located across Canada, the United States, Europe, and Asia.[2]

We are a provider of global investment management services and solutions to institutional, high-net-worth, and individual investors through separate accounts, pooled funds, mutual funds, hedge funds, exchange-traded funds, and specialty investment strategies. Our experienced investment teams are active across capital markets and asset classes, deploying traditional and innovative strategies. Our investment solutions span a range of asset classes such as equites, fixed income, alternatives, and private markets, with investments globally in both developed and emerging markets, across corporate and sovereign issuers.

Figure 1: The approximate breakdown of our AUM by client type, asset type, and client location

As at December 31, 2023



Our client base is comprised of retail (52%) and institutional (48%) clients.[3] Individual retail investors and their financial advisors select mutual funds based on their needs and objectives. RBC GAM has a history of serving institutional clients, which is regionally diverse, with 40% in Canada, 25% in the U.S., 26% in Europe and the U.K., and the remainder in Asia and other regions.[4] Institutional clients establish specific mandates that are based on their needs and objectives, and RBC GAM works directly with our institutional clients so that we may be effective stewards of their capital.

CLIMATE REPORT 2023 HIGHLIGHTS

US$432.4 billion
In assets under management (AUM), as at December 31, 2023.

Participated in **9** collaborative engagements focused on climate change and **3** on nature-related risks.

Provided climate-related analysis for **81% ($US 348.3 billion)** of RBC GAM's total AUM, as of December 31, 2023 in our annual Climate Report 2023. This represents **88% of equity holdings** and **93% of fixed income holdings**.

INTEGRATED MATERIAL CLIMATE RISKS AND OPPORTUNITIES into our investment process, for applicable types of investments

Completed over **1,800+** engagementsthat included ESG topics in 2023.*

Provided quarterly **CLIMATE DASHBOARDS** for investment teams with data on carbon emissions, net-zero alignment, transition risks and opportunities, and climate scenario analysis.***

Provided **PORTFOLIO CLIMATE REPORTS** to institutional clients in some regions, as appropriate.**

*This figure may include instances where our investment teams engaged with the same issuer multiple times. The reported figures may not fully capture all ESG engagements as some may not be included in our tracking systems. Engagements purely on non-ESG factors are also excluded.

**These are client-facing reports that meet UK regulatory requirements and include a range of climate metrics for investment strategies, funds or accounts. This includes metrics related to carbon emissions (absolute and intensity based), investment in carbon intensive sectors, temperature alignment, and climate scenario analysis.

***Climate Dashboards may not be provided for all investment strategies, and climate metrics may vary by quarter.

[2] As at December 31, 2023.
[3] As at December 31, 2023. Based on RBC GAM analysis. Retail clients includes retail mutual funds and high net work clients from chart above.
[4] As at December 31, 2023. Based on RBC GAM analysis.

Our Approach to Responsible Investment

At RBC GAM, responsible investment (RI) is embedded in our values, in our approach to investment management, and in our strategic priorities. Our Approach to Responsible Investment is anchored by the knowledge that our clients have entrusted us to help them secure a better financial future for themselves or for the beneficiaries of the portfolios they manage. As stewards of our clients' assets, we aim to ensure that the issuers in which we invest act in alignment with the long-term interests of our clients.

Our approach to responsible investment is comprised of three pillars. The specific actions we take under each pillar aim to deliver on our goal of maximizing our clients' investment returns without undue risk of loss. RBC GAM's approach is based on the following foundational beliefs:

- That being an active, engaged, and responsible investor empowers us to enhance the long-term, risk-adjusted performance of our portfolios and is consistent with our fiduciary duty.
- That issuers that manage their material ESG[5] risks and opportunities effectively are more likely to outperform on a risk-adjusted basis, over the long term.
- That engagement through direct dialogue is often effective at facilitating change.[6]
- That initiatives that increase transparency and foster fair and efficient markets benefit all investors and clients globally.
- That collaboration with like-minded investors may give us greater influence on issues that are material to our investments.

ESG integration
Our investment teams integrate material environmental, social and governance (ESG) factors into their investment decisions for applicable types of investments.

Active stewardship
We convey our views through thoughtful proxy voting and engagement with issuers for applicable types of investments. We also engage with regulatory bodies on material ESG issues and collaborate with other like-minded investors, where applicable.

Client-driven solutions and reporting
We align our solutions with client demand and provide transparent and meaningful reporting.

[5] Material ESG factors refer to ESG factors that in our judgment are most likely to have an impact on the financial performance of an issuer/security. Factors may depend on the sector and industry of a corporate issuer, or for sovereign issuers, on the economic, social, and political environment, as well as the availability of and dependence on natural resources, among other factors.
[6] In some instances involving certain fixed income investments, quantitative investment, buy-and-maintain, passive and certain third-party sub-advised strategies, there is no engagement with issuers by RBC GAM.

Climate change and nature-related risks

Historically, nature-related risks, including those stemming from biodiversity loss, have been discussed separately from climate change. There has been growing recognition however of the interconnections between the two factors – a trend that's played out alongside a heightened focus on the potential materiality of nature-related risks to investments. In recognition of this, RBC GAM first published our perspective on climate change and nature-related risks in our Climate Report 2022, and outlined key activities related to this focus. Since then, we've continued to advance our approach, which includes assessing RBC GAM's exposure to nature-related factors.

A framework for nature

Nature-derived services, including food, clean water, soil formation, climate regulation, air purification, and cultural services, such as recreation and tourism, are important for the global economy. Research from the World Economic Forum found that over half of the world's Gross Domestic Product (GDP) is either moderately or highly dependent on nature and its services.[7] The potential systemic impacts of nature-related factors are also increasingly being recognized. While not a legally binding agreement, the adoption of the Kunming-Montreal Global Biodiversity Framework (GBF) by 188 countries in December 2022 was an important development as it set out goals, targets, and expectations regarding national commitments that aim to halt and reverse nature loss.[8]

Despite the global economy's dependence on nature, efforts to quantify related risks and opportunities have been constrained by a lack of consistent and reliable data and methodologies. Recent progress has been made, with the release of the Taskforce on Nature-related Financial Disclosures' (TNFD) final recommendations in September 2023.[9] The TNFD provides a voluntary framework and sector-specific guidance for the disclosure of nature-related dependencies, impacts, risks, and opportunities.[10]

Description of nature-related impacts and dependencies

The TNFD defines nature-related risks as potential threats posed to an organization, linked to their (and wider society's) dependencies and impacts on nature. These can derive from physical, transition, and systemic risks, which may create a disruption in an issuer's activities or value chains, volatility in raw materials prices, adaptation costs, stranded assets, or capital destruction, among others. There are also nature-related opportunities, which create positive outcomes for organizations and nature by creating positive impacts on nature or mitigating negative impacts on nature. For example, activities that avoid, reduce, mitigate, or manage nature-related risks, or that actively work to reverse the loss of nature, including through restoration or regeneration of nature, and implementation of nature-based solutions.

Nature-related dependencies consider the extent to which a decline in an ecosystem service may present a financial risk to a business. For instance, organizations whose operations and/or revenues are highly dependent on water availability may face transition and physical risks, which can cause increased costs and/or decline in operations.

Nature-related impacts consider the interplay between an organization's operations and nature, and how that relationship may result in direct and indirect risks in the form of regulatory, legal, reputational, and market risks. Entities that greatly impact nature – for example, through emissions or waste – may face liability risks due to potential litigation.

[7] New Nature Economy Report II: The Future of Nature and Business, World Economic Forum, July 2020.
[8] COP15: Nations adopt four goals, 23 targets for 2030 in landmark UN Biodiversity Agreement, Convention on Biological Diversity, December 2022.
[9] Taskforce on Nature-related Financial Disclosures (TNFD) Recommendations, September 2023.
[10] Additional Guidance for financial institutions, TNFD, September 19, 2023.

RBC GAM perspective on nature-related risks

RBC GAM is encouraged by the final recommendations of the TNFD. We continue to take steps in evaluating the materiality of nature-related risks , including biodiversity loss, to investment portfolios, including issuers' impacts and dependencies. We also collaborate with industry initiatives and other investors on nature-related issues, and our investment teams engage with issuers on this topic, as appropriate.

Moving forward, RBC GAM will aim to focus on the following:

- Continuing to build knowledge and understanding of the potential material risks that nature-related factors, and biodiversity loss specifically, may pose.
- Identifying and assessing the materiality of nature-related risks to investments, from the perspective of both impacts and dependencies, guided by the recommendations of the TNFD.
- Continuing to work collaboratively with other investors on nature-related issues through industry initiatives, and to engage with issuers on this topic, where relevant.

Approach for assessing and managing nature-related risks

RBC GAM may face exposure to nature-related impacts and dependencies through our investments in issuers who are themselves exposed to these factors. For example, issuers in the following industries may face significant impacts and/or dependencies from nature: agriculture, forestry and fisheries, energy, mining, transportation, food and beverages, apparel, utilities, chemicals, manufacturing, and construction.[11] RBC GAM's investment teams consider material ESG factors, which may include nature-related factors, that they determine may impact the value or price of investments.

Our investment teams have their own processes for integrating material ESG factors and for determining materiality, drawing from tools like the Sustainability Accounting Standards Board (SASB) materiality map, internal research and resources, speaking with industry experts, and sell-side and external research. They are also equipped with data and insights to manage the risk exposure of their portfolios, with data available on a wide range of factors, including financial and nature-related factors. Investment teams integrate material ESG factors into their portfolio management decisions in a manner that complements their distinct investment approaches and mandates, for applicable types of investments. In addition, proxy voting, engagement with issuers and regulators, and collaboration with like-minded investors and associations are important pieces of our active stewardship activities.

NATURE-RELATED ACTIVE STEWARDSHIP ACTIVITIES

Engagement: Our investment teams may meet with relevant representatives of investee issuers on an ongoing basis, often discussing ESG-related risks and opportunities material to our investments. The specific ESG topics that are discussed will be selected based on materiality, and we report regularly on ESG-related engagements. For example, the RBC Emerging Markets Equity team engaged with a South Korean small-cap company that supplies chemical solutions on biodiversity and nature loss in order to better understand their management of related risks; and the RBC Global Equity team engaged with a consumer staples firm on biodiversity, water and regenerative agriculture strategies, leading to a decision to initiate investment in 2022.[12]

Proxy voting: Our proxy voting activities are governed by our Proxy Voting Guidelines (Guidelines),[13] which include voting guidelines on nature-related factors such as an issuer's impact on the environment (e.g., toxic emissions, water risks, environmental liabilities). We vote our shares independently and review these on a case-by-case basis in line with our Guidelines. In recent years, this has included the review of nature-related shareholder proposals related to water and deforestation. The proxy voting records of our retail funds are publicly available on our regional websites and are updated periodically, in accordance with applicable regulations.

Collaborations: RBC GAM continues to be a supporter of the Investors Policy Dialogue on Deforestation (IPDD), and RBC BlueBay is the co-chair of the IPDD and directly contributes to the initiative's efforts in Brazil, and in Indonesia (as of 2023). Other nature-related collaborative initiatives that we are a member of include Farm Animal Investment Risk & Return (FAIRR) and the workstream of the Emerging Markets Investors Alliance (EMIA), which is focused on deforestation by food producers.

[11] The Climate-Nature Nexus, An investor guide to expanding from climate- to nature- data, United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), Finance for Biodiversity Initiative, April 2022.

[12] RBC GAM UK Stewardship Code 2022. Link

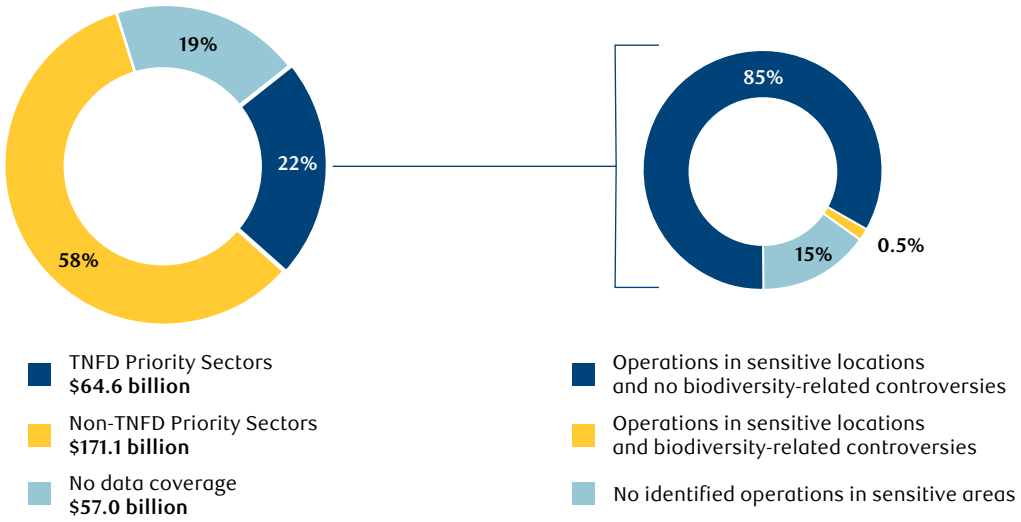
[13] For applicable regions. Our custom Proxy Voting Guidelines are applied in Canada, the U.S., the UK, Ireland, Australia, and New Zealand. In all other markets, RBC GAM applies Institutional Shareholder Services (ISS) local proxy benchmark voting policies.

RBC GAM's assessment of exposure to nature-related factors

In 2023, RBC GAM assessed the exposure of our equity and corporate fixed income investments to nature-related dependencies and impacts for priority sectors, which is a core metric for asset managers recommended by the TNFD.[14] This analysis shows that 22% ($US64.6 billion) of RBC GAM's equity and corporate bond holdings are in TNFD priority sectors.[15] Exposure to a TNFD priority sector is not necessarily indicative of the potential risk that issuers in that sector may face. As such, we have also assessed whether issuers in these sectors have operations in sensitive locations, or biodiversity-related controversies.[16] For assets invested in TNFD priority sectors,[17] 85% may have operations in sensitive locations. However, only 0.5% have also been involved in biodiversity-related controversies.

Figure 2: RBC GAM equities and corporate bond investments in TNFD priority sectors, and operations in sensitive locations and/or with biodiversity-related controversies[18]

As at December 31, 2023

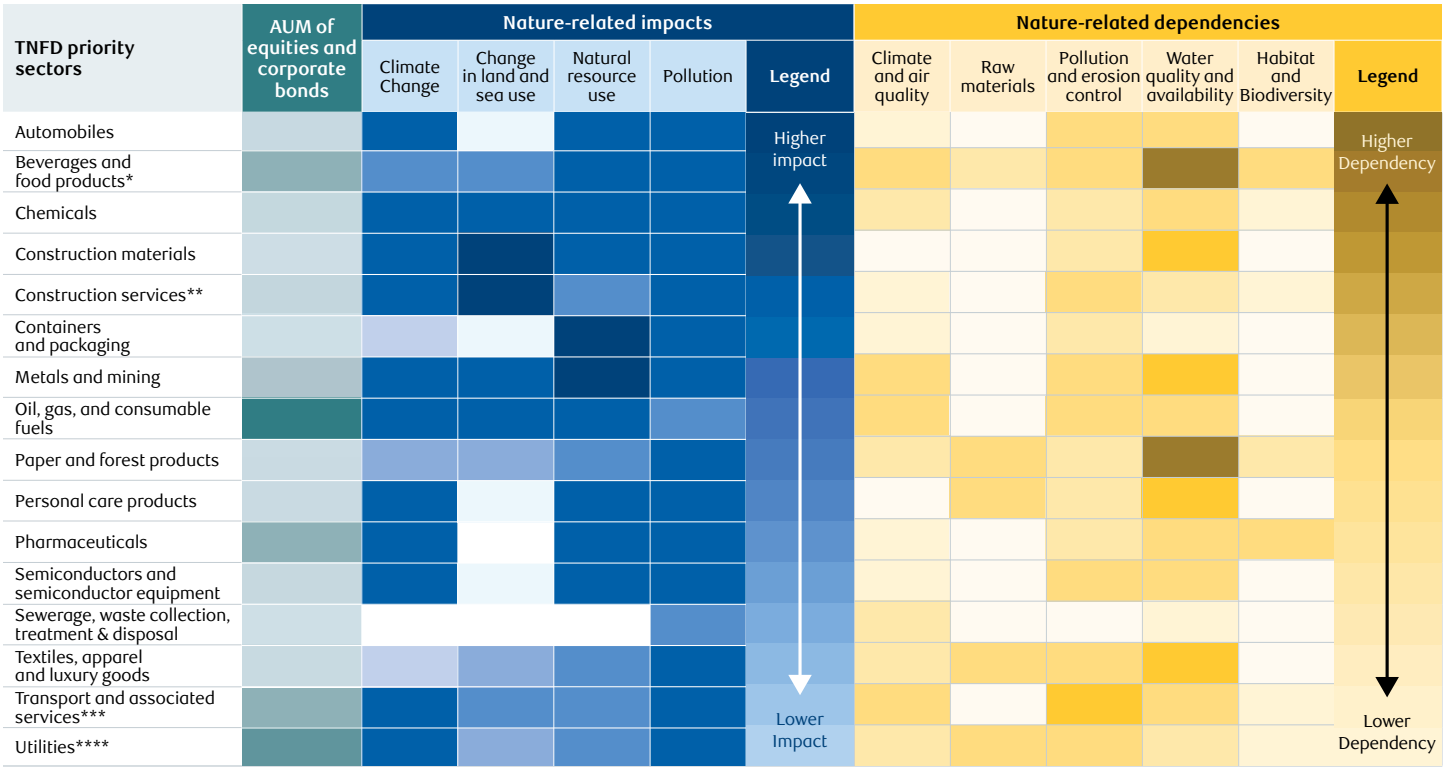


To better understand the materiality of nature-related dependencies and impacts for investments in priority sectors we used the Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE) tool.[19] Based on this analysis (see Figure 3), the most significant nature-related impact of these investments across all sectors is related to pollution, and the most significant dependency is on water quality and availability. It is worth noting that the materiality of any risks related to this exposure is influenced by the actions taken by issuers to mitigate the risk and if, or how, this affects the valuation or price of securities.

[14] Additional Guidance for financial institutions, TNFD, September 19, 2023.
[15] We categorized our corporate holdings into sixteen TNFD priority sectors, based on the corporate entity's Nomenclature of Economic Activities (NACE) Class Code for the highest revenue earning activity. See Appendix 1 for scope of analysis.
[16] Identification of sensitive locations is based on MSCI Biodiversity-Sensitive Areas and Deforestation Screening Metrics, which identify companies with operations in ecologically sensitive areas or with exposure to potential direct and indirect involvement in deforestation, using location-based data. Operations in sensitive areas are defined as companies with three or more known physical assets in Biodiversity Sensitive Areas denoted as either being healthy forests, intact biodiversity areas, prime areas for conservation or deforestation fronts. Operations in sensitive locations and biodiversity-related controversies are defined as companies that report having operations located in or near to biodiversity sensitive areas and have been implicated in controversies with a severe or very severe adverse impact on the environment. All data as at December 31, 2023, RBC GAM analysis based on MSCI ESG Research, MSCI®.
[17] TNFD priority sectors based on Additional Guidance for financial institutions, TNFD, September 19, 2023. All data as at December 31, 2023, RBC GAM analysis based on MSCI ESG Research, MSCI®.
[18] See Appendix 1 for scope of analysis. RBC GAM analysis, based on MSCI ESG Research, MSCI®.
[19] The ENCORE tool is maintained and updated by Global Canopy, UNEP FI and UNEP-WCMC. Accessed February 7, 2024.

Figure 3: RBC GAM equities and corporate bond investments in TNFD priority sectors, and nature-related impacts and dependencies

As at December 31, 2023[20]



*includes agriculture
**includes manufacture of metal products
***includes passenger airlines
****including electric utilities, gas utilities, independent power and renewable electricity producers, and water utilities

[20] See Appendix 1 for scope of analysis. RBC GAM analysis, based on ENCORE data. Nature-related impacts and dependencies are defined as per ENCORE but grouped based on RBC GAM analysis. RBC GAM groupings (with ENCORE categories in parenthesis) are as follows. For nature-related impacts: Climate Change (GHG Emissions), Land and water use (Freshwater ecosystem use, marine ecosystem use, terrestrial ecosystem use), Natural resource use (Water use, other resource use), Pollution (Disturbances, non-GHG air pollutants, Solid pollutants, Solid Waste, Water pollutants). For nature-related dependencies: Climate and air quality (Climate regulation, Filtration, Ventilation), Raw materials (animal-based energy, Fibers and other materials), Pollution and erosion control (Buffering and attenuation of mass flows, Bio-remediation, Dilution of atmosphere and ecosystems, Mediation of sensory impacts, Flood and storm protection, Mass stabilization and erosion control), Water quality and availability (Ground water, Surface water, Water flow maintenance, Water quality), Habitat and Biodiversity (Genetic materials, Pollination, Disease control, Pest control, Maintain nursery habitats, and soil quality).

1. Governance

Disclose the organization's governance around climate-related risks and opportunities.

Overview of governance structure

RBC GAM is comprised of the following regional affiliated companies: RBC Global Asset Management Inc., RBC Global Asset Management (U.S.) Inc., RBC Global Asset Management (UK) Limited, RBC Global Asset Management (Asia) Limited, and BlueBay Asset Management LLP.[21]

Each RBC GAM affiliate maintains investment, legal, and client service expertise that pertains directly to its respective markets. The affiliates follow all applicable regulations for the markets in which they operate, and each has its own Board of Directors (the Boards) to oversee operations and strategy within the region. This structure enables RBC GAM to maintain its global presence with on-the-ground professionals who are highly skilled in markets that are relevant to RBC GAM and our clients. The RBC GAM affiliates follow the strategies, policies, and risk management processes established for RBC GAM, unless stated otherwise.[22] This firm-level oversight and integration seeks to ensure that all of RBC GAM's businesses have the same vision, values, and culture, and are advancing the same strategic priorities.

1.1 Board oversight

Describe the Boards' oversight of climate-related risks and opportunities

The Boards oversee the overall performance of their firms, which includes strategic priorities related to responsible investment. The Boards may consider climate-related issues as part of strategic, financial, or other business decision-making.

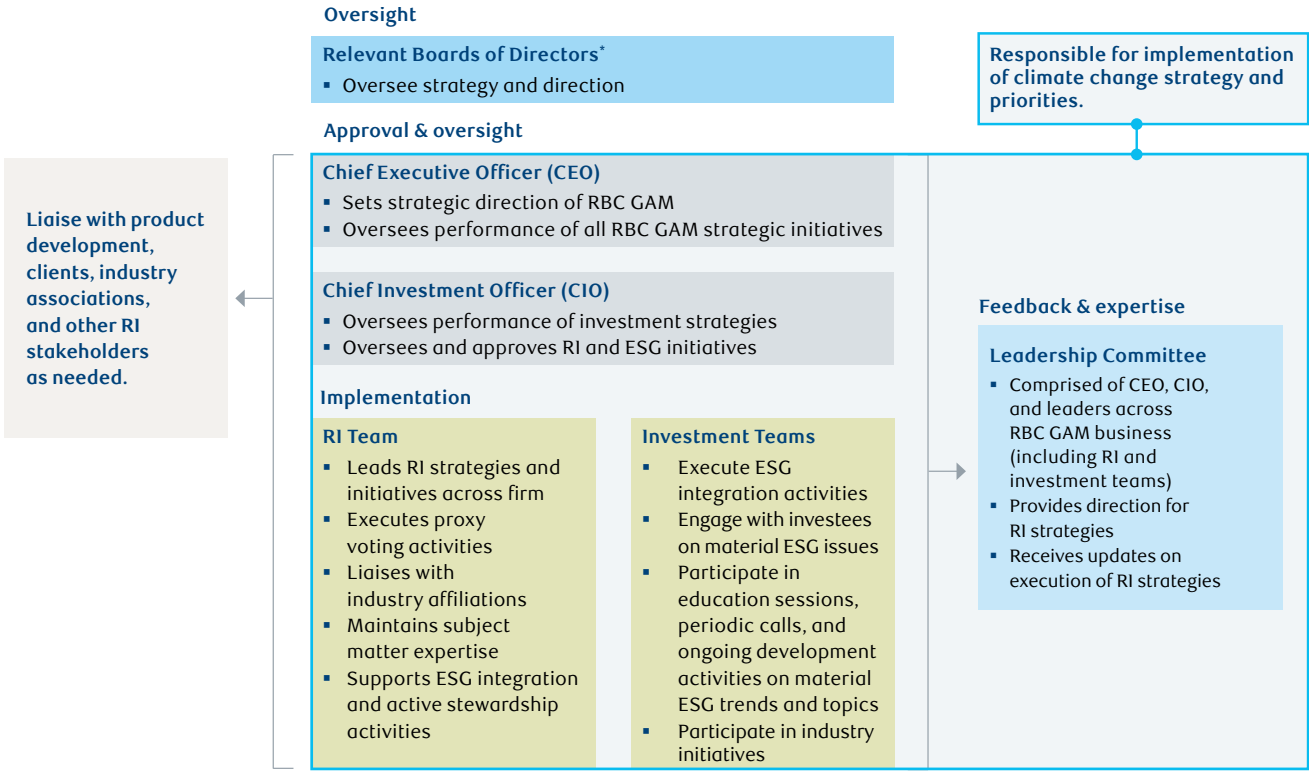
The Boards delegate responsibility for the implementation of strategic priorities to the RBC GAM Leadership Committee (the Leadership Committee). The Leadership Committee has identified the advancement of responsible investment, inclusive of climate change, as a strategic objective for the organization. The Chief Executive Officer (CEO) reviews and reports to the Boards on all strategic priorities, including responsible investment, on an annual basis.

The Leadership Committee's mandate is to primarily focus on strategic matters that either significantly affect multiple businesses of RBC GAM and/or matters that may be material to RBC GAM's overall business success. The Leadership Committee is comprised of the CEO, Chief Investment Officer (CIO), and leaders from the Responsible Investment (RI) team and our investment teams, among others. Since 2022, the Leadership Committee has periodically received a Climate Memo, which includes regulatory and competitive developments, collaborative initiatives, and/or climate metrics.

[21] Up until April 1, 2023, BlueBay Asset Management LLP operated as a separate but affiliated legal entity of RBC GAM. On April 1, 2023 the majority of BlueBay Asset Management LLP's business was transferred to RBC GAM UK and the consolidated business operates under the name RBC BlueBay Asset Management (RBC BlueBay).

[22] In some instances, strategies, policies and risk management processes may differ for RBC GAM affiliates.

Figure 4: RBC GAM's governance oversight of climate change



*Prior to April 1, 2023, BlueBay Asset Management LLP operated as a separate but affliated legal entity of RBC GAM. On April 1, 2023, the majority of assets under management from this business was transferred to RBC GAM UK and the consolidated business operates under the name RBC BlueBay.

1.2 Management's role

Describe management's role in assessing and managing climate-related risks and opportunities

Our Approach to Responsible Investment and Our Approach to Climate Change are reviewed by the Leadership Committee and set out RBC GAM's strategic priorities and commitments related to responsible investment. The Managing Director and Head of RI reports bi-annually to the Leadership Committee on strategic priorities related to responsible investment, including climate change. The CEO reviews and reports to the Boards on all strategic priorities, which may include responsible investment, on an annual basis.

The Leadership Committee has identified the advancement of responsible investment, inclusive of climate change, as a strategic objective for the organization. Responsibility for strategic initiatives is delegated to the relevant executives, whose direct annual compensation includes an assessment of performance on those initiatives. RI team members' individual compensation is primarily related to RBC GAM's responsible investment and stewardship activities. Portfolio managers and analysts have variable compensation that includes responsible investment as a component.

Executive management oversight roles with global responsibilities related to climate change include the following:

- The CEO of RBC GAM oversees the performance of all RBC GAM affiliates. The CIO, and the Chief Operating Officer (COO) of RBC GAM report to the CEO.
- The CIO of RBC GAM oversees the investment strategies, policies, and performance across all affiliates. The heads of all investment teams and the RI team report to the CIO.
- The COO of RBC GAM oversees operations and technology, including associated strategies, policies, risks, and initiatives across all affiliates.
- The Managing Director and Head of RI is responsible for responsible investment activities across RBC GAM, and for the implementation of these strategies by RBC GAM's centralized RI team.
- The heads of global investment teams are responsible for the establishment and implementation of ESG integration processes for applicable strategies.

- The heads of the institutional and retail businesses oversee product development, with review by a Product Committee and oversight by the CIO and CEO. Review and input on new products is provided by the COO, the Managing Director and Head of RI, and members of the Investment Risk, Investment Policy, Compliance, and Legal teams.
- In 2023 we established an internal RI Committee focused on overseeing ESG regulatory developments in the EMEA APAC region.[23]

Teams with dedicated roles and responsibilities related to climate change include the following:

Responsible Investment (RI) team

The RI team is comprised of seventeen full-time employees that have a mix of investment, ESG, risk management, data engineering, and legal expertise.[24] The Managing Director and Head of RI reports directly to the CIO and sits on a number of executive committees, including the Leadership Committee and the RBC Climate Steering Committee, which provides coordination on RBC's climate strategy and its implementation.

The RI team is a centralized function whose primary responsibility is to lead responsible investment activities and stewardship activities across the firm. This includes the following:

- Developing cohesive responsible investment strategies and policies for Leadership Committee approval, including Our Approach to Responsible Investment, Our Approach to Climate Change, and Our Net-Zero Ambition. The Proxy Voting Guidelines are approved by the Proxy Voting Committee.
- Supporting ESG integration by providing investment teams with ESG-related research and education, maintaining vendor relationships, and updating teams on new tools, evolving trends, and best practices related to ESG integration. The RI team also reviews ESG integration processes across investment teams and supports the continuous improvement of practices and technology.
- Executing and managing RBC GAM's proxy voting activities, including voting proxies and leading the annual review and update of the RBC GAM Proxy Voting Guidelines.[25] RBC GAM generally votes in the same way across all internally managed funds, in accordance with our custom RBC GAM Proxy Voting Guidelines. This function is centralized as we believe that the principles we apply in proxy voting are in the best interests of all shareholders and clients invested in the portfolio companies. The RI team reviews each vote individually and seeks input from investment teams on specific issues so that voting reflects the best interests of our clients in both systemic and company-specific matters.
- Participating in and leading collaborative initiatives on ESG-related issues with like-minded investors and national or international organizations/coalitions, where appropriate. The RI team also supports and participates in direct and collaborative engagements by liaising with issuers and investment teams, where appropriate.
- Maintaining expertise on emerging ESG trends and material ESG issues and developing client reporting and thought leadership pieces related to RBC GAM's RI activities and insights.

Investment teams

RBC GAM investment teams are active across capital markets and asset classes and manage both traditional and innovative investment strategies. Our investment teams integrate material ESG factors into their investment decisions for applicable types of investments. Since investment teams directly buy, sell, and manage investments on behalf of our clients, they are best equipped to integrate ESG considerations into their investment approach. This aims to ensure that their ESG integration approach adds value to, and complements, the characteristic investment approach of the team. Specific responsibilities of investment teams related to responsible investment include:

- Integrating ESG factors into their investment processes in a way that helps add value to their distinct strategies, such as by evaluating the material ESG risks and opportunities embedded within each investment, integrating internal ESG and climate data into their investment processes, and/or working to build their knowledge of material ESG issues, for applicable types of investments.
- Engaging with investee issuers on material ESG issues, where appropriate, and tracking the frequency and outcomes of these engagements on a best-efforts basis.[26]
- Where appropriate, assisting with client reporting on responsible investment activities, including updates to their ESG integration processes, engagement case studies, and team insights on emerging ESG topics and trends within their specific investment universes.
- Participating in industry initiatives, as relevant and appropriate for their strategies and markets.

[23] Europe, Middle East and Africa (EMEA) and Asia-Pacific (APAC).
[24] In 2023, the team changed its name from Corporate Governance and Responsible Investment to Responsible Investment.
[25] The RBC GAM Proxy Voting Guidelines are applied in Canada, the United States, the United Kingdom, Ireland, Australia and New Zealand. In all other markets, RBC GAM uses the local proxy voting guidelines of our research provider.
[26] In certain instances involving quantitative investment, buy- and-maintain, passive and certain third-party sub-advised strategies, there is no direct engagement with issuers by RBC GAM.

2. Strategy

Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.

Our Approach to Climate Change and Our Net-Zero Ambition

Our Approach to Climate Change provides details of our climate-related commitments and actions and is built upon the three pillars established in Our Approach to Responsible Investment. RBC GAM has also published Our Net-Zero Ambition.

RBC GAM recognizes the importance of the global goal of achieving net-zero emissions by 2050 or sooner, in order to mitigate climate-related risks. The commitments and actions we are taking in support of our net-zero ambition focus on measuring, monitoring, and reporting on our carbon emissions for applicable types of investments, using active stewardship to advance our views on climate change,[27] and on providing clients with insights and solutions to meet their climate-related needs.

RBC GAM's core beliefs, commitments, and actions embedded within Our Approach to Climate Change and Our Net-Zero Ambition are described below.

Our beliefs	▪ Climate change is a pressing issue that may impact issuers and the economies, markets, and society in which they operate. ▪ Integration of material ESG factors, where applicable and inclusive of climate change, can enhance long-term risk-adjusted returns. ▪ Active stewardship can be an effective way for investors to drive real world, economy-wide emissions reductions, while also meeting our fiduciary duty to clients.
Our commitments	▪ We recognize the importance of the global goal of achieving net-zero emissions by 2050 or sooner, in order to mitigate climate-related risks. ▪ Our investment teams integrate material climate change factors into their investment processes for applicable types of investments. ▪ We analyze issuer and portfolio-level climate risks and opportunities, for applicable types of investments. ▪ We use active stewardship to encourage the management of material climate-related risks and opportunities, where applicable. ▪ We collaborate with like-minded investors, where interests are aligned. ▪ We provide climate-based solutions to meet client needs. ▪ We provide transparent disclosures on climate change. ▪ We reduce emissions from our own operations to advance our ambition to achieve net-zero.
Our actions	▪ We use a broad range of climate data and other inputs to integrate material climate factors into our investment decisions for applicable types of investments. ▪ We measure, monitor, and disclose the carbon emissions of our applicable assets under management, and conduct climate scenario analysis for applicable types of investments. ▪ We conduct climate research and build climate expertise across investment and other platforms. ▪ We convey our views on climate change through proxy voting, as per the RBC GAM Proxy Voting Guidelines, and disclose our proxy voting records on our regional websites in accordance with applicable regulations. ▪ We are a member of Climate Action 100+ and Climate Engagement Canada. ▪ We have published an annual climate report, guided by the recommendations of the TCFD, since 2020.

[27] For applicable types of investments. In certain instances involving quantitative investment, buy-and-maintain, passive and certain third-party sub-advised strategies, there is no direct engagement with issuers by RBC GAM.

2.1 Description of climate risks and opportunities

Describe the climate-related risks and opportunities the organization has identified

At RBC GAM we define climate risk as the risk related to the global transition to a net-zero economy (transition risk) and the physical impacts of climate change (physical risk), which includes both chronic (longer-term) risks (e.g., rising sea levels and increases in average temperatures) and acute (event driven) risks (e.g., wildfires and floods). We define climate opportunities as those arising from investment in resource efficiency, low-carbon energy sourcing, the development of new products and services, access to new markets and customers, and enabling business resilience.

Climate change may impact economies, markets, and societies, posing both financial risks and opportunities for issuers and investors. Rising global temperatures cause the physical impacts of climate change. These are driven by an increase in the frequency and intensity of extreme weather events, and longer-term shifts in climate patterns. Efforts to reduce greenhouse gas (GHG) emissions cause the transition impacts of climate change. These are driven by government policies and regulations, increasing legal action and litigation claims, technology disruption and transformation, shifts in supply and demand, and changing consumer and employee expectations related to climate change.

Corporate and sovereign issuers as well as real assets such as real estate, mortgages, and infrastructure may be directly and indirectly affected by both climate-related risks and opportunities. Depending on the issuer, this may impact profitability (corporate issuers), tax revenues (sovereign issuers), the value of their financial assets, productivity, reputational risk, credit ratings, ability to raise funding, and cost of capital across different time horizons. Climate change may also impact economic growth, prices and inflation, employment and labour productivity, trade flows, debt, and financial stability in the economies and societies within which issuers and investors operate.

Investors are indirectly affected by climate change – through their investments and exposure to economies and markets more broadly. Portfolio exposure to issuers across global markets and asset classes may result in the mispricing of assets, asset stranding, and credit default risks in the medium to long term. Depending on the issuer and the instrument, impacts may occur over a short-, medium-, or long-term horizon. These impacts may in turn lead to an increase in volatility and uncertainty in markets, which may positively or negatively impact long-term risk-adjusted returns.

2.2 Impact of climate risks and opportunities

Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning

Climate-related risks and opportunities that may be financially material to RBC GAM are those that have the potential to affect the investments we manage, RBC GAM's business, and our operations. The most relevant climate-related risks and opportunities for RBC GAM are related to the investments that we manage on behalf of our clients, which will be the primary focus of this report.

Figure 5: Description of climate-related risks and opportunities as they relate to our investments, business and operations

Our investments	Our business	Our operations
Climate-related risks or opportunities may affect the financial performance of our investments.	Climate-related risks or opportunities may result in additional costs or lost revenue for our business activities.	Climate-related risks or opportunities may result in additional costs related to our operations

RBC GAM prioritizes climate-related risks and opportunities based on their potential financial impact and the time horizon of those impacts. We assess these risks and opportunities on an ongoing basis and report on these annually in the RBC GAM Climate Report, which is reviewed and approved by our CIO, CEO, and Leadership Committee. On a periodic basis, the Leadership Committee receives a Climate Memo that provides updates on issues that include regulatory and competitive developments, collaborative initiatives, and/or climate metrics.

Climate-related financial impacts that are considered as part of financial planning include: the cost of technology infrastructure, climate data and licensing, human capital (e.g., climate expertise), and costs associated with meeting regulatory requirements. We also analyze the potential impact of climate-related risks and opportunities on RBC GAM's investments as part of our climate scenario analysis. This analysis considers the Climate Value at Risk (VaR) of both transition and physical risk scenarios (see Section 2.3). At RBC GAM, certain portfolios are externally managed by sub-advisors. RBC GAM considers the approach of external investment managers to ESG as part of our due diligence process, based on internally established guidance.

Climate-related risks and opportunities for our investments

We actively consider how climate-related risks and opportunities impact equity, fixed income, and real assets (real estate, mortgages, infrastructure) in our applicable portfolios.[28] RBC GAM's investment teams prioritize those ESG and climate-related factors that are considered to be most material to investment decisions. The extent to which an ESG factor is considered material depends on the issuer, the industries and geographies in which it operates, and the nature of the investment strategy for which it is purchased. In the case of sovereigns, this may be a function of multiple factors including but not limited to, the status of economic, social and political development, availability and dependence on natural resources, and potential regional issues.

Our principal aim is to maximize investment returns for our clients without undue risk of loss. We do this within the investment limits described in each investment mandate. The majority of our mandates follow medium- to long-term time horizons. As such, this is the investment time horizon we generally consider in our investment activities. However, we recognize that the physical impacts of climate change are currently being felt in some geographies, resulting in more short-term impacts. In addition, governments are implementing more stringent regulatory requirements (e.g., carbon pricing, pollution reduction, subsidies, and incentives) that may result in policy and market impacts for some sectors and geographies in the short term. We expect the most significant and material risks of climate change to appear at the end of the decade and beyond. These include the policy, technology, and market risks that drive the transition to a low-carbon economy, and the acute and chronic physical risks that drive the need to adapt and build resilience to a changing climate.

We consider the materiality of climate-related risks and opportunities for different asset classes, based on the following time horizons: short-term (ST) is 0-1 years, medium-term (MT) is 1-5 years, long-term (LT) is 5-15 years. (See Figure 6). The identification, assessment, and management of climate-related risks and opportunities for our investments are discussed in more detail in Section 3 – Risk Management.

- **Equities:** As equity investors, we are concerned about the value of the businesses in which we invest and therefore consider relevant climate-related risks and opportunities to determine if they have been priced into an issuer's valuation. Corporate issuers in all sectors and geographies may be impacted by climate change, although in different ways. Within sectors, it is a company's business model, strategy, the geographic location of its assets, and the quality of its corporate governance that we believe helps to determine the size and impact of climate-related factors on its profits and valuation.
- **Fixed Income:** Debt issuers' credit risk ratings and ability to pay their debts may be affected by climate change, and/or they may face asset or collateral impairment. The potential impact of climate change on fixed income securities depends on a range of factors including the nature of the issuer type (e.g., corporate versus sovereign), the nature of the instrument type, the yield being offered, and the duration of the investment.
- **Real assets:** Acute and chronic physical risks, like flooding, hurricanes, and rising sea level typically pose the greatest climate risk for real assets. Exposure to these risks is in large part due to the geographic location of these assets, and if or how they are being mitigated. Longer-term concerns include potential cost increases due to higher energy and water costs, and related upgrades that may be required to adapt to new policy requirements and climatic conditions.

[28] May also include other applicable types of investments.

Figure 6: Description of climate-related risks and opportunities, and time horizon of potential impact by asset class[29]
Short-term (ST) is 0-1 years, medium-term (MT) is 1-5 years, long-term (LT) is 5-15 years.

		Time horizon of potential impacts		
		Equities	Fixed income	Real assets
Climate-related risks and opportunities				
Transition risks				
Policy	Due to government policies and regulations aimed at constraining activities that contribute to climate change. Includes policies that promote low-carbon substitutes.	ST MT LT	ST MT LT	ST MT LT
Legal	Due to litigation claims related to failure to mitigate climate change, insufficient disclosure, or material misstatements.	ST MT LT	ST MT LT	ST MT LT
Technology	Due to new, low-carbon technologies disrupting traditional systems.	ST MT LT	ST MT LT	ST MT LT
Markets	Due to shifts in supply and demand for certain commodities, products, and services.	ST MT LT	ST MT LT	ST MT LT
Reputation	Due to changing customer or community expectations of a company, based on the impact of their activities and their contribution to climate change.	ST MT LT	ST MT LT	ST MT LT
Physical risks				
Acute events	Extreme weather events that include increased frequency and intensity of storms. This may cause increased coastal and inland flooding, disruptions to critical infrastructure, and mass migration.	ST MT LT	ST MT LT	ST MT LT
Chronic impacts	Longer-term shifts in climate patterns, which may cause water stress and prolonged droughts, larger and more intense wildfires, heat waves, mass migration, and the spread of pests and infectious disease.	ST MT LT	ST MT LT	ST MT LT
Climate-related opportunities				
Resource efficiency	Improved efficiency in the production and distribution processes, buildings, machinery and appliances, and transportation and mobility. Particularly in relation to energy efficiency, but also for materials, water and waste management.	ST MT LT	ST MT LT	ST MT LT
Energy source	Shifting energy usage towards low emitting energy sources, such as wind, solar, wave, tidal, hydro, geothermal, nuclear, biofuels, and carbon capture and storage.	ST MT LT	ST MT LT	ST MT LT
Products and services	Innovation and development of new low-emissions products and services may improve competitive positioning and capitalize on shifting consumer and producer preferences.	ST MT LT	ST MT LT	ST MT LT
Markets	New markets or types of physical assets may be able to diversify their activities and better position themselves for the transition to a lower-carbon economy.	ST MT LT	ST MT LT	ST MT LT
Resilience	Adaptive activities that aim to enable the better management of climate-related risks. Includes improving efficiency, designing new production processes, and developing new products.	ST MT LT	ST MT LT	ST MT LT

Climate change as a systemic risk

Climate change is a systemic risk that has the potential to affect the global economy. The economic impacts of climate change on specific markets, regions and investments are complex, varied and uncertain. To minimize this risk requires global economies to meet the international goal set out in the Paris Agreement of holding temperature rise to well-below 2°C and preferably to no more than 1.5 °C by the end of the century. RBC GAM believes that active stewardship through engagement and proxy voting can be an effective way for investors to drive real world, economy-wide emissions reductions, while also meeting our fiduciary duty to clients. Divestment of issuers is an option that investment teams may exercise at any stage of their analysis or engagement with an issuer, based on their judgement of the investment case or if specifically required as a result of the investment mandate or client agreement. However, we generally do not believe that broad-based divestment is an effective stewardship tool compared to engagement to address the systemic risks of climate change.

As described in Our Net Zero Ambition, RBC GAM has set the following expectations for issuers for whom climate change is financially material. We are also establishing a plan to actively engage with the issuers in which we are invested that are material contributors to climate change if they are not meeting these expectations, and/or lagging peers. We expect issuers to:

- Identify and publicly disclose material financial and strategic impacts resulting from the transition to a net-zero economy.

[29] Adapted from the Recommendations of the Task force on Climate-related Financial Disclosures, (assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf) 2017, and Implementation Guidance, (assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Implementing_Guidance.pdf) October 2021

- Establish credible targets and develop action plans aligned to the global ambition of achieving net-zero emissions by 2050 or sooner, where climate represents a financially material risk.
- Demonstrate progress in meeting their commitments.

Climate-related risks and opportunities to the business
The most material climate risks to our business are policy and legal risks related to new and emerging regulatory requirements, market risks from climate change impacts on markets and asset values, and from potential shifts in client demand for products and services (see Figure 7).

Figure 7: Description of climate-related risks and opportunities to the business, and actions to mitigate these.

Type of climate-related risks and opportunities	Description	Actions to mitigate risk	Time horizon
Policy and legal risks related to regulatory requirements	Policy and legal risks may arise due to the number, complexity, and divergence of requirements across jurisdictions, and from gaps in guidance or data required as part of the implementation of new requirements. Climate-related government policies that apply to asset managers are currently in place in some jurisdictions (e.g. U.K. FCA ESG Sourcebook, European Union Sustainable Finance Disclosure Regulation), and focus largely on enhanced disclosure requirements.	▪ Track and monitor existing and emerging regulations related to environmental and social topics through internal working groups, industry associations and the RI team's research. ▪ Establish internal working groups to implement new requirements, where appropriate. ▪ Submit comments on regulatory and policy consultations, where appropriate.	ST MT LT
Market risks and opportunities impacting investment asset values	Market risks may arise due to the impact of climate-related factors on markets and asset values. Climate-related risks will affect specific sectors and regions in different ways, with both direct and indirect implications for issuers and markets. Potential risks include increased volatility due to disruption of markets. Physical risks that impact resources and supply chains may increase commodity prices, which may affect interest rates and foreign exchange in some areas.	▪ Produce a quarterly climate risk monitoring tool, the Climate Dashboard, for some investment strategies. ▪ Integrate material climate-related factors, for applicable types of investments. ▪ Conduct climate scenario analysis that models the impact of climate-related factors on valuations under different scenarios, for applicable types of investments.	ST MT LT
Reputation risks due to shifts in client demand for products and services	Client demand for different types of products and services may vary by region, and require different solutions to meet client needs. Lack of regulatory guidance or divergence in approach or expectations across regions may also affect client demand. Reputation risks may occur if products and services do not meet client expectations. They may also occur due to the governance and management of collaborative initiatives in which we participate, and/or client perceptions of these.	▪ Product development committee includes representative(s) from the RI team. ▪ RBC GAM monitors market sentiment through research on the evolving views, actions and intentions of institutional investors and consultants. ▪ Regular contact and feedback with clients to anticipate and respond to existing and emerging expectations and needs.	ST MT LT

Climate-related risks and opportunities to our operations
The performance, goals, and reporting of operational GHG emissions is established as part of RBC's climate strategy,[30] which is inclusive of RBC GAM. This is described in Section 4.2.

As described in the RBC Annual Report 2023, we classify critical environment sites based on our business risk tolerance for site-specific downtime and, among other things, site location, power supply, exposure to flooding, geological stability, and other hazards. We also take steps to mitigate and adapt to climate change through our building design and our purchasing decisions. RBC identifies business continuity risk as the risk of being unable to maintain, continue, or restore essential business operations during and/or after an event that prevents us from conducting business in the normal course. Exposure to disruptive operational events interrupts the continuity of our business

[30] See RBC Climate Blueprint and RBC Climate Report 2023.

operations and could negatively impact our financial results, reputation, client outcomes, and/or result in harm to our employees. These operational events could result from the impact of severe weather, outbreak of a pandemic or other health crisis, failed processes, technology failures, or cyber threats. RBC's risk-based enterprise-wide business continuity management program considers multiple scenarios to address the consequences of a disruption and its effects on the availability of our people, processes, facilities, technology, and third-party arrangements. The approach to business continuity management is outlined in policies and standards embedded across the organization and the related risks are regularly measured, monitored, reported, and integrated into RBC's operational risk management and control framework.

2.3 Climate scenario analysis

Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario

Climate scenario analysis enables investors to assess the impact of potential future climate scenarios on the value of assets. Scenario analysis is not meant to be a forecast; rather, it represents a range of plausible future pathways consistent with achieving specific climate temperature targets that are based on certain conditions and assumptions regarding government policies, energy supply and demand, technology, and more. Climate scenario analysis is often most useful from a relative or comparative perspective, given the modeled nature of outputs, and the range of assumptions required as inputs.

Resilience of investments to climate-related risks and opportunities

Climate-related risks and opportunities may materialize in different ways and over different time horizons depending on whether the world succeeds in reaching the ambition of the Paris Agreement to limit global warming to 1.5°C by 2100 compared to pre-industrial levels, and depending on the pathway by which that is achieved. To assess the relative impact on our investments, we believe it is important to consider a wide range of climate scenarios that account for both the physical and transition impacts of climate change. Given the complexity, interconnectedness, and various time horizons of climate-related impacts, developing climate scenarios that consider these factors is challenging. In addition, most current scenarios are not able to fully address the intersection of transition and physical risks, and likely underestimate the impact of issues such as food security, energy security and affordability, water stress, geopolitical risks, and inflation, among others. The Network for Greening the Financial System (NGFS) is making efforts to develop 'short-term' scenarios that represent near-term macro-financial impacts of transitioning to a net-zero economy, and the consequences of severe natural disasters, although these are not yet available for broad use.[31]

Transition risks are expected to be more significant for climate scenarios that model lower temperatures (e.g., 1.5°C and 2°C) as more significant policy and technology changes are required to meet the related carbon emission reduction requirements. Alternatively, physical risks are expected to be more significant for climate scenarios that model higher temperatures (e.g. 3°C and above), as there will be more acute and chronic risks. RBC GAM evaluates the impact of transition and physical risks and opportunities on portfolios using both NGFS and Intergovernmental Panel on Climate Change (IPCC) climate scenarios (see Figure 8 and 10).

We use Climate Value at Risk (VaR) to calculate the potential change in financial value of our AUM due to climate change under these scenarios.[32] Climate VaR is a downside risk indicator that determines the potential drawdown that an asset could experience and is calculated by forecasting future costs and revenue for issuers due to policy risk, technology opportunities and physical risks and opportunities. Cumulative future costs and revenues are calculated out to 2080 for transition risk scenarios and to 2100 for physical risk scenarios, and discounted to present day values. When calculating an aggregated Climate VaR, we use the transition scenarios recommended by the NGFS. These provide alternative views on long-term temperature targets, net-zero emissions targets, energy supply and demand, climate policy, and technology availability. These scenarios also vary in terms of whether the transition occurs in an orderly or disorderly manner. To account for physical risks alongside the NGFS scenarios, a physical risk and opportunities Climate VaR is calculated by mapping physical risks for a subset of climate scenarios to the NGFS scenarios, based on the underlying global mean temperature pathway.[33] Our analysis indicates that, for a given temperature pathway, the potential financial impact on our AUM is greater for disorderly scenarios. This suggests that an orderly transition in which government policy and action occur sooner is preferable (see Figure 9).

[31] Conceptual note on short-term climate scenarios, Network for Greening the Financial System (NGFS), October 3, 2023.
[32] Detailed methodology for calculating Climate VaR is available from MSCI®.
[33] As per MSCI Climate VaR Methodology, Part 4 – Physical Climate Risk. This is based on the observation from the IPCC that "robust projected geographical patterns of many [climate] variables can be identified at a given level of global warming, common to all scenarios considered and independent of timing when the global warming level is reached." Intergovernmental Panel on Climate Change, "Climate Change 2021: The Physical Science Basis – Summary for Policymakers." 2021.

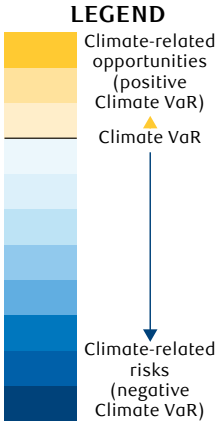
Figure 8: Overview of climate scenarios used for Aggregated Climate VaR[34]

Climate scenario	NGFS scenario	Temperature in 2100	Description				
3°C	Nationally Determined Contributions (Hot house world)	2.6°C	Nationally Determined Contributions (NDCs) includes all government pledged policies as of March 2022, even if not yet implemented. This scenario has the lowest carbon price of all scenarios (in 2050).				
			Policy reaction: NDCs	2050 carbon price: 34.06 (US$ 2010/tCO_2)	Technology change: slow	Carbon dioxide removal: low-medium	Regional policy variation: medium
2°C (disorderly)	Delayed transition (Disorderly)	1.6°C	Delayed transition limits global warming to below 2°C but assumes a delay in policy reaction, leading to a high level of regional policy variation, and no new climate policies introduced until 2030.				
			Policy reaction: delayed	2050 carbon price: 621.92 (US$ 2010/tCO_2)	Technology change: Slow/Fast	Carbon dioxide removal: low-medium	Regional policy variation: high
2°C (orderly)	Below 2oC (Orderly)	1.6°C	Below 2°C limits global warming to below 2°C with climate policies that are introduced immediately and become gradually more stringent, with a low variation across regions. Under this scenario carbon prices remain relatively low, but net-zero emissions are not achieved until after 2070.				
			Policy reaction: immediate and smooth	2050 carbon price: 193.38 (US$2010/$tCO_2$)	Technology change: moderate	Carbon dioxide removal: medium-high	Regional policy variation: low
1.5°C (orderly)	Net zero by 2050 (Orderly)	1.4°C	Net zero by 2050 limits global warming to 1.5°C through climate policies that are introduced immediately and become gradually more stringent with global net-zero emissions reached around 2050. This scenario corresponds to the International Energy Agency's (IEA) Net Zero Emissions (NZE) scenario.				
			Policy reaction: immediate and smooth	2050 carbon price: 672.71 (US$ 2010/tCO_2)	Technology change: fast	Carbon dioxide removal: medium-high	Regional policy variation: medium
1.5°C (disorderly)	Divergent net zero (Disorderly)	1.4°C	Divergent net zero limits global warming to 1.5°C with net-zero emissions reached around 2050, but at a higher costs due to divergent climate policies introduced across sectors. This results in a higher burden being placed on consumers (highest carbon price of all scenarios), with mitigation action focused on the transport and building sectors.				
			Policy reaction: immediate but divergent across sectors	2050 carbon price: 783.16 (US$ 2010/tCO_2)	Technology change: moderate	Carbon dioxide removal: medium-high	Regional policy variation: medium

Figure 9: Aggregated Climate VaR for RBC GAM equity investments and corporate bonds, by climate scenario

As at December 31, 2023[35]

Climate scenario	Aggregated Climate VaR	Transition risks and opportunities		Physical risks and opportunities
		Policy risk Climate VaR	Technology opportunity Climate VaR	Physical Climate VaR
3°C	-5%	-2%	0%	-4%
2°C (disorderly)	-9%	-6%	0%	-3%
2°C (orderly)	-5%	-2%	0%	-3%
1.5°C (orderly)	-10%	-9%	0%	-2%
1.5°C (disorderly)	-13%	-12%	1%	-2%



[34] Adapted by RBC GAM. Based on NGFS scenarios for central banks and supervisors, NGFS, September 2022. ngfs.net/sites/default/files/medias/documents/ngfs_climate_scenarios_for_central_banks_and_supervisors_.pdf.pdf.

[35] Climate VaR is a downside risk indicator that determines the potential drawdown that an asset could experience and is calculated by forecasting future costs and revenue for issuers due to policy risk, technology opportunities and physical risks and opportunities. Cumulative future costs and revenues are calculated out to 2080 for transition risk scenarios and to 2100 for physical risk scenarios, and discounted to present day values. Values may not add up to totals due to rounding. See Appendix 1 for scope of analysis and benchmarks. RBC GAM analysis, based on MSCI Climate Change Research, MSCI.

Given that physical risks are expected to be more significant at higher temperatures, we also calculate the physical Climate VaR for a range of physical risk scenarios, including the highest modelled temperature pathways available (4 °C and 5°C). This analysis is based on the four IPCC scenarios from the Sixth Assessment Report (https://www.ipcc.ch/assessment-report/ar6/)(AR6), which are each based on a combination of Representative Concentration Pathways (RCPs) and Shared Socioeconomic Pathways (SSPs). RCPs model different GHG emissions pathways while SSPs provide different socio-economic pathways.

Physical risks are expected to be most severe several decades into the future. This poses a challenge when modelling the financial risk of acute and chronic climate events, as future impacts must be discounted to present day values. This has the effect of rendering the Climate VaR associated with these events lower than what might be intuitively expected. As a result, assessing the relative materiality of physical risks by natural hazard type is often more informative than focusing on absolute values. The natural hazards that we consider when calculating Climate VaR due to physical risks and opportunities includes extreme heat, extreme cold, extreme wind, extreme precipitation, extreme snowfall, tropical cyclones, coastal flooding, fluvial flooding, river low flow, and wildfire. Our analysis indicates that the potential financial impact on our AUM due to physical risks and opportunities increases in line with the modeled temperature pathways (see Figure 11). Across all scenarios, extreme heat and coastal flooding are the natural hazards that pose the greatest potential change in valuations. Meanwhile, physical opportunities are largely derived from a reduction in exposure to extreme cold. Additional factors that may impact risk exposure, but are not currently included in this model, are the role of insurance in covering asset damage costs, resilience and adaptation measures by issuers, supply chain disruption, and other socio-economic impacts due to natural hazards.

Figure 10: Overview of climate scenarios used for Climate VaR due to physical risks and opportunities.[36]

Climate scenario	IPCC scenarios	Temperature in 2100	Description
5°C	RCP 8.5 (SSP5)	4.4°C	Very high emissions. Carbon emissions roughly double from current levels by 2050.
4°C	RCP 7.0 (SSP3)	3.6°C	High emissions. Carbon emissions roughly double from current levels by 2100.
3°C	RCP 4.5 (SSP2)	2.7°C	Intermediate emissions. Carbon emissions remain around current levels until the middle of the century, when they begin to fall, but do not reach net zero by 2100.
2°C	RCP 2.6 (SSP1)	1.8°C	Low emissions. Carbon emissions declining to net zero after 2050, with varying levels of net negative carbon emissions. This scenario meets the goal of the Paris Agreement to limit temperatures to 2.0°C above pre-industrial temperatures by 2100.

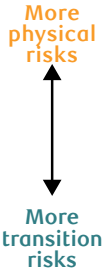
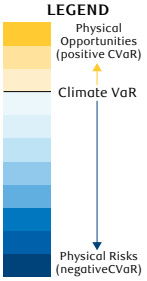


Figure 11: Climate VaR due to physical risks and opportunities for RBC GAM equities and corporate bonds, by climate scenario.

As at December 31, 2023[37]

Climate scenario	IPCC Scenario	Climate VaR (physical risks and opportunities)	Coastal flooding	Extreme Cold	Extreme Heat	Extreme Precipitation	Extreme Wind	Fluvial Flooding	Heavy Snowfall	River Low Flow	Tropical Cyclone	Wildfire
5°C	RCP 8.5 (SSP5)	-7%	-2%	1%	-4%	-1%	0%	0%	0%	0%	0%	0%
4°C	RCP 7.0 (SSP3)	-6%	-2%	1%	-3%	-1%	0%	0%	0%	0%	0%	0%
3°C	RCP 4.5 (SSP2)	-5%	-2%	0%	-2%	0%	0%	0%	0%	0%	0%	0%
2°C	RCP 2.5 (SSP1)	-3%	-2%	0%	-1%	0%	0%	0%	0%	0%	0%	0%



[36] Adapted by RBC GAM. Based on IPCC, 2021: Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 3–32, doi:10.1017/9781009157896.001. Box SPM.1 and Table SPM.1.

[37] The Climate VaR is a downside risk indicator that determines the potential drawdown that an asset could experience is calculated here by forecasting future costs and revenue for issuers due to physical risks and opportunities, based on ten natural hazards. Cumulative future costs and revenues are calculated out to 2100 for physical risk scenarios, and discounted to present day values. Values may not add up to totals due to rounding. See Appendix 1 for scope of analysis and benchmarks. RBC GAM analysis, based on MSCI Climate Change Research, MSCI®.

3. Risk management

3.1 Identification and assessment of climate risks

Describe the organization's processes for identifying and assessing climate-related risks and opportunities

We recognize that the most significant exposure to climate-related risks and opportunities that we may face comes from the investments we manage on behalf of our clients (See Section 2.2). It is for this reason that the following section focuses on the processes we have implemented to identify and assess the climate-related risks and opportunities of our applicable investments.

Determination of materiality of climate-related risks

Climate change is a systemic risk that has the potential to affect the global economy. It is also a cross-cutting risk that may both impact and amplify other principal risk types for RBC GAM, such as investment risks. Investment risks related to climate change are complex and may vary by market, region, asset class, and instrument type. RBC GAM's investment teams prioritize those ESG factors, including climate-related factors, that are material to investment decisions, for applicable types of investments. Risks are deemed material to investments if they have the potential to impact risk-adjusted returns. Material ESG factors refer to ESG factors that in our judgment are most likely to have an impact on the financial performance of an issuer/security. Factors may depend on the sector and industry of a corporate issuer, or for sovereign issuers, on the economic, social, and political environment, as well as the availability of and dependence on natural resources, among other factors.

Examples of how our investment teams may determine materiality for specific asset classes are described below:

- **Equities:** Prioritize ESG factors that could impact the company's long-term value by impacting its revenue growth, operating costs, and/or reputation with customers and suppliers.
- **Corporate bonds:** Prioritize ESG factors that could impact the company's ability to repay its debt or that would affect the company's cash flow, reputation, or other factors. Governance factors tend to be most material to the creditworthiness of fixed income issuers, including factors like board structure and management quality.
- **Sovereign bonds:** Prioritize ESG factors that could impact the issuer's ability to repay its debt or the issuer's reputation with debt investors or lenders. Political risk and corruption tend to be among the most material factors affecting sovereign issuers.
- **Real assets (real estate, mortgages & infrastructure):** Prioritize ESG factors that could present a direct physical risk to the real assets that underlie these investments, or that could affect the revenues or costs for operating assets. Physical climate change risks are among the most material for these investments. ESG factors that affect profitability from tenants may also be material in some cases.

Process for identifying and assessing climate-related risks

RBC GAM supports the identification and assessment of climate-related risks in our investment decisions by building climate knowledge and expertise, applying climate data and technology solutions, providing a Climate Dashboard for some investment teams, and conducting climate-related research.

Climate knowledge and expertise

To assess the impact of climate-related risks and opportunities on individual issuers, securities, and portfolios, the RI team and investment teams seek to understand climate-related risks and opportunities. An integrated approach to building climate knowledge and expertise is supported by our:

- **ESG Research Program**, which focuses on the design and delivery of thematic, applied, and quantitative research related to responsible investment.
- **ESG Education Series**, which brings together investment and distribution teams across RBC GAM to learn from external experts about current and emerging research, insights, and best practices on ESG and climate-related topics.
- **ESG Champions network**, which enables knowledge sharing on ESG and climate-related topics across investment teams. In 2023, ESG Champions met on approximately a bi-monthly basis.
- **Monthly RI newsletter**, which provides high-level ESG insights and news items related to responsible investment.

Climate data and technology

Climate data, metrics, and methodologies continue to expand and evolve. Through internal data systems, investment teams have access to a range of climate data at a portfolio, sector and issuer level. This includes climate data that is directly reported by companies as well as data collected from external datasets (e.g., low-carbon patents, science-based targets), third-party research, and/or estimated and modelled data. Where possible, independently verified and reported data collected by third-party providers is used, which may be supplemented by direct research collected through due diligence and engagements. The RI team provides investment teams with access to detailed guidance and education on climate metrics and methodologies, which is provided in the form of methodology guides, webinars, and one-on-one education sessions, as needed.

Climate Dashboard

Investment teams are able to assess and monitor climate-related risks and opportunities on an ongoing basis through the Climate Dashboard, which provides a suite of climate metrics at the portfolio level, with detailed breakdowns by sector and top holdings. The Climate Dashboard is produced for a number of equity and fixed income portfolios and is updated on a quarterly basis.[38]

The Climate Dashboard provides a view on portfolio, sector and issuer-level carbon emissions, transition risks and opportunities, net-zero alignment, and climate scenario analysis (see Figure 12). This includes both backward- and forward-looking analysis, as well as data that is reported, estimated, and modeled. It focuses on what we consider to be the most material data factors and aims to reflect current climate science, standards, and best practices. As new data becomes available, additional metrics and insights may be added.

Figure 12: Illustrative example of climate-related metrics included in the Climate Dashboard (2023)

CARBON EMISSIONS	TRANSITION ANALYSIS	NET-ZERO ALIGNMENT	CLIMATE SCENARIO ANALYSIS
▪ Financed emissions ▪ Weighted average carbon intensity ▪ Emissions/$M invested ▪ Sector contribution ▪ Top holdings *Metrics inclusive of: Scope 1, Scope 2, and Scope 3 emissions*	▪ Low carbon transition risks and opportunities ▪ Fossil fuel exposure ▪ Green revenue exposure ▪ Low-carbon patents ▪ Power generation exposure ▪ Top holdings	▪ Climate targets of issuers ▪ Temperature alignment ▪ Top holdings	Climate Value at Risk (VaR), by scenario: ▪ Net Zero by 2050 (orderly, 1.5°C) ▪ Divergent Net Zero (disorderly, 1.5°C) ▪ Below 2°C (orderly, 2°C) ▪ Delayed Transition (disorderly, 2°C) ▪ Nationally Determined Contributions (Hot house world, 3°C).

[38] The number of strategies for which a Climate Dashboard is produced may vary quarter-to-quarter and does not include all investment strategies across RBC GAM. The frequency with which Investment teams review the Dashboards may vary by team.

Climate-related research and insights

We conduct climate-related research and generate insights to inform our responsible investment policies and practices, and to further enable our ESG integration and active stewardship activities. In 2023, we initiated research on climate-related topics including building a net-zero portfolio, climate factor analysis, approaches for sovereign and sub-sovereign carbon emissions analysis, and nature-related risks and biodiversity.

RBC GAM publishes ESG insights and thought pieces for clients and other stakeholders to share our thinking on specific topics, and to build knowledge and understanding on ESG-related issues. In 2023, this included publications on: trends in responsible investment, carbon calculations for a bond portfolio, considering climate change across our portfolios, back to basics on ESG, insights from proxy voting season, and biodiversity and nature-related risks.

EXAMPLES FROM ESG RESEARCH PROGRAM

Managing a net-zero aligned portfolio. This research focuses on assessing the implications of managing an investment portfolio to meet a net-zero target, based on carbon emissions reductions. We applied a modelled portfolio approach to quantify risk-return impacts of emissions reduction targets, and to identify the efficient frontier.[39] While this research remains ongoing, it is an important area of analysis to guide discussions with investment teams and clients about setting climate targets for products and/or segregated accounts.

Climate factor analysis. Despite the significant breadth and scope of climate data available for analysis, there remains relatively little quantitative analysis on how or if this data leads to reduced risk and/or enhanced returns. The purpose of this research is to apply our quantitative research expertise to climate data to identify which climate-related data points, alone or in combination, may be material for financial market participants. Some of the challenges of this analysis include the limited historical data available for most climate-related data factors, and changes in methodology, scope, or coverage over time. The objective of this ongoing analysis is to inform investment teams on the ESG integration of material climate factors.

Assessing carbon emissions of sovereign and sub-sovereign government bonds. As we seek to expand the measuring and reporting of carbon emissions of our assets under management, there continue to be asset classes for which there are significant data and/or methodology gaps. In 2023, we continued to expand our application of the Partnership for Carbon Accounting Financials (PCAF) methodology for calculating financed emissions for sovereign bonds. This methodology does not however address sub-sovereign bonds. We are therefore assessing the availability of carbon emissions data for Canadian provincial bonds, and applying methodologies for attributing these to bond holders, as well as aggregation across portfolios. Canadian provincial bonds represent 7% (US$29.3 billion) of RBC GAM's total AUM as at December 31, 2023. As we continue to expand the scope of our climate analysis to other asset classes, this type of applied research will continue to inform our activities.

[39] The efficient frontier is used to identify investment portfolios that provide the highest returns at a given level of risk.

Consideration of existing and emerging regulatory requirements related to climate change

RBC GAM seeks to engage constructively with regulators and other lawmakers. We participate in initiatives that we believe contribute to increased transparency, that protect investors, and that foster fair and efficient capital markets. We recognize that advocating for regulatory and legal reform can be more effective when market participants work together. Where interests are aligned, collaboration with like-minded investors can give us greater influence on issues specific to our investments and on broader, market-wide considerations. In all cases, we work to encourage changes that are in the best interests of our clients.

We track and monitor existing and emerging regulations related to environmental and social topics through internal working groups, industry associations, and the RI team's research. RBC GAM also contributes to regulatory consultations, where appropriate, and primarily through industry association submissions. Members of the RI team also participate on a number of committees and/or boards, supporting a greater advocacy role for RBC GAM on material ESG issues. Where necessary, cross-functional working groups and/or coordination are established to support the implementation of new regulatory requirements. Given the continued evolution of ESG-related regulations in some jurisdictions, in 2023 we established an internal RI Committee focused on overseeing regulatory developments in the EMEA APAC region.

3.2 Management of climate risks

Describe the organization's processes for managing climate-related risks

RBC GAM manages climate-related risks and opportunities by:

- Integrating material climate-related risks and opportunities into our investment decisions, for applicable types of investments. This may include each stage of our investment management process, including investment selection and portfolio management.
- Using active stewardship, including engagement and proxy voting, to encourage effective governance oversight and management of climate-related risks, for applicable types of investments.[40]
- Collaborating with industry peers and organizations to inform and advance Our Approach to Climate Change and address key areas of opportunity or need.

RBC GAM generally does not exclude any particular investment or industry based on ESG or climate-related factors alone. However, we do offer specific strategies that apply exclusions, which includes fossil-fuel free strategies that are available in some geographies. We also work with our institutional clients to provide solutions that meet their needs, which may include specific exclusions and approaches for managing climate-related risks and opportunities. We do not believe that divestment is an effective stewardship tool compared to engagement. However, at any stage of their analysis or engagement with an issuer, our investment teams may choose to divest from an investment or group of investments based on their judgement of the investment case, or if specifically required as a result of investment mandate or client agreement.

ESG integration

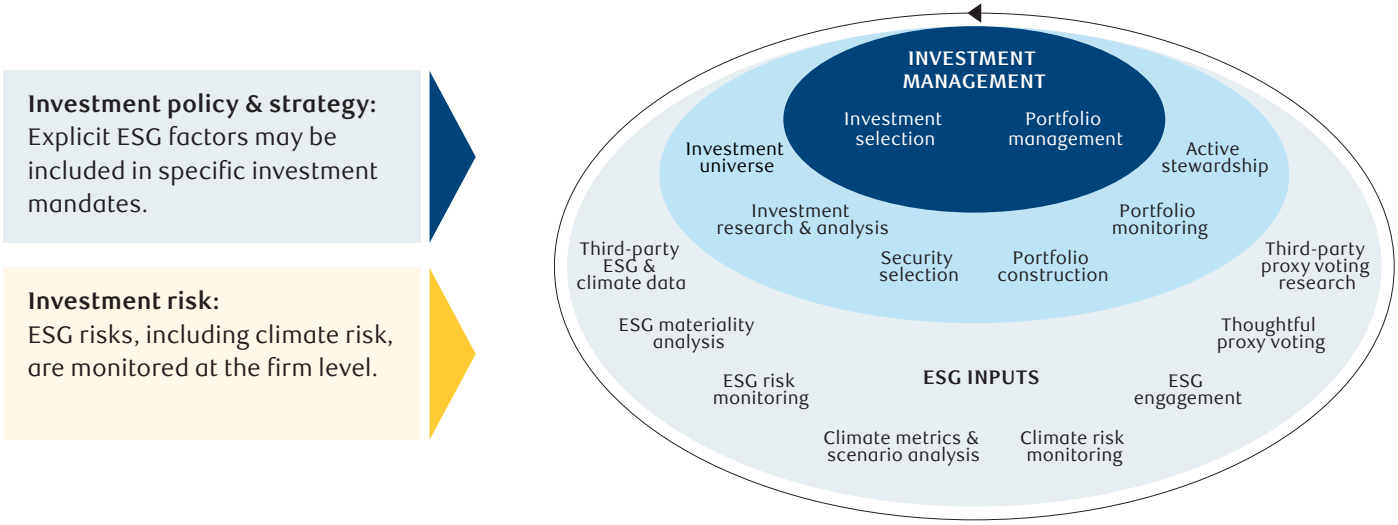
RBC GAM believes that issuers that manage their material ESG risks and opportunities effectively are more likely to outperform on a risk-adjusted basis, over the long term. Each investment team has the discretion to determine the materiality of ESG factors for its investments, drawing from tools like the SASB materiality map, internal research and resources, speaking with industry experts, and sell-side and external research.

Investment teams are responsible for ESG integration and for considering climate-related risks. Every year, the RI team documents the ESG integration processes of investment teams. This includes teams' overarching approaches, data inputs, steps taken, and tools used to identify, assess, and consider material ESG factors as part of their investment and portfolio management decisions. Through this process, the RI team verifies that investment teams' activities remain aligned with the commitments set out in Our Approach to Responsible Investment and Our Approach to Climate Change. The Managing Director and Head of RI oversees the review of each team's ESG integration processes, and the CIO assesses the reviews annually.

A high-level overview of how investment teams across the firm integrate ESG factors is described in Figure 13. Specific processes may vary depending on asset class, geography, and investment team philosophy.

Figure 13: ESG integration in our investment approach

This diagram illustrates how material ESG factors and responsible investment activities contribute to our overall decision making in our investment approach, complementing our investment teams' fundamental and systematic investment approaches.



[40] In some instances involving certain fixed income investments, quantitative investment, buy-and-maintain, passive and certain third-party sub-advised strategies, there is no engagement with issuers by RBC GAM.

Active stewardship

RBC GAM uses active stewardship, through engagement and proxy voting, with an objective to maximize risk-adjusted returns, without undue risk of loss. Active stewardship can also be employed to convey our views to issuers on climate-related risks and opportunities.

Engagement

We engage with issuers, where appropriate, and report on our engagement activities and outcomes. Through engagement, we seek to inform, advise, and influence companies to consider material risks that may affect their value or pricing. In addition, Our Approach to Climate Change and Our Net-Zero Ambition lay out our expectations of issuers related to climate change.

In 2023, our investment teams completed over 1,800 ESG-related engagements that focused on various ESG factors, including climate change.[41]

Public equity engagements represented approximately 70% of the engagements in 2023, and fixed income engagements represented approximately 30%. Our investment teams meet with the issuers in which we invest, or may invest, on an ongoing basis, where applicable. The specific ESG factors we engage on may differ and are prioritized based on the materiality of the ESG issue to the specific investment. Teams may also prioritize their engagement efforts based on the size of the investment and/or the level of ESG risk within the portfolio.

In 2023, RBC GAM participated in nine collaborative engagements through Climate Action 100+ and CEC.

We also work collaboratively with other investors through initiatives such as the United Nations Principles for Responsible Investment, Climate Action 100+ (CA100+), and CEC to share our views and discuss the risks and opportunities of climate change with the boards and management of the companies in which we invest on behalf of our clients. CA100+ is an investor-led initiative focusing on active engagement with the world's largest publicly traded and systemically important carbon emitters, or companies with significant opportunity to drive the transition to a low-carbon economy. RBC GAM is also a founding participant of the CEC, a Canadian finance-led initiative that drives dialogue between the financial community and Canadian corporate issuers with a mandate to promote a just transition to a net-zero economy. A member of the RI team is the Chair of the Technical Committee of the CEC. In 2023, CEC launched the Net Zero Benchmark and its first assessment of focus list companies against the benchmark. This provides a set of common standards for investors to use in evaluating corporate issuers' progress towards aligning with the Paris Agreement's ambition.

[41] This figure may include instances where our investment teams engaged with the same issuer multiple times. This figure is calculated on a best efforts basis, and may not capture every ESG-related engagement. In certain instances involving quantitative investment, passive and certain third-party sub-advised strategies, there is no direct engagement with issuers by RBC GAM.

Our collaborative initiatives related to climate change include:[42]

	**CDP (formerly, Carbon Disclosure Project)** We are signatories to the CDP, formerly known as the Carbon Disclosure Project. CDP runs the global disclosure system that enables entities to measure and manage their environmental impacts and strives to advance environmental disclosure.
	**Climate Action 100+ (CA100+)** We are signatories to Climate Action 100+, an investor-led initiative that focuses on active engagement with the world's largest publicly traded and systemically important carbon emitters, or companies with significant opportunity to drive the transition to a low-carbon economy. In 2023, we participated in five Climate Action 100+ engagements.
	**Climate Engagement Canada (CEC)** We are a founding participant of the CEC. CEC is a finance-led initiative that drives dialogue between the financial community and corporate issuers to promote a just transition to a net-zero economy. This is a national engagement program in Canada, akin to Climate Action 100+. A member of RBC GAM's RI team is Chair of the Technical Committee of the CEC. In 2023, RBC GAM participated in four collaborative engagements as part of CEC.
	**Farm Animal Investment Risk and Return (FAIRR)** We are a member of FAIRR. FAIRR is a collaborative investor network that raises awareness of the ESG risks and opportunities brought about by intensive livestock production.
	**Investor Policy Dialogue on Deforestation (IPDD)** RBC GAM is a supporting investor of the IPDD. The IPDD initiative aims to coordinate a public policy dialogue with authorities and monitor developments to assess exposure to financial risks arising from deforestation. One of our investment teams co-chairs the IPDD Management Committee and the IPDD Brazil workstream, and is a participant in the IPDD Indonesia workstream.
	**Responsible Investment Association (RIA)** RBC GAM is a sustaining member of the RIA. The RIA is Canada's association for responsible investment. In 2023, a member of the RI team was Vice-Chair of the RIA board of directors and Chair of the Governance Policy Committee. In 2021, RBC GAM also became a founding signatory to the Canadian Investor Statement on Climate Change. This statement demonstrates the collective ambition and action from Canadian investors in recognizing the need to accelerate the transition towards a net-zero economy within the unique context of Canada.
	**IFRS Sustainability Alliance** We are a member of the IFRS Sustainability Alliance, a global membership program for sustainability standards, integrated reporting, and integrated thinking. The International Sustainability Standards Board (ISSB) is an independent standard-setting body within the IFRS Foundation. RBC GAM is a signatory to the COP28 Declaration of Support for the ISSB's Climate Standard. As such, we support the establishment of market infrastructure to enable consistent, comparable climate-related disclosures at a global level. RBC GAM has published a climate-related report guided by the recommendations of the TCFD since 2020. The TCFD recommendations are now incorporated into the ISSB's Standards, which are overseen by the International Financial Reporting Standards Foundation. A member of the RI team participates on the ISSB Investor Advisory Council.
	**United Nations Principles for Responsible Investment (UN PRI)** RBC GAM is a signatory to the UN PRI. The UN PRI is a global network for investors committed to incorporating ESG considerations into their investment practices and ownership policies. We are committed to putting the UN PRI's six Principles of Responsible Investment into practice and believe that they are aligned with our existing approach to responsible investment.[43] In 2023, a member of the RI team sat on the Policy Committee, and we continued our role in several PRI-led initiatives related to fixed income. These included the Structured Products Advisory Committee, the Advisory Committee on Credit Ratings (ESG), and the Sustainable Commodities Practitioners Working Group (deforestation).

Note: Logos are protected trademarks of their respective owners and RBC disclaims any association with them and any rights associated with such trademarks.

[42] A full list of RBC GAM's collaborative initiatives can be found here.
[43] In 2023, RBC GAM consolidated the activities of two regulated legal entities in the United Kingdom (UK), RBC GAM UK and BlueBay Asset Management LLP, into RBC GAM UK, which operates under the name RBC BlueBay. RBC BlueBay is RBC GAM's business outside of North America.

Proxy voting

As an asset manager, RBC GAM has an obligation to act in the best interests of the accounts that it manages, including segregated client accounts and investment funds. Voting responsibly is part of our fiduciary duty. Proxy voting is also a key part of our engagement process as it provides an important way for us to convey our views to boards and management.

We vote proxies in line with the RBC GAM Proxy Voting Guidelines (Guidelines) and disclose our proxy voting records on our regional websites in accordance with applicable regulations. We review and update our Guidelines annually, and on an ongoing basis as corporate governance and ESG best practices evolve. The Guidelines are applied in Canada, the United States, the United Kingdom, Ireland, Australia, and New Zealand. In all other markets, RBC GAM utilizes the local proxy voting guidelines of a research provider. In all cases, RBC GAM reviews each meeting and proposal to ensure votes are submitted in the best interests of our clients. Our Guidelines refer to climate-related proposals, which we evaluate on a case-by-case basis.

When evaluating shareholder proposals, we consider materiality, prescriptiveness, and existing disclosures and commitments, where applicable. RBC GAM will generally support climate-related shareholder proposals requesting the following:

- That a company disclose the organization's governance around climate-related risks and opportunities.
- That a company disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning. This includes disclosure of the results of climate scenario analysis and related assessments.
- That a company disclose how the organization identifies, assesses, and manages climate-related risks. Risks include transition risks (policy and legal, technology, market, and reputation) and physical risks (acute and chronic), as defined by the TCFD.
- That a company disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities, or on how the company identifies, measures, and manages such risks.
- That a company adopt or implement initiatives to reduce GHG emissions, including carbon. This includes providing detailed disclosure of progress.
- That a company adopt long-term and interim net-zero or science-based targets, where climate-related risks are financially material, and adoption timelines are within a reasonable time frame. Net-zero targets are expected to include Scope 1 and 2 emissions. Where a proponent requests that a company adopt net-zero targets on Scope 3 emissions, we will review on a case-by-case basis, factoring in materiality of these emissions to the company, feasibility of the request, and usefulness to shareholders if the proponent's request is fulfilled.
- That a company disclose its climate transition plan in line with the TCFD recommendations.
- That a company provide enhanced disclosure on the alignment of its lobbying activities with climate change initiatives, including its membership in industry associations.

Say-on-climate proposals

Over the past several years we have seen companies seeking advisory votes from shareholders on their climate transition plans and progress made on these plans (i.e. a "say-on-climate" vote). We evaluate say-on-climate management proposals on a case-by-case basis by assessing the completeness and suitability of climate transition plans using an internal framework. We generally do not support proposals where the climate-related plans lack:[44]

- clear and appropriately detailed disclosure of the governance, strategy, risk management, and metrics and targets, as they relate to climate-related risks and opportunities;
- credible long-term targets aligned with achieving net-zero emissions by 2050 or sooner, interim targets, and demonstrated progress in meeting these commitments;
- disclosure of the results of climate scenario analysis and related assessments; or
- disclosure of corporate and trade association lobbying activities, and how the company considers this in line with the Paris Agreement goals, where material.

Escalation of stewardship activities

We assess our stewardship activities through the lens of our clients' best interests. In each case, we consider the most effective way to address issues with investee issuers and, when it may be appropriate, to escalate our stewardship activities in order to contribute to the long-term sustainable growth of our investments.

Escalation is an iterative process, and each of the methods we may employ is informed by the overall escalation objective. For example, information gathered through engagement may result in escalation through proxy voting, which may in turn lead to further engagement opportunities either directly or collaboratively. Similarly, a public statement may lead issuers to reach out to their shareholders to engage on a material ESG topic that the issuer had not previously been interested in addressing with investors.

The following describes three escalation methods that we may employ as part of our stewardship activities:

Private dialogue	At RBC GAM, we have a preference to maintain an open dialogue with our investee issuers to address material ESG-related matters. We believe that this approach promotes trust and strong relationships with issuers, enables us to raise our concerns and convey our views from an investor's perspective, and allows our issuers to address these concerns in the ways they deem best. We engage in private dialogue and may seek out like-minded investors to collaboratively engage with the issuer as a form of escalation within our private dialogue.
Proxy voting	We use proxy voting to signal our views on material ESG issues to management teams and boards of directors, in line with our Guidelines. Depending on the ESG factor, proxy voting may be the first action taken to escalate our stewardship with an issuer. For example, for several governance factors, like executive compensation and board gender diversity, the proxy voting circular is one of the first opportunities to address the issue, which can then further be addressed by engagement or other forms of escalation. In other cases, our teams may engage with an issuer first to better understand a material ESG issue and assess the issuer's willingness to address the issue through private dialogue, before casting our votes against management's recommendations and publicly expressing our views.
Public statements	Where we see a need for accelerated progress from issuers on material ESG issues that have not been adequately addressed through private dialogue and/or proxy voting, we consider other avenues to encourage change. This may include issuing or supporting public statements that target specific markets and/or issuers. In these cases, we may take public action collaboratively with other investors. We use this method sparingly.

Ultimately, at any stage of engagement with an issuer, our investment teams may choose to divest from the investment entirely. This may occur when the investment team does not believe that the relevant ESG issue is being appropriately managed, despite ongoing engagement and stewardship efforts, and determines that the issue materially affects the investment case overall. The management of, and exposure to ESG risks and opportunities, and/or the outcomes of an engagement, generally are not the sole factor in an investment decision, but can help inform the investment case. It is at the discretion of each investment team to decide whether to continue with an investment or to divest, in line with the best interests of the portfolio and its clients.

[44] We may also give consideration to newly disclosed climate transition plans that do not meet the minimum criteria if there is demonstrable evidence and commitments indicating the minimum criteria will be met.

3.3 Investment risk management and climate change

Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.

Climate-related risks can potentially impact the financial performance of investments and investment portfolios, particularly for clients with long-term investment horizons. The impact of material climate-related risks on our principal risk types is considered as part of our investment risk process.

At the investment level, our investment teams are equipped with data and insights to manage the risk exposure of their portfolios. Data is available on a wide range of investment risk factors, which include financial and ESG-related factors, such as climate change. Investment teams integrate material factors into their portfolio management decisions in a manner that complements their distinct investment approaches and mandates, for applicable types of investments. The use of the Climate Dashboards is one example of a risk monitoring tool used by some investment teams, as described in Section 3.1.

At the investment strategy level, the RBC GAM Investment Strategy Committee (RISC) is chaired by the CIO and reviews assessments of global fiscal and monetary conditions, projected economic growth and inflation, as well as the expected course of interest rates, major currencies, corporate profits, and stock prices. From this global forecast, the RISC develops specific guidelines that can be used to manage portfolios. Where material, this may include ESG-related risks, including climate change. Results of the RISC deliberations are published quarterly in the Global Investment Outlook.

The Investment Risk team oversees investment risks including market risk, counterparty risk, and liquidity risk at both a portfolio and firm level. Working with the Investment Policy team, the Investment Risk team is responsible for establishing risk appetite and risk budgets at the portfolio level. Risk limits including diversification and asset quality requirements are established in investment mandates for each portfolio and are monitored daily. These limits vary with the strategies' investment goals, risk tolerance, and benchmarks. Any breaches of internal investment mandate tolerances are flagged and followed up on by the Investment Policy team. While all internal investment mandate limits are reviewed periodically by the CIO and the Head of Investment Policy, the Investment Risk team monitors the risk profile of portfolios and adherence to risk budgets.

The RBC GAM Investment Risk Committee (GIRC), along with regional committees for the United States (Investment Risk Oversight Committee) and EMEA-APAC (Market Risk Committee), provides additional investment risk oversight and governance. The GIRC is chaired by the CIO and includes the regional Heads of Risk Management and the Head of Investment Policy, among others. The committee reviews the risk profile of portfolios and discusses material risks that may impact investment performance, including ESG and climate-related risks when material.

At the firm-level, RBC GAM establishes a risk appetite on an annual basis and maintains a risk register of the most material risks facing our business including business risks, investment risks, group financial risks, and operational risks. ESG and climate-related risks may be included if deemed material.

For systemic risks that relate to the functioning of financial markets, such as transparency, corruption, and climate change, we use active stewardship programs, like direct and collaborative engagement and proxy voting, to convey our views and influence outcomes, where appropriate.

4. Metrics and targets

4.1 Climate-related metrics

Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.

RBC GAM began measuring and reporting on the carbon emissions[45] of our assets under management in 2020. In the time since, we have endeavored to expand the scope and depth of our climate-related disclosures. As part of these efforts, we have increased the percentage of our AUM for which key climate-related analysis is conducted from 48% (in 2020) to 81% (in 2023).

Figure 14: Percentage and value of AUM included in the scope of analysis for climate-related metrics, by year
As at December 31, 2023[46]

	2023	2022	2021	2020
Percentage of RBC GAM AUM in scope of analysis	**81%**	74%	54%	48%
Value of RBC GAM AUM in scope of analysis	**$348.3 billion**	$287.0 billion	$260.9 billion	$206.4 billion

Climate-related analysis is conducted for 81% (US$348.3 billion) of RBC GAM's total AUM, as at December 31, 2023.[47]

[45] In this report, references to carbon emissions refers to CO_2 equivalents (CO_2 eq.), which is inclusive of all GHG emissions.
[46] Based on: RBC GAM Climate Report 2022, RBC GAM TCFD Report 2021, RBC GAM TCFD Report 2020. Please see scope of analysis section in each report for details. Percentages are rounded.
[47] This represents approximately 88% of equity holdings and 93% of fixed income holdings.

Description of key climate-related metrics

RBC GAM seeks to report climate-related metrics that align with established and emerging best practices. For this, we rely on several sources to inform our selection of metrics and methodologies. This includes the U.K. FCA ESG Sourcebook,[48] the recommendations of the TCFD,[49] the PCAF Global GHG Accounting and Reporting Standard for the Financial Industry, and the Science-Based Targets Initiative (SBTi).[50]

Figure 15: Description of key climate-related metrics included in this report.

	Backward looking			Forward looking
				
Category of metric	**Carbon emissions**	**Investment in issuers with climate targets**	**Temperature alignment**	**Climate scenario analysis**
Asset classes included	▪ Equities ▪ Corporate bonds ▪ Sovereign bonds	▪ Equities ▪ Corporate bonds ▪ Sovereign bonds	▪ Equities ▪ Corporate bonds	▪ Equities ▪ Corporate bonds
Description	Absolute and intensity-based carbon emissions metrics. Inclusive of financed emissions, emissions per dollars invested, and weighted average carbon intensity.	Measurement of net-zero alignment: Percentage of AUM invested in issuers with climate targets, based on target type. Also referred to as "portfolio coverage".	Measurement of net-zero alignment: Indicative metric of the global average temperature increase from pre-industrial times to 2100 if the global economy had the same carbon emissions and climate targets as the portfolio and/or issuer. Also referred to as "portfolio temperature rating".	Climate Value at Risk (VaR) is calculated for a range of climate scenarios, measuring the potential change in valuation of an issuer due to policy risks, technology opportunities, and physical risks and opportunities.

MEASURING THE NET-ZERO ALIGNMENT OF OUR INVESTMENTS

RBC GAM recognizes the importance of the global goal of achieving net-zero emissions by 2050 or sooner, in order to mitigate climate-related risks. As such, we are committed to measuring and reporting on the net-zero alignment of our investments. RBC GAM measures the net-zero alignment of our AUM using two metrics: investment in issuers with net-zero or science-based targets (portfolio coverage) and temperature alignment (portfolio temperature rating). While methodologies continue to evolve, these metrics were selected based on SBTi Guidance.[51] The following metrics are applicable to equity and corporate bonds in scope of analysis, which represent 68% (US$ 292.8 billion) of RBC GAM's total AUM as at December 31, 2023.[52]

26% (US$76.9 billion) of RBC GAM equity and corporate bonds are invested in issuers with validated net-zero or science-based targets (as per SBTi). An additional 9% (US$27.6 billion) is invested in issuers who have committed to set SBTi targets within two years.

53% (US$155.5 billion) of RBC GAM equity and corporate bonds are invested in issuers with a temperature alignment that is below 2°C.

[48] UK FCA ESG Sourcebook. (handbook.fca.org.uk/handbook/ESG.pdf)

[49] TCFD Guidance on Metrics, Targets and Transition Plans, October 2021. (assets.bbhub.io/company/sites/60/2021/07/2021-Metrics_Targets_Guidance-1.pdf)

[50] Financial Sector Science-based targets guidance, SBTi, (sciencebasedtargets.org/resources/files/Financial-Sector-Science-Based-Targets-Guidance.pdf) August 2022, and Foundations for science-based net-zero target setting in the financial sector, (sciencebasedtargets.org/resources/files/SBTi-Finance-Net-Zero-Foundations-paper.pdf) April 2022.

[51] Financial Sector Science-based targets guidance, (sciencebasedtargets.org/resources/files/Financial-Sector-Science-Based-Targets-Guidance.pdf) SBTi, August 2022.

[52] See Appendix 1 for scope of analysis. RBC GAM analysis, based on MSCI Climate Change Research, MSCI®. Data coverage is 89% for corporate climate target analysis, and 80% for temperature alignment analysis

Summary of climate-related metrics

Climate-related metrics are provided for RBC GAM AUM in scope of analysis, as well as by asset class and geography.[53] We continue to take steps to identify additional data sources and/or explore methodologies that may enable the inclusion of assets not currently in the scope of analysis. For example, in this year's Climate Report we have expanded our analysis to provide climate-related metrics for sovereign bonds, which includes carbon emissions and investment in issuers with climate targets. We continue to explore appropriate forward-looking climate metrics for sovereign bonds, and applicable methodologies for sub-sovereign bonds (see call-out box on ESG research). As data availability and methodologies mature, we will seek to expand our disclosure of climate-related metrics for additional asset classes. Due to changes in the underlying climate data, methodologies used for calculating metrics, and the assets included in the scope of analysis, among other items, it is not currently feasible to provide a historical trend analysis for climate-related metrics.

Figure 16: Key climate-related metrics for RBC GAM AUM in scope of analysis, by asset class[54]

As at December 31, 2023.

See Appendix 1 for scope of analysis and benchmarks, Appendix 2 for climate metrics and methodology, and Appendix 3 for climate data tables

CLIMATE-RELATED METRIC	UNIT	TOTAL	EQUITY	CORPORATE BONDS	SOVEREIGN BONDS
Carbon emissions	**Data coverage %**	**86%**	**99%**	**62%**	**99%**
Reported	Percent of AUM (%)	75%	87%	50%	99%
Estimated		10%	13%	12%	-
Financed emissions (Total carbon emissions) *Inclusive of Scope 1 and 2 emissions for equities and corporate bonds, and production-based emissions for sovereign issuers*	Mt CO_2 eq.	25.0	8.2	3.1	13.7
Emissions/$M invested (carbon footprint) *Inclusive of Scope 1 and 2 emissions for equities and corporate bonds, and production-based emissions for sovereign issuers.*	t CO_2 eq. /$M invested	71.7	49.8	24.3	246.5
Weighted average carbon intensity *Inclusive of Scope 1 and 2 emissions (by sales) for equities and corporate bonds, and production-based emissions by PPP-adjusted GDP for sovereign issuers.*	t CO_2 eq. /$M sales t CO_2 eq. /$M PPP-adusted GDP		142.9	251.7	248.9
Investment in issuers with climate targets	**Data coverage %**	**90%**	**99%**	**75%**	**100%**
Science-based or net-zero target *Equities and corporate bonds (SBTi validated target), and sovereign issuers (net-zero targets passed into law)*	Percent of AUM (%)	34%	32%	19%	72%
Any climate target *Equities and corporate bonds (SBTi validated, SBTi committed, self-declared net-zero target, and other target) , and sovereign issuers (net-zero target, regardless of status)*	Percent of AUM (%)	82%	88%	68%	96%
Temperature alignment	**Data coverage %**	**80%**	**99%**	**56%**	
Temperature alignment, by temperature range *Based on Implied Temperature Rise*					
Less than 2°C	Percent of AUM (%)	53%	66%	37%	
Between 2 and 3°C		14%	18%	10%	
More than 3°C		13%	15%	9%	
Aggregated Climate Value at Risk (VaR)	**Data coverage %**	**76%**	**99%**	**45%**	
1.5°C (orderly) - Net zero by 2050	Aggregated Climate Value at Risk (%): Policy risks + Technology opportunities + Physical risks and opportunities.	-10%	-10%	-9%	
1.5°C (disorderly) - Divergent net zero		-13%	-14%	-12%	
2°C (orderly) - Below 2°C		-5%	-5%	-5%	
2°C (disorderly) - Delayed Transition scenario		-9%	-9%	-8%	
3°C: NDC scenario		-5%	-5%	-5%	

[53] See Appendix 1 for the scope of analysis and benchmarks. Assets that are not included in the portfolio analysis are: sub-sovereign government bonds, cash and equivalents, ETFs or third-party mutual fund holdings, mortgages, asset-backed securities, other assets (mainly real estate and money market securities), private placements, and derivatives. These assets are primarily excluded from this analysis due to limitations in data availability, inapplicability of methodologies, and/or minor financial materiality to the overall AUM.

[54] Values may not add up to totals due to rounding. See Appendix 1 for scope of analysis and benchmarks. RBC GAM analysis, based on MSCI Climate Change Research, MSCI®.

Data quality and coverage

We believe data quality and coverage is important when calculating climate metrics. Our preference is to use reported emissions data, calculated in line with the GHG Protocol (https://ghgprotocol.org/corporate-standard). Reported Scope 1 and 2 emissions data is available for 87% of our equities and 50% of our corporate bond holdings (see Figure 16). Where reported data is not available, we use estimated Scope 1 and 2 emissions data, calculated using physical activity-based emissions (e.g., megawatt hours by fuel type) and economic activity-based emissions (e.g., sector average tCO_2 eq./ revenue).[55] Due to limitations related to methodologies and comparability of reported disclosures, all Scope 3 emissions data is estimated.[56] There is often a time lag in the reporting of carbon emissions data by issuers, which means that reported emissions data may be from different years, even though all data is accessed as at the same date. For example, for the carbon emissions data available for the MSCI All Country World Index (ACWI) as at December 31, 2023, 68% is from fiscal year 2022, and 32% is from 2021.[57] Overall, data coverage for equity investments is generally higher than for corporate bonds. This is largely due to issuers reporting carbon emissions at a parent level, but not for related subsidiaries or Special Purpose Vehicles. As the operations (and thus, emissions profiles) of subsidiaries can differ significantly from their parent entity, in this report we do not allocate the reported emissions from the parent company to a subsidiary when calculating carbon emissions values.

Carbon emissions

Carbon emissions analysis provides a view on the relative exposure of corporate and sovereign issuers to climate-related transition risks such as policy, market, and technology risks. It also provides a view on the absolute and relative contribution of issuers to global emissions, and by extension to climate change. We believe that carbon emissions analysis is an important foundational element for assessing climate-related risks and opportunities and serves as an input to forward-looking analysis. Carbon emissions analysis is, however, a static and backward-looking metric that provides a view on what an issuer's emissions have been, which is not necessarily reflective of what they will be in the future. Importantly, carbon emissions analysis does not reflect what actions an issuer is taking, or will be taking, to manage or mitigate potential climate-related risks or to capitalize upon opportunities. For this reason, RBC GAM uses additional, forward-looking metrics to assess climate-related risks and opportunities (see Figure 15).

When identifying and assessing material climate-related risks for corporate issuers, we typically consider their Scope 1, 2, and 3 emissions, which are classified as per the GHG Protocol. For investee companies, inclusion of all three scopes of emissions is informative as it provides a view on a company's exposure to climate-related risks across the value chain. However, when aggregating emissions across companies and sectors, as is done in an investment portfolio, the inclusion of Scope 3 emissions results in the double counting of emissions. Double counting of emissions occurs when the same emissions are counted more than once and happens because the emissions from one company's value chain (Scope 3) are another company's direct emissions (Scope 1 and 2). For example, the Scope 3 emissions for 'use of products' from an auto manufacturer (e.g. burning of gasoline) are the Scope 1 emissions for a delivery company that uses the vehicles. As per a recent discussion paper from the Institutional Investors Group on Climate Change (IIGCC),[58] it is important to recognize that the purpose of Scope 3 data, even for one entity, is not to assign emissions ownership but to assess its carbon exposure, hence multiple entities can inherently be exposed to the same ton of carbon. For the reasons discussed above, when we measure and report on carbon emissions for an investment portfolio (our Scope 3, category 15 emissions), we believe that it is most appropriate to include issuers' Scope 1 and 2 emissions. We recognize however that there are differing views and expectations related to this, which is why we also provide carbon emissions metrics for Scope 3 emissions in Appendix 3 – Climate data tables.

The Weighted Average Carbon Intensity (WACI) of our portfolios, across asset classes and geographies, are generally lower than the representative benchmarks.

The WACI of a portfolio indicates how efficient it is at using carbon emissions to generate a unit of output (e.g., by sales for corporate issuers or Purchasing Power Parity (PPP)-adjusted GDP for sovereign issuers), and provides a view of the exposure to carbon intensive issuers for the related portfolio. Across regional equity and corporate bond markets, our portfolios tend to have a lower WACI than their respective benchmarks. For all portfolios, WACI (by sales) is generally driven by sector exposure, given that some sectors generate more Scope 1 and 2 emissions than others. The Energy, Utilities, Industrials, and Basic Materials sectors are the greatest contributors to equity

[55] Based on MSCI® ESG Research methodologies. For estimation of Scope 1 and 2 emissions this includes the following distinct modules: production model, company-specific intensity model, and industry segment-specific intensity model. No internally generated proxy values are used in this Report. We may choose to use internal proxy data in other reports, such as Portfolio Climate Reports produced on-demand for clients. In these situations, the use of internal proxy data is disclosed.

[56] Carbon emissions metrics inclusive of Scope 3 emissions are provided in Appendix 3 – Climate data tables.

[57] MSCI ESG Climate Change Research, as of January 1, 2024, MSCI®.

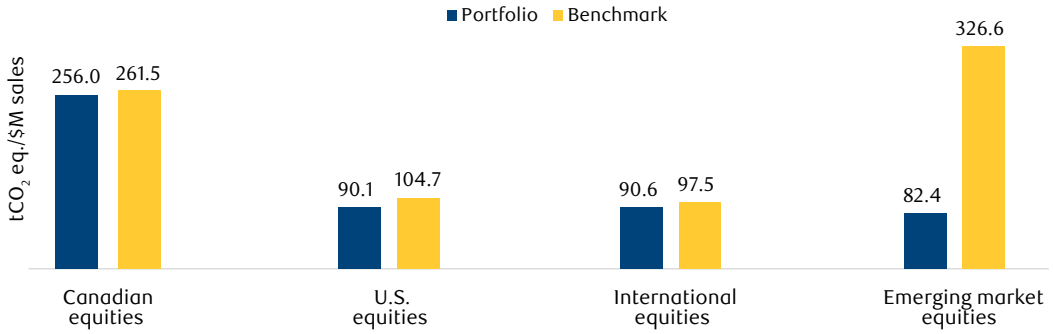
[58] Investor approaches to scope 3: its importance, challenges and implications for decarbonising portfolios, IIGCC, January 2024.

portfolio carbon emissions and account for 82% of the WACI (by sales).[59] For corporate bonds, the sector attribution is even more concentrated, with the Utilities and Energy sectors collectively accounting for 88% of the WACI (by sales).[60] Carbon-intensive sectors are often more exposed to transition risks, due to government policy risk and technology disruption. Given the scope of emissions included in the WACI, it is worth noting that Scope 1 emissions are largely driven by the industry of an issuer, as the activities and outputs for some industries produce more emissions than others. Meanwhile, Scope 2 emissions are largely driven by the carbon intensity of the electricity grid in the region(s) in which a company operates. The Canadian and emerging markets corporate bond portfolios are the only ones with a WACI that is higher than the representative benchmarks. In both cases this is largely due to overweight exposure to the Utilities sector relative to the benchmark.

Sovereign bonds represent 13% (US$55.6 billion) of RBC GAM's total AUM.[61] Methodologies and approaches for measuring the carbon emissions for sovereign investments are still in development, and generally vary based on whether sovereign emissions are production- or consumption-based, and the method used to apportion and allocate emissions to sovereign bonds. In this report we seek to align with the PCAF methodology, which recommends calculating WACI by PPP-adjusted GDP. The developed market (DM) sovereign bond portfolio has a higher WACI (by PPP-adjusted GDP) than the benchmark, due primarily to the portfolio's overweight exposure to Canadian government bonds. The emerging market (EM) sovereign bond portfolio is lower than that of its benchmark, due primarily to the portfolio's underweight exposure to several carbon intensive issuers, relative to the benchmark. The carbon intensity of a sovereign issuer is indicative of the potential transition risks to which they may be exposed.

Weighted average carbon intensity, by asset class and geography[62]
As at December 31, 2023.

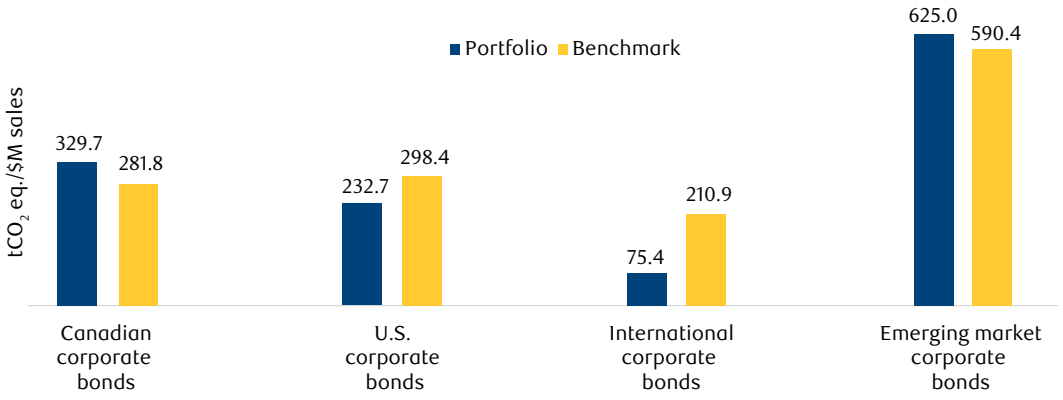
Figure 17: Weighted average carbon intensity, by sales (inclusive of Scope 1 and 2 emissions) for equity investments.



Data Type	Port.	Bmk	Port.	Bmk	Port.	Bmk	Port.	Bmk
Estimated	15%	16%	15%	11%	7%	7%	6%	17%
Reported	83%	84%	85%	88%	92%	93%	93%	83%
Total Data Coverage	99%	100%	100%	100%	99%	100%	99%	100%

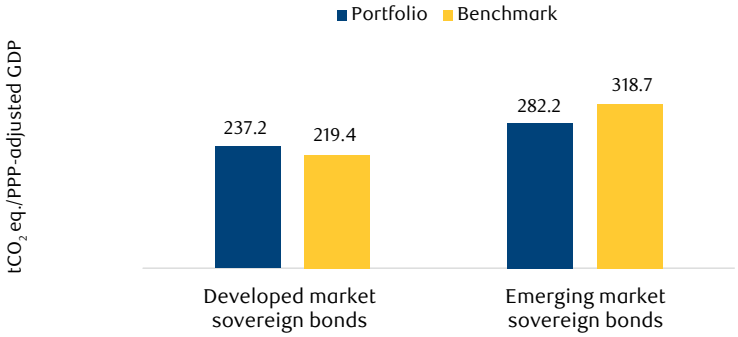
[59] As at December 31, 2023. RBC GAM analysis, based on MSCI Climate Change Research, MSCI®.
[60] Ibid.
[61] As at December 31, 2023. RBC GAM analysis.
[62] Values may not add up to totals due to rounding. See Appendix 1 for scope of analysis and benchmarks. See Appendix 2 for climate metrics and methodology RBC GAM analysis, based on MSCI Climate Change Research, MSCI®.

Figure 18: Weighted average carbon intensity, by sales (inclusive of Scope 1 and 2 emissions) for corporate bonds.



Data Type	Port.	Bmk	Port.	Bmk	Port.	Bmk	Port.	Bmk
Estimated	13%	16%	15%	15%	10%	13%	11%	11%
Reported	51%	55%	47%	59%	56%	59%	35%	38%
Total Data Coverage	63%	71%	61%	74%	65%	71%	46%	49%

Figure 19: Weighted average carbon intensity for sovereign bonds, by PPP-adjusted GDP.



	Port.	Bmk	Port.	Bmk
Data Coverage	100%	100%	96%	74%

Investment in issuers with climate targets

To evaluate the potential forward-looking trajectory of emissions for corporate and sovereign issuers, we measure our exposure to issuers who have established carbon emission reduction targets (climate targets). For corporate issuers, climate targets can vary significantly based on the scope of emissions included, the ambition of the emissions reductions, and the company's likelihood of achieving the target. It is for this reason that targets that meet an established standard are preferable from a comparative and consistency perspective. In this report, RBC GAM considers corporate targets to be Paris-aligned (also called science-based) or net-zero aligned if they have been validated by SBTi as meeting their related target-setting criteria. SBTi provides a publicly available database of companies with science-based and/or net-zero targets, and of companies that have committed to set an emissions reduction target within 24 months. RBC GAM also recognizes that not all issuers may choose to apply a voluntary standard such as the one established by SBTi. SBTi is also not currently able to accept commitments or validate targets for companies in certain industries, such as the oil and gas and fossil fuel sectors.[63] For this reason, we also track and monitor AUM invested in corporate issuers with self-declared net-zero targets and other carbon emission reduction targets (other targets). Climate target data coverage is 99% for our equity holdings, and 75% for our corporate bond holdings.[64]

[63] SBTi Policy on fossil fuel companies, SBTi, accessed February 2, 2024.
[64] As at December 31, 2023. RBC GAM analysis, based on MSCI Climate Change Research, MSCI®.

For sovereign bonds, we consider investment in issuers that have established net-zero emissions targets, as well as the status of these targets.[65] In general, we believe it is more likely that a country that has passed its emissions reduction targets into law will take action to meet that target. While this does not take into consideration whether the net-zero target is aligned to a net-zero emissions pathway, it is based on reported information and as such is not dependent on third-party models. While we have reviewed various models that aim to evaluate the alignment of a country's emissions reduction target to a net-zero by 2050 emissions pathway, we continue to have questions regarding the frequency with which these are updated, and the underlying assumptions of the methodologies. It is for this reason that we prefer to use the status of a sovereign issuer's target as an indication of potential future alignment.

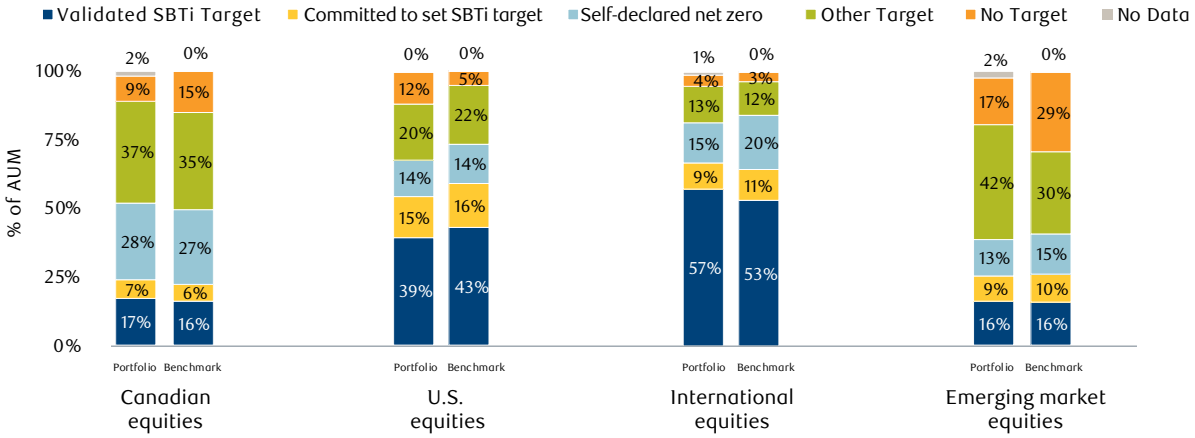
34% (US$116.7 billion) of AUM in scope of analysis is invested in issuers with science-based or net-zero targets. This includes 32% (US$52.7 billion) of equity investments, 19% (US$24.2 billion) of corporate bonds, and 72% (US$39.8 billion) of sovereign bonds.[66]

82% (US$285.3 billion) of AUM in scope of analysis is invested in issuers with a climate target. This includes 88% (US$145.2 billion) of equity investments, 68% (US$86.8 billion) of corporate bonds, and 96% (US$53.3 billion) of sovereign bonds.[67]

Investment in issuers with climate targets[68]
As at December 31, 2023.

Figure 20: Percent of AUM invested in issuers with a climate target, by type for equity investments

As at December 31, 2023



	Canadian equities		U.S. equities		International equities		Emerging market equities	
	Port.	Bmk	Port.	Bmk	Port.	Bmk	Port.	Bmk
Data Coverage	98%	100%	100%	100%	99%	100%	98%	100%

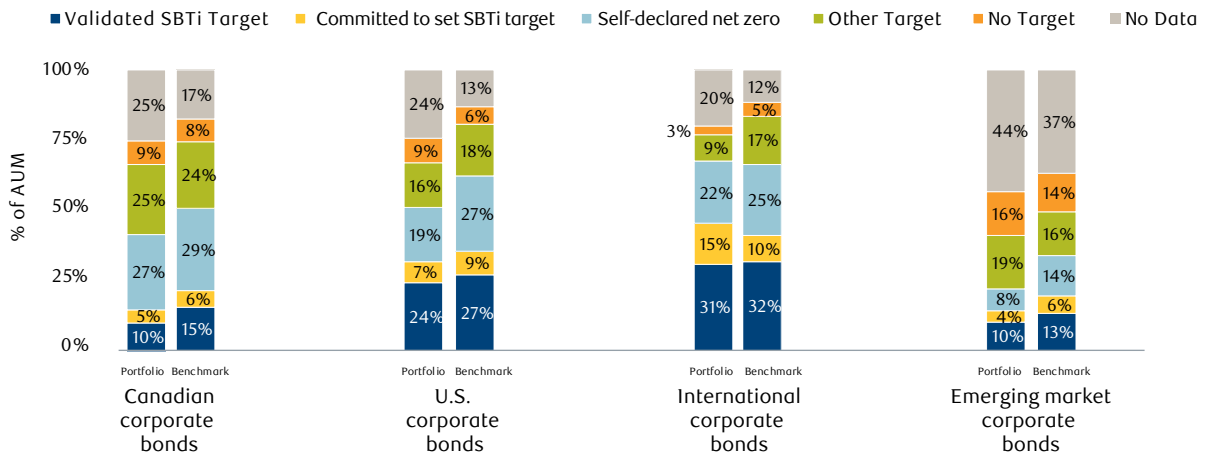
[65] Based on Net Zero Tracker. (zerotracker.net/analysis/net-zero-stocktake-2022) Net zero targets are those classified under one of the following category names: Net zero, Zero emissions, Zero carbon, Climate neutral, Carbon neutral(ity), GHG neutral(ity), Carbon negative, Net negative, 1.5°C target, Science-based target. The status of targets are categorized as: passed into law, in policy document, a declaration or pledge, proposed or in discussion.

[66] As at December 31, 2023. See Appendix 1 for scope of analysis and benchmarks. For equity and corporate bonds this is inclusive of SBTI validated targets. For sovereign bonds this is inclusive of net-zero targets passed into law (based on Net Zero Tracker).

[67] As at December 31, 2023. See Appendix 1 for scope of analysis and benchmarks. For equity and corporate bonds this is inclusive of SBTi validated, SBTi committed, self-declared net-zero, and other climate targets. For sovereign bonds this is inclusive of net zero targets, regardless of status (based on Net Zero Tracker).

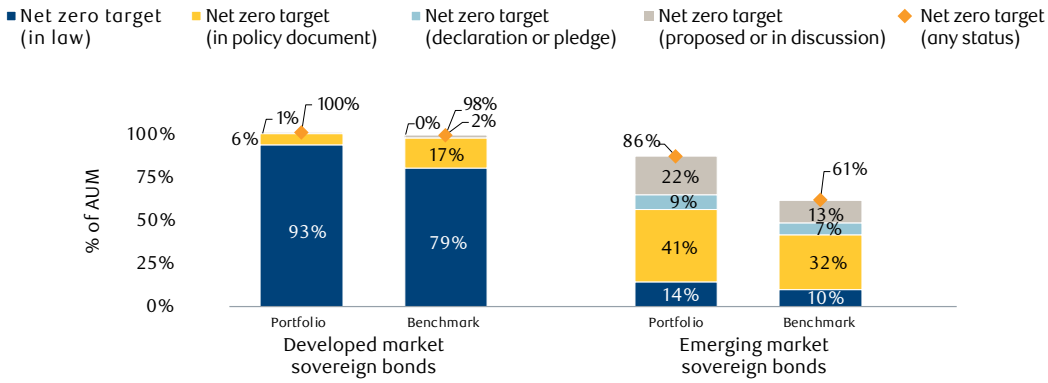
[68] Values may not add up to totals due to rounding. See Appendix 1 for scope of analysis and benchmarks. See Appendix 2 for climate metrics and methodology. RBC GAM analysis, based on MSCI Climate Change Research, MSCI® and Net Zero Tracker.

Figure 21: Percent of AUM invested in issuers with a climate target, by type for corporate bonds.



	Port.	Bmk	Port.	Bmk	Port.	Bmk	Port.	Bmk
Data Coverage	75%	83%	76%	87%	80%	88%	56%	63%

Figure 22: Percent of AUM invested in issuers with a climate target, by type for sovereign bonds[69]



	Port.	Bmk	Port.	Bmk
Data Coverage	100%	100%	100%	80%

[69] This metric considers a sovereign's climate target to be a net-zero target if it has been classified by Net Zero Tracker under one of the following category names: Net zero, Zero emissions, Zero carbon, Climate neutral, Carbon neutral(ity), GHG neutral(ity), Carbon negative, Net negative, 1.5°C target, Science-based target. This metric also takes into consideration the status of sovereign issuers' net-zero targets (as defined by Net Zero Tracker) as Passed into law (Target prescribed in legislation or administrative order; has legal force), In policy document (Target set in policy or planning document, including for countries' Nationally Determined Contributions or Long Term Strategies), or Other (A declaration or pledge, or proposed or in discussion).

Temperature alignment

The Implied Temperature Rise (ITR) is a modelled, forward-looking metric that indicates what the global average temperature increase would be in 2100 if the global economy looked like that issuer or portfolio.[70] This metric takes into consideration both the carbon emissions of issuers, and their expected reduction in emissions due to their published emissions reduction targets. As a result, it may provide an indication of the alignment of an issuer or portfolio to a particular temperature pathway. At a portfolio-level, the ITR may mask the distribution of the underlying issuers' temperature alignment. For this reason, we also assess the percentage of issuers that have a temperature alignment that is in line with the goal of the Paris Agreement to limit global warming to "well below 2°C" by 2100, and with the ambition to achieve 1.5°C, compared to pre-industrial levels.[71] This metric is not available for sovereign bonds.

53% (US$155.5 billion) of RBC GAM equity and corporate bonds in scope of analysis is invested in issuers with a temperature alignment less than 2°C (Paris-aligned). This includes 66% (US$107.6 billion) of equity investments, and 37% (US$47.9 billion) of corporate bonds.[72]

29% (US$84.5 billion) of RBC GAM equity and corporate bonds in scope of analysis is invested in issuers with a temperature alignment less than 1.5°C. This includes 38% (US$61.7 billion) of equity investments, and 18% (US$22.8 billion) iof corporate bonds.[73]

At a regional level, few portfolios or benchmarks currently have an ITR below 2°C. This is largely to be expected as the latest data, according to the most recent IPCC Report, indicates that global average temperature is already 1.1 °C above pre-industrial levels, and that the world is currently on a pathway to reach a temperature rise of 2.8°C by the end of this century.[74] Most equity portfolios have a temperature alignment that is at, or below their respective benchmarks.[75] The only exception is the international equities portfolio, where our exposure within the Energy sector is the primary driver of a slightly higher temperature alignment than the benchmark. For corporate bonds, the marginally higher temperature alignment within the Canadian and emerging market corporate bond portfolios is generally due to overweight positions in the Energy sector relative the benchmark.

[70] Implied Temperature Rise Methodology, (msci.com/documents/1296102/27422075/Implied-Temperature-Rise-Methodology-Summary.pdf) MSCI® ESG Research, September 2021.

[71] The Paris Agreement, (unfccc.int/process-and-meetings/the-paris-agreement#:~:text=Its%20goal%20is%20to%20limit,neutral%20world%20by%20mid%2Dcentury) United Nations Climate Change, 2015

[72] As at December 31, 2023. See Appendix 1 for scope of analysis and benchmarks. Data coverage for ITR is 99% for equity investments, and 56% for corporate bonds.

[73] Ibid.

[74] AR6 Synthesis Report: Climate Change 2023, (ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_FullVolume.pdf) Intergovernmental Panel on Climate Change (IPCC), March 2023. Based on modelled pathways that are consistent with Nationally Determined Contributions (NDCs) announced prior to the United Nations Conference of the Parties (COP26) until 2030 and assuming no increase in ambition thereafter results in a median global warming of 2.8°C by 2100.

[75] See Appendix 1 for scope of analysis and benchmarks.

Temperature alignment[76]

As at December 31, 2023.

Figure 23: Implied Temperature Rise for equity investments

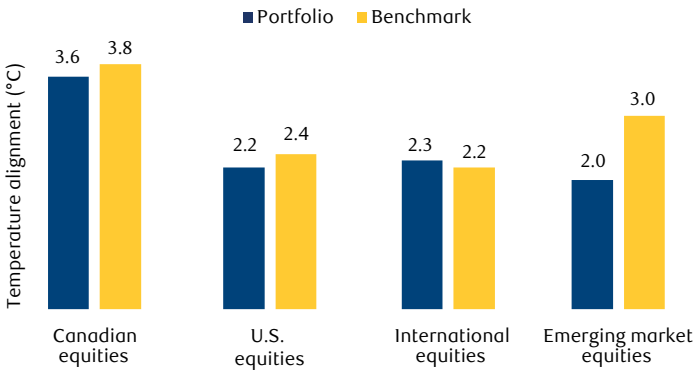


Figure 24: Percent of AUM invested in issuers, by temperature range, for equity investments

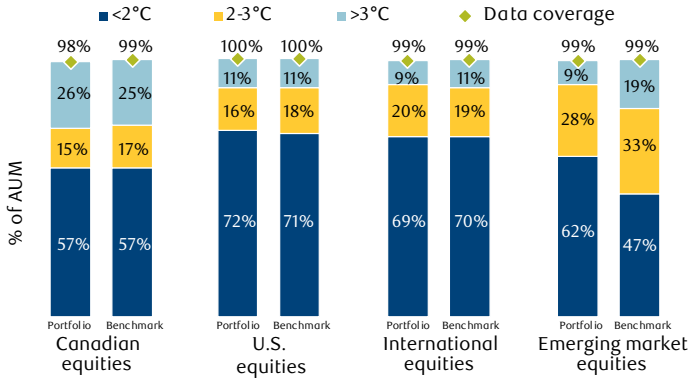


Figure 25: Implied Temperature Rise for corporate bonds

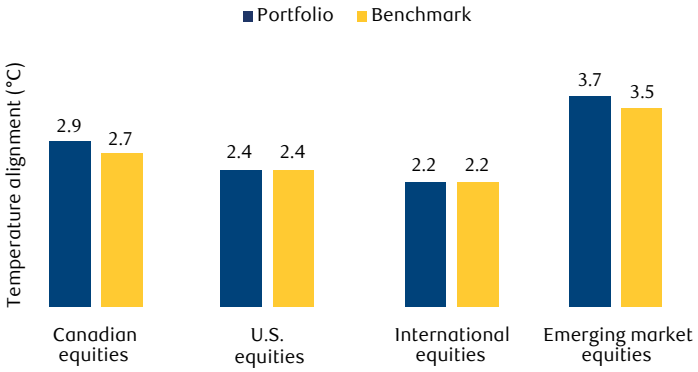
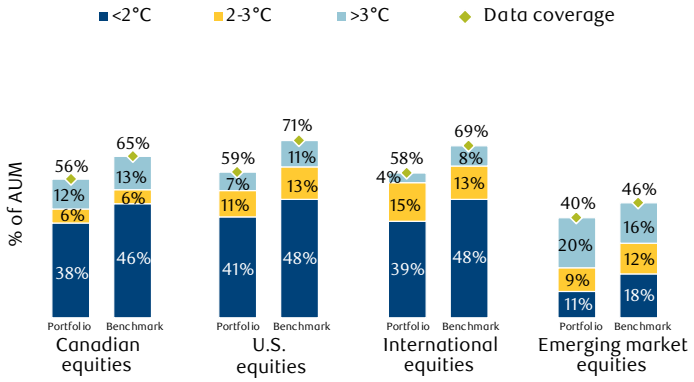


Figure 26: Percent of AUM invested in issuers, by temperature range, for corporate bonds



[76] Values may not add up to totals due to rounding. See Appendix 1 for scope of analysis and benchmarks. See Appendix 2 for climate metrics and methodology. RBC GAM analysis, based on MSCI Climate Change Research, MSCI®.

INVESTMENT IN CLIMATE OPPORTUNITIES

RBC GAM considers the exposure of investments to climate opportunities on a case-by-case basis as part of the investment process, for applicable types of investments. We use several third-party datasets to evaluate climate opportunities, which includes the percentage of green revenue[77] earned by issuers, the identification of issuers that provide climate solutions,[78] and issuer investments in low-carbon patents.

9% (US$25.5 billion) of equities and corporate bonds in scope of analysis is invested in issuers with more than 10% green revenue, and 26% (US$75.1 billion) is invested in issuers with some green revenue (more than 0%).[79]

5% (US$15.7 billion) of equities and corporate bonds in scope of analysis is invested in issuers that provide climate solutions.[80]

Overall, our U.S., emerging market, and international equity portfolios have the highest overall exposure to green revenue (based on weighted average green revenue). For our U.S. equity holdings, this is largely driven by companies within the Technology sector. For the emerging market equity portfolio, this is largely driven by exposure to the Technology and Industrial sectors. For the international equity portfolio, this is largely driven by holdings within the Industrial and Consumer, Cyclical sectors. Across all portfolios, the weighted average green revenue exposure of our equity and corporate bond investments is 2.8%.[81]

[77] Green revenue is based on MSCI® ESG Research definition. MSCI defines green revenue as revenue from alternative energy, energy efficiency, green buildings, pollution prevention, sustainable water, and sustainable agriculture. A description of green revenue categories is available in the MSCI® Climate Change Indexes Methodology, (msci.com/eqb/methodology/meth_docs/MSCI_Climate_Change_Indexes_Methodology_May2021.pdf) May 2021.

[78] Climate solutions categorization is based on the MSCI® Low-Carbon Transition (LCT) Risk Assessment methodology. This methodology measures companies' exposure to, and management of, risks and opportunities related to low-carbon transition using multiple inputs to identify the type of risk or opportunity they are most likely to face in the transition. MSCI® Climate Change Metrics, November 2022.

[79] RBC GAM analysis, based on MSCI ESG Climate Change Metrics, December 31, 2023, MSCI®. See Appendix 1 for scope of analysis and benchmarks.

[80] Ibid.

[81] Ibid.

4.2 Operational emissions

Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas emissions, and the related risks.

The performance, goals, and reporting of operational GHG emissions is established as part of RBC's climate strategy,[82] which is inclusive of RBC GAM. RBC's operational emissions are reported in the RBC Climate Report 2023.[83]

RBC is committed to the goal of achieving net-zero in its operations. To advance this ambition RBC set two goals: to reduce market-based GHG emissions by 70% with a baseline year of 2018,[84] and to increase its sourcing of electricity from renewable and non-emitting sources to 100%,[85] both by 2025. To make progress on its goal, RBC has focused on:

- Increasing electrification and energy efficiency: RBC has emissions reduction plans for both leased and owned buildings in our property portfolio. RBC makes investments in smart building technologies and other energy efficiency measures annually, and we aim to upgrade our heating, ventilation and air conditioning equipment with systems that rely on electricity as these systems need to be replaced and where we have the opportunity to select this equipment. In addition to investments in the real estate the bank owns, RBC has set specifications for the properties where it leases space, such as green building certification schemes programs and energy performance reporting. These measures are intended to help reduce emissions from its energy consumption.
- Procuring renewable electricity: RBC procures renewable electricity through long-term power purchase agreements and other sources of renewable energy certificates (RECs).[86] We believe this approach will help accelerate the decarbonization of electricity grids in select areas where we operate and stimulate the market for renewable energy by providing a financial incentive through RECs.

In 2023, RBC's total market-based emissions decreased by 67% relative to its 2018 baseline and decreased by 20% relative to 2022.[87] These emissions reductions were largely driven by an increase in our sourcing of renewable energy credits and corresponding GHG emissions reductions. In 2023, RBC sourced 100% of its total global electricity consumption from renewable sources. This requires matching non-renewable sources with RECs sourced from within the same region. Over 215,000 MWh of RECs were purchased. See RBC Climate Report 2023 for emissions from RBC's global operations.

[82] See RBC Climate Blueprint and RBC Climate Report 2023.
[83] Please note that the RBC Climate Report 2023 is for fiscal year 2023 (November 1, 2022 to October 31, 2023), whereas the RBC GAM Climate Report 2023 is for calendar year 2023 (January 1, 2023 to December 31, 2023).
[84] Inclusive of RBC's global operations, Scope 1, 2 (market-based) and 3 (business travel) reported GHG emissions, using a baseline of 2018. See RBC Climate Report 2023 for details on market-based emissions.
[85] Renewable electricity is defined as energy produced from renewable sources such as hydroelectricity, wind and solar. Non-emitting sources include nuclear power generation. The performance towards our goal to achieve 100% renewable and non-emitting electricity consumption by 2025 is calculated based on grid mix data and the Renewable Energy Certificates we either purchase from third-parties or receive from our two renewable energy Power Purchase Agreements (PPAs). A PPA is a long-term financial agreement between a renewable energy buyer and a renewable energy seller where the buyer guarantees the seller a fixed price for renewable energy from the project.
[86] A renewable energy certificate (REC) is a market-based instrument that is issued when one megawatt-hour (MWh) of electricity is generated and delivered to the electricity grid from a renewable energy source.
[87] See RBC Climate Report 2023.

4.3 Climate-related targets

Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

Investments

Our Net-Zero Ambition and Our Approach to Climate Change describe RBC GAM's commitments and actions related to climate change. This includes commitments to the following, for applicable types of investments:

Integrate material climate-related factors into our investment processes	Use active stewardship to encourage the management of material climate-related risks and opportunities	Provide climate-based solutions to meet client needs	Publish an annual report guided by the TCFD recommendations
Measure and report carbon emissions for our applicable assets under management	Identify and track whether issuers have credible climate targets	Identify and track issuers' alignment to net-zero pathways	Conduct climate scenario analysis

In 2023, we continued to make progress in meeting these commitments, as demonstrated by the following highlights:[88]

- Investment teams received a quarterly Climate Dashboard with data on carbon emissions, net-zero alignment, transition risks and opportunities, and climate scenario analysis.[89]
- Climate-related analysis was conducted for 81% (US$348.3 billion) of RBC GAM's total AUM, as at December 31, 2023. This represents 88% of equity investments and 93% of fixed income investments, and represents a 9% increase year-over-year.
- 34% (US$116.7 billion) of AUM in scope of analysis is invested in issuers with science-based or net-zero targets. This includes 32% (US$52.7 billion) of equity investments, 19% (US$24.2 billion) of corporate bonds, and 72% (US$39.8 billion) of sovereign bonds.[90]
- 53% (US$155.5 billion) of RBC GAM equity and corporate bonds in scope of analysis is invested in issuers with a temperature alignment less than 2°C (Paris aligned). This includes 66% (US$107.6 billion) of equity investments, and 37% (US$47.9 billion) of corporate bonds.[91]
- Conducted climate scenario analysis that included a range of transition and physical risk scenarios.
- Worked collaboratively with other investors to engage with issuers on climate-related topics, through initiatives such as the UN PRI, Climate Action 100+, and Climate Engagement Canada.
- Published our fourth annual report guided by the recommendations of the TCFD.

RBC GAM recognizes the importance of the global goal of achieving net-zero emissions by 2050 or sooner in order to mitigate climate-related risks. As an asset manager, we have a duty to manage our clients' assets in line with the stated objective of their investment strategy or in line with their investment mandate. RBC GAM may offer specific investment strategies or mandates that include a climate-related target. We do not however, set climate-related targets that apply to assets under management, unless the client has expressly requested a target for their investment strategy, or it is stated in the investment objective of the fund. We believe that the most effective way to address material climate-related risks and opportunities is through the integration of material climate-related factors into investment decisions, through active stewardship, and by providing climate-based solutions to meet client needs.

Operations

RBC has set the following goals related to its operational emissions:

Reduce emissions by 70% by 2025[92]

Increase the sourcing of electricity from renewable and non-emitting sources to 100% by 2025.[93]

[88] See Appendix 1 for scope of analysis and benchmarks.
[89] The number of strategies for which a Climate Dashboard is produced may vary quarter-to-quarter and does not include all investment strategies across RBC GAM.
[90] As at December 31, 2023. See Appendix 1 for scope of analysis and benchmarks. For equity and corporate bonds this is inclusive of SBTI validated targets. For sovereign bonds this is inclusive of net-zero targets passed into law (based on Net Zero Tracker).
[91] As at December 31, 2023. See Appendix 1 for scope of analysis and benchmarks. Data coverage for ITR is 98.9% for equity investments, and 55.7% for corporate bonds.
[92] Inclusive of RBC's global operations, Scope 1, 2 (market-based) and 3 (business travel) reported GHG emissions, using a baseline of 2018. See RBC Climate Report 2023 for details on market-based emissions.
[93] The performance towards its goal to achieve 100% renewable and non-emitting electricity consumption by 2025 is calculated based on grid mix data and the Renewable Energy Certificates we either purchase from third-parties or receive from our two renewable energy Power Purchase Agreements.

Appendix 1: Scope of analysis and benchmarks for climate-related metrics

In this report, climate analysis is conducted for 81% (US$348.3 billion) of RBC GAM's total AUM as at December 31st, 2023. This represents 88% of equity investments, and 93% of fixed income investments.

Assets that are not included in the portfolio analysis are: sub-sovereign government bonds, cash and equivalents, ETFs or third-party mutual fund holdings, mortgages, asset-backed securities, other assets (mainly real estate and money market securities), private placements, and derivatives. These assets are primarily excluded from this analysis due to limitations in data availability, inapplicability of methodologies, and/or minor financial materiality to the overall AUM.

Table 1: Scope of analysis for climate-related metrics, by asset class and geography

RBC GAM Portfolios	AUM		Representative benchmark	Benchmark data coverage
	USD (billion)	% data coverage[94]		
Equities				
Canadian equities	$53.4	99%	S&P/TSX Capped Composite Index	100%
U.S. equities	$63.1	100%	S&P 500 Index	100%
International equities	$26.5	99%	MSCI Europe, Australasia, Far East (EAFE) Index	100%
Emerging market equities	$21.1	99%	MSCI Emerging Markets (EM) Index	100%
Sub-total	**$164.1**	**99%**		
Corporate fixed income				
Canadian corporate bonds	$55.5	63%	FTSE Canada All Corporate Bond Index	71%
U.S. corporate bonds	$32.7	61%	ICE BofA U.S. Corporate Master Index	74%
International corporate bonds	$32.4	65%	Bloomberg Barclays Global Aggregate Corporate Index (BAGACC)	71%
Emerging market corporate bonds	$8.0	46%	JPMorgan Corporate Emerging Markets Bond Index (CEMBI) Diversified	49%
Sub-total	**$128.6**	**62%**		
Sovereign bonds[95]				
Developed market sovereign bonds	$40.8	100%	Bloomberg Global Treasury Total Return	100%
Emerging market sovereign bonds	$14.8	96%	JPMorgan Emerging Market Bond Index Global Diversified (EMBIGD)[96]	74%
Sub-total	$55.6	99%		
Total AUM in scope of analysis for this report	**$348.3**	**86%**		
% of RBC GAM Total AUM	**81%**			
RBC GAM Total AUM	**$432.4**			

[94] Data coverage is based on issuers with either reported or estimated Carbon Emissions - Scope 1+2 Intensity (t/USD million sales), based on MSCI ESG Climate Change Metrics, December 31, 2023, MSCI®.
[95] In this report, countries included in the developed market (DM, or advanced economies) portfolio are based on their 'country of risk' designation which is derived from the International Monetary Fund (IMF) definition classification (which can be found here). All other countries not included in this would fall into the emerging markets (EM) category.
[96] For the purposes of this report, emerging market sovereign bonds are compared to a hard currency emerging market reference benchmark, the JPMorgan Emerging Market Bond Index Global Diversified (EMBIGD). Some of those holdings will nevertheless be local currency instruments held in portfolios benchmarked against the local currency index.

Appendix 2: Climate metrics and methodologies

RBC GAM selects and calculates climate metrics by considering the recommendations and guidance of the U.K. Financial Conduct Authority (FCA) ESG Sourcebook (https://ghgprotocol.org/corporate-standard), the TCFD,[97] PCAF Global GHG Accounting and Reporting Standard – Financed Emissions (https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf), and the Science-based Targets Initiative (SBTi).[98] All climate metrics are point-in-time metrics.

Table 2: Overview of key climate-related metrics

Equity and corporate bonds		
Carbon emissions		
Metric	**Supporting Information**	
Financed emissions (Total carbon emissions)	**Description**	The absolute value of emissions that a portfolio is responsible for. For corporate holdings, emissions are apportioned based on the market value of the portfolio's holding and the associated enterprise value including cash (EVIC) of the company.
	Formula	$\sum_{n}^{i} \frac{\text{Current value of investment}_i}{\text{Enterprise value including cash}_i} \times \text{Issuer emissions}_i$ *i = investment "i"* *n = The number of sovereign bonds in the portfolio.* Note: The same denominator is used for listed equities and corporate bonds to allow for aggregation across portfolios.
	Unit	t CO_2 eq.
	Data source	MSCI® ESG Climate Change Metrics
	Methodology notes	This metric is calculated for the following emission scopes: Scope 1 and 2, and Scope 3. As financed emissions is an absolute emissions metric that is directly linked to the AUM of the portfolio, this metric cannot be easily compared to a benchmark. For this reason, the financed emissions of benchmarks are not provided.
Emissions/ $ millions invested (carbon footprint)	**Description**	Measures the amount of financed emissions generated by a portfolio for every US$1 million invested in the portfolio, expressed as tCO_2 eq./US$ millions.
	Formula	$\frac{\sum_{n}^{i}\left(\frac{\text{Current value of investment}_i}{\text{Enterprise value including cash}_i} \times \text{Issuer emissions}_i\right)}{\text{Current portfolio value (\$M)}}$
	Unit	t CO_2 eq. /US$M invested
	Data source	MSCI® ESG Climate Change Metrics
	Methodology notes	This metric is calculated for the following emission scopes: Scope 1 and 2, and Scope 3.
Weighted average carbon intensity (WACI), by sales	**Description**	Measures carbon intensity of the portfolio based on each issuer's carbon intensity (by sales), and the weight of the issuer in the portfolio.
	Formula	$\sum_{n}^{i}\left(\frac{\text{Current value of investment}_i}{\text{Current portfolio value}} \times \frac{\text{Issuer's emissions}_i}{\text{Issuer's \$M sales}_i}\right)$
	Unit	t CO_2 eq./$USM sales
	Data source	MSCI® ESG Climate Change Metrics
	Methodology notes	This metric is calculated for the following emission scopes: Scope 1 and 2 and Scope 3. This is a weighted average metric that is normalized.

[97] Annex I: Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, TCFD (pg. 52-53). October 2021.
[98] Foundations for science-based net-zero target setting in the financial sector, SBTi (pg. 38-39). April 2022.

Equity and corporate bonds		
Investment in issuers with climate targets		
Investment in issuers with climate targets	**Description**	Measures the percent of investments in issuers that have published carbon emissions reduction targets, by type of target.
	Formula	$\sum \frac{\text{Value of companies with climate target type}}{\text{Current portfolio value}}$
	Unit	Percent of holdings (%)
	Data source	MSCI® ESG Climate Change Metrics and RBC GAM.
	Methodology notes	For this metric, the following types of carbon emission reduction targets are considered: ▪ Validated SBTi target: corporate emission reduction targets that have been independently reviewed and validated by the SBTi as meeting their science-based and/or net-zero standards. ▪ Committed to set a SBTi target: Corporate issuers that have formally committed to submit a science-based and/or net-zero target for review and validation by SBTi within 24 months. ▪ Self-declared net-zero target: Corporate issuers that have publicly announced a net-zero target. ▪ Other target: Corporate issuers that have publicly announced a carbon emissions reduction target.
Temperature alignment		
Implied Temperature Rise (ITR)	**Description**	A modelled, forward-looking metric that indicates what the global average temperature increase would be in 2100, relative to pre-industrial times, if the global economy had the same carbon profile as the issuer or portfolio. The ITR is inclusive of Scope 1, 2 and 3 emissions.
	Formula	2°C base temperature + Relative portfolio-level over/undershoot of carbon budget X Global 2°C carbon budget X Transient Climate Response to Cumulative Carbon Emissions (TRCE) Factor
	Unit	Degrees Celsius (°C)
	Data source	MSCI® ESG Climate Change Metrics and RBC GAM
	Methodology notes	Considers both the current emissions of issuers and their expected reduction in emissions due to published emissions reduction targets. Provides an indication of the alignment of an issuer or portfolio to a particular temperature pathway. ▪ The over/undershoot is calculated in comparison to the issuer's budgeted, fair-share GHG emissions derived from the Global 2°C Carbon Budget, available from IPCC.[99] ▪ The TCRE factor of 0.000545°C warming per Gt CO_2 is used, based on the IPCC Physical Science Basis report (2013).[100] The TCRE provides a relationship that links each additional unit of emissions emitted beyond the available remaining global 2°C carbon budget to degrees of additional warming. This value is used to convert a portfolio's allocated carbon budget over/undershoot into a degree of warming.
Climate scenario analysis		
Aggregated Climate Value at Risk (VaR)	**Description**	The potential change in valuation of a portfolio due to climate factors, expressed as a percentage. Provides a view on how the market value of the portfolio may change under different climate scenarios due to policy risk, technology opportunities, and physical risks and opportunities.
	Formula	Aggregated Climate VaR = Policy risk Climate VaR + Technology opportunity Climate VaR + Physical risk and opportunity Climate VaR
	Unit	Percent (%)
	Data source	MSCI® ESG Climate Change Metrics and RBC GAM
	Methodology notes	We use Climate VaR to determine the potential change in valuation of a security or portfolio due to climate change, which models the future costs and revenue for issuers due to policy risk, technology opportunities, and physical risks and opportunities. Potential costs are discounted to present values and aggregated at the portfolio level, expressed as a percentage. We measure the Climate VaR for across a range of climate scenarios. This is a weighted average metric that is normalized. ▪ **Policy risk Climate VaR**: The potential cost (by issuer) of complying with government climate policies (e.g., carbon pricing) in order to achieve the emissions reductions of each climate scenario. ▪ **Technology opportunity Climate VaR**: The potential revenue (by issuer) derived from low-carbon revenues and low-carbon technologies (based on low-carbon patents), by climate scenario. ▪ **Physical risk and opportunity Climate VaR**: The potential cost or revenue (by issuer) due to chronic and acute natural hazards for issuers, by climate scenario. These manifest in an increase (risk) or decrease (opportunity) in business interruptions or asset damages.

[99] The IPPC Special Report on 1.5 °C provides the remaining global carbon budget for different temperature rises and probabilities (Table 2.2). (ipcc.ch/site/assets/uploads/sites/2/2019/02/SR15_Chapter2_Low_Res.pdf).

[100] As recommended by the 2020 Measuring Portfolio Alignment Report (tcfdhub.org/wp-content/uploads/2020/10/PAT-Report-20201109-Final.pdf) and based on the IPCC 2013 The Physical Science Basis report.(tcfdhub.org/wp-content/uploads/2020/10/PATReport-20201109-Final.pdf).

Sovereign bonds

Carbon emissions

Metric	Supporting Information	
Financed emissions (Total carbon emissions)	**Description**	The absolute value of emissions (in tCO_2 eq.) that a portfolio is responsible for. Emissions are apportioned based on the market value of the portfolio's holding and the Purchasing Power Parity (PPP)-adjusted Gross Domestic Product (GDP) of the sovereign country.
	Formula	$\sum_{n}^{i}\left(\frac{\text{Current value of investment}_i}{\text{PPP-adjusted GDP}_s} \text{ X } \text{Sovereign Production Emissions}_s\right)$ *(with s = sovereign borrower)*
	Unit	t CO_2 eq.
	Data source	MSCI® ESG Climate Change Metrics, International Monetary Fund (IMF) and RBC GAM.
	Methodology notes	This metric is calculated based on sovereign carbon emissions (production based). As financed emissions is an absolute emissions metric that is directly linked to the AUM of the portfolio, this metric cannot be easily compared to a benchmark. For this reason, the financed emissions of benchmarks are not provided.
Emissions/ $ millions invested (carbon footprint)	**Description**	Measures the amount of financed emissions generated by a portfolio's sovereign bond holdings for every $US 1 million invested in the portfolio.
	Formula	$\sum_{n}^{i}\left(\frac{\frac{\text{Current value of investment}_i}{\text{PPP-adjusted GDP}_s} \text{ X } \text{Sovereign Production Emissions}_s}{\text{Current portfolio value (\$M)}}\right)$
	Unit	t CO_2 eq/$M invested
	Data source	MSCI® ESG Climate Change Metrics and International Monetary Fund (IMF).
	Methodology notes	This metric is calculated based on sovereign carbon emissions (production based).
Weighted Average Carbon Intensity (WACI), by PPP-adjusted GDP	**Description**	A sovereign issuer's carbon intensity is the ratio of their carbon emissions relative to the PPP-adjusted GDP of the sovereign country.
	Formula	$\sum_{n}^{i}\left(\frac{\text{Current value of investment}_i}{\text{Current portfolio value}} \text{ X } \frac{\text{Sovereign Production Emissions}_s}{\text{PPP-adjusted GDP}_s}\right)$
	Unit	t CO_2 eq./$USM sales
	Data source	MSCI® ESG Climate Change Metrics
	Methodology notes	This metric is calculated based on sovereign carbon emissions (production based). This is a weighted average metric that is normalized.

Investment in issuers with climate targets

Investment in issuers with climate targets	**Description**	Measures the percent of investments in issuers that have a net-zero target, inclusive of targets that are passed into law, in policy, a declaration or pledge, proposed, or in discussion
	Formula	$\frac{\sum \text{ Value of sovereign holdings with climate target type}}{\text{Current portfolio value}}$
	Unit	Percent of holdings (%)
	Data source	Net Zero Tracker
	Methodology notes	This metric considers a sovereigns' climate target to be a net-zero target if it has been classified by Net Zero Tracker under one of the following category names: Net zero, Zero carbon, Climate neutral, Carbon neutral(ity). This metric also takes into consideration the status of sovereign issuers' net-zero target (as defined by Net Zero Tracker): ▪ **In law**: Target prescribed in legislation or administrative order; has legal force. ▪ **In policy document:** Target set in policy or planning document, including for countries' Nationally Determined Contributions or Long-Term Strategies ▪ **A declaration or pledge**: Target announced but not yet institutionalized in any way (e.g., just press release, verbal announcement, etc.) ▪ **Proposed or in discussion**: The entity's leadership has said it is considering a target or has joined an international initiative (like Climate Neutrality Coalition or Climate Ambition Alliance) pledging to set a net-zero target but has not yet taken steps to operationalize this.

Additional methodology details

Normalizing

We calculate weighted average climate metrics using a normalized approach – that is, we scale up to 100% ("normalize") portfolio weights when the corresponding data coverage is less than 100%. This impacts the following metrics: weighted average carbon intensity (by sales, and PPP-adjusted GDP), and Climate VaR. Our decision to use a normalized weighted average calculation is in line with evolving market and regulatory trends, but may result in an overestimation of values. The implications will be most apparent across portfolios where data coverage is low.

Climate scenarios

Our climate scenario analysis includes the transition scenarios recommended by the Network for Greening the Financial System (NGFS), representing a range of plausible future pathways consistent with achieving specific temperature targets (1.5°C, 2°C, and 3°C). The NGFS scenarios (September 2022) provide alternative views on long-term temperature targets, net-zero emissions targets, energy supply and demand, climate policy, and technology availability. The scenarios also vary in terms of whether the transition occurs in an orderly or disorderly manner. In our analysis we use the NGFS scenarios modelled by the REMIND-MAgPIE integrated assessment model (IAM), and all NGFS scenarios are currently based on the Shared Socio-economic Pathways (SSP), SSP2 ("Middle of the Road") socio-economic assumptions. We do not use the Current Policies scenario in our analysis. This scenario assumes all government policies (as of March 2022) are implemented, and as such the costs of those policies are assumed to be already priced into markets. See NGFS Scenarios portal (ngfs.net/ngfs-scenarios-portal/) for description of scenarios and key variables.

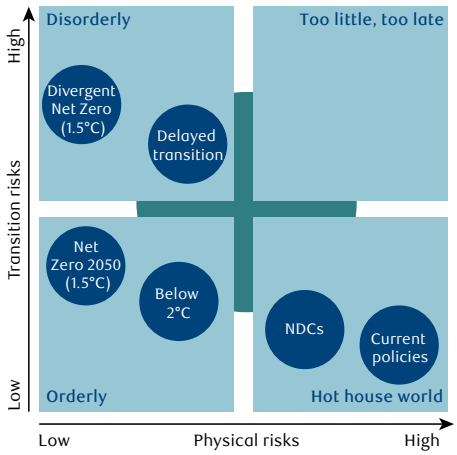
We also provide climate scenario analysis using several physical risk scenarios, which are aligned with NGFS and modeled by MSCI® ESG Research. See Section 2.3 for a description of transition and physical risk scenarios, and how these are applied when calculating the Aggregated Climate VaR values. For each of the physical risk scenarios, the aggressive (95th percentile) scenario is used and these assess chronic and acute risks including extreme heat, extreme cold, extreme wind, extreme precipitation, and extreme snowfall, tropical cyclones, coastal flooding, fluvial flooding, river low flow, and wildfire.

We do not include climate scenario analysis for sovereign bond investments in this report due to limitations in data and methodologies. We expect that approaches for conducting climate scenario analysis for sovereign bonds will develop over time, as third-party data providers and industry standard setting bodies continue to advance their work in this area.

Sovereign carbon emissions

A country's emissions depend on several factors, including its size, population, level of development, and the industries that make up its economy. In this report we seek to align with the approach recommended by PCAF (December 2022) for calculation of financed emissions for sovereign bonds. Due to data limitations and based on the PCAF recommendations, we use production-based emissions values. A production-based approach for calculating emissions considers all emissions generated within the country's territory, regardless of the destination of the goods or services (e.g., if they are exported or consumed domestically). For intensity-based calculations, production emissions are often normalized by PPP-GDP[101] as this denominator reflects the intention of the approach to measure the carbon-intensity of an economy's output. The primary limitation of this approach is that it fails to account for carbon leakage, which may occur if businesses elect to transfer production processes to countries with less stringent carbon emission constraints.[102]

Sovereign carbon emissions-related data is sourced from MSCI® ESG Research. This data is based on reported emissions by countries, calculated as per the methodology developed by the United Nations Framework Convention on Climate Change (UNFCCC) for Nationally Determined Contributions (NDCs). As such, these are considered production-based (or territorial) emissions.[103] Sovereign financial data for the calculation of financed emissions and intensity-based metrics are from the World Economic Outlook (imf.org/en/Publications/WEO/weo-database/2023/April/download-entire-database) (April 2023), published by the International Monetary Fund (IMF). Due to limited data availability and the lack of GHG emissions inventory standards, sub-sovereign and municipal counterparties are not included in the scope of analysis, nor are supranational sovereign bonds.



[101] PPP-GDP: Gross domestic product (GDP) in purchasing power standards measures the value of goods and services produced within a country. It is calculated by dividing a countries GDP by the corresponding purchasing power parity (PPP), which is an exchange rate that removes price level differences between countries.

[102] Carbon leakage, European Commission. Climate Action.(climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/free-allocation/carbon-leakage_en#:~:text=Carbon%20leakage%20refers%20to%20the,increase%20in%20their%20total%20emissions).

[103] See Partnership for Carbon Accounting Financials (PCAF) Global GHG Standard for description of production- and consumption-based emissions. December 2022.

Appendix 3: Climate data tables

Please see Appendix 1 for scope of analysis and benchmarks for the climate metrics provided in the data tables below.

Equities

Key climate-related metric	Unit	Total	Canadian equities		U.S. equities		International equities		Emerging market equities	
AUM in scope of analysis (US$ billions)			Portfolio	Benchmark	Portfolio	Benchmark	Portfolio	Benchmark	Portfolio	Benchmark
			$53.40	–	$63.10	–	$26.50	–	$21.10	–
Carbon emissions (Scope 1 and 2)	Data coverage %	**99%**	99%	100%	100%	100%	99%	100%	99%	100%
Reported (Scope 1 and 2)	Percent of AUM (%)	**87%**	83%	84%	85%	88%	92%	93%	93%	83%
Estimated (Scope 1 and 2)	Percent of AUM (%)	**13%**	15%	16%	15%	11%	7%	7%	6%	17%
Financed emissions (Total carbon emissions)	Mt CO_2 eq.	**8.2**	4.3	-	1.8	-	1.4	-	0.7	-
Emissions/$M invested (Carbon footprint)	t CO_2 eq. /$M invested	**49.8**	80.2	83.6	28.1	28.4	51.7	62.9	35.1	151.3
WACI (by sales)	t CO_2 eq./$M sales	**142.9**	256.0	261.5	90.1	104.7	90.6	97.5	82.4	326.6
Carbon emissions (Scope 3)	Data coverage %	**99%**	99%	99%	100%	100%	99%	100%	99%	99%
Financed emissions (Total carbon emissions)	Mt CO_2 eq.	**54.7**	25.8	-	12.6	-	12.4	-	4.0	-
Emissions/$M invested (Carbon footprint)	t CO_2 eq. /$M invested	**333.5**	483.0	514.1	200.2	194.8	466.3	497.1	187.1	532.2
WACI (by sales)	t CO_2 eq./$M sales	**752.0**	1110.4	1148.9	509.6	580.4	833.3	884.2	476.5	937.9
Investment in issuers with climate targets	Data coverage %	**99%**	98%	100%	100%	100%	99%	100%	98%	100%
Issuers with validated science-based target (as per SBTi)	Percent of AUM (%)	**32%**	17%	16%	39%	43%	57%	53%	16%	16%
Issuers committed to set science-based target (as per SBTi)	Percent of AUM (%)	**11%**	7%	6%	15%	16%	9%	11%	9%	10%
Issuers with self-declared net-zero target	Percent of AUM (%)	**18%**	28%	27%	14%	14%	15%	20%	13%	15%
Issuers with any other climate target	Percent of AUM (%)	**27%**	37%	35%	20%	22%	13%	12%	42%	30%
Temperature alignment	Data coverage %	**99%**	98%	99%	100%	100%	99%	99%	99%	99%
Temperature alignment	Degrees Celsius (°C)	**2.7**	3.6	3.8	2.2	2.4	2.3	2.2	2.0	3.0
Less than 2°C	Percent of AUM (%)	**66%**	57%	57%	72%	71%	69%	70%	62%	47%
Between 2 and 3°C	Percent of AUM (%)	**18%**	15%	17%	16%	18%	20%	19%	28%	33%
More than 3°C	Percent of AUM (%)	**15%**	26%	25%	11%	11%	9%	11%	9%	19%
Climate scenario analysis	Data coverage %	**99%**	99%	100%	100%	100%	99%	100%	99%	99%
1.5°C (orderly) - Net zero by 2050	Climate VaR (%)	**-10%**	-16%	-17%	-6%	-7%	-12%	-13%	-8%	-17%
1.5°C (disorderly) - Divergent net zero	Climate VaR (%)	**-14%**	-21%	-22%	-9%	-10%	-15%	-15%	-10%	-22%
2°C (orderly) - Below 2°C	Climate VaR (%)	**-5%**	-6%	-6%	-3%	-3%	-6%	-7%	-6%	-12%
2°C (disorderly) - Delayed transition	Climate VaR (%)	**-9%**	-14%	-14%	-5%	-6%	-10%	-11%	-7%	-15%
3°C - National Determined Contributions	Climate VaR (%)	**-5%**	-7%	-7%	-3%	-4%	-6%	-7%	-8%	-12%

Corporate bonds

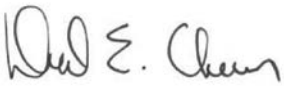
Key climate-related metric	Unit	Total	Canadian corporate bonds		U.S. corporate bonds		International corporate bonds		Emerging market corporate bonds	
AUM in scope of analysis (US$ billions)			Portfolio	Benchmark	Portfolio	Benchmark	Portfolio	Benchmark	Portfolio	Benchmark
			$55.5	–	$32.7	–	$32.4	–	$8.0	–
Carbon emissions (Scope 1 and 2)	Data coverage %	**62%**	63%	71%	61%	74%	65%	71%	46%	49%
Reported (Scope 1 and 2)	Percent of AUM (%)	**50%**	51%	55%	47%	59%	56%	59%	35%	38%
Estimated (Scope 1 and 2)	Percent of AUM (%)	**12%**	13%	16%	15%	15%	10%	13%	11%	11%
Financed emissions (Total carbon emissions)	Mt CO_2 eq.	**3.1**	1.1	-	1.0	-	0.6	-	0.4	-
Emissions/$M invested (Carbon footprint)	t CO_2 eq. /$M invested	**24.3**	19.7	23.2	31.6	31.6	17.7	30.1	52.8	105.8
WACI (by sales)	t CO_2 eq./$M sales	**251.7**	329.7	281.8	232.7	298.4	75.4	210.9	625.0	590.4
Carbon emissions (Scope 3)	Data coverage %	**61%**	61%	69%	61%	74%	65%	71%	45%	49%
Financed emissions (Total carbon emissions)	Mt CO_2 eq.	**17.3**	6.3	-	5.4	-	4.2	-	1.4	-
Emissions/$M invested (Carbon footprint)	t CO_2 eq. /$M invested	**134.2**	113.6	131.2	164.3	176.2	129.3	171.5	174.2	268.3
WACI (by sales)	t CO_2 eq./$M sales	**716.0**	688.3	637.0	605.8	679.7	670.4	628.1	1842.6	1141.2
Investment in issuers with climate targets	Data coverage %	**75%**	75%	83%	76%	87%	80%	88%	56%	63%
Issuers with validated science-based target (as per SBTi)	Percent of AUM (%)	**19%**	10%	15%	24%	27%	31%	32%	10%	13%
Issuers committed to set science-based target (as per SBTi)	Percent of AUM (%)	**8%**	5%	6%	7%	9%	15%	10%	4%	6%
Issuers with self-declared net-zero target	Percent of AUM (%)	**22%**	27%	29%	19%	27%	22%	25%	8%	14%
Issuers with any other climate target	Percent of AUM (%)	**18%**	25%	24%	16%	18%	9%	17%	19%	16%
Temperature alignment	Data coverage %	**56%**	56%	65%	59%	71%	58%	69%	40%	46%
Temperature alignment	Degrees Celsius (°C)	**2.6**	2.9	2.7	2.4	2.4	2.2	2.2	3.7	3.5
Less than 2°C	Percent of AUM (%)	**37%**	38%	46%	41%	48%	39%	48%	11%	18%
Between 2 and 3°C	Percent of AUM (%)	**10%**	6%	6%	11%	13%	15%	13%	9%	12%
More than 3°C	Percent of AUM (%)	**9%**	12%	13%	7%	11%	4%	8%	20%	16%
Climate scenario analysis (Aggregated Climate VaR)	Data coverage %	**45%**	41%	53%	54%	64%	50%	62%	25%	42%
1.5°C (orderly) - Net zero by 2050	Climate VaR (%)	**-9%**	-9%	-9%	-8%	-9%	-7%	-9%	-30%	-28%
1.5°C (disorderly) - Divergent net zero	Climate VaR (%)	**-12%**	-13%	-12%	-13%	-13%	-8%	-12%	-36%	-34%
2°C (orderly) - Below 2°C	Climate VaR (%)	**-5%**	-4%	-4%	-4%	-5%	-4%	-4%	-18%	-18%
2°C (disorderly) - Delayed transition	Climate VaR (%)	**-8%**	-8%	-7%	-7%	-8%	-7%	-8%	-24%	-22%
3°C - National Determined Contributions	Climate VaR (%)	**-5%**	-5%	-4%	-5%	-5%	-4%	-5%	-18%	-17%

Sovereign bonds

Key climate-related metric	Unit	Total	Developed market		Emerging market	
	AUM in scope of analysis (US$ billions)		Portfolio	Benchmark	Portfolio	Benchmark
			$40.8	–	$14.8	–
Carbon emissions	Data coverage %	**99%**	100%	100%	96%	74%
Financed emissions (Total carbon emissions)	Mt CO_2 eq.	**13.7**	9.7		4.0	
Emissions/$M invested (carbon footprint)	t CO_2 eq. /$M invested	**246.5**	237.2	219.3	272.2	295.1
WACI (by PPP-adjusted GDP)	t CO_2 eq./$M sales	**248.9**	237.2	219.6	282.2	318.7
Investment in issuers with climate targets	Data coverage %	**100%**	100%	100%	100%	80%
Issuers with net-zero target (any)	Percent of AUM (%)	**96%**	100%	98%	86%	61%
Issuers with net-zero target, in law	Percent of AUM (%)	**72%**	93%	79%	14%	10%
Issuers with net-zero target, in policy document	Percent of AUM (%)	**16%**	6%	17%	41%	32%
Issuers with net-zero target, declaration or pledge	Percent of AUM (%)	**2%**	0%	0%	9%	7%
Issuers with net-zero target, proposed or in discussion	Percent of AUM (%)	**6%**	1%	2%	22%	13%
Issuers with other climate targets	Percent of AUM (%)	**4%**	0%	0%	9%	7%

Appendix 4: Statement confirming disclosure complies with the ESG Sourcebook

I, Daniel E. Chornous, Global Chief Investment Officer, hereby confirm on behalf of RBC Global Asset Management (U.K.) Limited that the disclosures in this RBC GAM Climate Report 2023 comply with the requirements under Chapter 2 of the FCA Environmental, Social and Governance sourcebook.



Daniel E. Chornous, CFA
Chief Investment Officer, RBC Global Asset Management

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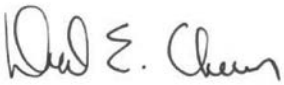

Daniel E. Chornous, CFA
Chief Investment Officer, RBC Global Asset Management

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